FINAL

ENVIRONMENTAL ASSESSMENT
OF
INSTALLATION DEVELOPMENT
AT
MCCONNELL AIR FORCE BASE, KANSAS

DECEMBER 2012

Report Documentation Page

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14. ABSTRACT

McConnell AFB uses numerous 22d Air Refueling Wing (22 ARW)- approved plans to project installation development requirements. These plans propose demolition, construction, infrastructure improvement, natural infrastructure management, and strategic sustainability performance projects intended to ensure that the installation can sustain its current and future national security operations and mission-readiness status. These projects include installation development projects contained in the McConnell AFB Installation Development Plan, the Core Area Development Plan, the Krueger Recreation Area Development Plan, the Kansas Air National Guard Master Plan, and the community of all other existing Wing-approved development plans. McConnell AFB seeks to improve its understanding of the potential environmental consequences associated with the continuing installation development process by evaluating in a single EA selected projects from the projects proposed in the McConnell AFB Wing-approved community of plans for installation development, called the Installation Development Environmental Assessment (IDEA). The Proposed Action is to implement a range of selected projects, such as demolition of aging facilities, new facility construction, facility upgrades facility repair and renovation, utilities upgrades, community living upgrades, infrastructure improvement recreational upgrades, natural infrastructure management, and strategic sustainability performance projects that would be among those proposed to be completed or implemented during the next 5 years (from Fiscal Year [FY] 2012 to FY 2017). The IDEA uses the fenceline-to-fenceline approach, capturing and addressing in some form identified projects within the installation boundary that have been proposed by host and tenant agencies in accordance with Interservice Support Agreements. The intent of this IDEA is to address the Proposed Action of implementing installation development actions for continuing development on McConnell AFB to ensure that future mission and facility requirements are met. The scope of the IDEA includes a detailed analysis of the selected projects, an evaluation of alternatives applicable to the projects and the various categories of projects, and an analysis of the cumulative effects on the natural and man-made environment of all other identified projects from the installation development and resource management plans. Through this IDEA, McConnell AFB provides a constraints-based environmental impact analysis of installation development actions for selected projects from those projected over the next 5 years and thus helps to identify environmental concerns that could exist throughout the installation and those unique to specific areas of the installation. The analysis draws from the knowledge gained from extensive recent evaluations for similar types of projects to determine the direct, indirect, and

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)

AND

FINDING OF NO PRACTICABLE ALTERNATIVE (FONPA)

Environmental Assessment of Installation Development at McConnell Air Force Base (AFB), Kansas

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Federal actions that potentially involve significant impacts to the environment must be reviewed in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. The U.S. Air Force (USAF) has completed an Environmental Assessment of Installation Development (IDEA) to address the potential environmental consequences associated with implementing selected installation development projects at McConnell AFB, Kansas, as found in the McConnell AFB Wing-approved community of plans for installation development and resource management. The selected installation development projects were grouped into five categories: demolition, construction, infrastructure improvement, natural infrastructure management, and strategic sustainability performance projects because of common elements of their activities and the nature of their expected potential environmental impacts. The selected installation development projects include the following:

Demolition Projects

- D1. Demolish Buildings 181 to 184 (Senior Officers Quarters)
- D2. Demolish Buildings 750 (Wing Headquarters) and 795 (Base Personnel Office)
- D3. Demolish Building 1090 (Central Warehouse)
- D4. Demolish Building 430 (Education Center)

Construction Projects

- C1. Maintenance Group Consolidation
- C2. Construct New Air Traffic Control Tower
- C3. Kansas Air National Guard Munitions Storage Area Renovation
- C4. Construct Veterans Administration Hospital
- C5. Construct New Military Working Dog Facility
- C6. Construct Base Civil Engineering and Contracting Complex

Infrastructure Improvement Projects

- I1. Taxiway Repairs
- I2. Conversion of Underground Storage Tanks to Aboveground Storage Tank
- I3. Construct Building 1 to Building 250 Sidewalk
- I4. East Runway Repairs

Natural Infrastructure Management Projects

- NI1. McConnell Creek Stream Restoration

Strategic Sustainability Performance Projects

- S1. Solar Plant

The Proposed Action of implementing these 16 selected projects, reasonable alternatives for the selected projects, and the No Action Alternative have been reviewed in accordance with NEPA as implemented by

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the regulations of the Council on Environmental Quality (CEQ) and USAF regulations in 32 Code of Federal Regulations (CFR) 989, *Environmental Impact Analysis Process*. The analyses focus on the following environmental resources: noise, land use, air quality, geological resources, water resources, biological resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, hazardous materials and waste, and safety. Details of the potential environmental consequences can be found in the attached IDEA.

Finding of No Practicable Alternative. Executive Order (EO) 11990, *Protection of Wetlands*, (24 May 1977) directs agencies to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Federal agencies are 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 associated with development in the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands. In accordance with EO 11990 and 32 CFR Part 989, a Finding of No Practicable Alternative (FONPA) must accompany the Finding of No Significant Impact (FONSI) stating why there are no practicable alternatives to development within or affecting wetland areas.

Wetland impacts are reduced to the maximum extent possible through project design and implementation of environmental protection measures. However, as noted in the attached IDEA, Project NI1 has the potential for minor, direct, adverse impacts on wetlands. Effects on wetlands will not be significant, but there will be minor effects that will be minimized with proper implementation of environmental protection measures. These environmental protection measures include, but are not limited to, flagging the wetland boundary, installing silt fencing, establishing a wetland buffer, and following policies and procedures as detailed in erosion and sediment control plans; Storm Water Pollution Prevention Plans; and Spill Prevention, Control, and Countermeasures Plans. Any necessary agency coordination and required permits will be acquired prior to commencing any ground-breaking activities associated with construction. As noted in the attached IDEA, there are no practicable alternatives to this project because the objectives sought by this project preclude the selection of any practicable alternatives.

EO 11988, *Floodplain Management* (May 24, 1977), requires Federal agencies to avoid to the maximum extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. If it is found that there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted flood proofing and flood protection to include elevating structures above the base flood level rather than filling in land.

The Proposed Action will place portions of Projects D4, C1, C3, C4, I3, and NI1 in the 100-year floodplain. As noted in Section 2.2 of the attached IDEA, practicable alternatives are not available for Projects D4, C3 or NI1 because the projects are constrained to their current locations. No alternatives to Project C4 are available due to AT/FP setback requirements, ease of patient access issues with alternative sites, and other environmental constraints. No alternatives to Project I3 are available that would meet the purpose of and need for constructing a sidewalk between Building 1 and Building 250. Both analyzed alternatives for Project C1 would involve renovating Building 1220, which is located within the 100-year floodplain; however, other alternatives would not meet the purpose of and need for consolidating the Maintenance Group.

Project D4 will involve demolishing an existing building within the 100-year floodplain. Short-term impacts are anticipated during demolition activities; however, long-term, beneficial impacts are expected from the removal of the building from the floodplain and the restoration of the site to natural conditions. Projects C3, C4, and I3 will involve construction of physical structures within the 100-year floodplain; however, all impacts will be minimized through proper implementation of environmental protection measures, including elevating structures to the base flood level, placing sensitive equipment on upper levels of facilities, constructing sidewalks, roads and parking lots with pervious materials, and creating new storm water retention areas for projects that create net impervious surface areas, to the maximum practicable extent. Long-term adverse impacts are expected to be minor. Project NI1 involves restoration of McConnell Creek. In the short-term, minor impacts are expected from restoration activities; however, long-term, beneficial impacts are expected from restoring the creek to natural conditions. Project C1 involves renovation activities at Building 1220. These activities, while occurring within the 100-year floodplain, will not result in an increase in impervious surfaces or change the footprint of the existing structure; therefore, no impacts to the floodplain are anticipated.

Pursuant to EO 11988, *Floodplain Management*; EO 11990, *Protection of Wetlands*; and the authority delegated by Secretary of the Air Force Order 791.1, *Environment*; and taking the above information into account, I find that there are no practicable alternatives to Projects D4, C1, C3, C4, I3, and NI1 and that these projects include all practicable measures to minimize harm to the environment.

Finding of No Significant Impact. Based on the information and analysis presented in the IDEA conducted in accordance with the requirements of the NEPA, the CEQ regulations implementing NEPA, USAF implementing regulations as set forth in 32 CFR 989 (EIAP), as amended, and after a review of the agency comments submitted during the 45-day public comment period, I conclude that implementation of the Proposed Action will not result in significant impacts on the quality of the human or natural environment. For these reasons, a FONSI is approved and preparation of an Environmental Impact Statement is not warranted. This decision has been made after taking into account all submitted information, and considering a full range of practicable alternatives that will meet project requirements and are within the legal authority of the USAF.

Tim Green

TIMOTHY S. GREEN
Brigadier General, USAF
Director of Installation and Mission Support

8 Jan 13

Date

Attachment: *Environmental Assessment of Installation Development at McConnell Air Force Base, Kansas*

ACRONYMS AND ABBREVIATIONS

22 CES/CEAN	22d Civil Engineer Squadron/Environmental Element
22 ARW	22d Air Refueling Wing
184 IW	184th Intelligence Wing
931 ARG	931st Air Refueling Group
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ADP	Area Development Plan
AFB	Air Force Base
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire, Protection, and Health
AFPD	Air Force Policy Directive
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
amsl	above mean sea level
AQCR	Air Quality Control Region
APE	Area of Potential Effect
APZ	accident potential zone
AST	aboveground storage tank
AT/FP	Anti-Terrorism/Force Protection
BASH	Bird/Wildlife Aircraft Strike Hazard
BCE	Base Civil Engineer
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CWA	Clean Water Act
CZ	clear zone
dBA	A-weighted decibels
DNL	day-night average sound level
DOD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EMS	Environmental Management System
EO	Executive Order
EPF	Environmental Planning Function
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESCP	Erosion-and-Sediment-Control Plan
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FR	Federal Register
ft^2	square feet
FTE	Full-Time Equivalent
FUB	Facilities Utilization Board
FY	fiscal year
GHG	greenhouse gas
GPD	gallons per day
GSHP	Ground Source Heat Pump
HAP	Hazardous Air Pollutant
HMMP	Hazardous Materials Management Program
HQ	Headquarters
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
ICRMP	Integrated Cultural Resources Management Plan
IDEA	Installation Development Environmental Assessment
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning

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IDP	Installation Development Plan
INRMP	Integrated Natural Resources Management Plan
LBP	lead-based paint
JLUS	Joint Land Use Study
KANG	Kansas Air National Guard
KBS	Kansas Biological Survey
KDHE	Kansas Department of Health and Environment
KSNHI	Kansas Natural Heritage Inventory
KRA	Krueger Recreation Area
kV	kilovolt
µg/m^3	micrograms per cubic meter
MBTA	Migratory Bird Treaty Act
MEC	munitions and explosives of concern
MFH	Military Family Housing
mg/m^3	milligrams per cubic meter
MILCON	Military Construction
MMRP	Military Munitions Response Program
MRA	Munitions Response Area
MSA	Munitions Storage Area
MSM	munitions storage magazine
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NANSR	Nonattainment New Source Review
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	nitrogen oxides
NO_2	nitrogen dioxide
NOA	Notice of Availability
NPDES	National Pollutant Discharge Elimination System
NSR	New Source Review
NRHP	National Register of Historic Places
O_3	ozone
OSHA	Occupational Safety and Health Administration
Pb	lead
PCB	polychlorinated biphenyl
pCi/L	picocuries per liter
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
QD	quantity-distance
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SCKI	South Central Kansas Intrastate
SHPO	State Historic Preservation Office
SINC	Species in Need of Conservation
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control and Countermeasure Plan
SSPP	Strategic Sustainability Performance Plan
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
TCP	Traditional Cultural Property
tpy	tons per year
UFC	Unified Facilities Criteria
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	Volatile Organic Compound
VA	Veterans Administration

COVER SHEET

FINAL
ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT
AT
MCCONNELL AIR FORCE BASE, KANSAS

Responsible Agencies: U.S. Air Force (USAF), Headquarters (HQ) Air Mobility Command (AMC), Scott Air Force Base (AFB), Illinois; and McConnell AFB, Kansas.

Affected Location: McConnell AFB, Kansas.

Proposed Action: Implementation of Selected Installation Development Projects

Report Designation: Final Environmental Assessment (EA)

Abstract: McConnell AFB uses numerous 22d Air Refueling Wing (22 ARW)- approved plans to project installation development requirements. These plans propose demolition, construction, infrastructure improvement, natural infrastructure management, and strategic sustainability performance projects intended to ensure that the installation can sustain its current and future national security operations and mission-readiness status. These projects include installation development projects contained in the McConnell AFB Installation Development Plan, the Core Area Development Plan, the Krueger Recreation Area Development Plan, the Kansas Air National Guard Master Plan, and the community of all other existing Wing-approved development plans. McConnell AFB seeks to improve its understanding of the potential environmental consequences associated with the continuing installation development process by evaluating in a single EA selected projects from the projects proposed in the McConnell AFB Wing-approved community of plans for installation development, called the Installation Development Environmental Assessment (IDEA). The Proposed Action is to implement a range of selected projects, such as demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community living upgrades, infrastructure improvement, recreational upgrades, natural infrastructure management, and strategic sustainability performance projects that would be among those proposed to be completed or implemented during the next 5 years (from Fiscal Year [FY] 2012 to FY 2017). The IDEA uses the fenceline-to-fenceline approach, capturing and addressing in some form identified projects within the installation boundary that have been proposed by host and tenant agencies in accordance with Interservice Support Agreements. The intent of this IDEA is to address the Proposed Action of implementing installation development actions for continuing development on McConnell AFB to ensure that future mission and facility requirements are met. The scope of the IDEA includes a detailed analysis of the selected projects, an evaluation of alternatives applicable to the projects and the various categories of projects, and an analysis of the cumulative effects on the natural and man-made environment of all other identified projects from the installation development and resource management plans.

Through this IDEA, McConnell AFB provides a constraints-based environmental impact analysis of installation development actions for selected projects from those projected over the next 5 years and thus helps to identify environmental concerns that could exist throughout the installation and those unique to specific areas of the installation. The analysis draws from the knowledge gained from extensive recent evaluations for similar types of projects to determine the direct, indirect, and cumulative effects of projects that would be completed as part of the installation's development.

The IDEA has been prepared to evaluate the Proposed Action and alternatives, including the No Action Alternative. Resources considered in the impact analysis include noise, land use, air quality, geological resources, water resources, biological resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, and hazardous materials and waste, and safety.

Inquiries regarding this document should be directed to 22 ARW Public Affairs Office, 57837 Coffeyville Street, Suite 271, McConnell AFB, Kansas, 67221. Telephone calls can be directed to (316) 759-3141.

FINAL

ENVIRONMENTAL ASSESSMENT
OF
INSTALLATION DEVELOPMENT
AT
MCCONNELL AIR FORCE BASE, KANSAS

HEADQUARTERS AIR MOBILITY COMMAND
INTEGRATED PLANNING BRANCH
507 SYMINGTON DRIVE
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DECEMBER 2012

FINAL ENVIRONMENTAL ASSESSMENT OF INSTALLATION DEVELOPMENT AT MCCONNELL AIR FORCE BASE, KANSAS

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1. Purpose, Need, and Scope

McConnell Air Force Base (AFB) seeks to improve its understanding of the potential environmental consequences associated with the continuing installation development process by evaluating in a single Environmental Assessment (EA) selected projects from those projects proposed in the McConnell AFB Wing-Refueling community of plans for installation development and resource management. The 22d Air Refueling Wing (22 ARW) at McConnell AFB, Kansas, and Headquarters (HQ) Air Mobility Command (AMC) believe a comprehensive U.S. Air Force (USAF) Environmental Impact Analysis Process (EIAP) document would improve the continuing activity of installation development and facilitate compliance with the National Environmental Policy Act (NEPA) documentation process and requirements. As a result, the 22 ARW and HQ AMC have initiated an evaluation in this EA of selected projects from the programmed and reasonably foreseeable projects identified for the next 5 fiscal years (FYs), FY 2012 to FY 2017.

This document constitutes an Installation Development EA (IDEA). The intent of the IDEA is to address the Proposed Action of implementing selected installation development actions as found in the community of all current 22 ARW-approved plans on McConnell AFB. The projects identified in the various sections of this IDEA are a compilation of installation development activities as described in the McConnell AFB Installation Development Plan (IDP) (MAFB 2011a), the McConnell AFB General Plan (MAFB 2005a), the Core Area Development Plan (AFCEE 2010), the Krueger Recreation Area Development Plan (MAFB 2010a), and the Kansas Air National Guard Master Plan (KANG 2010). These plans provide for future development of the installation to accommodate future mission and facility requirements, include projects for transportation improvements and airfield and utility infrastructure enhancements, address natural and cultural resources management, and consider development constraints and opportunities and land use relationships. Since the establishment of McConnell AFB, as with all other USAF installations, development of the installation has occurred continuously.

The community of installation development plans is linked to individual funding programs, such as Base Realignment and Closure; Military Construction (MILCON), Operations, and Maintenance; Military Family Housing (MFH); Sustainment, Restoration, and Modernization; Anti-Terrorism/Force Protection (AT/FP); Nonappropriated Funds; and others. The McConnell AFB community of plans was examined to provide a consolidated list of projects that are planned and programmed over the next 5 FYs for the continued physical development of the installation to support air mobility missions and other readiness training and operational assignments. In addition to evaluating in detail the selected projects, the IDEA serves as a baseline for future environmental analysis of mission and training requirements and future projects. Alternatives applicable to the projects and the various categories of projects are provided. An analysis of the potential cumulative effects associated with all the other projects from the installation development plans is also included in this IDEA in the cumulative impacts section.

This section of the IDEA includes background information on the location and mission of McConnell AFB, a statement of the purpose of and the need for the Proposed Action, an overview of the scope of the analysis, and a summary of key environmental compliance requirements.

1.1 Location and Mission

McConnell AFB is in Sedgwick County, Kansas, approximately 6 miles southeast of the City of Wichita (see **Figure 1-1**). This 2,651-acre military installation is under the command and control of AMC. McConnell AFB is headquarters to the 22 ARW and is one of only three supertanker KC-135 Stratotanker wings in the Air Force. In addition to the 22 ARW, McConnell AFB is home to the Kansas Air National

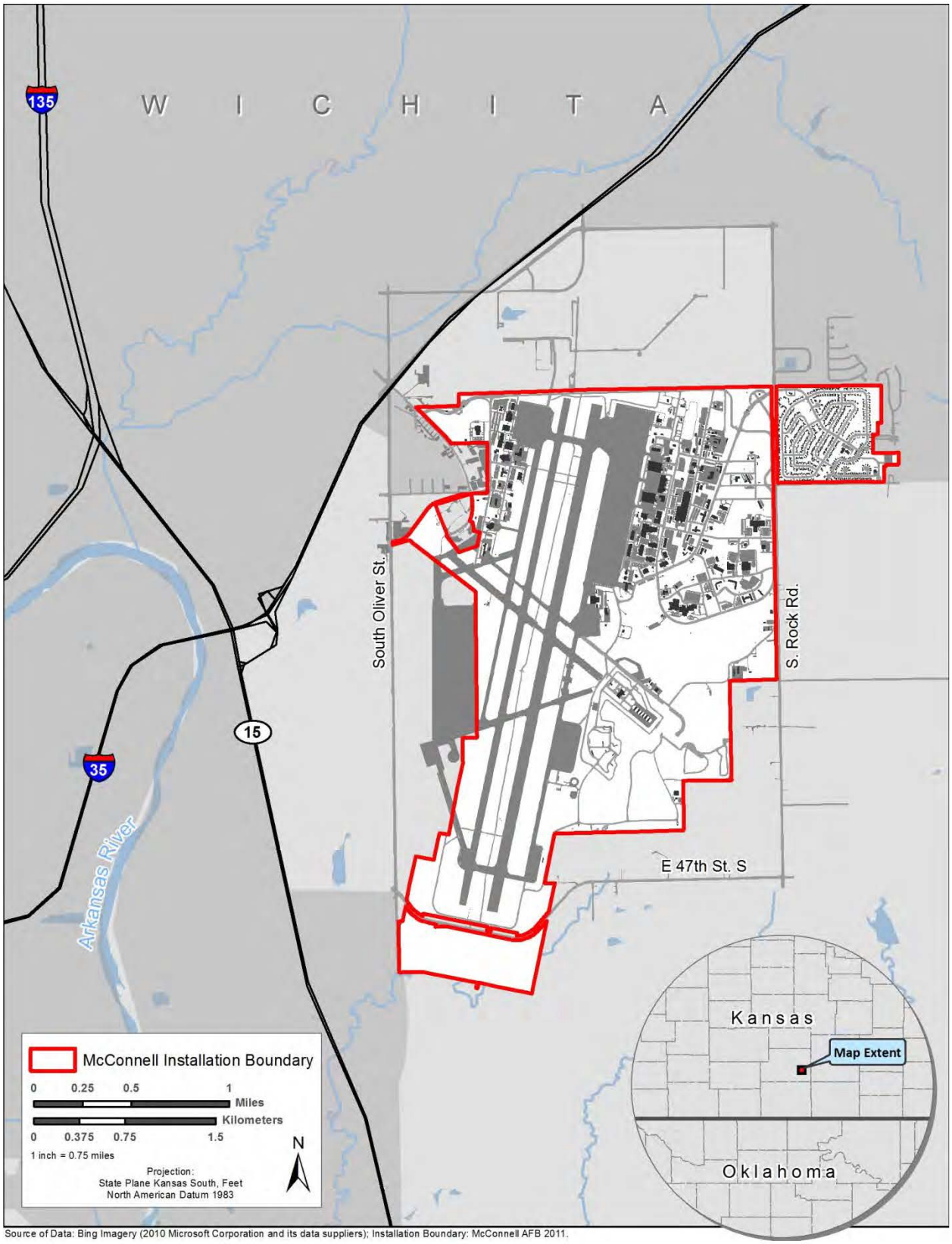

Figure 1-1. McConnell AFB and Surrounding Area

Guard (KANG) 184th Intelligence Wing (184 IW) and the Air Force Reserve Command 931st Air Refueling Group (931 ARG). The total population served at the installation is 16,469, which includes 6,063 active-duty military personnel and family members, 1,157 Air Force Reserve personnel, 575 Air National Guard personnel, 7,641 military retirees, and 1,033 civilian employees (MAFB 2009a). The Boeing Company, Spirit Aviation, and Cessna adjoin the installation and are granted access to the airfield with the 22 ARW, 184 IW, and 931 ARG. The 184 IW also provides facilities for transient aircraft and operational support for aircraft using the regional Munitions Storage Area (MSA) at McConnell AFB. In addition, the 22 ARW provides administrative, medical, and logistical support for tenant agencies and the McConnell AFB community.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to complete selected construction, demolition, infrastructure improvement, and natural infrastructure management improvement projects from among those identified as necessary to ensure that future mission and facility requirements are met. The analysis of applicable installation development projects in a single EA will facilitate an understanding of the potential environmental consequences associated with the continuing installation development process; facilitate the NEPA review and compliance process; eliminate project fractionation and segmentation; improve the coordination of land use planning; expedite project execution by using early planning; reduce installation, reviewing agency, and major command workloads; provide cost savings; help better evaluate potential cumulative environmental impacts; assist in maintaining a baseline for future analysis; support strategic basing decisionmaking; and encourage agency coordination.

The need for the Proposed Action is to meet current and future mission requirements and national security objectives associated with McConnell AFB. This involves meeting ongoing mission requirements that necessitate repairing and upgrading installation utilities, pavements, and facilities; improving the efficiency and effectiveness of forces with the capability to expand; replacing older, substandard facilities with new buildings that are on a par with workplaces outside the gate; and providing reliable utilities, quality housing, and an efficient transportation system to support McConnell AFB. In addition, morale and welfare projects that are a critical part of supporting the McConnell AFB mission are addressed. Continued development of infrastructure at McConnell AFB must take into account future facility construction, demolition, renovation, transportation needs, airfield alterations and enhancements, utilities improvements, land use planning, energy requirements, and development constraints and opportunities.

Contributions by McConnell AFB to national security dictate that the installation implement planning for the next 5 FYs. To ensure complete readiness at the installation for any tasks assigned, infrastructure improvement projects must take into account—and be capable of supporting—all functions inherent to a USAF installation. These include aircraft operations and maintenance activities, security, administration, communications, billeting, supply and storage, training, transportation, and community quality of life.

1.2.1 Purpose of and Need for Proposed Demolition Actions

The Department of Defense (DOD) has called for significant transformation in all services to strengthen U.S. warfighting capabilities and to operate more efficiently. A key element of USAF transformation is embodied in the goal "20/20 by 2020." The 20/20 by 2020 term describes a major goal of USAF Civil Engineering to achieve offsetting efficiencies to ensure that installations remain capable of enabling USAF missions. The purpose of the proposed demolition actions is to remove excess, obsolete, deteriorating, and underused facilities and pavements throughout the installation to improve mission capability, meet security objectives, and comply with the USAF's "20/20 by 2020" goal. The need for the proposed demolition actions is for USAF Civil Engineering to reduce the amount of the physical plant that it spends money on by 20 percent by the year 2020. USAF Civil Engineering currently manages

more infrastructure than is necessary and must focus limited time and funding on only the infrastructure needed to perform the USAF mission. In order to achieve this goal, the USAF must divert its resources away from excess, obsolete, and under-used infrastructure, and implement processes to increase consolidation and demolition, optimize space allocation and utilization, and promote other emerging initiatives. Therefore, HQ AMC has worked together for the past year to align AMC's consolidation/demolition plan with the 2009 through 2013 USAF Civil Engineer Strategic Plan to develop sustainable AMC installations by implementing asset management principles for built and natural assets. As a result of this alignment, AMC's target is to reduce the building footprint at all AMC installations by 6.6 million square feet (ft^2) by 2020 (HQ AMC 2010).

1.2.2 Purpose of and Need for Proposed Construction Actions

The purpose of the proposed construction actions is to provide state-of-the-art facilities to accommodate current and future mission and facility spacing requirements, while meeting national security objectives. The need for the proposed construction actions is because fundamental support of mission requirements is not being met by existing facilities. In addition, proposed construction projects are needed to improve mission efficiency by consolidating mission functions currently housed in multiple, older, and undersized facilities into more modern facilities with sufficient space; to incorporate life safety and handicapped accessibility requirements; and to meet modern AT/FP measures. The proposed construction projects are also needed to enhance morale and wellness for active and retired military members and their dependents. Individual purpose and need statements for each of the selected construction projects are provided in **Section 2.1.4**.

1.2.3 Purpose of and Need for Proposed Infrastructure Improvement Actions

The purpose of the proposed infrastructure improvement actions is to remove and replace excess, obsolete, and deteriorating utilities; improve the installation's parking and transportation systems; improve and maintain airfield pavements and supporting infrastructure; and enhance existing communication systems. The need for the infrastructure improvements is to improve mission efficiency and effectiveness, improve ground and airspace safety, incorporate life safety and handicapped accessibility requirements, address parking limitations, and provide the installation with state-of-the-art utilities and communication systems to enhance and improve the installation's mission and meet security objectives. Individual purpose and need statements for each of the selected infrastructure improvement projects are provided in **Section 2.1.5**.

1.2.4 Purpose of and Need for Proposed Natural Infrastructure Management Actions

The purpose of the natural infrastructure management actions is to enhance airspace management, improve water quality, improve species habitat, enhance outdoor recreation opportunities, and implement projects for the protection and enhancement of the installations' natural and historic resources as identified in the Integrated Natural Resources Management Plan (INRMP) and Integrated Cultural Resources Management Plan (ICRMP) (MAFB 2004a, MAFB 2004b). The need is to develop a sustainable installation by implementing asset management principles for built and natural resources assets. Other needs for the proposed natural infrastructure actions are to comply with Federal, state, and local regulations to limit downstream water quality degradation by reducing erosion, which causes sediment to accumulate and disperse in the installation's waterways; to improve or maintain safe aircraft takeoff and landing conditions; to protect and enhance cultural resources; and to comply with the Migratory Bird Treaty Act (MBTA) of 1918 and other laws designated to protect migratory birds, threatened and endangered species, wetlands, and other natural resources while balancing the requirements of its military mission. In addition, the need for the proposed natural infrastructure actions is to comply with the Federal Noxious Weed Act (7 United States Code [U.S.C.] 2801 et seq.) and

Executive Order (EO) 13112, *Invasive Species*, which require Federal agencies to control noxious weeds on Federal properties by removing noxious and invasive species throughout their installations. Individual purpose and need statements for each of the selected natural infrastructure management projects are provided in **Section 2.1.6**.

1.2.5 Purpose of and Need for Proposed Strategic Sustainability Performance Actions

The purpose of the proposed strategic sustainability performance actions is to improve water use efficiency and management; implement high performance sustainable Federal building design, construction, operation, and management; and advance regional and local integrated planning by identifying and analyzing impacts from energy usage and alternative energy sources. The need for the proposed strategic sustainability performance actions is to comply with Federal mandates for Federal facilities to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. Another need for these proposed actions is to reduce the installation's overall carbon footprint, reduce dependency on foreign coal and oil, and improve local and regional air quality. In addition, these actions are required to comply with EPAct mandates, which require that all Federal agencies' renewable electricity consumption meet or exceed 3 percent from FY 2007 through FY 2009, with increases to at least 5 percent in FY 2010 through FY 2012 and 7.5 percent in FY 2013 and thereafter. Individual purpose and need statements for each of the selected strategic sustainability performance projects are provided in **Section 2.1.7**.

1.3 Scope of the Analysis

McConnell AFB seeks to improve its understanding of the potential environmental consequences associated with the continuing installation development process by evaluating in a single EA selected projects proposed in the McConnell AFB Wing-approved community of plans. The complete list of all identified proposed installation development and resource management projects from these plans, presented in **Appendix A**, was developed from the projects identified in the McConnell AFB IDP and other Wing-approved plans using a fenceline-to-fenceline approach to capture projects within the installation boundary as proposed by host and tenant agencies in accordance with Interservice Support Agreements.

This IDEA evaluates the potential environmental impact of selected projects involved in modernizing and upgrading McConnell AFB to meet future requirements in each of the following categories: demolition, construction, infrastructure improvement, natural infrastructure management, and strategic sustainability improvement. These five categories were identified for use in the IDEA because they allow the grouping of development initiatives by generally common elements of their activity and the nature of their expected potential environmental impacts. These categories and the selected projects are described in detail in **Sections 2.1.3**, **2.1.4**, **2.1.5**, **2.1.6**, and **2.1.7** of the IDEA. The individual projects analyzed in this IDEA should be considered independent of each other and the USAF could eventually choose to implement all, none, or any combination of these projects. This would be the case even if a finding of no significant impact (FONSI) is reached based on the analyses in the IDEA.

From the list of proposed projects identified in **Appendix A**, projects were selected for detailed analysis in the IDEA based on two independent criteria. First, projects were selected that are expected to have the greatest potential to impact the natural and man-made environment. They are typical of the types of projects that are proposed at McConnell AFB. They were selected based on geographic setting, project size, acreage disturbed, amount of air emissions, increases in impervious surfaces, vegetation disturbed, and other relevant factors associated with environmental and socioeconomic resources. Second, projects were selected for detailed analysis if they have the potential to result in impacts on sensitive resources,

such as 100-year floodplains, wetlands, protected cultural resources, or species protected under the Endangered Species Act (ESA). Such projects were selected because they are believed as a group to frame the range of potential impacts that reasonably could be expected from other projects within the category and consequently are subject to detailed analysis in this IDEA. The projects selected for analysis in this IDEA are described in **Sections 2.1.3** through **2.1.7**.

The remaining other projects from the installation development and resource management plans (see the "Other Projects" portions of the tables presented in **Appendix A**) are considered in the cumulative impacts analysis of the IDEA. This IDEA does not represent NEPA documentation for projects other than the selected projects. Projects listed in the "Other Projects" inventory will be reviewed individually to determine the necessary environmental analysis needed to make a decision on whether or not to approve each of these projects, which are outside the scope of the IDEA.

The Proposed Action includes numerous projects selected from those listed in **Appendix A**, such as demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, quality of life upgrades, infrastructure improvement, recreational upgrades, natural infrastructure management and other environmental projects, and sustainable improvement projects that would be completed or implemented during the next 5 FYs (2012 to 2017). The assessment compiles information on constraints that might inhibit development or dictate courses of action affecting development, improve the facility planning process, and capture the Wing Commander's vision of the facility and infrastructure improvements necessary to support the installation's ongoing mission.

The scope of this IDEA includes an evaluation of actions that have the potential to impact the 100-year floodplain or wetlands. Because it has been determined through the analysis contained in this IDEA that the preferred alternative of several projects would involve construction in the 100-year floodplain or wetland areas, a Finding of No Practicable Alternative (FONPA) and approval from HQ AMC would be required. In accordance with 32 CFR 989, if it is determined that the alternative selected could be located in the floodplain or wetlands, a FONPA must accompany the FONSI to discuss why no other practicable alternative exists to avoid impacts. Floodplain and wetland impacts would be reduced to the maximum extent practicable through project design and the implementation of environmental protection measures. In addition, appropriate permits would be obtained from applicable regulatory agencies to address impacts on wetland areas and to determine potential mitigation, if required.

In accordance with EO 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands*, McConnell AFB would consider alternatives to proposed actions in the floodplain or wetlands and would only develop in floodplains or wetlands if there is no practicable alternative. New construction within the floodplain would apply acceptable floodproofing and flood protection, including planning and constructing the elevation of structures above the base flood level. Direct impacts on wetland areas would be avoided through design. If impacts cannot be avoided, environmental protection measures, such as flagging the boundary of the wetland area and ensuring construction vehicles and workers remain outside the boundary would be implemented. If direct impacts cannot be avoided, adverse effects would be minimized through techniques such as phasing construction activities to minimize the potential for erosion, installing sedimentation basins and detention or retention ponds, and limiting construction activities to drier periods of the year.

This IDEA could include projects that might have direct or indirect impacts on historic properties. All projects that could impact historic properties or that could be eligible for listing in the National Register of Historic Places (NRHP) are subject to the consultation requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966. Projects could be included in the selected projects for the IDEA if the consultation process under Section 106 of the NHPA has been recently completed for properties potentially eligible for listing in the NRHP; however, if new or additional consultation would

be required and would not be completed by the finalization of the signed FONSI, such projects might not be appropriate for inclusion in the IDEA analysis.

The precise design, footprint, and location on the installation of all projects are in the early planning stages. Therefore, exact locations and layouts are generally not finalized at this time. Should locations and final layouts of the projects differ substantially from those anticipated in term of the land use category involved or the compatibility with the land use category at the final designated location, then separate environmental documentation for those projects might be required.

It is intended that the projects contained in the IDEA generally will be reviewed on a 5-year rotational basis and that an additional NEPA document might need to be prepared to accommodate changes in development plans, mission objectives, laws and regulations, or land use plans. During the course of the next 5 FYs (FY 2012 to FY 2017), if significant new circumstances or information relevant to environmental concerns are discovered or the scope or proposed siting of any of the selected projects associated with the Proposed Action change enough to be outside the coverage of the analysis provided in the IDEA, the specified projects would no longer be covered by the NEPA analysis represented by the IDEA, but this would not affect other projects originally included in the IDEA.

The IDEA examines potential effects of the Proposed Action and alternatives on 11 resource areas: noise, land use, air quality, geological resources, water resources, biological resources, cultural resources, socioeconomic resources and environmental justice, infrastructure, hazardous materials and wastes, and safety. These resources were identified as being potentially affected by the Proposed Action and include applicable elements of the human environment that are prompted for review by EO, regulation, or policy.

After a FONSI is signed (if applicable), and as funding becomes available, each project would be reviewed by the Environmental Planning Function (EPF) prior to implementation to ensure that it has been sufficiently analyzed in this IDEA and that there has not been a substantial change in the installation mission or project scope, or there are no significant new circumstances or information relevant to environmental conditions; and that there have not been new or modified environmental regulations promulgated warranting reevaluation of potential environmental consequences. If the project has not been analyzed sufficiently or there has been a change in scope, conditions, or regulations, McConnell AFB would complete additional environmental documentation for the project, as applicable.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act

NEPA of 1969 (42 U.S.C. Section 4321–4347) is a Federal statute requiring the identification and analysis of potential environmental impacts associated with proposed Federal actions before those actions are taken. The intent of NEPA is to help decisionmakers make well-informed decisions based on an understanding of the potential environmental consequences and take actions to protect, restore, or enhance the environment. NEPA established the Council on Environmental Quality (CEQ) that was charged with the development of implementing regulations and ensuring Federal agency compliance with NEPA. The CEQ regulations mandate that all Federal agencies use a prescribed structured approach to environmental impact analysis. This approach also requires Federal agencies to use an interdisciplinary and systematic approach in their decisionmaking process. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action.

The CEQ-established process for implementing NEPA is codified in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. USAF EIAP regulations in 32 CFR 989 provide a framework for

how to implement the CEQ regulations and achieve the goals of NEPA. The CEQ was established under NEPA to implement and oversee Federal policy in this process. The CEQ regulations specify that an EA be prepared to provide evidence and analysis for determining whether to prepare a FONSI or FONPA, where a FONPA is appropriate (see **Section 1.4.2**), or whether the preparation of an Environmental Impact Statement (EIS) is necessary. The EA can aid in an agency's compliance with NEPA when an EIS is unnecessary and facilitate preparation of an EIS when one is required.

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is *Environmental Impact Analysis Process*, 32 CFR Part 989, as amended.

1.4.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA can be integrated "with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively."

As noted in **Section 1.3**, this IDEA examines potential effects of the Proposed Action and alternatives on 11 resource areas. These resources were identified as being potentially affected by the Proposed Action and include applicable elements of the human and natural environments required by specific laws, regulations, EOs, or policies.

1.4.3 Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) and Public Involvement

IICEP. NEPA requirements help ensure that environmental information is made available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*, requires the USAF to implement the IICEP process, which is used for the purpose of agency coordination and implements scoping requirements. Through the IICEP process, McConnell AFB notified relevant Federal, state, and local agencies of the Proposed Action and alternatives and provided them with sufficient time to make known their environmental concerns specific to the action. The IICEP process also provided McConnell AFB the opportunity to cooperate with and consider state and local views in implementing the Federal proposal. Comments from the U.S. Fish and Wildlife Service (USFWS) were received on the Draft IDEA and Draft FONSI/FONPA during the review period. IICEP materials related to this action are included in **Appendix B**. Agency comments on the Draft EA were addressed in this EA.

Public Involvement. A Notice of Availability (NOA) for the Draft IDEA and Draft FONSI/FONPA was published in *The Wichita Eagle* on 6 September 2012 announcing that these materials were made available to the public for a 45-day review period. Copies of the Draft IDEA and Draft FONSI/FONPA were made available in the Wichita Central Library, the Planeview Community Library, and the

McConnell AFB Library. The 45-day review period ended on 21 October 2012 and no public comments on the Draft EA and Draft FONSI/FONPA were received during this review period. **Appendix B** contains a copy of the NOA as it appeared in *The Wichita Eagle.*

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2. Description of the Proposed Action and Alternatives

This section presents information on the Proposed Action of implementing selected installation development projects, as drawn from the relevant McConnell AFB Wing-approved installation development and resource management plans. **Section 2.1** describes the Proposed Action at McConnell AFB. **Section 2.2** identifies alternatives to the Proposed Action. **Section 2.3** discusses the No Action Alternative. **Section 2.4** identifies the decision to be made and the Preferred Alternative.

2.1 Proposed Action

As noted in **Section 1.3**, the Proposed Action is to implement a range of selected installation development projects drawn from projects contained in the community of all current 22 ARW-approved plans on McConnell AFB. The projects selected for analysis in this IDEA are described in **Sections 2.1.3** through **2.1.7** and would meet the selection criteria presented in **Section 2.2**. Each of the projects has been assigned a project identification number, corresponding to the category to which they belong. **Figures 2-1** to **2-5** show the proposed potential locations of all mapable projects associated with the Proposed Action relative to known constraints at McConnell AFB. The remaining other projects that have been drawn from the applicable Wing-approved development plans, which are listed in **Appendix A** under the "Other Projects" portions of the tables, are addressed in the cumulative impacts analysis in this IDEA.

2.1.1 Project Considerations

Each project ultimately would be sited in a manner compatible with McConnell AFB's surrounding land uses. The analyses provided in this IDEA addressing the selected projects evaluate their siting anywhere within the improved or semi-improved areas of the installation that are within compatible land use areas of the installation, as analyzed in **Section 4** of this IDEA. They are not assessed for a site-specific location within that area of compatible land use because the environmental impacts would be essentially the same no matter where the project is specifically located in that land use area. The McConnell AFB IDP identifies 11 land use categories (excluding water as a land use category): administrative, airfield, aircraft operations and maintenance, community commercial, community service, housing accompanied, housing unaccompanied, medical, industrial, outdoor recreation, and open space. **Figure 2-6** shows the locations of McConnell AFB's existing land use categories.

Projects would avoid sensitive or constrained areas (see **Figures 2-1** to **2-5**) to the maximum extent practicable. Sensitive areas include wetlands, Environmental Restoration Program (ERP) sites, floodplains, nesting and foraging areas for species of special concern, migration and breeding habitat areas, and known archaeological sites. Constrained areas include airfield and airspace clear zones (CZs) and accident potential zones (APZs), areas within safety quantity-distance (QD) arcs, areas inside the 65+ A-weighted decibel (dBA) noise contours, and areas restricted per AT/FP and other mission requirements.

The exterior and interior design of new facilities would follow the design guidelines outlined in the *Air Mobility Command Commander's Guide to Facilities Excellence* (AMC 2004) and the *McConnell AFB Architectural Compatibility Plan* (MAFB 2005b). This guidance would ensure a consistent and coherent architectural character throughout McConnell AFB. These documents are available for review at the web addresses provided in **Section 7**.

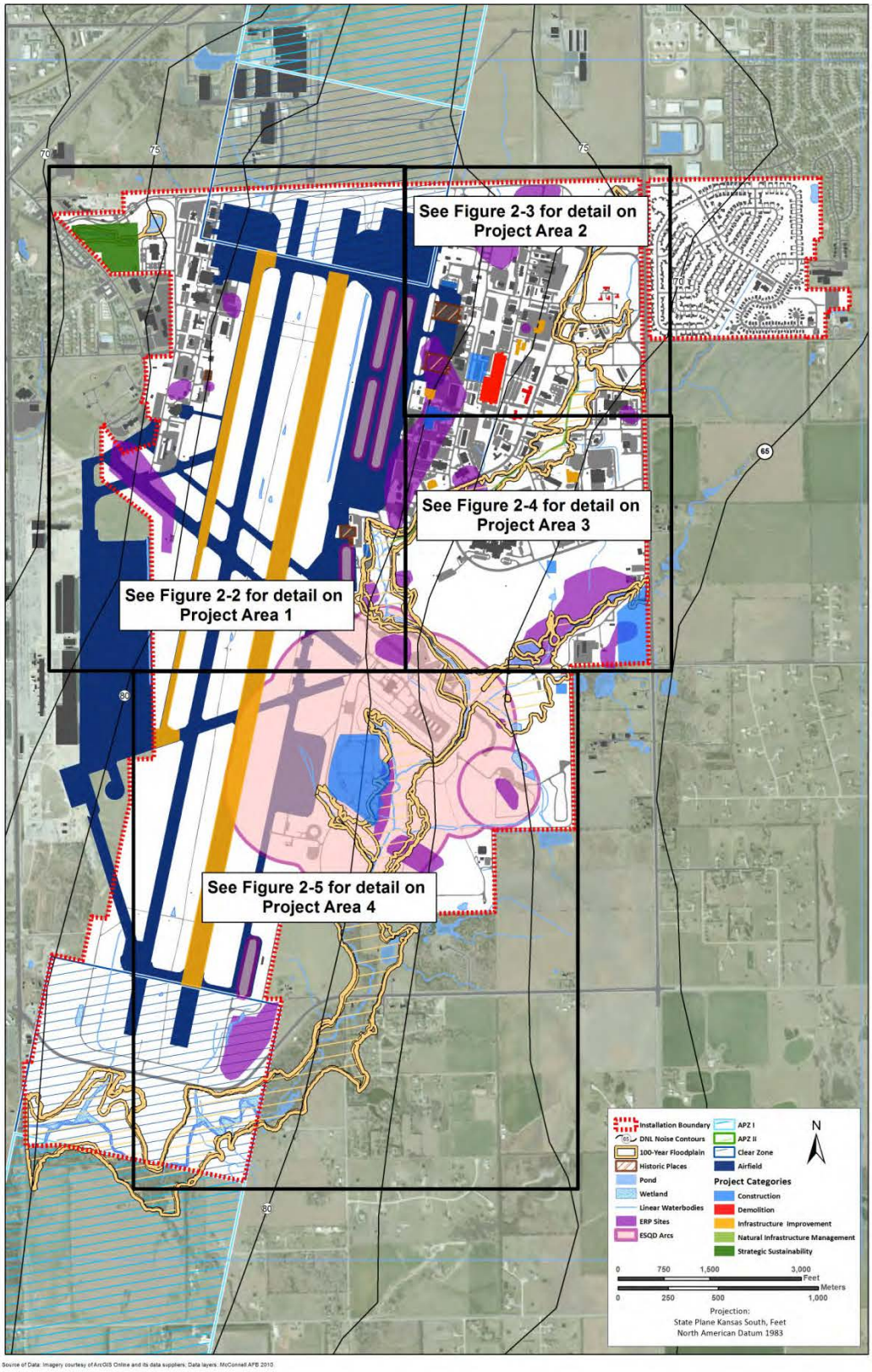

Figure 2-1. Overview Map of Subdivided Project Areas for the Selected Projects

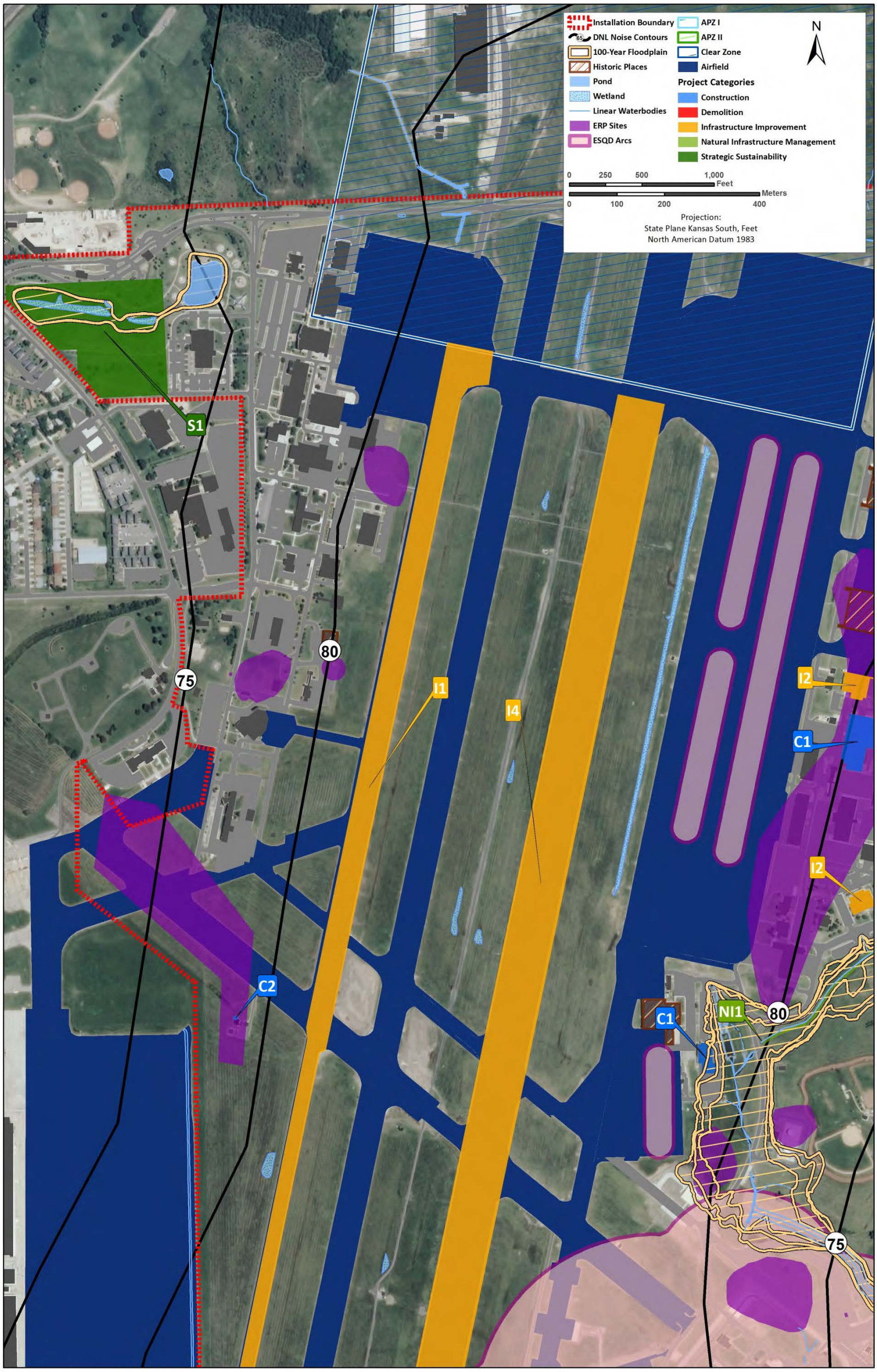

Figure 2-2. Possible Locations and Environmental Constraints Associated with Selected Projects (Project Area 1)

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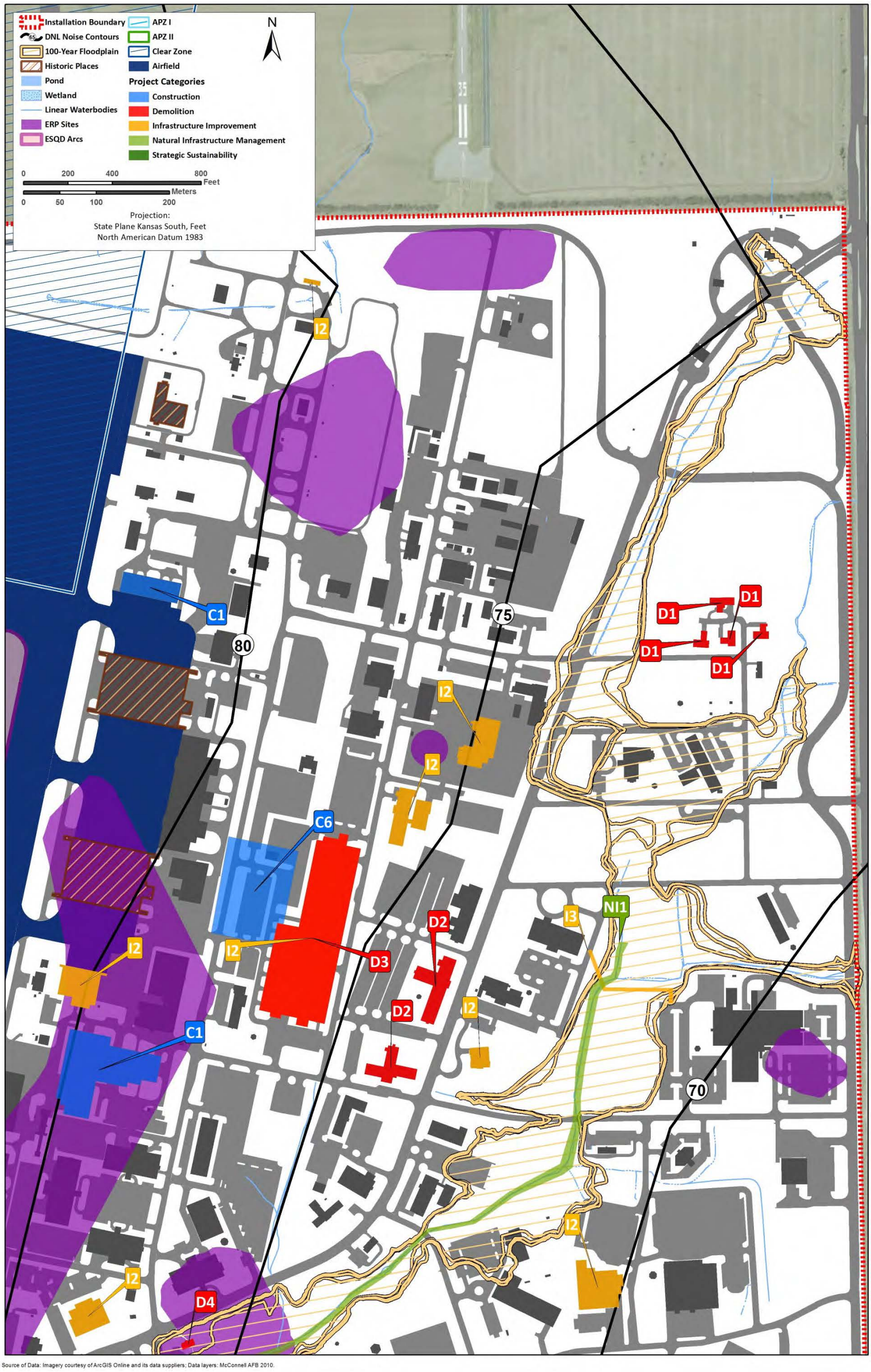

Source of Data: Imagery courtesy of ArcGIS Online and its data suppliers; Data layers: McConnell AFB 2010.

Figure 2-3. Possible Locations and Environmental Constraints Associated with Selected Projects (Project Area 2)

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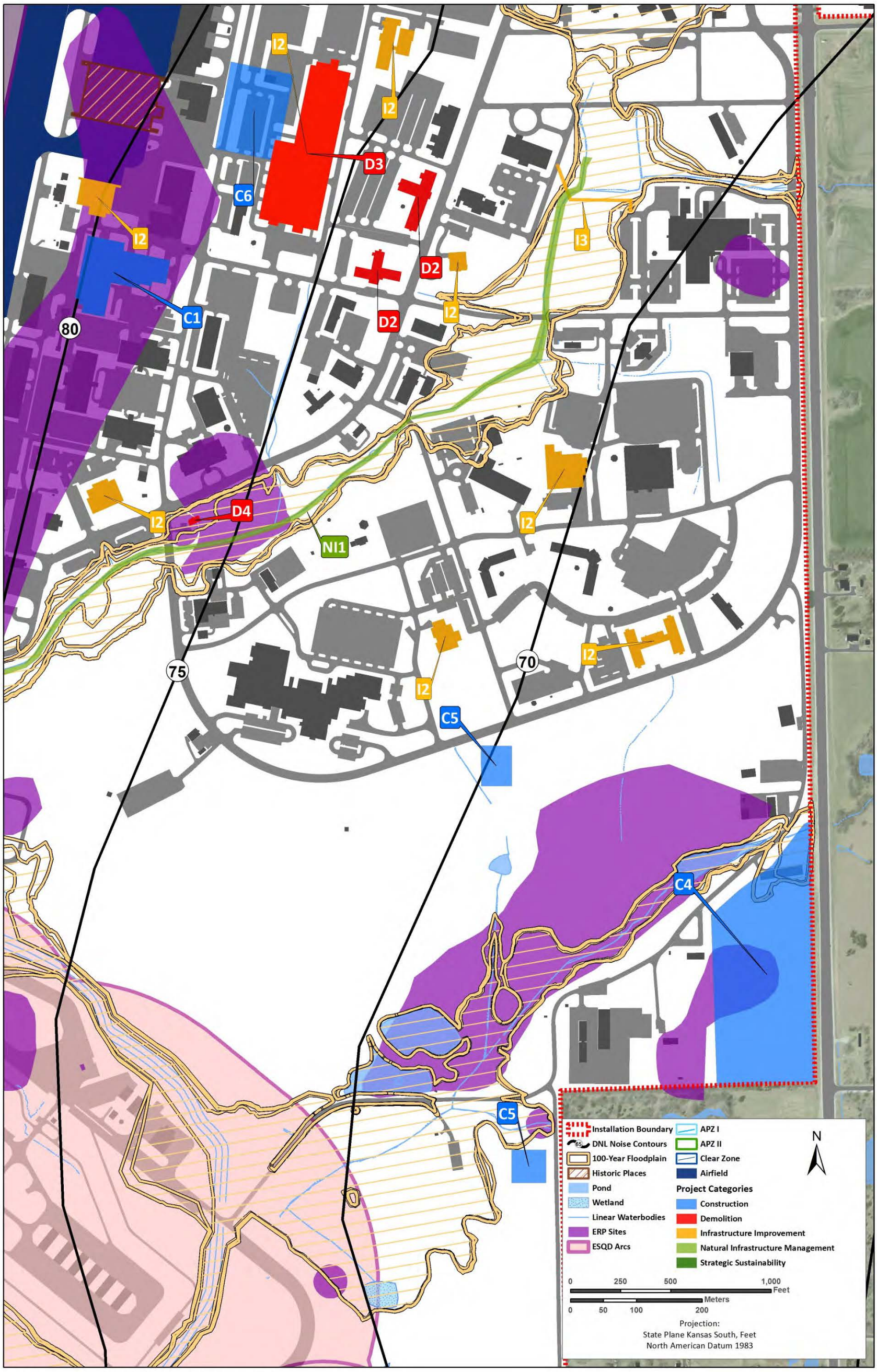

Source of Data: Imagery courtesy of ArcGIS Online and its data suppliers; Data layers: McConnell AFB 2010.

Figure 2-4. Possible Locations and Environmental Constraints Associated with Selected Projects (Project Area 3)

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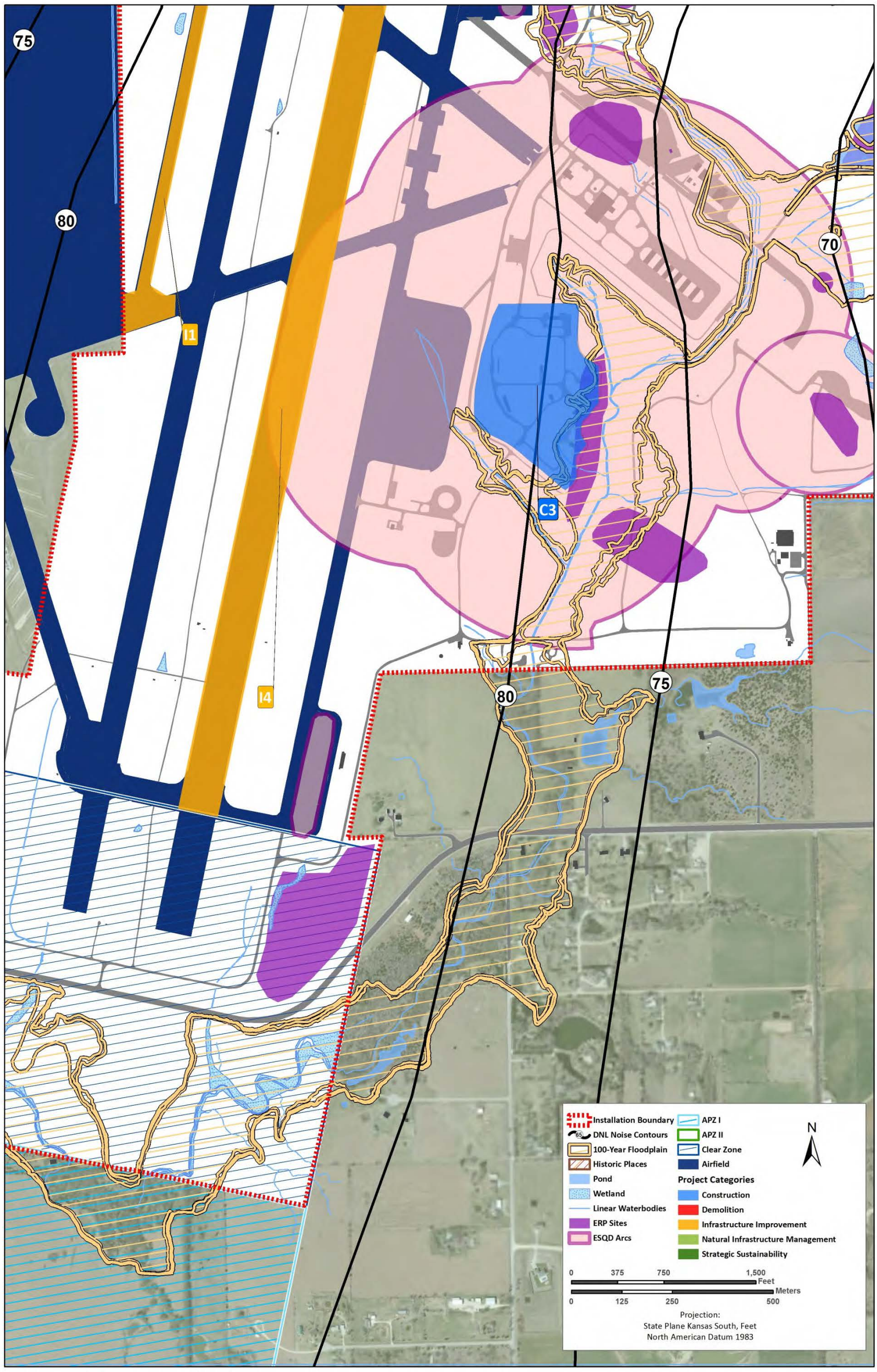

Figure 2-5. Possible Locations and Environmental Constraints Associated with Selected Projects (Project Area 4)

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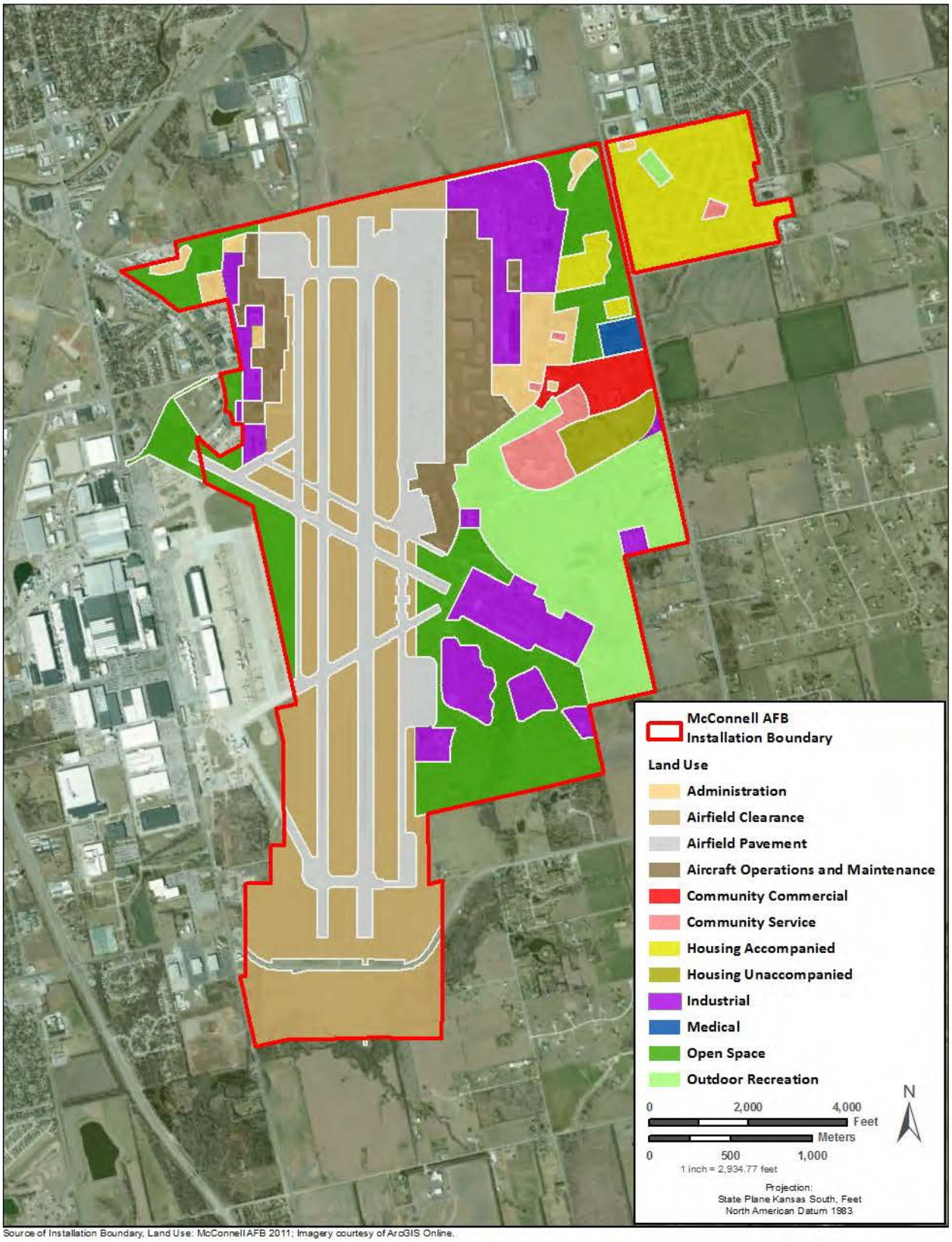


Figure 2-6. McConnell AFB Existing Land Use Categories

Landscaping would be used to provide an attractive and professional-looking installation by using plants, shrubs, and trees to blend with the surrounding environment. Landscape designs would use regionally appropriate plant species that would minimize adverse effects on natural habitats while reducing maintenance inputs in terms of energy, water, manpower, and equipment. In addition, the landscape designs would choose plant species adapted to local environmental conditions that have the potential to reduce the need for irrigation and fertilization or pesticide use. Landscaping would conform to the McConnell AFB INRMP (MAFB 2004a) requirements regarding suggested and prohibited plants.

Force protection measures would be incorporated in accordance with the Unified Facilities Criteria (UFC) 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings*, 9 February 2012 (DOD 2012). This document is available for review at the web address provided in **Section 7** of the IDEA. All construction would comply with applicable building, fire, and safety codes. The proposed construction projects would be implemented using sustainable design concepts. Sustainable design concepts emphasize state-of-the-art strategies for site development, efficient water and energy use, and improved indoor environmental quality.

2.1.2 Major Installation Constraints

To incorporate selection parameters for the siting of projects, this IDEA has been prepared using a constraints-based analysis. This approach enables a comprehensive evaluation of environmental concerns throughout the installation and also those concerns unique to specific areas of McConnell AFB. This analysis uses information layers from the installation's Geographical Information System database (also called the GeoBase system) and the information obtained from extensive recent EIAP evaluations for similar types of projects to help determine the direct, indirect, and cumulative effects of projects that would be completed as part of the installation's development plan.

There are a number of land use, regulatory, and mission-related constraints within the boundaries of McConnell AFB that influence and limit future development at the installation. The major constraints on McConnell AFB are depicted in **Figures 2-1** to **2-5**. The electronic mapping data from McConnell AFB's Geographical Information System database were used to quantify the major installation constraints to development, unless another source of information is identified. Some constraint areas overlap, and therefore, the acreages listed in the following bulleted items do not equal the total acreage of McConnell AFB. The acreage calculations do not include any portions of the constraint areas that extend off the installation. The major constraints are discussed in the following bulleted paragraphs.

- ***Noise Zones (2,651 acres).*** Aircraft operations are a dominant component of the noise environment at McConnell AFB. USAF, Federal Aviation Administration (FAA), and the U.S. Department of Housing and Urban Development (HUD) criteria specify that noise levels in noise-sensitive land use areas are normally considered unacceptable where they exceed the 65 dBA day-night average sound level (DNL). The USAF recommends restricting development to compatible uses when noise levels exceed 65 dBA DNL. A total of 2,651 acres of McConnell AFB property are inside the 65+ DNL noise contour generated by the McConnell AFB runway.
- ***Airfield Infrastructure, Clear Zones, and Imaginary Surfaces (372 acres).*** The airfield at McConnell AFB includes pavement, runways, overrun, apron and ramp, and arm/disarm pads. CZs, APZs, and imaginary surfaces are areas where nonairfield development is constrained or discouraged for airfield safety. These areas would allow only airfield improvements and projects directly associated with airfield operations. All projects within these areas must be approved by the Facilities Utilization Board (FUB) and airfield management prior to commencing any construction-related activities. There are 370 acres of the CZ and 2 acres of APZ-I within the installation boundaries of McConnell AFB.

- ***Munitions and Other Safety Criteria (438 acres).*** There are several areas that are constrained for safety reasons at McConnell AFB. The QD arcs are the minimum prescribed distance between munitions site handling and storage areas and inhabited areas. QD arcs on McConnell AFB are located in the southeast corner of the installation around the MSA.

- ***Environmental Restoration Program Sites (146 acres).*** McConnell AFB contains 63 active ERP sites. New facilities might be constructed within certain ERP sites depending upon the level of contamination, clean-up efforts, and land use controls. Approval of new construction within ERP sites must be obtained by the FUB and coordinated with the 22d Civil Engineer Squadron/Environmental Element (22 CES/CEAN). In addition, an *ERP Waiver to Construct* must be reviewed and approved by HQ AMC in order to construct on an ERP site.

- ***Wetlands (14.8 acres).*** In accordance with EO 11990, construction of new facilities within areas containing wetlands is avoided, where practicable. McConnell AFB has six wetland areas on the installation covering approximately 14.8 acres. In addition, 6.33 miles of McConnell Creek, streams, and ditches have wetland characteristics (MAFB 2001). Wetland impacts would be reduced to the greatest extent practicable through project design and implementation of environmental protection measures. However, some projects might have minimal direct impacts on wetland areas. In accordance with EO 11990, a FONPA must be prepared and approved by HQ AMC for all projects requiring construction in wetlands. In addition, appropriate permits must be obtained from applicable regulatory agencies to address impacts on wetland areas and to determine potential mitigation, if required.

- ***100-Year Floodplain (246 acres).*** In accordance with EO 11988, conducting actions or constructing new facilities within the 100-year floodplain is avoided, in order to protect the functions of floodplains, minimize the potential damage to facilities, and ensure the safety of working personnel. Should activities within the 100-year floodplain be considered, a FONPA must be obtained and the project must be approved by HQ AMC.

- ***Threatened and Endangered Species and Associated Habitats.*** No populations of any endangered or threatened species are known to inhabit McConnell AFB. Additionally, there is limited potential habitat for these species at the installation making the likelihood of their presence remote. However, if a federally protected species were to be affected, a Biological Assessment would be prepared and submitted to the USFWS. The USFWS would then prepare a Biological Opinion on the effects of the project proposal on federally protected species, as required under Section 7 of the ESA. Concurrence on the project must be obtained prior to commencing construction activities that could affect a threatened or endangered species.

- ***Cultural Resources, Historic Buildings, and Archaeological Sites.*** There are several buildings eligible for the NRHP on McConnell AFB. Activities potentially affecting cultural resources at these buildings must be coordinated with the FUB and 22 CES/CEAN. 22 CES/CEAN's Cultural Resource Manager will consult with the SHPO regarding renovation or demolition of historic buildings in accordance with Section 106 of the NHPA.

- ***AT/FP Setback Requirements.*** Minimum AT/FP design standards for new construction have been specified by the DOD and would increase the land area required for individual facilities. Design standards for new construction are contained in UFC 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings*, 9 February 2012, (DOD 2012) and augmented by USAF instructions. The USAF Force Protection Design Guide, published by the Air Force Center for Engineering and the Environment, supplements the DOD standards and must also be consulted during the planning and design processes. McConnell AFB has numerous existing road, parking, and perimeter setback issues that do not meet current AT/FP standards.

Installation constraints are an important parameter in the siting of projects and the development of reasonable alternatives for all projects proposed at McConnell AFB. As a general practice, McConnell AFB seeks to avoid, wherever possible, any disturbance to sensitive or constrained areas. This effort to avoid sensitive and constrained areas limits the number of feasible alternatives for projects due to the densely constructed nature of the installation around the expanse of existing constrained areas on McConnell AFB. However, avoiding or restricting future development within the constrained acreage might not be practical and could limit the installation's ability to accomplish its missions successfully. When these resources cannot be avoided and actions result in moderate to major environmental impacts, separate and additional NEPA documentation would occur and consultation and coordination with the appropriate regulatory agencies would be completed prior to initiating the action. All construction or other activities that would occur within areas of concern would comply with the requirements of various Federal, state, and local policies and regulations that govern such resources, and the appropriate environmental protection measures would be instituted.

2.1.3 Demolition Projects

Of the demolition projects proposed for the next 5 FYs (as identified in **Appendix A**), four projects were identified for detailed analysis as selected projects under the Proposed Action. The other remaining proposed demolition projects are addressed in the cumulative effects analysis for this IDEA. The selected demolition projects would remove an estimated 768,980 ft^2 of facilities of an estimated 1,162,916 ft^2 of demolition projects proposed over the next 5 FYs. These demolition projects would contribute to the goal of reducing the physical plant footprint on the installation according to the "20/20 by 2020" initiative or making space available for future development. In accordance with AFI 32-1032, *Planning and Programming Appropriated Funded Maintenance, Repair, and Construction Projects*, it is USAF policy to replace a facility when the estimated repair cost exceeds 70 percent of the replacement cost. All facilities proposed for demolition have either been deemed to be unusable or too costly to repair or renovate to meet the future mission requirements of McConnell AFB by the 22 CES/CEAN and other installation personnel. **Section 2.2.1** provides an overview of this determination process and **Section 2.2.2** further discusses issues considered for individual demolition projects.

Projects within this category primarily include the demolition of structures, but could also include demolition of parking lots and other pavements. The demolition of old or outdated facilities would minimize the area of undisturbed land required for new facilities and reduce labor costs associated with maintenance and repair of these excess facilities. **Table 2-1** identifies the selected demolition projects to be evaluated in detail in this IDEA. **Figures 2-3** and **2-4** show the possible locations of the selected demolition projects relative to known constraints at McConnell AFB.

The four selected demolition projects are believed to encompass the upper range of potential impacts on the natural and man-made environment from such projects in the demolition category and thus frame the upper limits for potential impacts that reasonably could be expected from the demolition projects proposed at the installation. For example, Project D3 would consist of demolishing one of the largest buildings on the installation, a 211,959-ft^2 warehouse and adjacent parking and sidewalks, and would generate the largest quantity of demolition debris, some of which could contain hazardous materials. The other demolition projects not selected under the Proposed Action are considered in the cumulative effects analysis for this IDEA.

All demolition projects that could impact properties listed in or adjacent to listed historic properties or that could be eligible for listing on the NRHP would be subject to consultation with the Kansas SHPO as per 36 CFR 800. Consultation with the Kansas SHPO includes identification of historic properties, determination of effects on historic properties, and measures to avoid, minimize, and mitigate any adverse

Table 2-1. Selected Demolition Projects Analyzed in this IDEA

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
D1. Demolish Buildings 181 to 184	N/A	2013	Housing Accompanied	Demolish Buildings 181 to 184 (Senior Officers Quarters) following privatization.	Potential ACM and LBP	110,800	-110,800
D2. Demolish Buildings 750 and 795.	PRQE 87-5020R1	2014	Administrative and Community Commercial	Demolish Buildings 750 and 795 after construction of the new Consolidated Support Center (Project C21).	ACM, LBP	196,735	-196,735
D3. Demolish Building 1090	PRQE 12-0108C	2014	Industrial	Demolish Building 1090 as part of the consolidation of maintenance activities, which are currently divided among 7 buildings.	ACM, ERP Site	459,394	-459,394
D4. Demolish Building 430	PRQE 04-5102	2017+	Administrative	Demolish Building 430 after construction of the Consolidated Education-Library Center (Project C26).	ERP Site, 100-year floodplain, ACM	2,051	-2,051
					Total Square Feet	**768,980**	**-768,980**

Key:
ACM = asbestos-containing material
ERP = Environmental Restoration Program
ft^2 = square feet
LBP = lead based paint
N/A = not applicable

effects. **Appendix C** includes a list of facilities on McConnell AFB scheduled for demolition within the next 5 years. Documentation on NRHP eligibility evaluations, SHPO concurrences, and ACHP program comments are presented in **Appendix D**. All consultations with the Kansas SHPO regarding the effects on historic properties would be completed prior to signature of a FONSI (if applicable). In addition, all fill used for post-demolition activities would be obtained from an approved borrow pit and screened to ensure it contains no cultural resources or hazardous substances. All trees and vegetation associated with facilities scheduled for demolition would be replaced or relocated as applicable and the area reseeded with appropriate species. Greater detail on each of the selected demolition projects is given in the following paragraphs.

D1. Demolish Buildings 181 to 184. Buildings 181 to 184 are located in the Winfield housing area in the northeast section of the main installation. These buildings, referred to as the Senior Officers Quarters, were constructed in 1952 as the officer family housing complex and have a combined footprint of approximately 22,041 ft^2. McConnell AFB has plans to privatize officer family housing, negating the continued need for these buildings. Further, the FUB determined that it would not be economically feasible to upgrade or repair these buildings for future usage. Demolition would include the termination of utilities and restoration of the site to match the surrounding area. The demolition of the buildings would result in a reduction of impervious surfaces of 110,800 ft^2, including roads and pavements. No new construction is planned at this location.

D2. Demolish Buildings 750 and 795. As part of the effort to construct a consolidated support center, Building 750 and Building 795 (Base Personnel Office) would be demolished. These buildings were originally constructed in 1954 and were designed as semi-permanent buildings with a lifespan of approximately 10 to 25 years. Building 750 contains approximately 85,070 ft^2 of building space; Building 795 contains approximately 16,876 ft^2. Together, they have a footprint of approximately 59,411 ft^2. They have inadequate heating and cooling systems, are poorly insulated, and require constant maintenance to keep them operational. Additionally, both buildings are known to contain asbestos-containing materials (ACMs) and Building 795 tested positive for lead-based paint (LBP). After evaluating the options of constructing a new support center, maintaining the existing facilities, or renovating the existing facilities, the FUB determined that only the demolition of the existing facilities and construction of a new facility would meet operational requirements. Demolition would include the termination of utilities and restoration of the site to match the surrounding area. The demolition of the buildings would result in a reduction of impervious surfaces of 196,735 ft^2, including sidewalks and parking.

D3. Demolish Building 1090. As part of the effort to consolidate installation maintenance and supply activities, which are currently divided between 7 buildings, McConnell AFB proposes to demolish Building 1090. Constructed in 1958, Building 1090 is the central warehouse facility at McConnell AFB. It has a footprint of 211,959 ft^2 and has exceeded its life expectancy by 13 years. Additionally, portions of the facility have been vacated due to fire code violations and the building is known to include ACMs. With the effort to relocate and consolidate maintenance activities near the flight line, the building would become obsolete. Further, the FUB determined that Building 1090 is no longer economically feasible to repair or upgrade. Demolition would include the termination of utilities and restoration of the site to match the surrounding area. The demolition of the building would result in a reduction of impervious surfaces of 459,394 ft^2, including sidewalks and parking areas.

D4. Demolish Building 430. Building 430 would be demolished following construction of the consolidated Education-Library Center addition to the Dole Center. Constructed in 1954, the 2,051-ft^2 building currently houses functionalities that would be moved into the new addition to the Dole Center. Additionally, Building 430 is known to contain ACMs. The FUB determined that Building 430 is no longer economically feasible to repair or upgrade. Demolition would include the termination of utilities

and restoration of the site to match the surrounding area. The demolition of the building would result in a reduction of impervious surfaces of 2,051 ft^2. Building 430 is located within the 100-year floodplain and although it is USAF policy to avoid actions within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), demolition activities within the floodplain would be unavoidable. Therefore, a FONPA would be obtained for the project and the project would need approval by HQ AMC.

2.1.4 Construction Projects

Of the construction projects proposed at McConnell AFB over the next 5 FYs (identified in **Appendix A**), six were selected for detailed analysis under the Proposed Action. The other remaining proposed construction projects are addressed in the cumulative effects analysis for this IDEA. The selected construction projects would add an estimated 2,345,518 ft^2 of facilities, new pavements, and site improvements of an estimated 3,584,574 ft^2 of construction projects proposed over the next 5 FYs. Projects within this category primarily include new facility construction and additions to existing facilities, but could also include renovations, repairs, alterations, parking areas, and other pavements when these elements are a large relevant component of a facility construction project. The construction of new facilities would be zoned in accordance with appropriate land use areas in order to continue or enhance compatibility with currently designated land use areas. **Table 2-2** identifies the selected construction projects to be evaluated in detail in this IDEA, and **Figures 2-1** to **2-5** show the possible locations of the selected construction projects relative to known constraints at McConnell AFB.

The selected construction projects are believed to encompass the upper range of potential impacts on the natural and man-made environment from such projects in the construction category and thus frame the upper limits for potential impacts that reasonably could be expected from the construction projects proposed at the installation. For example, Project C1 (Maintenance Group Consolidation), Project C4 (Veterans Administration Hospital), and Project C5 (Construction of the Base Civil Engineering and Contracting Complex) would have the potential to create the greatest surface disturbance compared to other construction projects. Projects C1, C3, and C4 would also have the potential to result in minor impacts on the 100-year floodplain. The other construction projects listed in **Appendix A** not selected under the Proposed Action are considered in the cumulative effects section of this IDEA.

All fill used for construction activities would be obtained from an approved borrow pit and screened to ensure it contains no cultural materials or hazardous substances. All trees and vegetation impacted from construction activities would be replaced or relocated as applicable. All ground disturbed during construction activities that does not include site improvements would be reseeded with appropriate species. All MILCON projects would be constructed to the U.S. Green Building Council's Leadership in Energy and Environmental Design Silver standard (HQ USAF 2007). Greater detail on each of the selected construction projects is given in the following paragraphs.

C1. Maintenance Group Consolidation. Installation maintenance activities are currently divided among seven buildings around McConnell AFB. The purpose of Project C1 is to consolidate Maintenance Group activities in a centralized location. The need for the project is to achieve efficiencies among Maintenance Group activities. As part of the effort to centralize maintenance activities, the Fabrication Shop would be moved from Building 1169 to Building 1128. The next phase of the consolidation would involve remodeling Building 1128 and constructing a 6,300-ft^2 addition to the building. The final phase would involve renovating and converting Building 1169 into the Forward Logistics Facility to support installation supply and mobility storage and renovating and converting Building 1220 into the Air Freight/Passenger Terminal. **Figure 2-7** shows the locations proposed for Maintenance Group Consolidation activities. Building 1220 is located within the 100-year floodplain and although it is USAF

Table 2-2. Selected Facilities Construction Projects Analyzed in this IDEA

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
C1. Maintenance Group Consolidation	PRQE 12-0102B PRQE 12-0108B PRQE 10-0185	2012–2013	Aircraft Operations and Maintenance	As part of the consolidation of Maintenance Group activities, the Fabrication Shop would move from Building 1169 to Building 1128. Building 1128 would be renovated and a 6,300-ft^2 addition would be constructed. Building 1169 would be converted into the Forward Logistics Facility supporting base supply and mobility storage. Additionally, Building 1220 would be converted into a facility for mobility processing and an air freight/passenger terminal.	Building 1169: ACMs, ERP site; Building 1128: ACMs, Cultural Resources; Building 1220: ACMs, 100-year Floodplain;	424,884	+6,300
C2. Air Traffic Control Tower	PRQE 10-5144	2014	Aircraft Operations and Maintenance	Construct a new Air Traffic Control Tower to replace the existing Air Traffic Control Tower.	ERP site	11,000	+1,000
C3. KANG Munitions Storage Area Renovation	N/A	2016	Industrial	Construct up to 20 munitions storage magazine (MSM) igloos, demolition of up to 6 existing igloos, and road realignment within the KANG MSA.	QD arcs, ERP sites, 100-year floodplain, Potential ACM and LBP	1,089,000	+29,120

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
C4. Veterans Administration Hospital	N/A	2014	Outdoor Recreation	Veterans Administration (VA) Hospital to be located in former golf course driving range. The hospital would include construction of ground source heat pumps (GSHPs) and 290 parking spots. Prior to construction, the existing Military Working Dog Facility (Building 1330) would be demolished.	ERP site, 100-year Floodplain, Noise	232,000	+232,000
C5. Military Working Dog Facility	N/A	2016	Outdoor Recreation	A new Military Dog Facility would be constructed to the west of Mulvane Road and Russell Street. The facility would consist of kennels, training area, parking lot, and AT/FP standoff.	None	66,994	+66,994
C6. Base Civil Engineering and Contracting Complex	PRQE 05-5022P1/P2/P3	2017+	Industrial	Construct a Base Civil Engineering Complex consisting of administration, engineering, environmental, readiness, maintenance, explosive ordnance disposal, contracting, recycling, and storage facilities.	None	521,640	+282,531
					Total Square Feet	**2,345,518**	**857,054**

Key:
ACM = asbestos-containing materials
ERP = Environmental Restoration Program
ft^2 = square feet
LBP = lead-based paint
N/A = not applicable
QD = quantity-distance

Source of Installation Boundary, Land Use: McConnell AFB 2011; Imagery courtesy of ArcGIS Online.

Figure 2-7. Locations Proposed for the Maintenance Group Consolidation Activities

policy to avoid construction activities within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), renovation activities within the floodplain would be unavoidable. Therefore, a FONPA would be obtained and the project would need approval by HQ AMC.

C2. Air Traffic Control Tower. This project would entail constructing a new air traffic control tower. The purpose of the project would be to provide air traffic control for the McConnell AFB airfield. The project is needed to replace the existing tower (Building 70), which was built in 1969 and is beyond its service life expectancy. The existing tower is unsafe during high winds and requires employees to evacuate the facility whenever wind speeds reach 70 miles per hour. The new air traffic control tower would be approximately 125 feet high. It would consist of the tower, utilities, emergency power, parking, and AT/FP site requirements. The tower and associated facilities would disturb approximately 11,000 ft^2 and create approximately 1,000 ft^2 of new impervious surfaces. **Figure 2-8** shows a possible location of the proposed tower.

C3. KANG Munitions Storage Area Renovation. This project would consist of renovating the KANG MSA. The purpose of the project would be to replace the existing MSA, which no longer meets the mission needs of the KANG. The project is needed because the existing munitions storage magazine (MSM) igloos have reached their end of service life. The renovation would include demolition of up to six of the existing MSM igloos at approximately 2,000 ft^2 each, construction of up to 20 new 2,080-ft^2 MSM igloos, and road realignment within the MSA. All construction would remain within the existing QD arcs. The exact igloos proposed for demolition and the location of the new igloos and roads have not been determined; therefore, the IDEA analyzes the potential impacts on the entire MSA. The total area of the MSA is approximately 1,089,000 ft^2. The change in impervious surface, assuming that the area of paved access roads would remain unchanged, would be 29,120 ft^2. **Figure 2-9** shows the location of the KANG MSA renovations. Renovation of the KANG MSA has the potential to occur within the 100-year floodplain. Although it is USAF policy to avoid construction activities within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), siting of the MSM igloos within the floodplain might be unavoidable. If activities within the floodplain are unavoidable, a FONPA would be obtained for the project and the project would need approval by HQ AMC.

C4. Veterans Administration Hospital. The Veterans Administration (VA) is planning to construct the Federal Healthcare Center on the site of the former golf course driving range along the eastern boundary of McConnell AFB. The purpose of the project is to construct a VA Hospital to provide upgraded surgery, in-patient services, and training facilities for the 22d Medical Support Squadron. The project is needed to respond to increased demand for VA hospital services. Approximately 290 public parking spaces would be provided. The current VA facility would remain open as an outpatient, family practice-based facility. To allow for easy patient access to the new facility, the installation fence line would be moved to the west around the new hospital to allow access from Rock Road without having to go through an installation gate. Approximately 100 full-time employees would be expected to work in the new facility. Planning for the hospital is currently in the feasibility stage and an exact location for the building has not been determined. It is expected that the constructed building would have a footprint of approximately 80,000 ft^2 and parking and roadways would disturb an additional 152,000 ft^2. The constructed facility and infrastructure is expected to result in a change in impervious surface of 232,000 ft^2. **Figure 2-10** shows the proposed site layout for the VA hospital. Construction of the VA Hospital would occur within the 100-year floodplain. Although it is USAF policy to avoid construction activities within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), construction within the floodplain would be unavoidable; therefore, a FONPA would be obtained and the project would need approval by HQ AMC.

Figure 2-8. Possible Location of the Air Traffic Control Tower

Figure 2-9. Location of the KANG Munitions Storage Area Renovation

Figure 2-10. Proposed Site Layout for the Veterans Administration Hospital

C5. Military Working Dog Facility. A new military working dog facility would be constructed following demolition of the existing facility. The purpose of the project is to construct a new facility to train military working dogs. The facility is needed to replace the existing military working dog facility, which is scheduled for demolition as part of the construction of the VA Hospital. Two options are under consideration for the location of the Military Working Dog Facility:

- Option 1 – West of Mulvane Road and Russell Street
- Option 2 – Along Wichita Street.

The facility would consist of kennels, a training area, parking, and AT/FP standoff. Under either option, the constructed facility would result in a change of impervious surfaces of 66,994 ft^2. **Figure 2-11** shows the potential sites for the new facility.

C6. Base Civil Engineering and Contracting Complex. McConnell AFB would construct the Base Civil Engineering and Contracting Complex after demolition of Building 1090 (Demolition Project D3). The purpose of Project C6 is to construct a centralized complex that facilitates improved operations to meet customer needs. Project C6 is needed to replace functionalities from Building 1090 and increase operational efficiencies. The facility would be constructed in two phases and would consist of administration, engineering, environmental, readiness, maintenance, explosive ordnance disposal, contracting, recycling, and storage facilities. The constructed facility would have a footprint of 142,471 ft^2 and the change in impervious surface would be 282,531 ft^2 including roads and parking. **Figure 2-12** shows a possible location for the Base Civil Engineering and Contracting Complex.

2.1.5 Infrastructure Improvement Projects

Of the infrastructure improvement projects proposed at McConnell AFB over the next 5 FYs (as identified in **Appendix A)**, four were identified for detailed analysis as selected projects under the Proposed Action. The other remaining proposed infrastructure improvement projects are addressed in the cumulative effects analysis for this IDEA. The selected infrastructure improvement projects could disturb as much as 4,794,209 ft^2 of land from an estimated 11,979,795 ft^2 of infrastructure improvement projects proposed over the next 5 FYs. Projects within this category include the removal, installation of, or upgrades to paved roadways, sidewalks, runways, taxiways, parking lots, utilities, storm water systems, fences, and outdoor recreational facilities. **Table 2-3** identifies the selected infrastructure improvement projects to be evaluated in detail in this IDEA, and **Figures 2-2** to **2-5** show the possible locations of the selected infrastructure improvement projects relative to known constraints at McConnell AFB.

The selected infrastructure improvement projects are believed to encompass the upper range of potential impacts on the natural and man-made environment from such projects in the infrastructure improvement category and thus frame the upper limits for potential impacts that reasonably could be expected from the projects proposed at the installation. For example, the repair of the east runway pavement, shoulders, and airfield lighting systems would have the potential to create the greatest surface disturbance of any of the infrastructure improvement projects proposed at McConnell AFB. The other infrastructure improvement projects identified in **Appendix A** not selected under the Proposed Action are considered in the cumulative effects analysis of this IDEA.

All fill used for infrastructure improvement activities would be obtained from an approved, off-installation borrow pit and screened to ensure it contains no cultural materials or hazardous substances. All trees and vegetation impacted from infrastructure improvement activities would be replaced or relocated, as applicable. All ground disturbed during construction activities that does not include site improvements would be reseeded with appropriate ground cover. Greater detail on each of the selected infrastructure improvement projects is given in the following paragraphs.

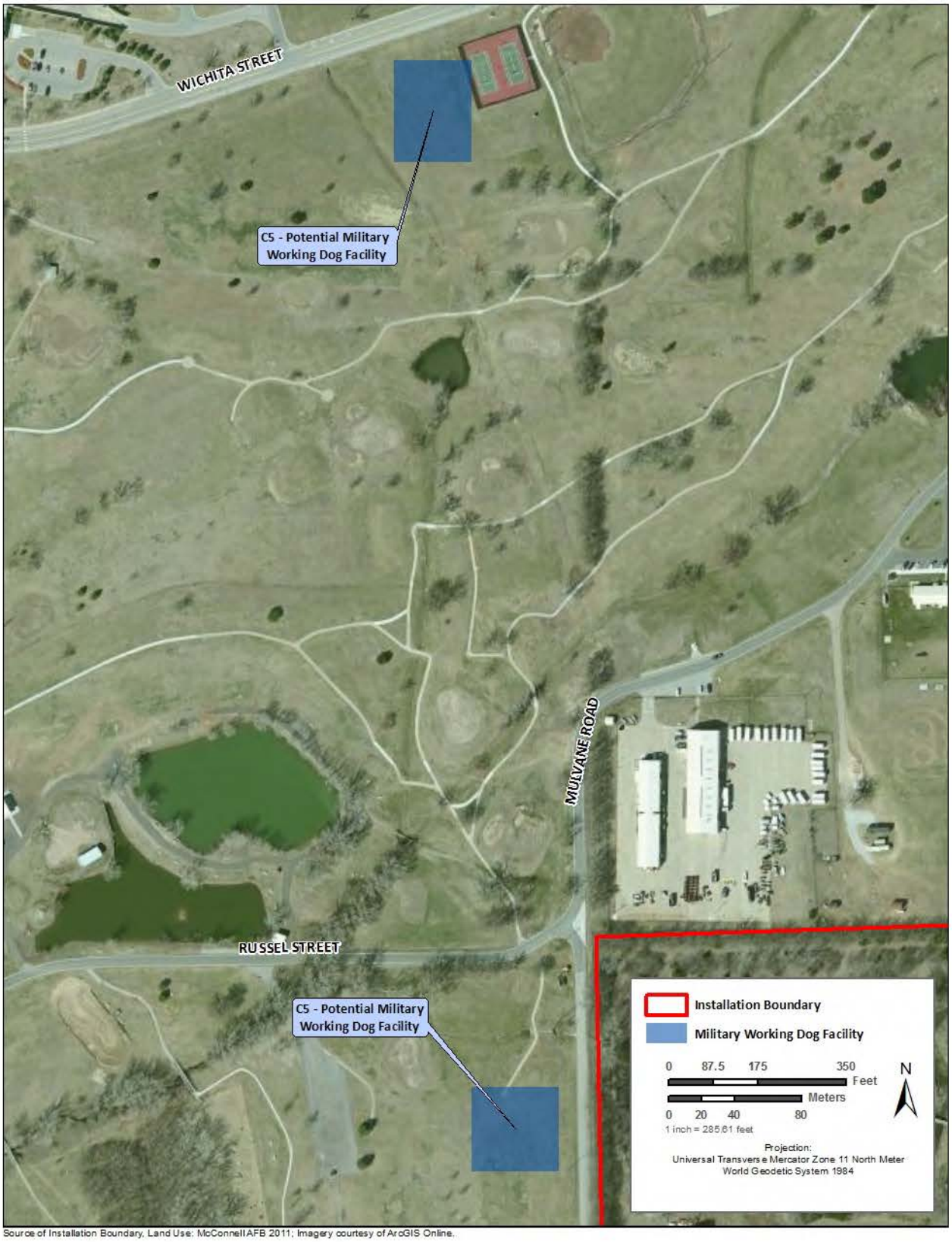


Figure 2-11. Possible Locations of the Military Working Dog Facility

Source of Installation Boundary, Land Use: McConnell AFB 2011; Imagery courtesy of ArcGIS Online.

Figure 2-12. Possible Location for the Base Civil Engineering and Contracting Complex

Table 2-3. Selected Infrastructure Improvement Projects Analyzed in this IDEA

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
I1. Taxiway Repairs	PRQE 04-0078	2012–2015	Airfield	Repair the existing taxiways leading to the east runway. The project replaces deteriorated taxiways and shoulder pavement, edge lighting, and signage in compliance with UFC 3-260-1, Airfield and Heliport Planning and Design.	None	1,573,709	-275,486
I2. Demolition of USTs and Construction of One AST	PRQE 08-0146	2012–2015	Industrial	Remove and dispose of existing USTs of various sizes and associated automatic tank gauging systems at Buildings 350, 352, 408, 515, 710, 739, 971, 1090, 1107, 1115, and 1166; and construct one AST near Building 408.	Buildings 1107, 1116, and 1166: ERP site	5,500	-5,500
I3. Sidewalk from Building 1 to Building 250	PRQE 10-0161	2014	Administrative and Community Commercial	Install a 6-foot-wide, 700-foot-long sidewalk between Buildings 1 and 250. Installation would include a pedestrian footbridge spanning McConnell Creek and planting of 8 eastern redbud and oak trees along the sidewalk.	100-year floodplain	15,000	+15,000
I4. East Runway Repairs	PRQE 03-0012	2017+	Airfield	Reduce the width of the runway from 300 feet to 200 feet. Repave 10,000 feet of the runway following demolition and replace edge lighting.	QD arcs	3,200,000	-1,200,000
					Total Square Feet	**4,794,209**	**-1,465,986**

Key:
AST = aboveground storage tank
ERP = Environmental Restoration Program
ft^2 = square feet
QD = quantity-distance
UST = underground storage tank

I1. Taxiway Repairs. Project I1 would repair the existing taxiways leading to the east runway. The purpose of Project I1 would be to repair the taxiways and provide a uniform paved shoulder width in compliance with UFC 3-260-1, *Airfield and Heliport Planning and Design*. The project is needed to alleviate further need for constant repair of the taxiways. The project would repair cracks and chips in the pavement, repave where needed, seal joints, replace and augment deteriorated edge lighting, and install correct signage. The total project area would be approximately 1,573,709 ft^2. Of this, approximately 1,298,223 ft^2 would be repaired and approximately 275,486 ft^2 would be demolished, resulting in a net loss of 275,486 ft^2 of impervious surfaces. **Figure 2-13** shows the proposed location of taxiway repairs.

I2. Demolition of Underground Storage Tanks and Construction of One Aboveground Storage Tank. McConnell AFB would remove and dispose of 11 underground storage tanks (USTs) and their associated automatic tank gauging systems and construct one aboveground storage tank (AST). The purpose of the project is to remove USTs from McConnell AFB. The need for the project is to respond to concerns that unregulated and regulated USTs will leak and might require soil and groundwater remediation. McConnell AFB is making a concerted effort to remove any existing USTs and remediate where necessary. The USTs scheduled for removal are located at Buildings 350, 352, 408, 515, 710, 739, 971, 1090, 1107, 1115, and 1166. The AST would be constructed near Building 408. **Figure 2-14** shows the proposed locations of the underground storage tanks proposed for removal and the AST proposed for construction.

I3. Sidewalk from Building 1 to Building 250. This project would involve installation of a 6-foot-wide, 700-foot-long sidewalk between Buildings 1 and 250. The purpose of the project is to create a sidewalk between the two buildings to encourage a walking campus at McConnell AFB. The project is needed because the sidewalks at McConnell AFB are currently inadequate to encourage walking. Construction would require installing a 6- to 8-foot-wide wooden pedestrian bridge spanning McConnell Creek. Additionally, eight eastern redbud and sugar maple trees would be planted along the newly constructed sidewalk. The total footprint of the project would be approximately 15,000 ft^2 and the change in impervious surface would be 15,000 ft^2. **Figure 2-15** shows a possible location of the sidewalk. Construction of the sidewalk would occur within the 100-year floodplain. Although it is USAF policy to avoid construction activities within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), construction within the floodplain would be unavoidable; therefore, a FONPA would be obtained and the project would need approval by HQ AMC.

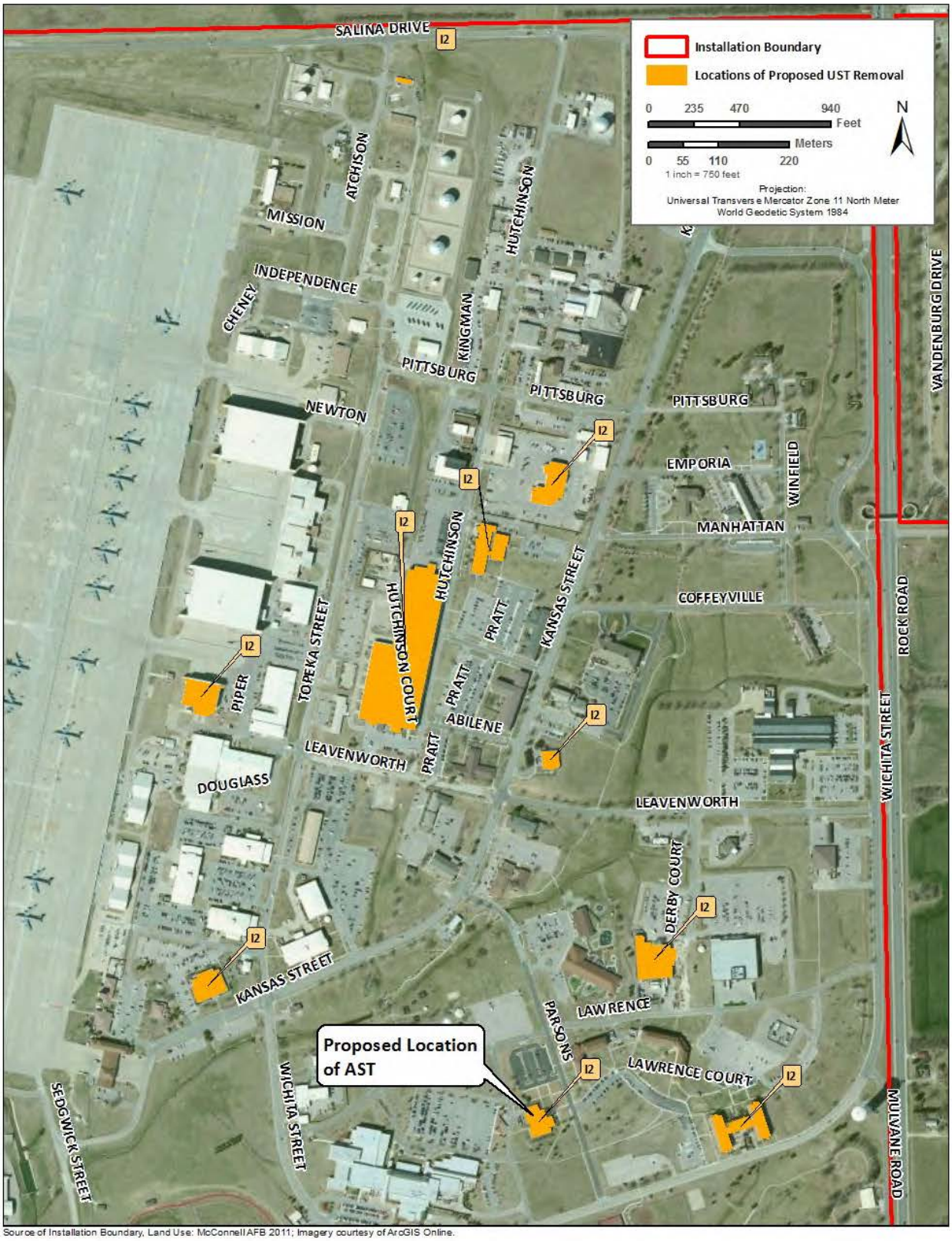
I4. East Runway Repairs. This project would repair the east runway, including reducing the width of the runway, repaving the pavement, and installing a new edge lighting system. The purpose of the project is to repair the runway in line with current mission requirements to repair deteriorating runway surfaces. The project is needed because the runway is currently too wide and is in need of constant repair. The width of the runway would be narrowed from 300 feet to 200 feet and would require demolishing approximately 1,200,000 ft^2 of existing surfaces. Approximately 10,000 feet of the runway would be repaved, resulting in approximately 2,000,000 ft^2 of newly paved surfaces. Following the reduction in width, the edge lighting would be moved in to mark the new edge of the runway. This project would result in a reduction in impervious surfaces of 1,200,000 ft^2. **Figure 2-13** shows the proposed location of east runway repairs.

2.1.6 Natural Infrastructure Management Projects

Of the natural infrastructure management projects proposed at McConnell AFB over the next 5 FYs (as identified in **Appendix A)**, one was identified for detailed analysis as a selected project under the Proposed Action. The other remaining proposed natural infrastructure management projects are addressed in the cumulative effects analysis for this IDEA. The selected natural infrastructure

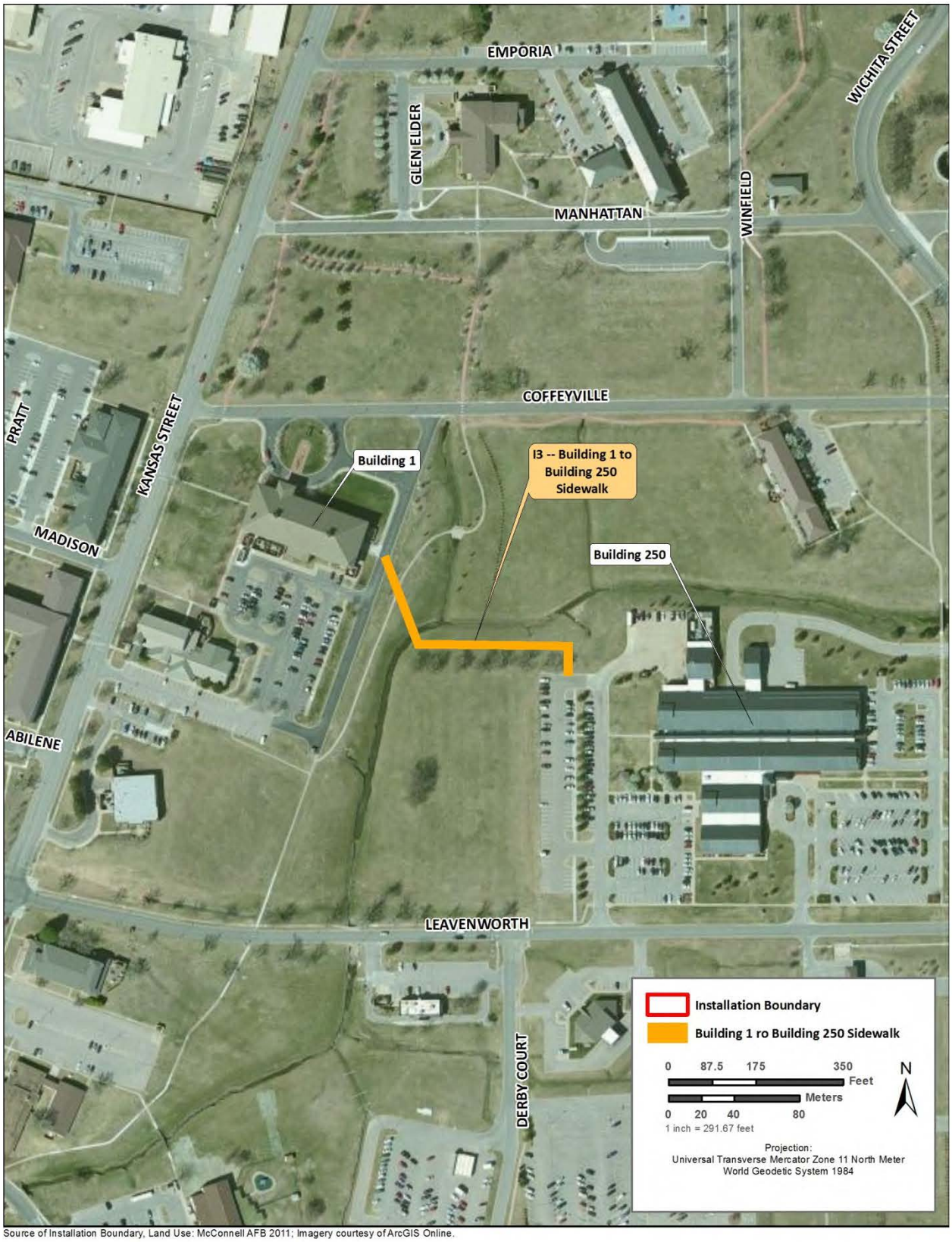
Source of Installation Boundary, Land Use: McConnell AFB 2011; Imagery courtesy of ArcGIS Online.

Figure 2-13. Proposed Locations of East Runway and Taxiway Repairs



Source of Installation Boundary, Land Use: McConnell AFB 2011; Imagery courtesy of ArcGIS Online.

Figure 2-14. Proposed Locations of Underground Storage Tank Removal and AST proposed for Construction



Source of Installation Boundary, Land Use: McConnell AFB 2011; Imagery courtesy of ArcGIS Online.

Figure 2-15. Possible Location of the Sidewalk from Building 1 to Building 250

management project could disturb as much as 343,102 ft^2 of land of an estimated 899,102 ft^2 of natural infrastructure management projects proposed over the next 5 FYs. Projects within this category include initiatives that enhance natural resources management (i.e., land, water, and airspace), cultural resources management, air quality, and grounds maintenance. **Table 2-4** identifies natural infrastructure management projects associated with the Proposed Action and **Figures 2-2** to **2-4** show the possible locations for these projects relative to known constraints at McConnell AFB.

All fill used for natural infrastructure management activities would be obtained from an approved borrow pit and screened to ensure it contains no cultural resources or hazardous substances. All trees and vegetation impacted from natural infrastructure management activities would be replaced or relocated as applicable. All ground disturbed during construction activities that does not include site improvements would be reseeded with appropriate species, as applicable. Greater detail on the selected natural infrastructure management project is given in the following paragraph.

NI1. McConnell Creek Stream Restoration. McConnell Creek is the main surface drainage source on McConnell AFB. A number of small tributaries collect into McConnell Creek, which then flows into the Arkansas River approximately 3 miles southwest of the installation. As McConnell AFB has developed, the amount of surface water runoff into McConnell Creek has increased and the result has been an increase in erosion and a decrease in soil stability along the creek. The purpose of this project is to address these issues by restoring the stream, shoring up the stream banks, channel modification, and creating a series of detention ponds along the creek. The project is needed to prevent flooding and decrease peak runoff into the creek. The area of restoration would be from north of the existing softball fields near Building 1230 to near Building 1. The restoration work would cover an area of approximately 343,102 ft^2 but would not result in an increase in impervious surfaces. **Figure 2-16** shows the proposed location of the McConnell Creek stream restoration project.

According to the 2001 Wetland Delineation Report for McConnell AFB, portions of McConnell Creek exhibit wetland characteristics (MAFB 2001). For the purposes of analysis in this IDEA, it is assumed that the wetlands are jurisdictional; however, the U.S. Army Corps of Engineers (USACE) will be contacted to make a final determination on their jurisdictional status. Restoration activities would occur within the 100-year floodplain and wetlands. Although it is USAF policy to avoid construction activities within the 100-year floodplain or wetlands (AFI 32-1021, *Integrated Natural Resources Management,* EO 11988, and EO 11990), restoration activities within the floodplain and wetland areas would be unavoidable; therefore, a FONPA would be obtained and the project would need approval by HQ AMC.

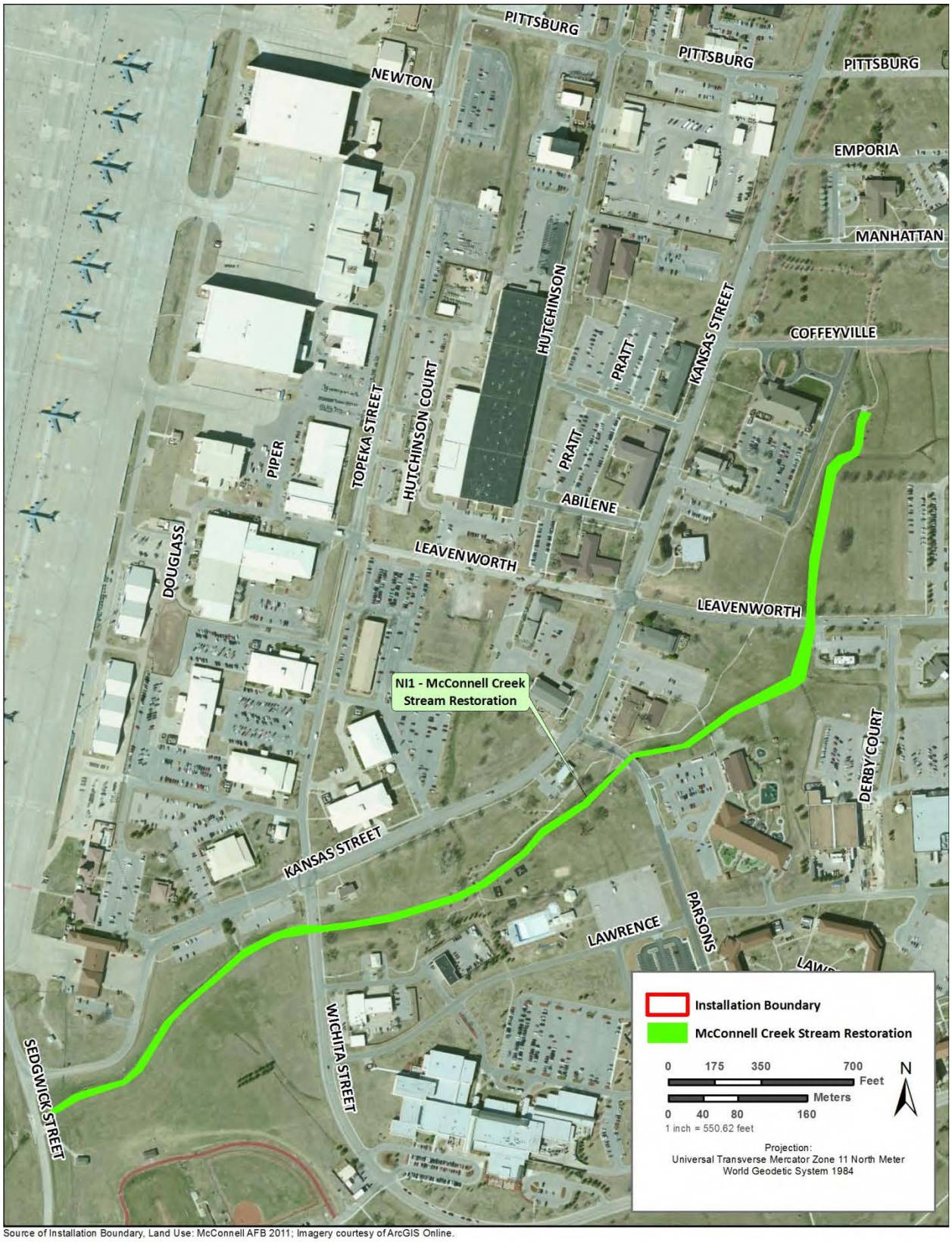
2.1.7 Strategic Sustainability Performance Projects

Of the strategic sustainability performance projects proposed at McConnell AFB over the next 5 FYs (as identified in **Appendix A**), one was selected for detailed analysis under the Proposed Action. The other remaining proposed strategic sustainability performance projects are addressed in the cumulative effects analysis of this IDEA. The selected strategic sustainability performance project could disturb as much as 523,000 ft^2 of land of an estimated 617,136 ft^2 of strategic sustainability performance projects proposed over the next 5 FYs. Projects within this category include alternative energy projects and projects that support energy conservation measures. **Table 2-5** identifies the selected strategic sustainability performance project to be evaluated in detail in this IDEA and **Figure 2-2** shows the possible location of the selected sustainability performance project relative to known constraints at McConnell AFB.

Table 2-4. Selected Natural Infrastructure Management Project Analyzed in this IDEA

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft2)	Change in Impervious Surface (ft2)
NI1. McConnell Creek Stream Restoration	N/A	2017+	Open Space, Outdoor Recreation, Community Service, and Community Commercial	Restore McConnell Creek, including maintaining surface drainage and construction of retention basins.	Wetlands, 100-year floodplain	343,102	0
					Total Square Feet	**343,102**	**0**

Key: ft^2 = square feet
N/A = not applicable



Source of Installation Boundary, Land Use: McConnell AFB 2011; Imagery courtesy of ArcGIS Online.

Figure 2-16. Proposed Location of the McConnell Creek Stream Restoration

Table 2-5. Selected Strategic Sustainability Performance Project Analyzed in this IDEA

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
S1. Solar Plant	PRQE 10-2481	2017	Open Space	Construct a 12-acre, 1.5-MW solar plant servicing the KANG.	None	523,000	+260,000
					Total Square Feet	**523,000**	**+260,000**

Key:
ft^2 = square feet
MW = megawatt

S1. Solar Plant. The KANG would construct a 1.5-megawatt (MW) solar photovoltaic power-generating plant on approximately 12 acres (see **Figure 2-17**). The purpose of the project is to increase energy security at McConnell AFB, increase overall use of renewable energy, and decrease use of nonrenewable energy resources. The project is needed to help the KANG meet the DOD installation energy policy long-range goal for renewable energy use. Power generated from the solar plant would be expected to replace approximately one-half of KANG's existing generation requirements. Up to 523,000 ft^2 of land would be disturbed to construct the solar plant. Assuming that the solar panels would cover one-half of that area, the net increase in impervious surfaces would be approximately 260,000 ft^2. The proposed location of the solar plant is constrained by wetlands and the 100-year floodplain in the north portion of the proposed site, but would not be constructed within the wetlands or floodplain.

2.1.8 Summary of Proposed Activities

As a result of implementing the projects described in the preceding subsections (all projects identified in **Tables 2-1** through **2-5**), there would be approximately 768,980 ft^2 of demolished buildings at McConnell AFB, resulting in a decrease of impervious surfaces of approximately 768,980 ft^2. Over the course of the next 5 years (FY 2012 to FY 2017), these projects would add approximately 2,345,518 ft^2 of new facilities, site improvements, and new pavements, resulting in an anticipated increase of 857,054 ft^2 of impervious surfaces. Additionally, there would be infrastructure upgrades and improvements. These selected infrastructure projects under the Proposed Action, including selected natural resources infrastructure improvements, could disturb as much as 5,137,311 ft^2 of area and would reduce impervious surfaces by 1,465,986 ft^2. Finally, there would be construction of approximately 523,000 ft^2 of selected strategic sustainability performance projects, resulting in an increase of 260,000 ft^2 of impervious surfaces. Altogether, these projects would result in a total decrease in impervious surfaces of 1,117,912 ft^2. **Table 2-6** summarizes the anticipated project areas and changes in impervious surfaces from the selected projects under the Proposed Action.

2.2 Alternatives

All proposed projects and their associated possible locations at McConnell AFB have undergone an intensive review by Civil Engineering Planning and Asset Management Flights and supporting installation staff. During revision to McConnell AFB installation development plans and individual project planning and programming, alternatives for all projects are considered and evaluated. The best operational and engineering solutions, including facility siting proposals, are identified based on the following selection criteria:

- Fulfillment of current mission requirements
- Facility sustainability as mission evolves or changes
- Economic feasibility
- Consistency with future land uses and the IDP
- Consistency with state, regional, and local plans
- Consistency with DOD and USAF policies, guidance, and directives
- Functional compatibility with adjacent facilities
- Collocation of like services
- Availability of sites and adequacy of space
- Adherence to USAF Strategic Sustainable Performance goals and objectives
- Environmental constraints (see **Section 2.1.2**).

All proposed projects are reviewed and approved by the FUB, which is chaired by the Wing Commander.

Figure 2-17. Potential Site for the Solar Plant

Table 2-6. Project Area and Change in Impervious Surfaces

Project Type	Total Project Area (ft^2)	Change in Impervious Surfaces (ft^2)
Demolition	768,980	-768,980
Construction	2,345,518	+857,054
Infrastructure Improvement	4,794,209	-1,465,986
Natural Infrastructure Management	343,102	0
Strategic Sustainability Performance	523,000	260,000
Total	**8,774,809**	**-1,117,912**

Note: Changes in impervious surfaces are not necessarily equivalent to the project area square footage because some facilities proposed for demolition are multiple stories, and many new facilities would be multiple stories. Furthermore, some infrastructure improvement and natural infrastructure management projects would disturb area but not add impervious surfaces.

Some projects, such as those that require demolition, renovation, or an addition to a specific building, might not have any alternatives by their very nature. Based on the listed criteria, the scope and possible locations for each project identified in **Section 2.1** were determined by installation personnel to be mission supportive, sustainable, and economical. **Section 2.2.1** provides an overview of the alternative analysis determination process.

The individual projects identified in this IDEA would be prioritized and implemented as funding becomes available. The Proposed Action encompasses all the currently identified priority projects and the analyses describe the specific and cumulative consequences of implementing installation development. Since project phasing is expected to occur based on the availability of funding, no phasing alternatives were carried forward for independent analysis. The following subsections discuss alternatives for each of the project categories.

2.2.1 Alternatives Analysis

The process for selecting projects to be analyzed in the IDEA is initiated with a review of all projects included in the community of the installation-approved, 5-year development plans. The inclusion of a project in an installation-approved plan begins with the identification of a DOD mission-essential requirement by a proponent. The proponent submits the requirement to the Base Civil Engineer (BCE) for project consideration. Working with the proponent, the Engineering staff, and other subject matter experts, including planners and environmental scientists, the BCE conducts an internal review to determine if the requirement can be met with operational or engineering solutions, while minimizing potential environmental impacts on natural and man-made environments. Additional reviews are conducted to determine if the proposed solution is consistent with the IDP, Antiterrorism/Force Protection Plan, INRMP, ICRMP, and other approved base plans. If the requirement includes facility construction, the internal review will include an evaluation of alternatives for potential development sites, which, in turn, must meet mission and national security requirements and minimize potential environmental concerns. The siting analysis for the proposed facility considers the adequacy of the site to fulfill current requirements with space for future expansion, functionality, command and control, compatibility with existing and future land use, compatibility with adjacent facilities, infrastructure availability, and site development costs. Once the requirement is determined to need an engineering solution and is consistent with installation plans, a project is created and additional screening is conducted to determine placement

of the project into the appropriate construction program (i.e., MILCON; Sustainment, Restoration and Modernization; Non-Appropriated Fund) or plan (i.e., INRMP, ICRMP). Finally, the project is presented to the FUB for approval. If it is approved, it is assigned a priority and recommended for a specific FY for completion.

2.2.2 Alternatives for Demolition Projects

The demolition projects selected under the Proposed Action are proposed for demolition because they no longer meet the selection criteria described in **Section 2.2**. As presented in **Table 2-7**, the FUB determined that the four selected demolition projects are no longer needed to support current mission requirements and are economically infeasible to repair or renovate. Further, Air Force Handbook 32-1084, *Facility Requirements*, has decreased the space requirements for many functions, which means that functionalities within different facilities can often be combined and aging facilities can be demolished. In accordance with AFI 32-1032, *Planning and Programming Appropriated Funded Maintenance, Repair, and Construction Projects*, it is USAF policy to replace a facility when the estimated repair cost exceeds 70 percent of the replacement cost. All facilities proposed for demolition have either been deemed to be unusable or too costly to repair or renovate to meet future mission requirements of McConnell AFB by the FUB, 22 CES/CEAN and other installation personnel.

Table 2-7. Justification for Proposed Selected Building Demolition Projects

Project Number/Description	Year Constructed	Project Area (ft^2)	Facilities Utilization Board Justification for Demolition
D1. Demolition of Buildings 181 to 184	1956	110,800	Buildings no longer consistent with current mission requirements because as housing units within the main cantonment area of the installation they are inconsistent with current planning for the area. Further, they are not economically feasible to upgrade for an alternative use.
D2. Demolition of Buildings 750 and 795	750: 1954 795: 1952	196,735	Buildings have exceeded their lifespan, have become economically inefficient to maintain, and, functionalities are being moved to other facilities in accordance with space requirements outlined in Air Force Handbook 32-1084.
D3. Demolition of Building 1090	1952	459,394	Building 1090 is not economically feasible to repair or upgrade; and contains numerous safety and fire code issues, such that portions of the building are being vacated and the functionalities moved to different facilities.
D4. Demolition of Building 430	1954	2,051	Building 430 is no longer needed to support mission requirements, is not economically feasible to upgrade for an alternative use, and functionalities are being moved to other facilities in accordance with space requirements outlined in Air Force Handbook 32-1084.

Additionally, the facilities included as selected demolition projects to be addressed under the Proposed Action are proposed for demolition because they aid McConnell AFB in achieving the DOD and USAF energy conservation goals, as required by EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, the Energy Independence and Security Act (EISA), and Energy Policy Act (EPAct). The goals include reducing energy consumption/gross square feet by 2 percent each year through FY 2015 with a total reduction of 30 percent from a baseline of FY 2003.

Although not alternatives to demolition, employing different demolition methods, and altering the timing of demolition activity to minimize fugitive dust generation, would be included in the project design. Alternative demolition methods would vary depending on the area where demolition is planned, the building or structural materials to be demolished, the purpose of the demolition, and the way the resultant debris would be disposed of and are discussed within the analysis, where appropriate. These alternative demolition methods are not alternatives in the sense that the USAF would consider them during project planning, but rather, the USAF would choose the appropriate demolition method as dictated by local site conditions.

2.2.3 Alternatives for Construction Projects

McConnell AFB supports a complex variety of command-level activities. As noted in **Sections 2.1.2** and **Figures 2-1** to **2-6**, much of the installation is constrained by the location of the airfield and its associated CZs, APZs, and noise zones; the existence of cultural resources sites; numerous ERP sites; wetlands and floodplain areas; QD arcs; AT/FP standoffs; parking shortages; and designated land use categories. Due to the constraints described here and in **Section 2.1.2**, the analyses provided in this IDEA addressing the selected projects evaluate their siting anywhere within the improved or semi-improved areas of the installation that are within compatible land use areas of the installation.

Specific alternatives to the selected construction projects were considered by the 22 CES/CEAN and other installation personnel during the planning process. The following paragraphs provide a summary of the alternatives considered and the reasoning when no reasonable alternatives were identified or were included for further detailed evaluation in this IDEA.

Alternative for Project C1 (Maintenance Group Consolidation). An alternative to Project C1 (Maintenance Group Consolidation) would be to consolidate the maintenance group into existing buildings at McConnell AFB. This alternative would consist of renovating Building 1128 and relocating the fabrication shop to the newly renovated space; relocating Maintenance Group Crash Recovery from Building 1128 to either Building 1129 or 1102; renovating Building 1169 and relocating Base Supply from Building 1090 to the newly renovated space; renovating Building 1220 and relocating Mobility Processing from Building 1090 to the newly renovated space; and relocating Security Forces Supply Mobility from Building 1220 to either Building 1129 or Building 1102. These buildings are proposed for renovation because the existing facilities are improperly configured for and inefficient in supporting maintenance group activities. Further, as outlined in AFI 32-1032 and determined by the FUB, the cost of repairing and updating the buildings does not exceed 70 percent of the cost of replacement. This alternative is considered reasonable and will be carried forward for further analysis in this IDEA. Building 1220 is located within the 100-year floodplain and although it is USAF policy to avoid actions within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), Building 1220 renovation activities within the floodplain would be unavoidable. Therefore, a FONPA would be obtained and the project would need approval by HQ AMC.

Alternative for Project C2 (Air Traffic Control Tower). No alternatives were identified for the analysis of construction of a new air traffic control tower. The proposed tower is constrained by the operational need of optimizing sightlines to the airfield. Other undeveloped sites within McConnell AFB are

constrained by being too far away from the airfield or having the sightline to the airfield blocked by other existing structures. Therefore, the proposed location in the open area south of the runway is the only location analyzed in this IDEA and other site alternatives have been eliminated in accordance with the adequacy of space selection criteria presented in **Section 2.2**. Alternatives sited outside of the existing MSA do not meet the selection criteria presented in **Section 2.2**, namely the constraints of existing QD arcs.

Alternative for Project C3 (KANG MSA Renovation). No alternative locations were identified for the analysis of the KANG MSA Renovation project because of constraints due to the existing QD arcs at the MSA. Relocation of any of the munitions storage igloos outside of the existing MSA would result in expansion of the QD arcs into McConnell AFB active operational space and would interfere with mission functions.

Alternative for Project C4 (Veterans Administration Hospital). An alternative site location for Project C4 (VA Hospital) in the open space north of the Medical Administration Building (Building 250) was identified during preliminary planning. Under this alternative, the VA Hospital would be connected to Building 250 with an enclosed walkway. The proposed alternative site would require patients to enter the installation through a secured gate, rather than by accessing the proposed hospital directly from off-installation. Additionally, the USAF would require AT/FP setbacks from the property fence line and there is inadequate space north of Building 250 to accomplish this. In addition, a creek in this location would present additional environmental constraints. Therefore, the alternative would not meet the selection criteria established in **Section 2.2** due to AT/FP setbacks, environmental constraints, and construction feasibility issues. This alternative was deemed not reasonable and was eliminated from further detailed analysis in this IDEA.

Alternative for Project C5 (Military Working Dog Facility). Alternatives to Project C5 include the consideration of different layouts of the facility at either the Option 1 or Option 2 location. Each orientation would disturb approximately the same amount of space as the current proposed layout of the facility and, due to the largely similar site conditions throughout the outdoor recreation space in which the facility is proposed, the environmental effects from these alternative layouts are expected to be the same. Therefore, the alternative locations have been eliminated from further detailed analysis.

Alternative for Project C6 (Base Civil Engineering and Contracting Complex). Alternative locations for Project C6 were considered during project planning and eliminated because of walking distances or land use compatibility issues. The McConnell AFB IDP and Core District Area Development Plan established a goal of maintaining a 10-minute walking diameter between Wing Headquarters (Building 1) and the Dole Center (Building 412). Other locations outside this diameter would not be conducive to the goal of encouraging healthy pedestrian traffic and consolidated parking that are core elements of the plan. Also, the proposed area for development (where Building 1090 would be demolished) is previously disturbed land with compatible industrial land use. Other areas that were considered east of Building 1 are closer to the fence line and are not zoned for industrial use. Therefore, because the alternatives would not meet the selection criteria established in **Section 2.2**, namely that they would not be consistent with future land uses or the IDP, no alternative locations for construction of the Base Civil Engineering and Contracting Complex were carried forward for analysis.

2.2.4 Alternatives for Infrastructure Improvement Projects

Infrastructure improvement projects include repairs and upgrades to runways, taxiways, and airfield lighting; utilities and transportation infrastructure; and installation of sidewalks and force-protection measures. Alternatives are limited to existing and proposed locations of real property facilities (i.e., buildings, structures) and non-real property assets (i.e., aircraft, equipment, vehicles) that the

infrastructure serves. Generally, the need for infrastructure adjacent to operational activity results in most infrastructure alternatives being limited to areas that such infrastructure would serve (e.g., Projects I1 and I4 are the repair of existing airfield facilities, Project I2 is the removal of existing USTs, and Project I3 is the construction of a sidewalk between two existing facilities). Due to the constraints described here and in **Section 2.1.2**, the selection criteria presented in **Section 2.2**, namely the fulfillment of mission requirements and availability of sites and adequacy of space, preclude the development of reasonable alternatives to the infrastructure improvement projects analyzed in this IDEA.

2.2.5 Alternatives for Natural Infrastructure Management Projects

Natural infrastructure management projects are selected because they are required to ensure the natural environment remains compatible with military operations; the goals and objectives identified in the INRMP and ICRMP are met; and environmental statutes, rules, regulations, and permit conditions are followed. There is no reasonable alternative to the selected natural infrastructure management project at McConnell AFB. Project NI1 (McConnell Creek Restoration) can only occur within the existing boundaries of McConnell Creek; therefore, there are no reasonable alternative sites to accomplishing the objectives of the project. The goal of the project is to restore the creek to natural conditions, stabilize the stream banks, and prevent future erosion. The specific means of achieving these goals would be established during project design; however, the proposed project includes the range of possible activities, including establishment of retention ponds, stabilizing stream banks, and channel modification. There are no alternatives that could take place outside of the 100-year floodplain.

2.2.6 Alternatives for Strategic Sustainability Performance Projects

Specific alternatives to Project S1 were considered by the 22 CES/CEAN and other installation personnel during the planning process. These included consideration of different types of renewable energy technologies, such as geothermal, wind, biomass, and small-scale hydroelectric. Geothermal technologies (e.g., GSHPs) are already being implemented throughout the installation. Wind energy at a large scale is not considered suitable at McConnell AFB due to space constraints. Biomass production would require a source of biomass that is not available on the installation. No rivers are suitable on McConnell AFB for small-scale hydroelectric generation. For these reasons, only solar power generation is analyzed in this IDEA. Alternative locations for the proposed solar plant were also considered during the planning process. Two additional sites were analyzed in the KANG-occupied area of the installation along the airfield. Both locations provided the necessary space to construct the solar plant; however, their locations along the airfield would have presented potential safety issues due to the creation of reflective surfaces near takeoff and landing zones. Therefore, these alternatives would not meet the selection criteria described in **Section 2.2**, specifically that the facility be compatible with adjacent facilities, and have been eliminated from further analysis.

2.3 No Action Alternative

CEQ regulations require consideration of the No Action Alternative for all proposed actions. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action and other potential action alternatives can be compared and consequently it is carried forward for further evaluation in this IDEA. The No Action Alternative would be “no change” from current practices, or continuing with the present course of action until that action is changed.

Through implementation of the No Action Alternative, future installation development projects would continue to be evaluated on an individual project basis. It is anticipated that future development would occur under the No Action Alternative, but those development projects would be analyzed through the preparation of project-specific NEPA documentation, as appropriate. This alternative is carried forward

for analysis as a baseline against which the impacts of the Proposed Action and potential action alternatives can be evaluated.

2.3.1 No Action Alternative for Selected Demolition Projects

Under the No Action Alternative, the selected demolition projects would not be implemented. In some situations relevant to the projects addressed in the IDEA, mission functions would continue to occur, and personnel would continue to work in obsolete, deteriorating, and underused facilities or would be consolidated into other less appropriate facilities within the installation, if space is available. In addition, limited funding would have to be used to continue maintenance and upkeep of these facilities diverting necessary funding away from other mission-essential functions. The No Action Alternative for demolition projects is considered unreasonable because it would prevent McConnell AFB from meeting its prescribed goals and reducing the physical plant footprint on the installation pursuant to the "20/20 by 2020" initiative or allowing the installation to make space available for future development.

2.3.2 No Action Alternative for Selected Construction Projects

Under the No Action Alternative, the selected construction projects under the Proposed Action would not be built. In some situations relevant to the projects addressed in this IDEA, McConnell AFB would not have new state-of-the-art facilities to accommodate current and future missions and address facility workspace requirements. For instance, construction of a new air traffic control tower would not occur, which would cause personnel to continue to work in an inadequate facility with safety issues.

2.3.3 No Action Alternative for Selected Infrastructure Improvement Projects

Under the No Action Alternative, the selected infrastructure improvement projects would not be implemented. This would cause McConnell AFB to continue to use obsolete or deteriorating utilities, vehicle and storage parking space would continue to be inadequate to support mission functions and meet national security objectives, and airfield pavements and parking spaces would continue to deteriorate and cause unsafe conditions. McConnell AFB would still be required to repair breaks and interruptions in utilities and would continue to repair cracks and deteriorating pavement areas by patching until their useful life has ended. In addition, not upgrading and replacing outdated and unsafe infrastructure would hinder McConnell AFB's mission and security objectives and could increase potential foreign object damage hazards on aircraft.

2.3.4 No Action Alternative for Selected Natural Infrastructure Management Projects

Under the No Action Alternative, the natural infrastructure management projects would not be implemented. In some situations relevant to the projects addressed in this IDEA, the potential for erosion and degradation of water quality would continue and increase. McConnell AFB would not be in full compliance with INRMP and ICRMP management objectives to protect natural and historic resources. In addition, McConnell AFB would not be in full compliance with Federal, state, and local regulations requiring protection of water quality, sensitive species and their associated habitat, and protection of historic resources.

2.3.5 No Action Alternative for Strategic Sustainability Performance Projects

Under the No Action Alternative, the selected strategic sustainability performance project under the Proposed Action would not be built. The installation would not construct the solar plant and, thus, would not meet the purpose of and need for the project of reducing the installation's overall carbon footprint, reducing dependency on foreign oil, and improving local and regional air quality.

2.4 Decision to be Made and Identification of the Preferred Alternative

In this IDEA, McConnell AFB provides an evaluation of the selected projects to determine whether the Proposed Action would result in any potential significant impacts. If such impacts are predicted, McConnell AFB would provide mitigation to reduce impacts to below the level of significance, undertake the preparation of an EIS addressing the Proposed Action, or abandon the Proposed Action. This IDEA is also used to guide McConnell AFB in implementing the Proposed Action, should it be approved, in a manner consistent with USAF standards for environmental stewardship. The Preferred Alternative for the Proposed Action is set forth in **Section 2.1**.

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3. Affected Environment

Section 3 describes the environmental resources and conditions most likely to be affected by the Proposed Action and provides information to serve as a baseline from which to identify and evaluate potential environmental and socioeconomic impacts that could result from the Proposed Action. Baseline conditions represent current conditions. The potential environmental impacts of the Proposed Action and the No Action Alternative on the baseline conditions are described in **Section 4**. In compliance with NEPA, CEQ guidelines, and USAF guidance in 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially subject to impacts.

3.1 Noise

3.1.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one's ears or as annoying noise. Affected receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Noise Metrics and Regulations. Although human response to noise varies, measurements can be calculated with instruments that record instantaneous sound levels in decibels. The metric used to characterize sound levels that can be sensed by the human ear is dBA. "A-weighted" denotes the adjustment of the frequency range to what the average human ear can sense when experiencing an audible event. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The threshold of pain occurs at the upper boundary of audibility, which is normally in the region of 135 dBA (USEPA 1981a). **Table 3-1** compares common sounds and shows how they rank in terms of the effects of hearing. As shown, a whisper is normally 30 dBA and considered to be very quiet while an air conditioning unit 20 feet away is considered an intrusive noise at 60 dBA. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10 dBA increase seems twice as loud (USEPA 1981b).

Federal Regulations. Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed to is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

Sound levels, resulting from multiple single events, are used to characterize noise effects from aircraft or vehicle activity and are measured in DNL. The DNL noise metric incorporates a "penalty" for nighttime noise events to account for increased annoyance. DNL is the energy-averaged sound level measured over

Table 3-1. Sound Levels and Human Response

Noise Level (dBA)	Common Sounds	Effect
10	Just audible	Negligible*
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying
90	Heavy truck (50 feet) or city traffic	Very annoying Hearing damage (8 hours)
100	Garbage truck	Very annoying*
110	Pile drivers	Strained vocal effort*
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Source: USEPA 1981b and *HDR extrapolation

a 24-hour period, with a 10-dBA penalty assigned to noise events occurring between 10:00 p.m. and 7:00 a.m. DNL values are obtained by averaging sound exposure levels over a given 24-hour period. DNL is the designated noise metric of the FAA, HUD, U.S. Environmental Protection Agency (USEPA), and DOD for modeling airport environments.

According to the USAF, the FAA, and the HUD criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the noise exposure exceeds 75 dBA DNL, "normally unacceptable" in regions exposed to noise between 65 and 75 dBA DNL, and "normally acceptable" in areas exposed to noise of 65 dBA DNL or under. The Federal Interagency Committee on Noise developed land use compatibility guidelines for noise in terms of a DNL sound level (FICON 1992). For outdoor activities, the USEPA recommends 55 dBA DNL as the sound level below which there is no reason to suspect that the general population would be at risk from any of the effects of noise (USEPA 1974).

There are no state or local policies that regulate noise at McConnell AFB.

Construction Sound Levels. Building demolition and construction work can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, pavers, and other work equipment. **Table 3-2** lists noise levels associated with common types of construction equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

3.1.2 Existing Conditions

McConnell AFB is located in the south-central part of Kansas, about 6 miles southeast of the City of Wichita. The ambient noise environment around McConnell AFB is affected mainly by military aircraft operations and automobile traffic. Military operations that impact the noise environment also include aircraft maintenance activities and weapons training.

Table 3-2. Predicted Noise Levels for Construction Equipment

Construction Equipment	Predicted Noise Level at 50 feet (dBA)
Backhoe	72–93
Concrete mixer	74–88
Crane	75–87
Front loader	72–83
Grader	80–93
Jackhammer	81–98
Paver	86–88
Pile driver	95–105
Roller	73–75
Truck	83–94

Source: USEPA 1971

Transportation routes near McConnell AFB include Interstates 35, 135, and 235; U.S. Route 400; and State Route 15. Interstate 35 is 1 mile west of McConnell AFB and runs southwest and northeast around Wichita. Interstates 135 and 235 are 2 miles and 4 miles, respectively, to the west of the installation. U.S. Route 400 traverses west and east, 3 miles north of McConnell AFB. State Route 15 runs northwest to southeast about 1 mile west of McConnell AFB. Although most of the land adjacent to McConnell AFB is agricultural or light residential, many of these roads provide direct access to the City of Wichita.

In 1994, an Air Installation Compatible Use Zone (AICUZ) Study was completed for the installation (MAFB 1994). As shown in **Figures 2-2** to **2-5**, the 65 to 80+ dBA DNL noise contours from the 1994 AICUZ extend northeast and southwest from the runway centerlines and parallel the runways. The noise contours extend outside of the installation boundary into the City of Wichita and the City of Derby. All of the selected projects are encompassed by the noise contours.

Vehicle use associated with military operations at McConnell AFB consists of passenger and military vehicles and delivery and fuel trucks. Passenger vehicles compose most of the vehicles present at McConnell AFB and the surrounding community roadways.

Considering the aircraft operations and vehicle traffic at and adjacent to McConnell AFB, the ambient sound environment around McConnell AFB is likely to resemble an urban atmosphere.

3.2 Land Use

3.2.1 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. However, there is 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. USAF installation land use

planning commonly use 12 general land use classifications: Airfield, Aircraft Operations and Maintenance, Industrial, Administrative, Community Commercial, Community Service, Medical, Housing Accompanied, Housing Unaccompanied, Outdoor Recreation, Open Space, and Water (USAF 1998).

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. According to Air Force Pamphlet 32-1010, *Land Use Planning*, land use planning is the arrangement of compatible activities in the most functionally effective and efficient manner (USAF 1998). The highest and best uses of real property are obtained when compatibility among land uses fosters societal interest. Tools supporting land use planning within the civilian sector include written master plans/management plans, policies, and zoning regulations. The USAF comprehensive planning process also uses functional analysis, which determines the degree of connectivity among installation land uses and between installation and off-installation land uses, to determine future installation development and facilities planning.

In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site 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 matters such as 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."

3.2.2 Existing Conditions

Surrounding Off-Installation Land Use. McConnell AFB is approximately 6 miles southeast of downtown Wichita, Kansas, in Sedgwick County. It encompasses approximately 2,651 acres of land. The City of Wichita abuts the installation along its northern and western boundaries; to the east and south are unincorporated areas of Sedgwick County. Further to the south is the City of Derby, with approximately 22,000 residents. Land use surrounding the installation is primarily a mixture of residential, commercial, industrial, and agricultural/undeveloped areas, which is generally consistent with the Wichita-Sedgwick County Comprehensive Plan (City of Wichita-Sedgwick County 1999). Immediately to the north and west of the installation, the land use is designated industrial; further north and west, the land use is designated residential and commercial. To the south and east, the land use is designated as a mixture of residential and agriculture/undeveloped (City of Derby-City of Wichita-Sedgwick County 2005).

In response to increasing pressure from urban development surrounding the installation, the cities of Derby and Wichita and Sedgwick County, in cooperation with McConnell AFB, completed the *McConnell Air Force Base Joint Land Use Study* (JLUS) in 2005. The goals of the study were to protect the future operational capability of McConnell AFB and promote the long-term health, safety, and welfare of the civilian and military community on or near McConnell AFB. The JLUS identifies several planning areas within which increased coordination and communication among stakeholders, and increasing levels of land use compatibility guidance are recommended. For example, the JLUS recommends managing growth in CZ and APZ areas through zoning requirements, instituting noise level reduction measures in local building codes, and acquiring land within APZ safety areas to minimize future land use conflicts (City of Derby-City of Wichita-Sedgwick County 2005).

On-Installation Land Use. McConnell AFB consists of 2,651 acres of land subdivided into three general areas: the area occupied by the KANG, the airfield, and the main installation area. The dominant land use is the airfield, which contains two active runways generally oriented north-south. The KANG campus is located west of the airfield and is composed primarily of industrial and aircraft operations and maintenance uses. The main installation area is east of the airfield and contains a mixture of all land use types (MAFB 2005a). As discussed in **Section 2.1**, the McConnell AFB IDP identifies 11 land use

categories: administrative, airfield, aircraft operations and maintenance, industrial, community commercial, community service, medical, housing accompanied, housing unaccompanied, outdoor recreation, and open space (see **Figure 2-6** and **Table 3-3**) (MAFB 2011a).

Table 3-3. Existing Land Use Summary

Land Use	Acres
Administrative	64
Aircraft Operations and Maintenance	97
Airfield	1,145
Community Service	40
Community Commercial	43
Housing Accompanied	124
Housing Unaccompanied	23
Industrial	398
Medical	20
Outdoor Recreation	249
Open Space	448
Total	**2,651**

Source: MAFB 2011a

Per the installation's IDP, future land use at McConnell AFB strongly resembles existing land use patterns. No major changes to current land use designations are anticipated (MAFB 2011a). Long-term planning at McConnell AFB also occurs through the development and implementation of Area Development Plans (ADPs). An ADP provides an important link between the broad land use categories identified in the McConnell AFB IDP and site-specific planning for individual construction projects. The existing ADPs for McConnell cover the core district and the Krueger Recreation Area (KRA) and identify many of the projects included in this IDEA.

With respect to the selected projects, **Table 3-4** identifies the proposed land use categories of each project. Some selected projects occur within multiple land use categories.

3.3 Air Quality

3.3.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

Ambient Air Quality Standards. Under the CAA, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2),

Table 3-4. Land Use Categories Associated with the Selected Projects

Land Use Category	Selected Project
Airfield	• Project I1 – Taxiway Repairs • Project I4 – East Runway Repairs
Aircraft Operations and Maintenance	• Project C1 – Maintenance Group Consolidation • Project C2 – Air Traffic Control Tower
Industrial	• Project D3 – Demolish Building 1090 • Project C3 – KANG Munitions Storage Area Renovation • Project C6 – Base Civil Engineering and Contracting Complex • Project I2 – Demolition of Underground Storage Tanks and Construction of One Aboveground Storage Tank • Project S1 – Solar Plant
Administrative	• Project D2 – Demolish Buildings 750 and 795 • Project D4 – Demolish Building 430 • Project I3 – Sidewalk from Building 1 to Building 250
Open Space	• Project NI1 – McConnell Creek Stream Restoration • Project S1 – Solar Plant
Outdoor Recreation	• Project C4 – Veterans Administration Hospital • Project C5 – Military Working Dog Facility • Project NI1 – McConnell Creek Stream Restoration
Community Service or Commercial	• Project D2 – Demolish Buildings 750 and 795 • Project I3 – Sidewalk from Building 1 to Building 250 • Project NI1 – McConnell Creek Stream Restoration
Housing Accompanied	• Project D1 – Demolish Buildings 181 to 184

respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb) (40 CFR Part 50). The CAA also gives the authority to states to establish air quality rules and regulations. The State of Kansas has adopted the NAAQS which are presented in **Table 3-5**.

Attainment Versus Nonattainment and General Conformity. The USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as either "attainment," "nonattainment," "maintenance," or "unclassified" for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. USEPA has delegated the authority for ensuring compliance with the NAAQS in Kansas to the Kansas Department of Health and Environment, Bureau of Air. In accordance with the CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

Table 3-5. National and State Ambient Air Quality Standards, Effective October 2011

Pollutant	Averaging Time	Primary Standard		Secondary Standard
		Federal	State	
CO	8-hour (1)	9 ppm (10 mg/m^3)	Same as Federal	None
	1-hour (1)	35 ppm (40 mg/m^3)	Same as Federal	None
Pb	Rolling 3-Month Average (2)	0.15 µg/m^3 (3)	Same as Federal	Same as Primary
NO_2	Annual (4)	53 ppb (5)	Same as Federal	Same as Primary
	1-hour (6)	100 ppb	--	None
PM_{10}	24-hour (7)	150 µg/m^3	Same as Federal	Same as Primary
$PM_{2.5}$	Annual (8)	15 µg/m^3	Same as Federal	Same as Primary
	24-hour (6)	35 µg/m^3	Same as Federal	Same as Primary
O_3	8-hour (9)	0.075 ppm (10)	Same as Federal	Same as Primary
SO_2	1-hour (11)	75 ppb (12)	--	None
	3-hour (1)	--	Same as Federal	0.5 ppm

Sources: USEPA 2011a

Notes: Parenthetical values are approximate equivalent concentrations.

1. Not to be exceeded more than once per year.
2. Not to be exceeded.
3. Final rule signed 15 October 2008. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
4. Annual mean.
5. The official level of the annual NO_2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
6. 98th percentile, averaged over 3 years.
7. Not to be exceeded more than once per year on average over 3 years.
8. Annual mean, averaged over 3 years.
9. Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
10. Final rule signed 12 March 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, USEPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.
11. 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
12. Final rule signed 2 June 2010. The 1971 annual (0.3 ppm) and 24-hour (0.14 ppm) SO_2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Key: ppm = parts per million; ppb = parts per billion; mg/m^3 = milligrams per cubic meter; µg/m^3 = micrograms per cubic meter

The General Conformity Rule applies only to significant actions in nonattainment or maintenance areas. This rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

Federal Prevention of Significant Deterioration. Federal Prevention of Significant Deterioration (PSD) regulations apply in attainment areas to a major stationary source, (i.e., source with the potential to emit 250 tons per year [tpy] of any criteria pollutant), and a significant modification to a major stationary source, (i.e., change that adds 15 to 40 tpy to the major stationary source's potential to emit depending on the pollutant). Additional PSD major source and significant modification thresholds apply for greenhouse gases (GHGs), as discussed in the Greenhouse Gas Emissions subsection. PSD permitting can also apply to a proposed project if all three of the following conditions exist: (1) the proposed project is a modification with a net emissions increase to an existing PSD major source, and (2) the proposed project is within 10 kilometers of national parks or wilderness areas (i.e., Class I Areas), and (3) regulated stationary source pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 milligram per cubic meter (mg/m^3) or more (40 CFR 52.21[b][23][iii]). A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define ambient air increments, limiting the allowable increases to any area's baseline air contaminant concentrations, based on the area's Class designation (40 CFR 52.21[c]).

Title V Requirements. Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A Title V major stationary source has the potential to emit criteria air pollutants and hazardous air pollutants (HAPs) at levels equal to or greater than Major Source Thresholds. Major Source Thresholds vary depending on the attainment status of an ACQR. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality. Section 112 of the CAA lists HAPs and identifies source categories.

Greenhouse Gas Emissions. GHGs are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most common GHGs emitted from human activities include carbon dioxide (CO_2), methane, and nitrous oxide. GHGs are primarily produced by the burning of fossil fuels and through industrial and biological processes. On 22 September 2009, the USEPA issued a final rule for mandatory GHG reporting from large GHG emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on CO_2 and other GHG emissions that can be used to inform future policy decisions. In general, the threshold for reporting is 25,000 metric tons or more of CO_2 equivalent emissions per year but excludes mobile source emissions. The first emissions report was due in 2011 for 2010 emissions. GHG emissions will also be factors in PSD and Title V permitting and reporting, according to a USEPA rulemaking issued on 3 June 2010 (75 Federal Register [FR] 31514). GHG emissions thresholds of significance for permitting of stationary sources are 75,000 tons CO_2 equivalent per year and 100,000 tons CO_2 equivalent per year for PSD and Title V permitting, respectively.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance,* was signed in October 2009 and requires agencies to set goals for reducing GHG emissions. One requirement within EO 13514 is the development and implementation of an agency Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, "agency activities, policies, plans, procedures, and practices" and "specific agency goals, a schedule, milestones, and approaches for achieving results, and quantifiable metrics" relevant to the implementation of EO 13514. On 26 August 2010, DOD released its SSPP to the public. This implementation plan describes specific actions the DOD will take to achieve its individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the EO. All SSPPs segregate GHG emissions into three categories: Scope 1, Scope 2, and Scope 3. Scope 1 GHG emissions are those directly occurring from sources that are owned or controlled by the agency. Scope 2 emissions are indirect emissions generated in the production of electricity, heat, or steam purchased by the agency. Scope 3 emissions are other indirect GHG emissions that result from agency activities but from sources that are not owned or directly controlled by the agency. The GHG goals in the DOD SSPP include

reducing Scope 1 and Scope 2 GHG emissions by 34 percent by 2020, relative to FY 2008 emissions, and reducing Scope 3 GHG emissions by 13.5 percent by 2020, relative to FY 2008 emissions.

3.3.2 Existing Conditions

McConnell AFB is located in Sedgwick County, Kansas, which is within the South Central Kansas Intrastate (SCKI) AQCR. The SCKI also includes Butler County, Chase County, Cowley County, Harper County, Harvey County, Kingman County, Marion County, Reno County, and Sumner County (USEPA 2002a). Sedgwick County has been designated as unclassified/attainment for all criteria pollutants (USEPA 2002b). According to 40 CFR Part 81, no Class I areas are located within 10 kilometers of McConnell AFB (USEPA 2011b).

The most recent emissions for Sedgwick County and the SCKI AQCR are shown in **Table 3-6**. Sedgwick County is considered the local area of influence, and the SCKI AQCR is considered the regional area of influence for this air quality analysis. O_3 is not a direct emission; it is generated from reactions of volatile organic compounds (VOCs) and nitrogen oxides (NO_x), which are precursors to O_3. Therefore, for the purposes of this air quality analysis, VOCs and NO_x emissions are used to represent O_3 generation.

Table 3-6. Local and Regional Air Emissions Inventory for the Proposed Action (2008)

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Sedgwick County	16,370	22,726	120,166	954	34,449	4,569
SCKI AQCR	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA 2008

McConnell AFB has a Class II Permit-By-Rule Operating Permit, under Kansas Administrative Regulations 28-19-564. This permit requires actual stationary point source emissions from McConnell AFB to be less than 50 percent of the major source thresholds, which is 50 tpy for each pollutant. Stationary point sources at the installation consist of diesel emergency power generators and natural gas-fired external combustion equipment (i.e., boilers/heaters) (MAFB 2009b). **Table 3-7** summarizes McConnell AFB's calendar year 2009 actual air emissions and operating permit limits.

Table 3-7. Potential and Actual Emissions at McConnell AFB

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Operating Permit Limits	50	50	50	50	50	50
2009 Actual Emissions (Point Sources)	14.33	0.87	9.96	0.27	1.07	1.07

Source: MAFB 2009b

3.4 Geological Resources

3.4.1 Definition of the Resource

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography, soils, and, where applicable, geologic hazards and paleontology.

Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition.

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.

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. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Geologic hazards are defined as a natural geologic event that can endanger human lives and threaten property. Examples of geologic hazards include earthquakes, landslides, rock falls, ground subsidence, and avalanches. Paleontology is the study of fossils to determine ecologies of the past, evolution, and interactions between organisms and their environments.

3.4.2 Existing Conditions

Topography. McConnell AFB lies in the Central Lowland physiographic province, in the Arkansas River lowlands section of the Osage Plains. The topography in the area can be defined as the Arkansas River valley, which is relatively level; the gently rolling slopes between the river valley and the uplands areas; and the nearly level to sloping uplands. The general topography on the installation consists of a rolling plain, sloping east to west-southwest, on the eastern side of the Arkansas River with elevations ranging between approximately 1,390 feet above mean sea level (amsl) on the eastern side of the installation to approximately 1,290 feet amsl on the southern clear zone at stream level. Much of the natural topography on the installation has been modified and leveled for extension of runways and construction of support buildings (MAFB 2004a).

Regional Geology. The subsurface geologic formations within the Arkansas River lowlands include three major systems; they are, from oldest to youngest, Permian, Cretaceous, and Quaternary. The most surficial geologic formation consists of Quaternary loess and alluvial river valley deposits. The Wellington Formation (lower Permian in age) underlies the Quaternary deposits on the eastern side of Wichita, where it outcrops, and on McConnell AFB, where it is approximately 500 feet thick beneath the installation. This formation is composed of a gray to blue shale interbedded with thin beds of maroon shale, impure limestone, gypsum, and anhydrite (MAFB 2004a).

Soils. The majority of soils originally found on McConnell AFB are the Irwin-Goessel-Rosehill association, found on the north and east sides of the installation, and the Blanket-Farnum-Vanoss association, found on the west and south sides of the installation. The Irwin-Goessel-Rosehill association formed in old alluvial sediments and shale residuum, and is composed of deep and moderately deep, nearly level to sloping, moderately well-drained and well-drained soils having clayey subsoil.

Blanket-Farnum-Vanoss association formed in old clayey, silty, and loamy sediments and is composed of deep, nearly level to sloping, well-drained soils with a loamy or clayey subsoil. The majority of these soils have been highly disturbed from construction activities to the point that they are no longer mapped separately from Urban Land. The U.S. Department of Agriculture defines Urban Land as area that has been altered or obscured by urban works and structures to the point that identification of the original soils is impossible. The majority of the soil mapping units currently mapped on the installation are the Urban Land-Farnum complex with 0 to 3 percent slopes, the Urban Land-Irwin complex, with 1 to 3 percent

slopes, and the Urban Land-Tabler complex, with 0 to 3 percent slopes. There are a few additional soil mapping units occurring on the southeastern outskirts of the installation. These include the Elandco Silt Loam, Frequently Flooded; the Elandco Silt Loam, Occasionally Flooded; and the Milan Loam, with 1 to 3 percent slopes (MAFB 2004a).

Geologic Hazards. The risk of geologic hazards such as landslides, rock falls, and avalanches are considered negligible at McConnell AFB due to the low topographic relief on the installation. The nature of the generally level, gently rolling landscape does not lend itself to hazards associated with steep slopes. The risk of earthquakes in the region is considered low (KGS 1996). However, smaller earthquakes that cannot be felt in Kansas (earthquakes with magnitudes up to 2 on the Richter scale) have been associated with the Nemaha Ridge and Humboldt Fault. The Nemaha Ridge is a buried granite mountain range that extends from roughly Omaha, Nebraska, to Oklahoma City, Oklahoma, and runs east of Wichita and McConnell AFB. This mountain range was formed about 300 million years ago, and the faults that bound it are still slightly active today, especially the Humboldt fault zone that forms the eastern boundary of the Nemaha Ridge, passing near El Dorado, east of the Wichita area. By combining historical earthquake data with that obtained between 1977 and 1989, seismologists estimate that a large earthquake (magnitude 6.0 on the Richter scale) could occur in Kansas about every 2,000 years (KGS 1996).

3.5 Water Resources

3.5.1 Definition of the Resource

Water resources are natural and man-made sources of water that are available for use by and for the benefit of humans and the environment. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes. Hydrology concerns the distribution of water to water resources through the processes of evapotranspiration, atmospheric transport, precipitation, surface runoff and flow, and subsurface flow. Hydrology results primarily from temperature and total precipitation that determine evapotranspiration rates, topography that determines rate and direction of surface flow, and soil and geologic properties that determine rate of subsurface flow and recharge to the groundwater reservoir.

Groundwater. Groundwater consists of subsurface hydrologic resources and includes underground streams and aquifers. It is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater features include depth from the surface, aquifer or well capacity, quality, recharge rate, and surrounding geologic formations. Groundwater quality and quantity are regulated under several different programs, including the Federal Underground Injection Control and the Federal Sole Source Aquifer regulations, both authorized under the Safe Drinking Water Act.

Surface Water. Surface water resources generally consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Waters of the United States are defined within the Clean Water Act (CWA), as amended, and jurisdiction is addressed by the USEPA and the USACE. Encroachment into waters of the United States requires a permit from the state and the Federal government.

The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA establishes Federal limits, through the National Pollutant Discharge Elimination System (NPDES) program, for the allowable amounts of specific pollutants that can be discharged to surface waters, in order to restore and maintain the chemical, physical, and biological integrity of the water. A water body can be deemed impaired if water quality analyses conclude that exceedances of CWA water quality standards occur.

The NPDES program is regulated by the USEPA; within Kansas, the program is administered by the Bureau of Water within the Kansas Department of Health and Environment (KDHE). All new construction sites must adhere to the requirements of the applicable NPDES storm water permit, which generally includes the following:

- Control storm water volume and velocity to minimize erosion
- Minimize the amount of soil exposed during construction activities
- Minimize the disturbance of steep slopes
- Minimize sediment discharges from the site
- Provide and maintain natural buffers around surface waters
- Minimize soil compaction and preserve topsoil where feasible.

In addition, construction site owners and operators that disturb 1 or more acres of land are required to use best management practices (BMPs) to ensure that soil disturbed during construction activities does not pollute nearby water bodies. Construction activities disturbing 20 or more acres must comply with the numeric effluent limitation for turbidity in addition to the non-numeric effluent limitations. Additionally, on 2 February 2014, construction site owners and operators that disturb 10 or more acres of land are required to monitor discharges to ensure compliance with effluent limitations as specified by the permitting authority.

Under Section 438 of the Energy Independence and Security Act of 2007, Federal agencies have requirements to reduce storm water runoff from Federal development and redevelopment projects to protect water resources. Federal agencies can comply using a variety of storm water management practices often referred to as "green infrastructure" or "low-impact development" practices, including, for example, reducing impervious surfaces, using vegetative practices, porous pavements, cisterns, and green roofs to maintain or restore predevelopment site hydrology to the maximum extent technically feasible.

Wetlands. Wetlands are identified as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The USACE regulates the discharge of dredged or fill material into waters and wetlands of the United States pursuant to Section 404 of the CWA. Section 401 of the CWA requires that any applicant for a Federal license or permit to conduct an activity that could result in a discharge into waters of the United States provide the permitting agency a certification from the state in which the discharge originates certifying that the license or permit complies with CWA requirements, including applicable state water quality standards.

It is USAF policy to avoid construction of new facilities within areas containing wetlands (AFI 32-1021, *Integrated Natural Resources Management* and EO 11990), where practicable. In accordance with EO 11990, a FONPA must be prepared and approved by HQ AMC for all projects impacting wetland areas.

Floodplains. Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and diversification of plants and animals. Floodplain storage reduces flood peaks and velocities and the potential for erosion. Floodplains are subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically depends on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain. The 100-year floodplain is an area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to

be in either the 100- or 500-year floodplain, such as hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses such as recreational and preservation activities to reduce the risks to human health and safety.

It is USAF policy to avoid construction of new facilities within the 100-year floodplain (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988), where practicable. In accordance with EO 11988, a FONPA must be prepared and approved by HQ AMC for all projects impacting floodplain areas.

3.5.2 Existing Conditions

Groundwater. The source for groundwater in Sedgwick County is the unconsolidated deposits underlying the Arkansas Valley. Groundwater quality in the Arkansas Valley is characterized by moderate hardness and, locally, could contain undesirable amounts of salt and iron. McConnell AFB has a shallow hydrogeologic setting with two water-bearing zones. The upper zone is a shallow, unconfined aquifer within unconsolidated Pleistocene deposits and weathered Permian bedrock. The deeper water-bearing zone is within calcareous shales of the Wellington Formation. Groundwater flow follows the local topography toward local surface water drainage features (MAFB 2004a). Groundwater is not used as a source of water on the installation.

Surface Water. McConnell AFB is within the Lower Arkansas River Watershed. The Arkansas River originates in central Colorado, where it flows southeast into and across southern Kansas. The Lower Arkansas Basin begins where Rattlesnake Creek joins the Arkansas River in southwestern Rice County. The basin covers 11,500 square miles of south-central Kansas. Major tributaries entering the Arkansas River along its course through the basin are Rattlesnake Creek, Cow Creek, Little Arkansas River, Ninnescah River and Slate Creek.

Surface water features on McConnell AFB consist of several small ponds and numerous tributaries of the Arkansas River. The natural drainage pattern across the majority of McConnell AFB runs from the northeast to the southwest. The "main stream," the most prominent tributary, locally know as McConnell Creek, flows from the northeastern corner of the installation diagonally across to the southern boundary of McConnell AFB. McConnell Creek receives the majority of the drainage on the installation and joins the Arkansas River approximately 3 miles southwest of the McConnell AFB boundary. The McConnell Creek watershed is entirely within Sedgwick County and southeast of the City of Wichita. The watershed drains about 6.6 square miles above where the creek flows under Oliver Street, the lower limits of the installation area, and about 3.9 stream miles above where the creek empties into the Arkansas River (MAFB 2004c). The northwestern quarter of McConnell AFB drains into multiple drainage channels that convey runoff to the west and northwest. Runoff from this portion of McConnell AFB combines with urban runoff from adjacent residential and commercial areas and flows to Gypsum Creek, also a tributary of the Arkansas River (MAFB 2004a).

The Arkansas River at Wichita is on the CWA 303(d) List of Impaired Waters as being impaired due to its elevated chloride, fecal coliform, copper, lead, and total phosphorus levels (KDHE 2012). There are no designated National Wild and Scenic Rivers within either McConnell AFB or the State of Kansas.

Wetlands. McConnell AFB falls within a transitional area between three major physiographic divisions, the Flint Hill Uplands, the Wellington-McPherson Lowlands, and the Arkansas River Lowlands. A significant number of lower perennial riverine and palustrine emergent wetlands are associated with the Arkansas River Basin. Regionally, wetlands are primarily concentrated west of the installation, and are mostly palustrine and riverine wetlands.

A jurisdictional wetland determination was performed on the installation in 2001 (MAFB 2001). Wetland areas totaled 14.8 acres, of which 3.04 were forested and 11.76 acres were palustrine emergent wetlands. Additionally, 6.33 miles of McConnell Creek and other streams and ditches within the installation exhibited wetland characteristics. For the purposes of analysis in this IDEA, it is assumed that these areas are jurisdictional wetlands; however, the USACE will be contacted to make a final determination on their jurisdictional status. A wetland mitigation site currently exists in the northwestern corner of the installation by the KANG storm water basin. A second wetland mitigation site is planned for the northern side of the installation.

There are four small ponds on the installation. Three are in the vicinity of the former golf course and are used primarily for recreation. The other one is a storm water basin for the KANG complex in the northwestern corner of the installation (MAFB 2004a).

Floodplains. McConnell AFB is planning to update their inventory of regulatory floodplains based on FEMA Flood Insurance Rate Maps (MAFB 2011a). Preliminary mapping indicates that 246 acres of the installation are within the 100-year floodplain. The floodplain is primarily associated with the length of McConnell Creek and several of its intermittent tributaries **(**see **Figure 2-1)**. Guidelines for construction in the floodplain would be followed to the maximum practicable extent, including elevating structures to the base flood level; placing sensitive equipment on upper levels of facilities; constructing sidewalks, roads and parking lots with pervious materials; and creating new storm water retention areas for projects that create net impervious surface areas.

3.6 Biological Resources

3.6.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats (e.g., wetlands, forests, and grasslands) in which they exist. Protected and sensitive biological resources include federally listed (endangered or threatened), and proposed species designated by the USFWS. Candidate species for protection and Federal species of concern are not protected by law; however, these species could become listed, and therefore are given consideration when addressing biological resource impacts of an action. Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the ESA, and sensitive ecological areas as designated by state or Federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer and winter habitats).

Under the ESA (16 U.S.C. 1536), an endangered species is defined as any species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species likely to become endangered 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 ESA. It is USAF policy to provide protection of candidate and state-listed species where practical and not in conflict with USAF mission objectives.

State and federally listed species are protected in Kansas as designated by the Kansas Nongame and Endangered Species Conservation Act of 1975. Under provisions of the act, all Federal-listed species also are state-listed. The act places the responsibility for identifying and undertaking appropriate conservation measures for listed species directly upon the Department of Wildlife and Parks through statues and regulations. Regulations require the department to issue special action permits for activities that affect species listed as threatened and endangered in Kansas. A Species in Need of Conservation

(SINC) is any nongame species deemed to require conservation measures in an attempt to keep the species from becoming a threatened or endangered species. SINC species do not have the level of statutory protection as those listed as threatened or endangered in Kansas, except for plants, which the state grants no protective status. The same species listed under the Federal Act are also listed under state law.

3.6.2 Existing Conditions

Vegetation. McConnell AFB lies within the Bluestem Prairie section of the lowland ecoregion, as defined by Bailey (Bailey 1980). Originally, this region was naturally dominated by tallgrass and mixed prairie communities. Trees and shrubs largely grew in riparian areas along larger streams, in the Arkansas River Valley and in other depressions.

This region has been identified as the Flint Hills tallgrass prairie by the Kansas Biological Survey (KEC undated). Prairie was the dominant vegetation type in Sedgwick County when Public Land Surveys were undertaken in the mid 1800s. Natural Flint Hills tallgrass prairie is dominated by big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), buffalo grass (*Buchloe dactyloides*), yellow Indian grass (*Sorghastrum nutans*), and switchgrass (*Panicum virgatum*). Common shrubs associated with this community include leadplant (*Amorpha canescens*), prairie rose (*Rosa arkansana*), and smooth sumac (*Rhus glabra*) (MAFB 2004a).

More than 196 species of vascular plants have been confirmed on the installation, representing 39 percent of the taxa currently known in the county and a checklist of these plants is presented in the survey report (Delisle and Freeman 1999). No additional surveys have been done to date. No natural communities have been mapped on installation by the Kansas Natural Heritage Program. Much of the natural vegetative community in the vicinity of McConnell AFB has been altered or eliminated by agricultural activities and urban development. The combination of fire suppression and degradation of remaining prairie lands has resulted in the invasion of shrubs and trees into the prairie. Nearly 90 percent of MAFB is improved or semi-improved. Vegetative cover within the improved areas is typified by mowed lawns and select tree and shrub landscaping, mostly around buildings and along major streets. Semi-improved areas are also largely mowed grass areas with scattered trees, except in the airfield (Delisle and Freeman 1999, MAFB 2004a, MAFB 2007a).

Unimproved areas on the installation are disturbed sites with opportunistic herbaceous growth, old agricultural fields that have been lying fallow for many years, or wooded riparian corridors. Except for a small area east of housing, the unimproved land is found in the southern half of the installation. Grass and herbaceous communities are more plentiful than woodlands; however, remnant prairie communities are few and of small size, and most are degraded. Most of the former prairies have been invaded by woody species (due to fire suppression) such as cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), hackberry (*Celtis occidentalis*), and osage orange (*Maclura pomifera*). Various grasses and herbs such as tall fescue (*Festuca arundinacea*), Bermuda grass (*Cynodon dactylon*), smooth brome (*Bromus inermis*), Johnson grass (*Sorghum halapense*), sweet clover (*Melilotus* spp.), a ragweed (*Ambrosia* spp.), goldenrods (*Solidago* spp.), clotbur (*Xanthium strumarium*), and common sunflower (*Helianthus annuus*) have encroached on the former prairie areas. The area of the installation south of 47th Street was outleased in the past for grazing. Although grazing might partially simulate the disturbance of fire, some invasion by woody species and opportunistic herbs still occurs. The area is not currently outleased for grazing but could be in the future (MAFB 2004a, MAFB 2007a).

Large areas of McConnell AFB, primarily the improved and semi-improved areas, are dominated by introduced, cool-season grasses. These areas include the airfield, former golf course, surrounding structures in the cantonment area and installation housing, and areas along major roadways. The

dominant species include tall fescue (*Festua arundinacea*), smooth brome (*Bromus inermis*), and Kentucky bluegrass (*Poa pratensis*). Tall fescue and some bluestem are associated with the airfield. Tall fescue and Bermuda grass grow in high visibility areas. Buffalo grass is prevalent in the KANG area. Bermuda grass, a warm-season species, is also prevalent in some areas on the installation (MAFB 2004a, MAFB 2007a).

First enacted in 1937, the Kansas Noxious Weed Law requires control, management, and eradication of 14 plants designated as noxious weeds by the Kansas Legislature (KDA 2012). Noxious weeds on McConnell AFB include primarily dandelions (*Taraxacum officinale*), foxtails **(**Setaria spp.), bindweed (*Convolvulus arvensis*), crab weed (*Digliaria* sp.), Johnson grass, rye grass (*Lolium perenne*), henbit (*Lamium amplexicaule*), dallisgrass (*Paspalum dilatatum*), chickweed (*Stellaria media*), jimson weed (*Datura stramonium*), buckhorn **(***Plantago lanceolata*), shepherds' purse (*Capsella bursa-pastoris*), ox-eyed daisy (*Leucanthemum vulgare*), and Canadian thistle (*Cirsium arvense*). At the present time, McConnell AFB has an installation maintenance contract that accomplishes most on-installation vegetation management (MAFB 2004a).

Wildlife. Due to extensive development and the reduction of the natural environment, terrestrial and aquatic habitats are somewhat limited on the installation. Approximately 70 species of vertebrate fauna have been identified at McConnell AFB (Delisle and Freeman 1999). No additional surveys have been done to date. These are composed mostly of urban-adapted wildlife.

Primary mammalian species present on McConnell AFB include white-tailed deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), bobcats (*Lynx rufus*), raccoons (*Procyon lotor*), opossums (*Didelphis virginiana*), striped skunks (*Mephitis mephitis*), and coyote (*Canis latrans*). White-tailed deer occur along riparian wetlands, although they usually feed on adjacent properties. Chain-link fences around the flight line generally appear to keep larger animals away. There has been only one documented occurrence of a deer in the flight line (MAFB 2004a). The most significant small mammal problems are from opossums, raccoons, and striped skunks that habitually forage in the housing and other developed areas at night. Opossums and raccoons are usually captured and released away from the problem area, but skunks are destroyed since release to other properties might pose a rabies hazard and a legal liability for the installation. There is an occasional need for removal of other species such as the house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), moles (*Scalopus* spp.), pocket gopher (*Geomys* spp.), and little brown bat (*Myotis lucifugus*) (MAFB 2004a).

Avian species known to occur on McConnell AFB include Canada goose (*Branta canadensis*), common nighthawk (*Chordeiles minor*), common grackle (*Quiscalus quiscula*), European starling (*Sturnus vulgarius*), brown-headed cowbird (*Molothrus ater*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynos*), bobwhite quail (*Colinus virginianus*), ring-necked pheasant (*Phasianus colchicus*), and wild turkey (*Meleagris gallapavo*) (MAFB 2004a). Other year-round resident bird species observed at McConnell AFB include black-capped chickadee (*Poecile atricapillus*), rock dove (*Columba livia*), horned lark (*Eremophila alpestris*), house sparrow (*Passer domesticus*), bluejay (*Cyanocitta cristata*), and killdeer (*Charadrius vociferus*) (MAFB 2004a).

Migratory birds are protected under the MBTA of 1918 and EO 131186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. The installation is located on a migration flyway for Canada geese and other migratory birds. McConnell AFB has a Bird/Wildlife Aircraft Strike Hazard (BASH) program to help minimize the potential for migratory birds to congregate on the installation. The vast majority of birds occurring on McConnell AFB are migratory birds, likely using the installation as a migratory stopover habitat. While the DOD has an authorization to take migratory birds, with limitations, from military readiness activities, such as military flights or combat training, the authorization does not extend to routine operation of installation support functions, such as administrative offices, military exchanges,

commissaries, water treatment facilities, storage facilities, schools, housing, motor pools, laundries, recreational activities, shops, mess halls or construction/demolition of such facilities. For all such activities, McConnell AFB takes all possible precautions to preclude the take of migratory birds.

Potential species of amphibians that might be observed on McConnell AFB include the western chorus frog (*Pseudacris triseriata*), bullfrog (*Rana catesbiana*), and plains leopard frog (*Rana blairi*). Snakes such as the black rat snake (*Elaphe obsolete*), prairie kingsnake (*Lampropeltis calligaster*), and bull snake (*Pituophis melanoleucus*) have been observed on McConnell AFB (MAFB 2004a).

Of the several impoundments on McConnell AFB, all contain fish. Approximately 1.1 acres in size, the golf course pond is the only one on the installation that is actually used for fishing, and is also used for water storage and irrigation. Primary fish species found in this pond are bluegill (*Lepomis macrochirus*), large-mouthed bass (*Micropterus salmoides*), black and white crappie (*Pomoxis nigromaculatus* and *P. annularis*), and channel catfish (*Ictaluras punctatus*) (MAFB 2004a).

Protected and Sensitive Species. During the 1999 Kansas Natural Heritage Inventory (KSNHI) and Kansas Biological Survey (KBS) (Delisle and Freeman 1999), no populations of threatened or endangered species were found on McConnell AFB. No state rare plants were discovered. Therefore, they have posed no constraints to missions. **Table 3-8** lists the protected and sensitive species occurring or potentially occurring in Sedgwick County and the potential for these species to occur on the installation.

Despite the lack of suitable habitat for residency or breeding, four federally listed birds have the potential to pass through the installation during migration: Eskimo curlew (*Numenius borealis*), least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), and whooping crane (*Grus americana*). State-protected species that might occasionally pass through the area include snowy plover (*Charadrius alexandrines*) and eastern spotted skunk (*Spilogale putorius*) (MAFB 2004a, KDWPT 2012).

Although no longer federally listed, the bald eagle (*Haliaeetus leucocephalus*) remains protected under the Bald and Golden Eagle Protection Act of 1984. The bald eagle migrates during the spring and fall, but generally it follows the major river systems of the state. Due to lack of suitable habitat (eagles are typically attracted to large open-water bodies) any occurrences would likely involve transient individuals.

3.7 Cultural Resources

3.7.1 Definition of the Resource

Cultural resources is an umbrella term for many heritage-related resources, including prehistoric and historic sites, buildings, structures, districts, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on the condition and historic use, such resources might provide insight into the cultural practices of previous civilizations or they might retain cultural and religious significance to modern groups.

Several Federal laws and regulations govern protection of cultural resources, including the 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 (NAGPRA) (1990).

Typically, cultural resources are subdivided into archaeological resources (prehistoric or historic sites, where human activity has left physical evidence of that activity but no structures remain standing); architectural resources (buildings or other structures or groups of structures, or designed landscapes that

Table 3-8. Protected and Sensitive Species Documented or Likely to Occur in Sedgwick County with Assessment of Potential for Occurrence on McConnell AFB

Common Name	Scientific Name	Status	Potential for Occurrence at MAFB
Birds			
Eskimo Curlew	*Numenius borealis*	SE, FE	Low. Species prefers wet meadow and open grasslands during migration. Species is nearly extinct.
Least Tern	*Sterna antillarum*	SE, FE	Low. No suitable breeding habitat present; might fly over McConnell AFB during migration.
Piping Plover	*Charadrius melodus*	ST, FT	Low. No suitable habitat present; might fly over McConnell AFB during migration.
Snowy Plover	*Charadrius alexandrinus*	ST	Low. No suitable habitat present; might fly over McConnell AFB during migration.
Whooping Crane	*Grus americana*	SE, FE	Low. No suitable habitat present; might fly over McConnell AFB during migration.
Bald Eagle	*Haliaeetus leucocephalus*	Delisted	Low. No suitable habitat on the installation, Eagles might occasionally fly over.
Peregrine Falcon	*Falco peregrinus*	Delisted	Low. No suitable habitat present; might fly over McConnell AFB during migration.
Mammals			
Eastern Spotted Skunk	*Spilogale putorius*	ST	Species is known to occur near the installation. Some suitable habitat present but no individuals observed.
Fish			
Arkansas Darter	*Etheostoma cragini*	ST, FC	Low. Species prefers clear, sandy-gravely spring-fed headwaters.
Arkansas River Shiner	*Notropis girardi*	SE, FT	Low. Kansas range is limited to a few stream reaches.
Arkansas River Speckled Chub	*Macrhybopsis tetranema*	SE	Low. Species prefers shallow channels with clean, fine sand.
Plains Minnow	*Hybognathus placitus*	ST	Low. No suitable habitat.
Silver Chub	*Macrhybopsis storeriana*	SE	Low. Species prefers large, sandy rivers.

Source: KDWPT 2012

Key: FE = Federally Endangered; FT = Federally Threatened; SE = State Endangered; ST = State Threatened; D = Delisted.

are of historic or aesthetic significance); or resources of traditional, religious, or cultural significance to Native American tribes.

Archaeological resources comprise areas where human activity has measurably altered the earth, or deposits of physical remains are found (e.g., projectile points 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 eligible for the NRHP. More recent structures, such as Cold War-era resources, might warrant protection if they are of exceptional importance or if they have the potential to gain significance in the future.

Resources of traditional, religious, or cultural significance to Native American tribes can include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

The EA process and the consultation process prescribed in Section 106 of the NHPA require an assessment of the potential impact of an undertaking on historic properties that are within the proposed project's Area of Potential Effect (APE), which is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Under Section 110 of the NHPA, Federal agencies are required to have in place programs to inventory resources under their purview and nominate those eligible to the NRHP. In accordance with Section 106 of the NHPA, consultation with the SHPO is required regarding determination of potential effects of an undertaking on historic properties and to comply with the regulations implementing Section 106 (36 CFR Part 800).

Federally recognized Native American tribes are consulted in accordance with EO 13175, Consultation and Coordination with Indian Tribal Governments (9 November 2000) to establish ongoing relationships between the tribe and the U.S. government. In addition, as per Sections 110 and 106 of the NHPA, NEPA, and other authorities, the USAF also consults with federally recognized Indian tribes on a project-specific basis during the planning for an undertaking and to consider the impacts on the human environment.

3.7.2 Existing Conditions

McConnell AFB is located on a rolling plain east of the Arkansas River. Gypsum Creek and other unnamed drainages flow west of the installation. The Arkansas River Lowlands is rich in archaeological sites especially of the Woodland Period. The 1800s saw the Osage and Wichita tribes forced from their traditional lands by European settlers. Other tribes traveled across the plains and along the rivers and tributaries. The French sold present-day Kansas to the United States as part of the 1803 Louisiana Purchase. The new territory brought explorers, trappers and traders to Kansas. Following the Civil War, Kansas developed into an important agricultural state. McConnell AFB began as a municipal airport and later home to the KANG. The USAF purchased the airport property for a permanent military installation in 1953 and renamed it McConnell AFB in 1954 (MAFB 2004b). During the Cold War McConnell AFB was home to Titan II Intercontinental Ballistic Missiles, was one of four installations to operate and maintain the B-1B Lancer, and then became home to refueling aircraft.

An archaeological survey of McConnell AFB was conducted in 1995. The survey examined 387 undisturbed acres that were believed to have archaeological potential with an intensive-level pedestrian survey. This acreage was subjected to intensive pedestrian survey. No prehistoric sites were located; however, eight historic-era archaeological sites were found. These consisted of modern trash dumps, remains from late 20th-century commercial establishments, and the remains of a farmstead. The survey

results indicated that the sites were evaluated as not eligible for the NRHP; however, the Kansas SHPO has not yet been consulted regarding the NRHP eligibility of the sites, and a program is planned to investigate their eligibility further. With the exception of these sites, all other areas of the installation have been eliminated from archaeological concern (MAFB 2004b). The sites are outside of the areas of the selected projects addressed in this IDEA.

A 2011 architectural survey examined all built resources over 45 years of age and evaluated the NRHP eligibility of resources identified as candidates for demolition by McConnell AFB before 2020 (MAFB 2011b). Previous architectural surveys were conducted in 1994, 1995, and 2004. Three buildings at McConnell AFB have been determined eligible for listing in the NRHP: Buildings 9, 1218, and 1219. McConnell AFB is still considering the NRHP eligibility of Buildings 1106 and 1107, and the runways, taxiways, and aprons. They will continue to treat them as NRHP-eligible until their final determination has been made (MAFB 2011c). The SHPO has concurred with the determination of eligibility for Buildings 9, 1218, and 1219; however, in an August 2011 letter the SHPO did not concur with the finding of NRHP ineligibility for Building 41, a KANG Maintenance Hangar (MAFB 2011d). Documentation letters on NRHP eligibility evaluations and SHPO concurrence are included in **Appendix D**. Building 41 should be treated as NRHP-eligible for the purposes of Section 106 until a NRHP evaluation can be agreed upon with the SHPO or the Keeper of the NRHP determines its NRHP eligibility.

Several built resources at McConnell AFB are covered under ACHP Program Comments. For DOD actions involving the resource types identified in the specific Program Comment, DOD's compliance with Section 106 of the NHPA has been achieved through the mitigation actions completed under the specific Program Comment. Three Program Comments apply to McConnell AFB: (1) the ACHP Program Comment Capehart and Wherry Era Housing and Associated Structures and Landscape Features applies to officers residences (Buildings 181 to 185); (2) the 2008 ACHP Program Comment regarding Cold War Era Unaccompanied Personnel Housing (1946 to 1974) applies to dormitory and apartment-style visiting officers quarters (Building 202); and, (3) the 2008 ACHP Program Comment regarding Cold War Era (1939 to 1974) Ammunition Storage Facilities applies to Cold War era storage igloos (Buildings 1401, 1403, 1413, 1414, and 1418) (MAFB 2011b).

There are no known traditional cultural properties (TCPs) or sites sacred to Native Americans at McConnell AFB (MAFB 2004b). The Osage Tribe of Oklahoma and the Wichita Executive Committee are listed in the 2004 ICRMP as the points-of-contact for unanticipated discovery of human remains under NAGPRA (MAFB 2004b). Additional tribes might be affiliated with the geographical area of McConnell AFB including the Kiowa, Comanche, Kaw, and Arapaho (MAFB 2010b).

3.8 Socioeconomics and Environmental Justice

3.8.1 Definition of the Resource

Socioeconomic Resources. Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity. Regional birth and death rates and immigration and emigration affect population levels. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these fundamental socioeconomic indicators typically result in changes to additional socioeconomic indicators, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permit characterization of baseline conditions in the context of regional, state, and national trends.

Demographics, employment characteristics, and housing occupancy status data provide key insights into socioeconomic conditions that might be affected by a proposed action. Demographics identify the

population levels and the changes in population levels of a region over time. Demographics data might also be obtained to identify a region's characteristics in terms of race, ethnicity, poverty status, and other broad indicators. Data on employment characteristics identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on personal income in a region can be used to compare the "before" and "after" effects of any jobs created or lost as a result of a proposed action. Data on industrial or commercial growth or growth in other sectors of the economy provide baseline and trend line information about the economic health of a region. Housing statistics provide baseline information about the local housing stock, the percentage of houses that are occupied, and the ratio of renters to homeowners. Housing statistics allow for baseline information to evaluate the impacts a proposed action might have upon housing in the region.

In appropriate cases, data on an installation's expenditures in the regional economy help to identify the relative importance of an installation in terms of its purchasing power and influence in the job market.

Socioeconomic data shown in this section are presented at census tract, county, state, and national levels to characterize baseline socioeconomic conditions in the context of regional and state trends.

Environmental Justice. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies.

Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

3.8.2 Existing Conditions

For the purposes of this socioeconomic analysis, four different spatial levels will be used: (1) Region of Influence (ROI), defined as the census tracts including and surrounding McConnell AFB, which are tracts 58, 59, 61, 64, 65, 66, 67, 68, 70, 71.01, 71.02, 72.03, 72.04, 100.03, and 100.04; (2) Sedgwick County, Kansas, the county within which McConnell AFB is located; (3) Wichita Metropolitan Statistical Area, the Metropolitan Statistical Area that encompasses McConnell AFB; and (4) the State of Kansas. Data from the installation will also be used where applicable.

The ROI best illustrates socioeconomic characteristics for the area nearest McConnell AFB. Sedgwick County and the Wichita Metropolitan Statistical Area represent the geographic area where most impacts from the Proposed Action would occur; therefore it is included in the analysis. The Wichita Metropolitan Statistical Area includes the City of Wichita and all or portions of Butler, Harvey, Sumner, and Sedgwick counties. Data for the State of Kansas provide baseline comparisons for the spatial levels. Data for the United States are included to provide an additional level for comparison.

Demographics. All of the spatial levels increased in population between 2000 and 2010. The ROI's population increased by 8.4 percent between 2000 and 2010. During the same period, Sedgwick County, the Wichita Metropolitan Statistical Area, the State of Kansas, and the United States saw an increase in population of 10 percent, 9.1 percent, 6.1 percent, and 9.7 percent, respectively. It is relevant to note that

Sedgwick County makes up 80 percent of the Wichita Metropolitan Statistical Area. Complete population data are presented in **Table 3-9.** Some census tracts and the Wichita Metropolitan Statistical Area boundaries have changed between 2000 and 2010; however, the equivalent geographical areas were used in the table.

Table 3-9. Population Data for 2000 and 2010

Area Analyzed	Population		Percent Change in Population
	2000	2010	2000 to 2010
ROI	55,813	60,476	8.4
Sedgwick County	452,869	498,365	10.0
Wichita Metropolitan Statistical Area	571,166	623,061	9.1
Kansas	2,688,418	2,853,118	6.1
United States	281,421,906	308,745,538	9.7

Source: U.S. Census 2010, U.S. Census 2000

Employment Characteristics. As of 2010, the ROI had 3.4 percent of persons (more than 16 years old and in the labor force) employed in the armed forces. This is considerably more than the other spatial levels. In contrast, 0.6 percent of the labor force in Sedgwick County and 0.6 percent in the Wichita Metropolitan Statistical Area were employed in the armed forces, 0.7 percent in Kansas, and 0.5 percent in the United States. As of 2010, the industry that employed the highest percentage of the population, for both the ROI and Sedgwick County, was the manufacturing industry. The educational, health, and social services industry was the most common employer for the Wichita Metropolitan Statistical Area, Kansas, and the United States (U.S. Census 2010). For complete information regarding employment by industry see **Table 3-10**.

The total population at McConnell AFB was 16,469 in 2009. This included 6,063 active-duty military personnel and family members, 1,157 Air Force Reserve personnel, 575 Air National Guard personnel, 7,641 military retirees, and 1,033 civilian employees (MAFB 2009a).

McConnell AFB employees (both military and civilian) earned approximately $247.8 million in the local area (within 50 miles of the installation) during FY 2009. An additional $110.8 million was spent by McConnell AFB on the installation's operations support, military construction, and health care. Of the additional $110.8 million, $24.3 million was spent on construction. In FY 2009, McConnell AFB sustained 2,289 indirect secondary jobs in retail, service, wholesale, and construction, generating an additional $96.1 million in indirect payroll earnings. McConnell AFB's total annual local economic impact was $453.6 million as of FY 2009 (MAFB 2009a).

Unemployment rates in the Wichita Metropolitan Statistical Area and Sedgwick County are generally higher than in State of Kansas (see **Figure 3-1**). Unemployment rates in the Wichita Metropolitan Statistical Area are highly correlated with the unemployment rates in Sedgwick County, which can likely be attributed to Sedgwick County making up 80 percent of the Wichita Metropolitan Statistical Area. Between 2002 and 2006, the unemployment rates in the Wichita Metropolitan Statistical Area and Sedgwick County were higher than those in the State of Kansas. Between 2006 and 2009, the unemployment rates in Kansas, the Wichita Metropolitan Statistical Area, and Sedgwick County were about the same. From 2009 through 2011, unemployment rates were consistently higher in the Wichita Metropolitan Statistical Area and Sedgwick County compared to those in Kansas. Although unemployment rates in the Wichita Metropolitan Statistical Area and Sedgwick County are generally higher than in Kansas, trends in unemployment have been correlated between Kansas, the Wichita

Metropolitan Statistical Area, and Sedgwick County. For example, Kansas, the Wichita Metropolitan Statistical Area, and Sedgwick County all experienced peaks in unemployment in 2003 and 2009. In December 2011, the unemployment rates for Kansas, the Wichita Metropolitan Statistical Area, and Sedgwick County were 6.0 percent, 6.9 percent, and 7.1 percent respectively (BLS 2011). These rates were all lower than the national average, which was 8.5 percent as of December 2011 (BLS 2012).

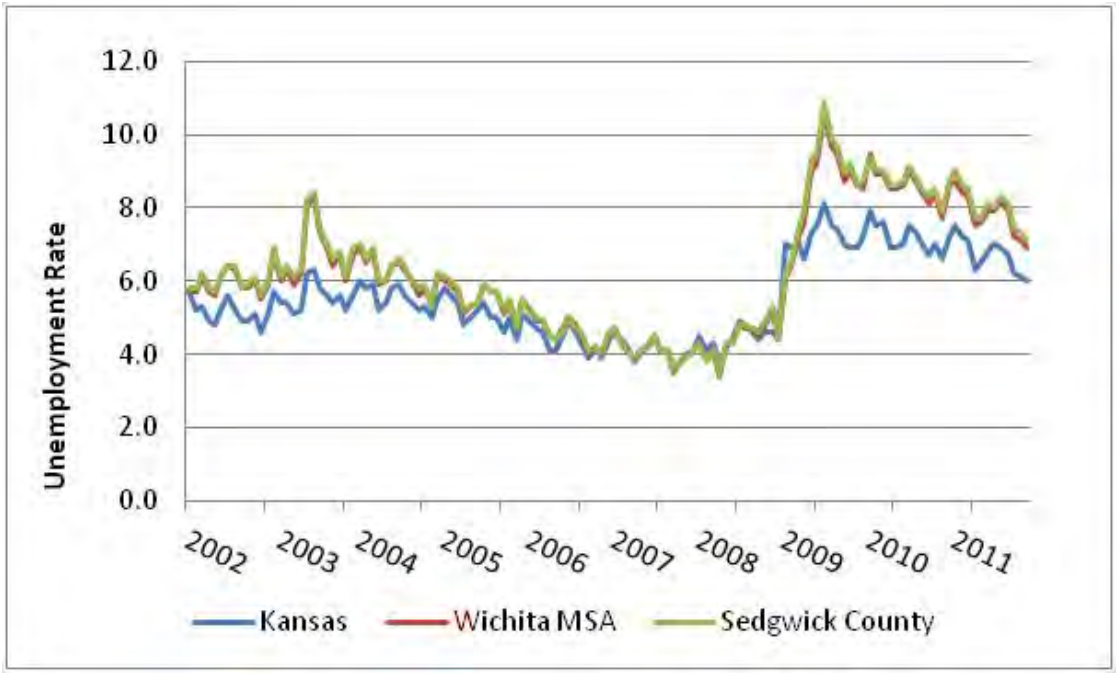
Table 3-10. Overview of Employment by Industry, 2010

Employment Types	ROI	Sedgwick County	Wichita Metropolitan Statistical Area	Kansas	United States
Population 16 Years and Over in the Labor Force*	31,656	257,063	320,552	1,494,540	155,163,977
Percent of population 16 years and over in labor force employed within the armed forces	3.4	0.6	0.6	0.7	0.5
Percent Employed Persons 16 years old and over in Civilian Labor Force (by industry)					
Agriculture, forestry, fishing and hunting, and mining	0.4	0.9	1.4	3.6	1.9
Construction	7.5	6.6	6.7	6.4	7.1
Manufacturing	22.9	21.6	21.4	13.4	11.0
Wholesale trade	1.8	2.9	2.7	3.0	3.1
Retail trade	13.2	10.4	10.4	11.1	11.5
Transportation and warehousing, and utilities	3.3	4.3	4.4	4.9	5.1
Information	1.6	1.8	1.8	2.6	2.4
Finance, insurance, real estate, and rental and leasing	3.7	5.6	5.3	6.3	7.0
Professional, scientific, management, administrative, and waste management services	8.0	8.1	7.6	8.3	10.4
Educational, health, and social services	17.5	21.0	22.0	23.7	22.1
Arts, entertainment, recreation, accommodation, and food services	11.3	8.7	8.3	7.7	8.9
Other services (except public administration)	4.0	4.1	4.2	4.4	4.9
Public administration	4.8	4.0	4.0	4.7	4.8

Employment Types	ROI	Sedgwick County	Wichita Metropolitan Statistical Area	Kansas	United States

Source: U.S. Census 2010

Note: *Labor force includes persons that are employed or unemployed civilians and members of the armed forces.



Source: BLS 2011

Figure 3-1. Unemployment Percentages, 2001 to 2011

Housing Characteristics. The U.S. Census Bureau reported that in 2010, there were 208,724 housing units in Sedgwick County; of these units, 17,892 were vacant, resulting in an 8.6 percent vacancy rate. In the Wichita Metropolitan Statistical Area there were 259,870 housing units with an 8.7 percent vacancy rate. Owner-occupied units in Sedgwick County totaled 127,710 units, or 66.9 percent of all occupied units, while the remaining 33.1 percent were renter-occupied units. In the Wichita Metropolitan Statistical Area in 2010, 163,364 units (68.8 percent) were owner-occupied and 73,987 units (31.2 percent) were renter-occupied. The homeowner vacancy rate for the Wichita Metropolitan Statistical Area was 1.7 percent and the rental vacancy rate was 7.4 percent. In 2010, there were 26,165 housing units in the ROI of which 11.4 percent were vacant. Of the 23,189 occupied housing units in the ROI, 12,376 were owner-occupied and 10,813 were renter-occupied (U.S. Census 2010).

The installation has 443 family housing units and operates three dormitories that accommodate 416 unaccompanied service members (MAFB 2012). In addition, a significant number of military families reside in Derby, Kansas, creating a positive relationship between the town and McConnell AFB (MAFB 2011a). McConnell AFB has plans to privatize officer family housing.

Environmental Justice. For the purpose of the environmental justice analysis, the ROI from the socioeconomic analysis will also be used for environmental justice baseline conditions.

Minority population levels within the ROI are greater than minority levels in Sedgwick County, the Wichita Metropolitan Statistical Area, the State of Kansas, and the United States. The percent of the population in the ROI that reported to be a race other than white was 36.5, which is considerably higher than Sedgwick County (23.7 percent), the Wichita Metropolitan Statistical Area (20.3), the State of Kansas (16.2 percent), or the United States (27.6 percent). The Hispanic or Latino population in the ROI was similar to that in the United States, and more than in Sedgwick County, the Wichita Metropolitan Statistical Area, and the State of Kansas (U.S. Census 2010). **Table 3-11** shows the regional race and ethnicity demographic data.

Table 3-11. Minority, Low-Income, and Poverty Status, 2010

Demographic	ROI	Sedgwick County	Wichita Metropolitan Statistical Area	Kansas	United States
Total Population	60,476	498,365	623,061	2,853,118	308,745,538
Percent Male	49.6	49.4	49.5	49.6	49.2
Percent Female	50.4	50.6	50.5	50.4	50.8
Percent Under 5 Years	9.7	7.9	7.6	7.2	6.5
Percent Over 65 Years	8.7	11.4	12.0	13.2	13.0
Percent White	63.5	76.3	79.7	83.8	72.4
Percent Black or African American	13.3	9.3	7.7	5.9	12.6
Percent American Indian, Alaska Native	1.3	1.2	1.1	1.0	0.9
Percent Asian	10.0	4.1	3.4	2.4	4.8
Percent Native Hawaiian and Other Pacific Islander	0.2	0.1	0.1	0.1	0.2
Percent Some Other Race	6.4	5.1	4.4	3.9	6.2
Percent Reporting 2 or more races	5.3	4.0	3.6	3.0	2.9
Percent Hispanic or Latino [a]	16.8	13.0	11.6	10.5	16.3
Percent of Individuals Below Poverty [b]	16.6	13.9	12.8	12.4	13.8
Per Capita Income [c]	19,979	25,297	25,196	25,907	27,334
Median Household Income [c]	47,473	61,137	61,850	62,424	62,982

Sources: U.S. Census 2010
Notes:
a. Persons of Hispanic or Latino origin can be of any race, and thus are also included in applicable race categories.
b. Percent of Individuals Below Poverty consists of the weighted average of all census tracts included in the ROI.
c. Per Capita Income and Median Household Income for the ROI consist of the average of all census tracts included in the ROI.

The percent of individuals whose income was below the poverty line in 2010 was higher in the ROI than all other spatial levels. The average per capita income and median family income was lower in the ROI than all other spatial levels (see **Table 3-11**).

3.9 Infrastructure

3.9.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as "urban" or developed. The availability of infrastructure and its capacity for expansion are generally regarded as essential to the economic growth of an area. The infrastructure components discussed in this section include airfield, transportation, utilities, and solid waste management.

The airfield includes all pavements, runways, overruns, aprons, ramps, and arm/disarm pads that are associated with aircraft maintenance and aircraft operations. Transportation includes major and minor roadways that feed into the installation and the security gates, and roadways and parking areas on the installation. Public transit, rail, and pedestrian networks are also elements of transportation. Utilities include electrical supply, central heating and cooling, liquid fuel supply, natural gas supply, water supply, sanitary sewer and wastewater systems, storm water drainage, and communications systems. Solid waste management primarily relates to the availability of systems and landfills to support a population's residential, commercial, and industrial needs. The infrastructure information contained in this section provides a brief overview of each infrastructure component and comments on its existing general condition.

3.9.2 Existing Conditions

Airfield. McConnell AFB operates two runways. The eastern runway is an instrument precision approach runway that is 300 feet by 12,000 feet. The western runway is a nonprecision approach runway that is 300 feet by 12,000 feet. Seven taxiways, an aircraft parking apron, a transient parking apron, and an engine run-up apron also compose the flightline area. The Boeing Company and Cessna Aircraft Company are granted access to the airfield (MAFB 2011a).

Airfield conditions at McConnell AFB have been rated adequate to support mission activities. The west runway is currently being overhauled and the east runway is scheduled to be upgraded under the Proposed Action. A series of phased projects were recently completed to bring lighting along the airfield into compliance with USAF and AMC standards. These projects included installation of new switchgear, runway and taxiway edge lighting, manholes, and underground utility lines (MAFB 2005a).

Communications. The communications system at McConnell AFB provides support to the 22 ARW and consists of the information transfer system, telephone switching system, data communications, long-haul communications, radio, and meteorological/navigational systems (MAFB 2005a). Services and infrastructure are available to support a wide range of communications requirements at McConnell AFB.

Electrical System. Electricity at McConnell AFB is purchased from Westar Energy. Westar Energy's 64th Street Substation, located approximately one-half mile north of the installation on Rock Road, is the primary service feeder to the installation at 12.47 kilovolts (kV) through two parallel circuits (MAFB 2005a). Two circuits feed the main switchgears that provide electricity through aboveground and belowground distribution. One switch feeds underground electricity to the airfield and water plant while another switch supplies aboveground electricity to housing areas and the remaining portions of the installation. New construction on-installation is being serviced by underground electrical lines.

The current electrical system at McConnell AFB is operating at 40 to 50 percent of overall capacity. The electrical system is adequate, with planned improvements to switchgear, streetlights, manholes, and

underground utility lines. Relocating electrical service underground will prompt the removal of old utility poles, pole-mounted switchgears, and transformers, providing safer, more efficient service, decreasing maintenance cost, and improving installation aesthetics (MAFB 2011a).

Heating and Cooling. Most of on-installation buildings have stand-alone heating and cooling systems, with some of the heating systems having dual-fuel capable boilers that use natural gas and No. 2 fuel oil as a backup in case of natural gas service interruption. One remote building (1560) uses propane for heating. McConnell AFB has 7,055 tons of air conditioning and 2,587 horsepower of boiler capabilities (MAFB 2005a). Continual repair and modifications of existing buildings along with the addition of new structures has helped keep the heating, ventilation, and air conditioning (HVAC) system up-to-date and adequate. Several programmed improvement projects include repairing the HVAC system at the Law Center, replacing the HVAC systems in the Spicer Housing (not maintained by installation personnel), and replacing the HVAC system in Building 1 because of floor renovations. There is also a plan to upgrade 61 buildings on the Digital Direct Controls from the current phone connection to a modern local area network connection (MAFB 2011a).

Liquid Fuel. McConnell AFB uses JP-8 (jet fuel), No. 2 fuel oil, unleaded gasoline, diesel fuel, deicing fluid (propylene glycol), biodiesel, and propane for activities requiring fueling. JP-8 fuel is piped onto the installation through a commercial pipeline on the northern side of McConnell AFB. Two ASTs have the capacity to store 1.9 million gallons of JP-8 fuel. Underground pipelines distribute JP-8 from the bulk storage to the hydrant systems on the runway apron. Three hydrant systems each have two ASTs with capacities of 10,000 barrels each (420,000 gallons in each AST). The system, which became operational in 2003, includes 14 outlets on the north end of the apron. Two other ASTs store unleaded fuel (142,000 gallons). Operational fuel storage is located at various sites around the installation and consists of the following: 18,000 gallons JP-8 in four USTs; 5,300 gallons of No. 2 fuel oil in four ASTs and 220,000 gallons in 35 USTs; 62,000 gallons of unleaded gasoline in seven USTs; 14,185 gallons of diesel fuel in 24 ASTs and 65,010 gallons in 19 USTs; and 10,000 gallons deicing fluid in one UST (MAFB 2011a). McConnell AFB's liquid fuel system is rated as adequate.

Natural Gas. The primary source of heating fuel at McConnell AFB is natural gas. Southern Star provides natural gas through an 18-inch high-pressure line that crosses beneath the northwest corner of the installation. There is no on-installation storage facility for natural gas. The distribution system was upgraded in the 1990s and approximately 97 percent of the system is constructed with polyvinyl chloride (PVC) piping. The distribution system sizes range from 3/4 inches to 6 inches in diameter. The majority of the installation is looped, giving equalized pressures and flows. McConnell AFB has made advances in replacing old gas meters that are susceptible to leaks. Service has been well-maintained with no reported interruptions of service from the supplier. The natural gas system at McConnell AFB is rated as adequate (MAFB 2011a).

Water Supply. Potable water for McConnell AFB is purchased from the City of Wichita, which draws its water from two main sources: the Cheney Reservoir, located 30 miles northwest of the installation, and from the Equus Beds, a municipal well system located 5 to 15 miles northwest of the installation. Wichita draws approximately 60 percent of its potable water from the Equus Beds, which contains an underlying aquifer that is about 1 million acre-feet in size. The 933-square-mile Cheney Reservoir provides the remaining 40 percent of water for Wichita (MAFB 2005a). The City of Wichita has implemented an Integrated Local Water Supply Plan to meet projected population increases in the region, which includes greater use of the Cheney Reservoir, use of an Aquifer Storage and Recovery system in the Equus Beds Aquifer, and redevelopment of the Bentley Wellfield.

Water is supplied to the installation at two connection points, one to the west along Salina Drive and another from the north at the intersection of Salina Drive and Rock Road. The initial water distribution

system was built in the 1950s and has undergone considerable upgrades to meet supply demands. The majority of mains were replaced in 1988 with C900 PVC pipes. The current distribution system has more than 82 miles of PVC mains and approximately 1.5 miles of asbestos cement water mains (MAFB 2005a). Water is pumped through the installation by three pumps, each with a capacity of 1,000 gallons per minute.

Daily usage varies between 200,000 and 500,000 gallons per day (GPD). During the summer, usage can peak at 1 million GPD, largely associated with irrigation. Potable water purchased from the City of Wichita is treated, monitored, and sampled daily. There have been no problems with contamination or stagnant water (MAFB 2011a). There are no potable water wells on the installation, but there is on-installation water storage that consists of a 1-million gallon storage tank and a 1-million gallon storage tower (MAFB 2005a). Currently, water usage at McConnell AFB is at 95 percent of capacity. During summer, high demands can diminish water pressure and volume. The condition of the water supply system is adequate.

Storm Water System. Both storm water runoff and other surface drainage waters at McConnell AFB are managed by a series of underground pipes, culverts, and natural channels. The main installation area and flight line are contained within a single basin that drains into McConnell Creek, which is a tributary of the Arkansas River. The MFH area in the northeastern corner of the installation has an enclosed drainage system that drains to the main installation via an open channel that crosses Rock Road. The west side of the installation (KANG) drains to the northwest. There is a storm water retention basin on the northwest corner of the KANG cantonment. However, there are no storm water detention/retention basins on the main installation (MAFB 2005a).

A culvert near the Child Development Center is smaller than the culvert immediately upstream. This design is undesirable because during heavy rainstorms, the culvert lacks the capacity to handle runoff and storm water backs up. This backup can extend to and overflow part of the adjacent parking lot. In general, however, the storm drainage system provides adequate collection and retention facilities to manage water from developed areas and prevent site erosion (MAFB 2011a).

Sanitary Sewer. The sanitary sewer system at McConnell AFB consists of collection only; wastewater is pumped to the City of Wichita's system for treatment and disposal. The City of Wichita provides secondary treatment of its wastewater before releasing the effluent into the Arkansas River. Solids from the treatment process are either land-applied by the Wichita Parks Department or placed in a landfill. The on-installation system consists almost entirely of gravity mains. Construction of a new main lift station was completed in 2006 to address leakage of wet wells and outdated pumps on the old lift station. There are five other small lift stations on-installation that are in good condition. The sewer lines on the main installation consist primarily of PVC pipes. The southeastern corner of the installation is not part of the main sewer system. This area has instead a number of septic and holding tanks. The overall condition of the sanitary sewer system is adequate (MAFB 2011a).

Solid Waste. Solid waste management at McConnell AFB primarily consists of contract collection and disposal. Solid waste generated by the installation and MFH and construction and demolition debris are collected and hauled by qualified contractors to off-installation landfills. Medical and infectious wastes are transported off installation for incineration. Scrap wood, compost (tree limbs and leaves), paper, newspaper, magazines, phone books, printer cartridges, cardboard, tin, aluminum, plastic, glass, and wooden pallets are collected on a voluntary basis using recycling roll-offs and dumpsters parked around the installation. Silver recovery units are located in the Non-Destructive Imaging Lab and radiology and dental labs (MAFB 2011a).

Transportation Network. McConnell AFB's roadway network is 19 miles of paved public roads and 7.5 miles of administrative roads. Salina Drive is the primary connector between the west side of the installation, where KANG facilities are located, and the rest of McConnell AFB, passing north of the airfield. Wichita Street is a looping road along the eastern boundary providing access to the southern portion of the installation, KRA and the Robert J. Dole Community Center. Kansas Street provides access to the administrative and support facilities on the installation with secondary roads providing access off Kansas Street. The roadways are considered to be in good condition and efficiently maintained (MAFB 2011a). Hot summer weather has caused some "blowups" whereby excessive heat causes the pavement to expand. Despite the good rating of roadway and parking lot conditions at McConnell AFB, continual efforts are undertaken to make improvements and maintain adequate conditions of the transportation network (MAFB 2005a). Two comprehensive antiterrorism gate projects have been completed. The east gate project included a connection to Salina Drive to support KANG traffic to and from the west base Guard area.

The off-installation transportation network at McConnell AFB consists of four local arterial roadways that serve the installation. These roadways include South Rock Road, Arnold Boulevard, 31st Street, and George Washington Boulevard. Interstate 35 provides highway access to McConnell AFB and operates in a north-to-south direction (MAFB 2005a).

Transit service to the installation is provided by Wichita Transit, including fixed-route bus service and paratransit services. The Wichita Transit system operates buses and wheelchair lift vans on fixed routes. There are no on-installation shuttle bus services (MAFB 2011a). There are no formal bicycle facilities connecting the installation to the surrounding community. Pedestrian walking paths are provided in the community area of the installation but are lacking in the industrial area. Pedestrian paths are provided from most entrances of buildings to adjacent parking lots or connect with the Memorial Walk. Sidewalks are rarely provided adjacent to roadways; pedestrian paths are not provided in the industrial areas west of Topeka Street and near the KANG. Wichita Mid-Continent Airport is approximately 14 miles west of McConnell AFB. Sedgwick County is serviced by both Class I and short-line railroads. Wichita is also served by a terminal railroad. AMTRAK services are limited and are available in Hutchinson, Kansas, approximately 50 miles away (MAFB 2011a).

3.10 Hazardous Materials and Waste

3.10.1 Definition of the Resource

Hazardous materials are defined by 49 CFR 171.8 as "hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Material (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions" in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105 to 108.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) at 42 U.S.C. §6903(5), as amended by the Hazardous and Solid Waste Amendments, as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR Part 273. Four types of waste are currently covered under the universal waste regulations:

hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include ACM, polychlorinated biphenyls (PCBs), and LBP. The USEPA has given authority to regulate these special hazard substances by the Toxic Substances Control Act Title 15 U.S.C. Chapter 53. The USEPA has established regulations regarding asbestos abatement and worker safety under 40 CFR Part 763 with additional regulation concerning emissions (40 CFR Part 61). Whether from lead abatement or other activities, depending on the quantity or concentration, the disposal of the LBP waste is regulated by the RCRA at 40 CFR 260. The disposal of PCBs is addressed in 40 CFR Parts 750 and 761. 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 DOD developed the ERP to facilitate thorough investigation and cleanup of contaminated sites on military installations (i.e., active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program and the Military Munitions Response Program (MMRP) are components of the ERP. The Installation Restoration Program requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The MMRP addresses nonoperational rangelands that are suspected or known to contain unexploded ordnance, discarded military munitions, or munitions constituent contamination.

For the USAF, AFPD 32-70, *Environmental Quality*, and the AFI 32-7000 series incorporate the requirements of all Federal regulations, and other AFIs and DOD Directives for the management of hazardous materials, hazardous wastes, and special hazards. Evaluation extends to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action.

3.10.2 Existing Conditions

Hazardous Materials and Petroleum Products. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and to those who manage, monitor, or track any of those activities. Under AFI 32-7086, the USAF has established roles, responsibilities, and requirements for a hazardous materials management program (HMMP). The purpose of the HMMP is to control the procurement and use of hazardous materials to support USAF missions, ensure the safety and health of personnel and surrounding communities, and minimize USAF dependence on hazardous materials. The HMMP includes the activities and infrastructure required for ongoing identification, management, tracking, and minimization of hazardous materials. The *McConnell Air Force Base Hazardous Materials Management Plan* applies to all hazardous materials brought onto McConnell AFB (MAFB 2009c).

Hazardous and Petroleum Wastes. The *McConnell Air Force Base Hazardous Waste Management Plan* is required under AFI 32-7042, *Waste Management*, and complies with 40 CFR Parts 260 to 272. It prescribes the roles and responsibilities of all members of McConnell AFB and its tenants with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes procedures to comply with applicable Federal, state, and local standards for solid waste and hazardous waste management. The plan outlines procedures for transport, storage, and disposal. The hazardous waste stream inventory is maintained as part of the hazardous waste management plan (MAFB 2009c).

Hazardous wastes generated at McConnell AFB include flammable solvents, contaminated fuels, paint/coatings, stripping chemicals, toxic metals, waste paint-related materials, waste generated under the Comprehensive Universal Waste Program, and other miscellaneous wastes. The overall management of hazardous waste is the responsibility of the 22 CES/CEAN. McConnell AFB generates hazardous wastes primarily as a result of aircraft maintenance, vehicle maintenance, and tenant and contract activities (MAFB 2009c).

Pollution Prevention. AFI 32-7001, *Environmental Management*, implements the regulatory mandates in DOD Instruction 4715.17, *Environmental Management System*, and AFPD 32-70 and establishes the framework for an Environmental Management System (EMS) within the USAF. Pollution prevention is part of the EMS and is an Environmental Safety and Occupational Health risk reduction strategy for environmental aspects that generate pollutants. Each facility shall use their EMS to identify opportunities to optimize selected business, operational, or industrial processes or activities in terms of pollutant reduction, lower energy use, reduction in the use of natural resources, water conservation, and improvements to health and safety and prepare and implement environmental action plans to achieve these objectives and targets. The 22 CES/CEAN fulfills this requirement with the following environmental plans:

- Integrated Solid Waste Management Plan, 2011
- Storm Water Pollution Prevention Plan, 2009
- Hazardous Materials Management Plan, 2009
- Hazardous Waste Management Plan, 2010
- Pollution Prevention Management Action Plan, 2002
- Spill Prevention, Control, and Countermeasure Plan, 2007.

These plans ensure that McConnell AFB maintains a waste-reduction program and meets the requirements of the CWA; NPDES permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Storage Tanks. AFI 32-7044, *Storage Tank Compliance*, implements AFPD 32-70 and identifies compliance requirements for USTs, ASTs, and associated piping that store petroleum products and hazardous substances. USTs are subject to regulation under RCRA, 42 U.S.C. 6901, and 40 CFR 280.

An inventory of ASTs and USTs is maintained at McConnell AFB and includes the location, contents, capacity, containment measures, status, and installation dates (MAFB 2007b). Storage tanks at McConnell AFB contain JP-8 (jet fuel), No. 2 light fuel oil, unleaded gasoline, diesel fuel, biodiesel, and deicing fluid (propylene glycol). McConnell has a total aboveground storage capacity of 2,901,485 gallons and an underground storage capacity of 375,010 gallons (MAFB 2011a).

Asbestos-Containing Material. Asbestos is regulated by the USEPA under the CAA; Toxic Substances Control Act; and Comprehensive Environmental Response, Compensation, and Liability Act. USEPA has established that any material containing more than 1 percent asbestos by weight is considered an ACM. Friable ACM is any material containing more than 1 percent asbestos, and that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM is any ACM that does not meet the criteria for friable ACM.

AFI 32-1052, *Facilities Asbestos Management*, provides the direction for asbestos management at USAF installations. It requires installations to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities and to

document asbestos management efforts. In addition, the instruction requires an installation to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects.

Building materials in older buildings (pre-1980) are assumed to contain asbestos. It exists in a variety of forms and can be found in floor tiles, floor tile mastic, roofing materials, joint compound used between two pieces of wallboard, some wallboard thermal system insulation, and boiler gaskets. If asbestos is disturbed, fibers can become friable. Common sense measures, such as avoiding damage to walls and pipe insulation, help keep the fibers from becoming airborne and hazardous. ACM is removed in conjunction with building renovation and alteration projects.

McConnell AFB maintains a record of ACM maintenance and abatement. The *McConnell AFB Asbestos Management and Operating Plan* specifies procedures for the testing, removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects, and addresses organization roles and responsibilities. In addition, it is designed to protect personnel who live and work on McConnell AFB from exposure to airborne asbestos fibers and to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos (MAFB 2010c).

Of the buildings analyzed as part of the selected projects, Buildings 750, 795, 1090, 430, 1169, 1128, and 1220 are known to contain ACM (MAFB 2007c) and others are suspected to contain ACM based on their age.

Lead-Based Paint. Lead is a heavy, ductile metal commonly found simply as metallic lead or in association with organic compounds, oxides, and salts. It was commonly used in house paint for several years. The Federal government banned the use of most LBP in 1978; therefore, all buildings constructed prior to 1978 are assumed to contain LBP. Federal agencies are required to comply with applicable Federal, state, and local laws related to LBP activities and hazards.

The *Lead-Based Paint Management Plan for McConnell AFB* was prepared in accordance with DOD guidance and addresses regulatory requirements, responsibilities, and management activities. The plan is designed to establish management responsibilities and procedures for identifying and controlling hazards related to the presence of LBP. It addresses organizational roles and responsibilities, program development, management actions, data management, and training (MAFB 2010d). Maintenance and abatement records are maintained on McConnell AFB by Bioenvironmental Engineering.

Of the buildings analyzed as part of the selected projects, Building 795 is the only building known to contain LBP (MAFB 2007c); however, others are suspected to contain LBP based on their age.

Polychlorinated Biphenyls. PCBs are a group of chemical mixtures used as insulators in electrical equipment such as transformers and fluorescent light ballasts. Chemicals classified as PCBs were widely manufactured and used in the United States throughout the 1950s and 1960s. PCBs can be present in products and materials produced before the 1979 ban. Common products that might contain PCBs include electrical equipment (e.g., transformers and capacitors), hydraulic systems, and fluorescent light ballasts. The McConnell AFB electrical system is considered PCB-free. There are no suspected sources of PCBs within the proposed project areas; however, PCB-containing equipment such as transformers were used on the installation before the enactment of PCB regulations, so some PCB contamination from previously removed PCB-containing equipment might exist (MAFB 2005a).

Radon. Radon is a naturally occurring radioactive gas found in soils and rocks. It comes from the natural breakdown or decay of uranium. Radon has the tendency to accumulate in enclosed spaces that are usually below ground and poorly ventilated (e.g., basements). Radon is an odorless, colorless gas that has

been determined to increase the risk of developing lung cancer. In general, the risk of lung cancer increases as the level of radon and length of exposure increase.

The USEPA has established a guidance radon level of 4 picocuries per liter (pCi/L) in indoor air for residences; however, there have been no standards established for commercial structures. Radon gas accumulation greater than 4 pCi/L is considered to represent a health risk to occupants. In 2005, a radon gas survey was conducted in the Winfield Housing Area with the radon test results between 1.0 and 1.5 pCi/L. According to the USEPA Map of Radon Zones, McConnell AFB is in an area with a predicted average indoor radon screening level between 2 and 4 pCi/L.

Pesticides. McConnell AFB does not suffer from any significant pest problems other than the typical need to control ants, termites, and bees found in installation facilities (MAFB 2005a). The *McConnell AFB Pest Management Plan*, required by AFI 32-1053, *Integrated Pest Management Program*, describes the pest management practices at the installation. The program includes regular inspections and integrated pest management techniques.

Environmental Restoration Program. The ERP at McConnell AFB began in 1984 with an installationwide Preliminary Assessment/Records Search that identified 13 ERP sites for further investigation. Additional investigation and assessments brought the total up to 63 active sites. An additional 92 sites are awaiting further investigation and will remain unaddressed until use of the property is required. **Figures 2-1** through **2-5** show the locations of the contaminated sites on McConnell AFB. Primary contaminants in the soil and groundwater include fuels, dissolved phase fuels, and solvents. Plans for future development in the areas of any ERP site should take into consideration the possible restrictions and constraints that they represent as discussed in **Section 2.1.2**.

3.11 Safety

3.11.1 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. Human health and safety addresses both workers' health and public safety during facility demolition and construction, and during subsequent operation of newly constructed facilities.

Construction site safety is largely a matter 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 numerous DOD and USAF 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.

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 extremely noisy environments. 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 process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

AFI 91-301 , Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program, implements AFPD 91-3, Occupational Safety and Health, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

3.11.2 Existing Conditions

Construction Safety. All contractors performing construction activities at McConnell AFB are responsible for following ground safety regulations and workers compensation programs and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and availability of Material Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operation; to monitor exposure to workplace chemicals (e.g., asbestos, lead, hazardous material), physical hazards (e.g., noise propagation), and biological agents (e.g., infectious waste); 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.

Explosives and Munitions Safety. Explosive safety clearance zones must be established around facilities used for the storage, handling, or maintenance of munitions in order to safeguard military and surrounding civilian communities. Air Force Manual 91-201, *Explosives Safety Standards* establishes the size of the clearance zone based upon QD criteria or the category and weight of the explosives contained within the facility. There are several areas that are constrained by QD clear zones at McConnell AFB. These areas are located in the southeast corner of the installation and the eastern portion of the airfield. The QD arcs in this area include the MSA and the hot cargo pad (MAFB 2011a).

There are six munitions response areas (MRAs) located on McConnell AFB. These MRAs contain various munitions and explosives of concern (MEC) that could pose an adverse impact on safety for personnel and workers. MRAs have been analyzed by USAF and are handled on a case-by-base basis. MRAs are located in the north, southeast, and southern portions of the installation.

There is the potential for construction workers to encounter contamination from ERP sites during construction and demolition activities. Therefore, it is recommended that a health and safety plan be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil-removal activities within ERP Sites are required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. In addition to this training, supervisors are required to have an OSHA Site Supervisor certification. Should contamination be encountered, then handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB programs and procedures. Hazardous Waste Operations and Emergency Response regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, and response and investigation for liability and cost recovery, and established the Hazardous Sites Cleanup Fund. Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA. The 22 CES/CEAN would review all project design and construction plans and coordinate with KDHE and USEPA as appropriate.

4. Environmental Consequences

This section contains four subsections. **Section 4.1** provides a general introduction to the environmental consequences analysis, including significance criteria for each resource area. **Section 4.2** presents the No Action Alternative, which is prescribed by CEQ regulations. **Section 4.3** provides a general analysis of the environmental consequences by resource area. **Section 4.4** provides the detailed analysis of the Proposed Action, as presented in **Section 2.1**. Potential cumulative effects that could occur as a result of implementing the Proposed Action and other past, present, and reasonably foreseeable projects are discussed in **Section 5**.

4.1 Introduction

The intention of **Section 4** of this IDEA is to present both a general analysis of the environmental effects of installation development activities (see **Section 4.3**), and to provide potential environmental effects of selected installation development projects (see **Section 4.4**). The general analysis identifies the general environmental effects on each resource area associated with construction, demolition, infrastructure improvement, natural infrastructure upgrade activities, and strategic sustainability performance projects with a focus on avoiding those areas that are constraints to development. However, a general analysis of potential activities alone does not provide the framework to assess adequately the potential environmental consequences of a single proposed project. Therefore, **Section 4.4** presents a detailed analysis of the selected demolition, construction, infrastructure improvement, natural infrastructure improvement, and strategic sustainability performance projects under the Proposed Action as described in **Section 2.1**.

The specific criteria for evaluating the potential environmental effects of the No Action Alternative or the Proposed Action are discussed in the following text, identified by resource area. The significance of an action is also measured in terms of its context and intensity. The context and intensity of potential environmental effects are described in terms of duration, whether they are direct or indirect, the magnitude of the impact, and whether they are adverse or beneficial, and are summarized as follows:

- ***Short-term or long-term.*** In general, short-term effects are those that would occur only with respect to a particular activity, for a finite period, or only during the time required for construction or installation activities. Long-term effects are those that are more likely to be persistent and chronic.
- ***Direct or indirect.*** A direct effect is caused by an action and occurs around the same time at or near the location of the action. An indirect effect is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.
- ***Negligible, minor, moderate, or significant.*** These relative terms are used to characterize the magnitude or intensity of an impact. Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor effect is slight, but detectable. A moderate effect is readily apparent. Significant effects are those that, in their context and due to their magnitude (severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the policies set forth in NEPA. Significance criteria by resource area are presented in the following text.
- ***Adverse or beneficial.*** An adverse effect is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial effect is one having positive outcomes on the man-made or natural environment.

Mitigation measures, BMPs, and environmental protection measures are discussed to describe how the level of impact of a project on a resource area could be minimized. Mitigation measures only refer to those actions that could reduce impacts below significance. BMPs are actions required by statutes, regulations, or to fulfill permitting requirements that reduce potential impacts. Environmental protection measures are those actions that are used to minimize impacts that are not required as a part of statutes, regulations, or to fulfill permitting requirements, but are typically measures taken during design and construction phases of a project to reduce impacts on the environment. None of the BMPs or environmental protection measures described is needed to bring an impact below the threshold of significance.

The following text presents the criteria that would constitute a significant environmental effect resulting from implementation of the No Action Alternative (see **Section 4.2**), or the Proposed Action. The same significance criteria are also applied to potential cumulative effects (see **Section 5**) of implementing the Proposed Action in conjunction with past, present, or reasonably foreseeable future actions.

Noise Evaluation Criteria

Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors that are potentially exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased noise exposure to unacceptable noise levels). Projected noise effects are evaluated quantitatively and qualitatively.

Land Use Evaluation Criteria

The significance of potential land use effects is based on the level of land use sensitivity in areas affected by a proposed action and the compatibility of a proposed action with existing conditions. A proposed action could have a significant effect with respect to land use if any the following were to occur:

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflict with planning criteria established to ensure the safety and protection of human life and property.

Air Quality Evaluation Criteria

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases or decreases in regulated air pollutant emissions, and upon existing conditions and ambient air quality. The evaluation criteria are dependent on whether the Proposed Action is located in an attainment, nonattainment, or maintenance area for criteria pollutants. Other evaluation criteria include whether Major New Source Review (NSR) air quality construction permitting is triggered or Title V operating permitting is triggered. Major NSR air quality permitting is divided into Nonattainment Major NSR for nonattainment pollutants and PSD permitting for attainment pollutants. All of these evaluation criteria are discussed as follows.

Attainment Area Pollutants. The attainment area pollutants for the location of this Proposed Action are CO, NO_2 (measured as NO_x) SO_2, Pb, PM_{10} $PM_{2.5}$ and O_3 (measured as NO_x and VOCs). The impact in

NAAQS "attainment" areas would be considered significant if the net increases in these 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
- Exceed any Evaluation Criteria established by a SIP.
- Stationary plus mobile source emissions representing an increase of 250 tpy for any attainment criteria pollutant (NO_x, VOCs, CO, PM_{10}, $PM_{2.5}$, SO_2)[1].

Although the 250 tpy stationary plus mobile source threshold is not a regulatory driven threshold, it is being applied as a conservative measure of significance in attainment areas. The rationale for this conservative threshold is that it is consistent with the threshold for a PSD major source in attainment areas.

Nonattainment or Maintenance Area Pollutants. The nonattainment area pollutants for the location of this Proposed Action are considered significant if the net changes in these 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 Federal actions in nonattainment or maintenance areas, the General Conformity Rule applies. With respect to the General Conformity Rule, effects on air quality can be considered significant if the proposed Federal action emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area. In addition, if a facility has a specific general conformity budget listed in the SIP, a proposed action that results in an exceedance of that budget would be considered a significant effect on air quality. McConnell AFB is not specifically listed in the Kansas SIP as having a specific SIP budget.

Table 4-1 presents the General Conformity *de minimis* thresholds, by regulated pollutant. As shown in this table, *de minimis* thresholds vary depending on the severity of the nonattainment area classification.

Note that stationary emissions sources subject to NSR air permitting, including minor NSR, are not required to be counted towards the General Conformity *de minimis* thresholds. The reasoning for this is that by meeting the criteria and going through the approval process with the appropriate Federal, state, or local air quality permitting authority, these emissions sources are demonstrating that they are in conformity with the SIP. Following is a discussion of the levels that stationary source emissions would have significant air permitting impacts.

Nonattainment Major NSR Permits. The following factors were considered in determining the significance of air quality impacts with respect to Nonattainment Major NSR permitting requirements:

- If the net increase in stationary source emissions qualify as a Nonattainment New Source Review (NANSR) major source. This major source threshold varies from 10 tpy to 100 tpy for nonattainment pollutants depending on the severity of the nonattainment classification and the pollutant (40 CFR 51.165).

[1] The lead (Pb) threshold would be 250 tons per year but since emissions sources at an AFB have such low lead emissions, a comparison to this threshold was not considered necessary.

Table 4-1. Conformity *de minimis* Emissions Thresholds

Pollutant	Status	Classification	*de minimis* Limit (tpy)
Ozone (measured as NO_x or VOCs)	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO_x)
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO_x)
		Outside ozone transport region	100
Carbon Monoxide	Nonattainment/ maintenance	All	100
PM_{10}	Nonattainment	Serious	70
		Moderate	100
		No Special Classification	100
	Maintenance	All	100
$PM_{2.5}$ (measured directly, or as SO_2, or NO_x, or VOC as significant precursors)	Nonattainment/ maintenance	All	100
SO_2	Nonattainment/ maintenance	All	100
NO_x	Nonattainment/ maintenance	All	100
VOC	Nonattainment/ maintenance	All	100
Lead	Nonattainment/ maintenance	All	25

Source: 40 CFR 93.153, as of January 9, 2012

PSD and Title V Permits. The following factors were considered in determining the significance of air quality impacts with respect to PSD permitting requirements prior to construction:

- If the net increase in stationary source emissions qualify as a PSD major source. This includes 250 tpy emissions per attainment pollutant (40 CFR 52.21(b)(1) and 40 CFR 52.21(a)(2), or 75,000 tpy emissions of GHGs.
- If the net increase in stationary source emissions qualify as a significant modification to an existing PSD major stationary source, (i.e., change that adds 15 to 40 tpy of criteria pollutants to the PSD major source's potential to emit depending on the pollutant, or adding 75,000 tpy of GHGs).

- If the Proposed Action occurs within 10 kilometers of a Class I area and if it 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] and 40 CFR 52.21[a][2]).

The following factor was considered in determining the significance of air quality impacts with respect to Title V operating permit requirements (40 CFR 71.2 and 40 CFR 71.3):

- If the increase in stationary source emissions under the Proposed Action qualifies as a Title V major source by itself, or the resulting stationary source emissions after the change exceed the Title V thresholds. This includes the potential to emit 100 tpy for criteria pollutants (lower thresholds apply in nonattainment areas and depend on the pollutant and severity of nonattainment), or 10 tpy of any individual HAP, or 25 tpy of all HAPs combined, or 100,000 tpy of GHGs.

Only operational emissions increases were evaluated for PSD and Title V permitting impacts as construction activity emissions are typically not subject to the above significance criteria for these permit programs.

Geological Resources Evaluation Criteria

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 effects of a proposed action on geological resources. Generally, adverse effects can be avoided or minimized if proper construction techniques, erosion-control measures, and structural engineering design are incorporated into project development. A proposed action could have a significant effect with respect to geological resources if any of the following were to occur:

- Alteration of the lithology, stratigraphy, and geological structure that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability
- Changes to the soil composition, structure, or function within the environment.

Water Resources Evaluation Criteria

Evaluation criteria for effects on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. A proposed action could have a significant effect with respect to water resources if any the following were to occur:

- Substantially reduce water availability or supply to existing users
- Overdraw groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially affect water quality adversely
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources
- Occur in an area with a high probability of flooding.

Determination of the significance of wetland impacts is based on (1) loss of wetland acreage, (2) the function and value of the wetland, (3) the proportion of the wetland that would be affected relative to the occurrence of similar wetlands in the region, (4) the sensitivity of the wetland to proposed activities, and

(5) the duration of ecological ramifications. Impacts on wetland resources are considered significant if high-value wetlands would be adversely affected or if wetland acreage is lost.

Biological Resources Evaluation Criteria

The significance of effects on biological resources is based on the following:

- The importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource
- The proportion of the resource that would be affected relative to its occurrence in the region
- The sensitivity of the resource to proposed activities
- The duration of ecological ramifications
- The "taking" of threatened or endangered species
- Jeopardizing threatened or endangered species habitat.

Effects on biological resources would be significant if species or habitats of high concern are adversely affected over relatively large areas. Effects would also be considered significant if disturbances cause reductions in population size or distribution of a species of high concern.

Ground disturbance and noise associated with construction can directly or indirectly cause adverse effects on biological resources. Direct effects from ground disturbance are evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Habitat removal and damage or degradation of habitats might be adverse effects associated with ground-disturbing activities.

Cultural Resources Evaluation Criteria

Under Section 106 of the NHPA, "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Specifically, adverse effects on historic properties can include any of the following:

- 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 that alter its setting
- Neglecting the resource to the extent that it deteriorates or is destroyed
- 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.

For the analysis of the potential effects of the Proposed Action on archaeological resources, the APE includes both direct impacts and indirect impacts resulting from undertakings outside of sites locations. Impacts on cultural resources include potential effects on buildings, sites, structures, districts, and objects eligible for or included in the NRHP; cultural items as defined in the NAGPRA; archaeological resources as defined by the Archaeological Resources Protection Act of 1979; and archaeological artifact collections and associated records as defined by 36 CFR part 79.

Under NEPA, impacts on cultural resources are assessed as short-term or long-term; direct or indirect; and minor, moderate, or significant. Under Section 106 of the NHPA, the Proposed Action might have no effect, no adverse effect (no historic properties affected), or an adverse effect on historic properties.

Socioeconomics and Environmental Justice Evaluation Criteria

Construction expenditures are assessed in terms of direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly, depending on the location of a proposed action. For example, implementation of an action that creates ten employment positions might go unnoticed in an urban area, but could have considerable impacts in a rural region. If potential socioeconomic changes were to result in substantial shifts in population trends or a decrease in regional spending or earning patterns, those effects would be considered adverse. A proposed action could have a significant effect with respect to the socioeconomic and environmental justice conditions in the surrounding ROI if the following were to occur:

- Change the local business volume, employment, personal income, or population that exceeds the ROI's historical annual change
- Adversely affect social services or social conditions, including property values, school enrollment, county or municipal expenditures, or crime rates
- Disproportionately impact minority populations or low-income populations.

Infrastructure Evaluation Criteria

Effects on infrastructure are evaluated based on their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, sanitary sewer and wastewater systems, and 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, and energy needs created by either direct or indirect workforce and population changes related to installation activities. An effect might be considered adverse if a proposed action exceeded capacity of a utility. A proposed action could have a significant effect with respect to infrastructure if the following were to occur:

- Exceeded capacity of a utility
- A long-term interruption of the utility
- A violation of a permit condition
- A violation of an approved plan for that utility.

Hazardous Materials and Wastes Evaluation Criteria

A proposed action could have a significant effect with respect to hazardous materials and wastes if the following were to occur:

- Noncompliance with applicable Federal and state regulations as a result of the proposed action
- Disturbance or creation of contaminated sites resulting in adverse effects on human health or the environment
- Established management policies, procedures, and handling capacities could not accommodate the proposed activities, impacting fuel management.

Safety Evaluation Criteria

Any increase in safety risks would be considered an adverse effect on safety. A proposed action could have a significant effect with respect to health and safety if the following were to occur:

- Substantially increase risks associated with the safety of construction personnel, contractors, or the local community
- Substantially hinder the ability to respond to an emergency
- Introduce a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

4.2 Environmental Consequences of the No Action Alternative

Under the No Action Alternative, McConnell AFB would not implement the selected projects under the Proposed Action as proposed in the installation's community of plans, which would result in the continuation of existing conditions as described in **Section 3**. In some cases, the continuation of existing conditions would result in the potential for impacts on the resources analyzed in this IDEA. If Building 1090 were not demolished under Project D3, there would be long-term, minor, adverse impacts on safety from potential worker exposure to ACMs. If a new Air Traffic Control Tower was not constructed under Project C2, there would be long-term, minor, adverse impacts on worker safety from working in a building that is unsafe during high-wind conditions. If McConnell Creek was not restored under Project NI1, there would be long-term, minor, adverse impacts on water and geological resources from the continuation of erosion and sedimentation issues in the creek. No direct changes in environmental effects would be expected on the noise environment, land use, air quality, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure, or hazardous materials and wastes. Although under the No Action Alternative, the selected projects would not be implemented, it is anticipated that future development would still continue to occur; however, those development projects would be analyzed through the preparation of project-specific environmental documentation, as appropriate.

4.3 General Environmental Consequences of the Proposed Action by Resource Area

4.3.1 Noise

Construction Noise. No significant effects from construction noise would occur from the Proposed Action. Implementation of the selected projects would be expected to result in short-term, minor, adverse effects on the noise environment from equipment that would be used during demolition, construction, infrastructure improvement, natural infrastructure management, or strategic sustainability performance project activities. The projects identified in **Tables 2-1** through **2-5** would be implemented at different times and locations over the next 5 years. It is possible that several projects would occur simultaneously but would not be expected to result in adverse effects.

Projects under the Proposed Action would require grading, paving, demolition, and construction. All of the projects under the Proposed Action would occur on McConnell AFB property. Some of these projects would occur close to on-installation military housing.

Individual equipment used for demolition and construction activities would be expected to result in noise levels comparable to those shown in **Table 3-2**. Noise from demolition and construction activities varies depending on the type of equipment being used, the area that the action would occur in, and the distance

from the noise source. To predict how these activities would impact adjacent populations, noise from the probable equipment was estimated. For example, as shown in **Table 3-2**, construction and demolition (i.e., clearing and grading) usually involves several pieces of equipment (e.g., bulldozers and trucks) that can be used simultaneously. Under the Proposed Action, the cumulative noise from the equipment, during the busiest day, was estimated to determine the total impact of noise from construction and demolition activities at a given distance. Examples of expected cumulative noise during daytime hours at specified distances are shown in **Table 4-2**. These sound levels were estimated by adding the noise from several pieces of equipment and then calculating the decrease in noise levels at various distances from the source.

Table 4-2. Estimated Noise Levels from Construction and Demolition Activities

Distance from Noise Source (feet)	Estimated Noise Level
50	90–94 dBA
100	84–88 dBA
150	81–85 dBA
200	78–82 dBA
400	72–76 dBA
800	66–70 dBA
1,500	< 64 dBA

Under the Proposed Action, projects are proposed on the northwest and eastern regions of the installation. The northwestern region consists primarily of open space, airfield, and industrial facilities. The eastern region of the installation consists of outdoor recreation, industrial facilities, aircraft operations and maintenance, and housing. Populations several hundred feet from the construction site could experience noise levels in the high-70 dBA range and in the mid-80 to mid-90 dBA range for those adjacent to the project site. It is estimated that the closest off-installation residences are approximately 500 feet from Project C5. These populations could experience noise levels of approximately 78 to 82 dBA.

Given the extent of the projects associated with the Proposed Action and the proximity to residents, short-term, minor, adverse effects from construction noise would be expected. However, noise generation would last only for the duration of demolition and construction activities and could be minimized through measures such as the restriction of these activities to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.), and the use of equipment exhaust mufflers. The short-term increase in noise levels resulting from the Proposed Action would not cause significant adverse effects on the surrounding populations.

Operational Impacts. Vehicle traffic would not increase under the Proposed Action; however, Project C4 would shift traffic to an area that does not currently experience high traffic volume. Therefore, this project could result in long-term, minor, adverse effects on the noise environment due to increased vehicle traffic.

4.3.2 Land Use

No significant effects on land use would occur from implementation of the Proposed Action. The Proposed Action, which would occur entirely on McConnell AFB property, could result in short-term, minor, adverse effects on land use. Most of the selected projects are proposed to be sited in a manner compatible with the installation land uses identified in the McConnell AFB IDP; however, Projects C4, C5, and S1 have been sited within what could be considered incompatible land uses. This would result in

a short-term, minor, adverse effect on land use that would be minimized by changing the designated land use to support the project. Projects D4, C1, C2, C3, C4, and I2 would be constructed within the boundaries of ERP sites, and Projects C3 and I4 would be constructed within QD arcs; all appropriate land use restrictions associated with these constraints would be adhered to and no adverse impacts would be anticipated. Beneficial effects on land use would result from efficient use of installation land, particularly through demolition of old, inadequate, underutilized facilities.

4.3.3 Air Quality

Emission Estimates. Short-term, minor to moderate, adverse effects on air quality would be expected from the implementation of the Proposed Action; however, these effects would not be significant. The construction and demolition activities associated with the Proposed Action would generate air pollutant emissions from site-disturbing activities such as grading, filling, compacting, and trenching; and the operation of construction and demolition equipment and haul trucks transporting construction supplies, excavation material, and demolition debris. Construction and demolition activities would also generate particulate emissions as fugitive dust from ground-disturbing activities and from the combustion of fuels in construction and demolition equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the work phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction and demolition site is proportional to the area of land being worked and the level of activity. Construction and demolition activities would incorporate environmental protection and control measures (e.g., frequent use of water for dust-generating activities) to minimize fugitive particulate matter emissions. Additionally, the work vehicles are assumed to be well-maintained and could use diesel particulate filters to reduce emissions. Construction and demolition workers commuting daily to and from the job site in their personal vehicles would also result in criteria pollutant air emissions.

Long-term, minor, adverse and beneficial effects on air quality would be expected from the Proposed Action; however, these effects would not be significant. The use of new boilers, furnaces, and emergency generators at the buildings proposed for construction would increase air emissions from McConnell AFB. However, the demolition of older and less energy-efficient buildings would remove older and more emissions-intensive boilers, furnaces, and emergency generators from the installation and decrease air emissions. Overall, the Proposed Action would not result in significant long-term effects on air emissions at McConnell AFB. Air emissions from new construction of stationary sources (e.g., boilers, heaters, emergency generators) would be somewhat offset by reductions in air emissions from the demolition of existing stationary sources under the Proposed Action. Any overall increase in long-term emissions is not anticipated to be significant enough to exceed the current McConnell AFB Class II Permit-By-Rule Operating Permit. The calendar year 2009 actual emissions indicate the facility is operating well below their operating permit limit, at approximately 20 percent of these limits. Therefore, even a doubling of actual emissions would still be within the current operating permit limits.

McConnell AFB would obtain all necessary air quality construction permits as required by Article 19 Agency 28 of the Kansas Administrative Regulations for the Proposed Action. A Kansas air quality minor source construction permit would be obtained for all boilers, furnaces, and emergency generators where their potential to emit exceeds the construction permit or approval thresholds provided in Kansas Administrative Regulation 28-19-300. McConnell AFB could be required to obtain an approval to construct from the KDHE if a new source is subject to New Source Performance Standards in 40 CFR 60 or National Emissions Standards for Hazardous Air Pollutants within 40 CFR 63. Impacts on the existing McConnell AFB Class II Permit-By-Rule Operating Permit would also be evaluated and incorporated where necessary.

Air emissions from the Proposed Action are summarized in **Table 4-3** by the year in which they would be produced. Further information and details on the individual air quality effects from the selected projects are included in **Section 4.4**. **Appendix E** contains a summary of the calculations and the assumptions used to estimate the air emissions.

General Conformity. The Federal General Conformity rule does not apply to the Proposed Action because McConnell AFB is located in Sedgwick County which is in attainment for all criteria pollutants. Therefore, a comparison of emissions to General Conformity *de minimis* thresholds is not necessary and a General Conformity determination is not required.

Nonattainment NSR, PSD and Title V Air Permitting. McConnell AFB is not located in a nonattainment area for any pollutant; therefore, Nonattainment NSR permitting does not apply. Proposed Action emissions increases due to constructing new stationary sources are expected to be somewhat offset by the removal of similar sources. Although the overall increase in occupied building area is approximately 500,000 ft^2, any increase in stationary source emissions from boilers/heaters and emergency generators is not expected to be significant enough for the installation to reach the PSD major source threshold of 250 tpy for each criteria pollutant. The current potential to emit for McConnell AFB is 50 tpy per criteria pollutant based on the current air operating permit limits. Actual emissions are approximately 20 percent of these limits. In conclusion, PSD permitting is not expected to be triggered for the Proposed Action. In addition, Title V permitting is also not expected to be triggered, as the potential to emit is not expected to reach 100 tpy for any criteria pollutant. Refer to the Greenhouse Gas Emissions section with respect to GHG emissions impact on Title V applicability.

Greenhouse Gas Emissions. The Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels. Because CO_2 emissions account for approximately 92 percent of all GHG emissions in the United States, they are used for analyses of GHG emissions in this assessment. The U.S. Department of Energy, Energy Information Administration estimates that in 2009 gross CO_2 emissions in the State of Kansas were 75 million metric tons and in 2009 gross CO_2 emissions in the entire United States were 5,425.6 million metric tons (DOE/EIA 2011). **Table 4-4** summarizes the anticipated amount of CO_2 emissions by year from the Proposed Action. Considering the maximum CO_2 emissions for all years (i.e., 9,485 tons), the Proposed Action would represent a negligible contribution (0.011 percent) towards the statewide GHG inventory and an extremely negligible contribution (less than 0.0000016 percent) toward the national GHG inventory.

The calculated increases in GHG emissions from the Proposed Action construction activities are a maximum of 4,440 tons in 2017. The maximum annual increase in GHG emissions from the most significant stationary sources is 9,485 tons in 2019. The overall increases in potential GHG emissions from stationary sources has not been calculated but is expected to be well below 65,000 tpy. Therefore, the total increase in GHG emissions is expected to be well below 75,000 tpy which is below the PSD and Title V permitting thresholds for GHGs. The resulting installationwide stationary GHG emissions including existing sources and the Proposed Action are expected to be below the 100,000 tpy Title V major source threshold for GHGs; however, McConnell AFB should calculate installationwide potential GHG stationary source emissions to confirm this is true.

4.3.4 Geological Resources

The Proposed Action would not result in significant effects on geological resources. The following subsections describe the non-significant effects on geological resources that would result from implementation of the Proposed Action. An erosion-and-sediment-control plan (ESCP) would be prepared for projects that would disturb more than 1 acre of land. Projects of this size have more potential to result in adverse effects as a result of soil erosion and sedimentation, and the ESCP would minimize these potentially adverse effects. No effects on geology would be expected from implementation of the Proposed Action.

Table 4-3. Estimated Annual Air Emissions Resulting from the Proposed Action

Project	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Project I1	1.428	0.165	0.98	0.117	12.541	1.342	204.286
Total 2012 Emissions	**1.428**	**0.165**	**0.98**	**0.117**	**12.541**	**1.342**	**204.286**
Project D1	2.222	0.248	1.697	0.175	2.391	0.366	348.518
Project C1	4.985	0.793	3.501	0.385	2.536	0.573	717.015
Project I1	2.698	0.311	1.851	0.221	23.688	2.536	385.873
Total 2013 Emissions	**9.905**	**1.352**	**7.049**	**0.781**	**28.615**	**3.475**	**1,451.41**
Project D2	4.748	0.495	3.069	0.38	5.231	0.803	662.739
Project D3	9.053	0.935	5.684	0.727	13.066	1.843	1,238.40
Project C2	4.934	0.566	2.935	0.385	1.246	0.434	651.487
Project I1	2.698	0.311	1.851	0.221	23.688	2.536	385.873
Project I3	0.078	0.037	0.32	0.004	0.129	0.017	45.151
Total 2014 Emissions	**21.511**	**2.344**	**13.859**	**1.717**	**43.36**	**5.633**	**2,983.65**
Project I1	2.698	0.311	1.851	0.221	23.688	2.536	385.873
Project I2	3.393	0.347	1.687	0.267	0.478	0.259	409.021
Project C2 (stationary sources)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Total 2015 Emissions (stationary sources only)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Total 2015 Emissions	**6.224**	**0.673**	**3.761**	**0.49**	**24.186**	**2.815**	**1,113.732**
Project C3	5.246	0.715	3.329	0.409	3.016	0.635	712.721
Project C4	5.666	1.101	4.421	0.442	13.857	1.776	834.004
Project C5	3.484	0.393	2.168	0.272	2.813	0.5	471.87
Project C2 (stationary sources)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Total 2016 Emissions (stationary sources only)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Total 2016 Emissions	**14.529**	**2.224**	**10.141**	**1.125**	**19.706**	**2.931**	**2,337.433**
Project D4	0.075	0.009	0.061	0.006	0.013	0.006	12.139
Project I4	28.762	2.728	16.386	2.347	150.295	16.721	3,774.563
Project NI1	0.155	0.055	0.455	0.01	6.004	0.609	66.579
Project S1	4.267	0.542	2.818	0.341	19.955	2.294	558.433
Project C2 (stationary sources)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Project C4 (stationary sources)	*7.109*	*0.363*	*4.701*	*0.105*	*0.462*	*0.462*	*5,036.72*
Total 2017 Emissions (stationary sources only)	*7.242*	*0.378*	*4.924*	*0.107*	*0.482*	*0.482*	*5,355.56*

Project	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Total 2017 Emissions	**40.501**	**3.712**	**24.644**	**2.811**	**176.749**	**20.112**	**9,767.272**
Project C6	6.334	1.138	4.69	0.5	26.533	3.086	905.963
Project C2 (stationary sources)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Project C4 (stationary sources)	*7.109*	*0.363*	*4.701*	*0.105*	*0.462*	*0.462*	*5,036.722*
Total 2018 Emissions (stationary sources only)	*7.242*	*0.378*	*4.924*	*0.107*	*0.482*	*0.482*	*5,355.56*
Total 2018 Emissions	**13.576**	**1.516**	**9.614**	**0.607**	**27.015**	**3.568**	**6,261.52**
Project C2 (stationary sources)	*0.133*	*0.015*	*0.223*	*0.002*	*0.02*	*0.02*	*318.838*
Project C4 (stationary sources)	*7.109*	*0.363*	*4.701*	*0.105*	*0.462*	*0.462*	*5,036.722*
Project C6 (stationary sources)	*1.721*	*0.189*	*2.891*	*0.021*	*0.262*	*0.262*	*4,129.564*
Total 2019 and Later Emissions (stationary sources only)	***8.963***	***0.567***	***7.815***	***0.128***	***0.744***	***0.744***	***9,485.124***
Stationary Source Significance Criteria	***100***	***100***	***100***	***100***	***100***	***100***	***75,000 and 100,000***
Stationary Source plus Mobile Source Significance Criteria	**250**	**250**	**250**	**250**	**250**	**250**	**NA**

Note: Total Year emissions are the sum of mobile and stationary source emissions unless where indicated as stationary sources only. Project emissions are mobile source emissions unless indicated as stationary source emissions.

Key: NA= Not Applicable.

Table 4-4. Estimated CO_2 Emissions from the Proposed Action

Year	Mobile Sources CO_2 (tpy)	Stationary Sources CO_2 (tpy)
2012	204.286	NDA and/or NEIM
2013	1,451.41	NDA and/or NEIM
2014	2,983.65	NDA and/or NEIM
2015	794.894	318.838
2016	2,018.6	318.838
2017	4,439.94	5,355.56
2018	905.96	5,355.56
2019 and Later	0	9,485.12

Key: NDA = No Data Available. NEIM = Any net increase is expected to be minimal.

Topography. Long-term, negligible, adverse effects would be expected on the natural topography as a result of demolition, site preparation (i.e., grading, excavating, and recontouring), and construction activities under the Proposed Action. These impacts are considered negligible as McConnell AFB is fairly level in elevation and only minor grading would be anticipated to occur.

Geology. Some construction projects for large buildings will likely have foundations or supports installed in the Quaternary deposits underlying McConnell AFB. However, negligible impacts on geology would be anticipated from implementing the Proposed Action, as no geologic formations would be changed and no geologic hazards would be exacerbated by the action.

Soils. Long-term, minor to moderate, adverse effects on soils would be expected from implementation of the Proposed Action. The primary effects would be soil compaction, disturbance, and erosion. Implementation of environmental protection measures would minimize these impacts. Compaction of soils would result in disturbance and modification of soil structure. Soil productivity, which is the capacity of the soil to produce vegetative biomass, would decline in disturbed areas and be eliminated in those areas within the footprint of buildings, pavements, and roadways. Loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns but impacts could be minimized by soil decompaction methods. Site-specific soil testing should be conducted prior to implementing projects to determine if limitations exist and to determine appropriate environmental protection measures to minimize potential adverse effects. No significant adverse impacts on the soils would be anticipated.

Environmental protection measures to prevent erosion could include installing silt fencing and sediment traps, applying water to disturbed soil, and revegetating disturbed areas as soon as possible after the disturbance, as appropriate. In the event of a petroleum or chemical spill, the installation's Spill Prevention, Control and Countermeasure Plan (SPCC) Plan would be followed to contain and clean up a spill quickly. There remains the possibility that an accidental spill or leak could occur, but implementation of environmental protection measures identified in the SPCC plan would minimize the potential for and extent of associated contamination. An SPCC plan would be followed to contain any leaks or spills generated from construction vehicles quickly. No impacts on prime farmland soils would occur.

Geologic Hazards. Adverse effects on humans and property could occur in the event of earthquake activity. Any new construction under the Proposed Action would be designed consistent with requirements established in UFC 3-310-03 (Seismic Design for Buildings) and EO 12699 (Seismic Safety), which would reduce the potential for adverse effects on humans associated with structural failure during or following a seismic event.

4.3.5 Water Resources

No significant effects on water resources would occur from the Proposed Action. Short- and long-term, minor, adverse effects on water resources would be expected to result from implementation of the Proposed Action because the net amount of impervious surface at McConnell AFB would increase, soil would become compacted and alter natural drainage flows, and vegetation would be removed, which could increase soil erosion and sedimentation. Adverse effects would be minimized by implementing BMPs and following an approved ESCP. Under the CWA Final Rule, projects that would disturb more than 1 acre of land would be required to use BMPs to ensure that soil disturbed during construction activities does not pollute nearby water bodies. Projects disturbing more than 10 and 20 acres, respectively, have additional requirements. The following projects associated with the Proposed Action meet this criterion:

- Project D1 – Demolish Buildings 181 to 184 (> 1 acre disturbance)
- Project D2 – Demolish Buildings 750 and 795 (> 1 acre disturbance)
- Project D3 – Demolish Building 1090 (> 10 acres disturbance)
- Project C1 – Maintenance Group Consolidation (> 1 acre disturbance)
- Project C3 – KANG Munitions Storage Area Renovation (> 20 acres disturbance)
- Project C4 – Veterans Administration Hospital (> 1 acre disturbance)
- Project C5 – Military Working Dog Facility (> 1 acre disturbance)
- Project C6 – Base Civil Engineering and Contracting Complex (> 10 acres disturbance)
- Project I1 – Taxiway Alpha Repairs (> 1 acre disturbance)
- Project I4 – East Runway Repairs (> 10 acres disturbance)
- Project NI1 – McConnell Creek Stream Restoration (> 1 acre disturbance)
- Project S1 – Solar Plant (> 10 acres disturbance).

Projects D4, C1, C3, C4, I3, and NI1 would occur in the 100-year floodplain, and therefore, these projects would require a FONPA. Construction activities, including additions in impervious surfaces, increase storm water runoff and the potential for storm-related damage to infrastructure, facilities, and possibly human safety. However, if all selected projects were implemented, there would be an overall net decrease of impervious surfaces by 1,117,912 sq ft (see Table 2-6). Impacts would be minimized through design, siting, and proper implementation of environmental protection measures, including elevating structures to the base flood level; placing sensitive equipment on upper levels of facilities; constructing sidewalks, roads and parking lots with pervious materials; and creating new storm water retention areas for projects that create new impervious surface areas, to the maximum practicable extent. Additionally, an approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur. One of the buildings proposed for demolition under Project D4 (Building 430) is within the 100-year floodplain. Demolition of this facility would represent a long-term, minor, beneficial effect because floodwaters would not be impeded and the impact of floods on human safety, health, and welfare would be minimized.

Several of the projects associated with the Proposed Action, including demolition projects, would decrease impervious surfaces and reduce storm water runoff. This would result in a beneficial impact on water resources once vegetation is reestablished. However, many projects would increase impervious surface areas, resulting in short-term, minor, adverse impacts on water resources as a result of the associated risk of increased flooding, erosion, and sedimentation. Environmental protection measures would be implemented to minimize impacts. Ensuring onsite storm water infiltration during construction activities, as required by Energy Independence and Security Act Section 438, would sustain groundwater to recharge and minimize storm water runoff.

According to the 2001 Wetland Delineation Report for McConnell AFB, portions of McConnell Creek exhibit wetland characteristics (MAFB 2001). For the purposes of analysis in this IDEA, it is assumed that the wetlands are jurisdictional; however, the USACE will be contacted to make a final determination on their jurisdictional status. Project NI1 entails construction in a wetland area and would require a FONPA. Effects on wetlands from this project would not be significant and proper implementation of environmental protection measures would minimize impacts. Effects on wetlands and other water resources would be avoided through design, siting, and proper implementation of appropriate environmental protection measures. Proper implementation of these measures would ensure that no effects on surrounding wetlands or other waters of the United States would occur. Correspondence with regulatory and resource agencies prior to commencing any ground-breaking construction activities would be completed and permits would be obtained, as necessary.

4.3.6 Biological Resources

Vegetation. The Proposed Action would be expected to have direct, short-term and long-term, negligible adverse effects on vegetation on McConnell AFB. The selected projects would occur in the improved areas of the installation with the majority of vegetation being modified, landscaped, and mowed regularly.

Short-term, negligible, adverse effects on vegetation would be expected from the temporary disturbances from construction, demolition, and infrastructure improvement activities (e.g., trampling and removal). This vegetation would be expected to regenerate once activities have ceased or be restored to the surrounding area as is planned for three of the four selected demolition projects. Long-term, negligible, adverse effects on vegetation would be expected from the permanent removal of vegetation from construction of new buildings and infrastructure. Landscape design would use regionally appropriate plants adapted to local environmental conditions for improved and semi-improved grounds. Landscaping would conform to the McConnell AFB INRMP (MAFB 2004a) requirements regarding suggested and prohibited plants. As there have been no observations made of any unique native vegetative species occurring within the proposed project areas, all impacts on vegetation are expected to be negligible.

Long-term, minor, adverse effects on vegetation would be expected from Project S1 (Solar Plant) due to permanent vegetation removal.

Long-term, beneficial impacts on vegetation would be expected from the planting of eastern redbud (*Cercis anadensis*) and sugar maple trees (*Acer saccharum*) as part of Project I4 (Sidewalk from Building 1 to Building 250) infrastructure project. Additionally, long-term beneficial impacts on riparian vegetation as a result of the N1 (McConnell Creek Stream Restoration) project would be expected. Stream bank shoring and detention pond construction would increase stream bank stabilization and precipitation retention. All trees and vegetation impacted from the Project NI1 would be replaced or relocated as applicable. All ground disturbed during construction activities that does not include site improvements would be reseeded with appropriate species.

Finally, restoration of the demolition sites for projects D2 (Demolish Buildings 750 and 795), C3 (Demolish Building 1090), and D4 (Demolish Building 430) would produce long-term beneficial impacts on vegetation. All trees and vegetation associated with facilities scheduled for demolition would be replaced or relocated as applicable and the area reseeded with appropriate species producing beneficial effects.

Wildlife. The Proposed Action would have direct, short-term, negligible to minor, adverse effects on wildlife due to disturbances from noise, demolition and construction activities, and heavy equipment use. High noise events could cause wildlife to engage in escape or avoidance behaviors, resulting in short-term, negligible, adverse effects. The areas of disturbance would be relatively small in size and generally within developed areas where disturbances are common (e.g., mowing and landscaping, traffic, aircraft). Most wildlife species in the proposed project vicinities would be expected to recover quickly once the construction or demolition noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed so wildlife inhabiting the project sites would be habituated to noise disturbances.

Long-term, minor, adverse impacts on wildlife would be expected from Projects C4 (VA Hospital) due to the permanent loss of habitat. Project C4 is located within the former golf course footprint which has remained mostly undeveloped except for the current Military Working Dog Facility. Effects would be negligible due to the low quality of available habitat.

Long-term, negligible to minor, beneficial effects would be expected from all projects due to revegetation with locally appropriate species thus providing food and shelter for wildlife.

Protected and Sensitive Species. No federally listed threatened or endangered species are known to occur on McConnell AFB; therefore, no impacts on federally listed threatened or endangered species would be expected from the Proposed Action.

The *Bald and Golden Eagle Protection Act* could apply to the implementation of the Proposed Action if it is determined that a bald eagle nest could be affected. USFWS recommends a spatial buffer of 1 mile between bald eagle nests and construction activities in order to avoid adverse impacts on these species. However, no eagle nests have been observed on or near McConnell AFB although critical habitat for this species has been designated in Sedgwick County by the state (KDWPT 2005). If a bald eagle nest is discovered near the project areas, the USFWS and Kansas Department of Wildlife, Parks and Tourism would be consulted to ensure compliance with the *Bald and* Golden *Eagle Protection Act*; therefore, the implementation of the Proposed Action is not expected to have adverse effects on bald eagles.

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712), as amended, and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds,* require Federal agencies to minimize or avoid impacts on migratory birds listed in 50 CFR 10.13. If design and implementation of a Federal action cannot avoid measurable negative impacts on migratory birds, EO 13186 requires the responsible agency to consult with the USFWS and obtain a Migratory Bird Depredation Permit. Demolition, construction, infrastructure improvement, and natural infrastructure management activities associated with the Proposed Action would be conducted in a manner to avoid adverse effects on migratory birds to the extent practicable.

The following environmental protection measures are recommended for reduction or avoidance of impacts on migratory birds that could occur within the project areas:

- Any groundbreaking construction activities should be performed before migratory birds return to McConnell AFB to avoid incidental take or after all young have fledged.
- If construction or demolition is scheduled to start during the period in which migratory bird species are present, steps should be taken to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures and use of various excluders (e.g., noise). Birds can be harassed to *prevent* them from nesting within the project area. Once a nest is established, they should not be harassed until all young have fledged and are capable of leaving the nest site.
- If construction is scheduled to start during the period when migratory birds are present, a site-specific survey for nesting migratory birds should be performed starting at least 2 weeks prior to site clearing.
- If nesting birds are found during the survey, buffer areas should be established around nests. Construction should be deferred in buffer areas until birds have left the nest. Confirmation that all young have fledged should be made by a qualified biologist.

4.3.7 Cultural Resources

The Proposed Action would not result in significant effects on cultural resources. The following subsections describe the non-significant effects on cultural resources that would result from the Proposed Action.

Archaeological Resources. McConnell AFB has been subjected to an intensive-level survey of areas with archaeological potential. The eight historic-age archaeological sites are outside of the areas of the selected projects proposed under this IDEA. The SHPO has not yet been consulted regarding the findings

of the survey. However, no sites will be impacted by any of the proposed projects. If archaeological resources are discovered during implementation of the Proposed Action, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Historic Buildings and Structures. Less than significant adverse effects under NEPA would be expected from implementation of the Proposed Action. Building demolition would not result in any adverse effects on cultural resources. The construction of the addition to Building 1128 under Project C1 is near NRHP-eligible Building 1106 and could adversely affect the historic building's integrity of setting and feeling depending on the design of the addition. However, there would be no significant effect on cultural resources.

Traditional Cultural Properties. There are no known TCPs or sacred sites at McConnell AFB. Consultation with Indian tribes is ongoing.

4.3.8 Socioeconomics and Environmental Justice

No significant effects on socioeconomics and environmental justice would occur from the Proposed Action. Short-term, moderate, beneficial effects on the local economy would be expected under the Proposed Action due to expenditures from the implementation of the selected construction, demolition, infrastructure improvement, natural infrastructure management, and strategic sustainability performance projects under the Proposed Action. The Wichita Metropolitan Statistical Area contains approximately 19,790 construction workers, which collectively should be adequate to meet the demands of the Proposed Action. Short-term increases in local business volume and employment within the ROI would be expected under the Proposed Action. The use of local construction workers would produce increases in local sales volumes, payroll taxes, and the purchases of goods and services resulting in short-term, indirect, minor, and beneficial increases in the local economy.

Short-term population increases during construction would not be expected to occur because construction and demolition workers would likely be existing local residents. Therefore, no effects on social conditions, including property values, school enrollment, county or municipal expenditures, or crime rates due to population increases would be anticipated during construction activities.

Implementation of the selected projects would occur entirely on McConnell AFB. Possible adverse effects from construction activities could include increased traffic and noise levels and decreased air quality and infrastructure capacity, but these effects would be short-term, intermittent, and minor, and would likely affect on-installation residents more than off-installation populations. The ROI has a considerably higher percentage of residents of a racial minority and children under the age of 5 years old than the State of Kansas (36.5 percent versus 16.2 percent and 9.7 percent versus 6.5 percent, respectively). The ROI also has a considerably higher percentage of low-income residents than the State of Kansas. Therefore, the Proposed Action might have short-term, negligible to minor, adverse effects on minority and low-income populations from construction noise and traffic, decreased air quality, and infrastructure capacity.

The Proposed Action would result in a long-term, negligible, beneficial effect on the local economy due to increase of an estimated 100 Full-Time Equivalent (FTE) employees at the proposed VA Hospital. There are 64,762 people working in the educational, health, and social services industry in the Wichita Metropolitan Statistical Area. Therefore, no long-term impacts on social conditions, including property values, school enrollment, county or municipal expenditures, or crime rates due to population increases would be anticipated during operation of the proposed VA Hospital because the employees would likely be existing local residents.

Any long-term, adverse effects on minority and low-income populations would not be significant, and therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

4.3.9 Infrastructure

The Proposed Action would not result in significant adverse effects on the installation's infrastructure. The following subsections describe the effects on infrastructure that would result from implementation of the Proposed Action. Long-term, beneficial effects would be realized from implementing improved infrastructure projects and the consolidation of functions. In addition, all new construction would be designed to minimize buildings' electricity/energy and water consumption and optimize construction waste management and storm water management techniques to the maximum extent practicable.

Airfield. Long-term, moderate, beneficial effects would be expected from implementing the Proposed Action. The consolidation of the maintenance group (Project C1), construction of a new air traffic control tower (Project C2), taxiway repairs (Project I1), and east runway repairs (Project I4) would improve airfield operations.

Communications. Short-term, negligible, adverse effects on the communications systems at McConnell AFB would be expected from the Proposed Action. Short-term interruptions could be experienced when buildings are disconnected from and connected to the communications systems during construction activities. However, work on the communications systems would be temporary and coordinated with area users prior to the start of work activities.

Electrical System. Short-term, negligible, adverse effects on the electrical system would be expected during demolition and construction activities associated with the Proposed Action. Short-term electrical interruptions could be experienced when buildings are disconnected from or connected to the McConnell AFB electrical distribution system. However, the discontinuation of electrical services would be temporary and coordinated with area users prior to disconnection.

Long-term, negligible, beneficial effects on electrical systems would be expected from the Proposed Action by demolishing old buildings with outdated electrical systems and constructing new buildings with updated electrical systems. Long-term, moderate, beneficial effects on the electrical system would be expected due to the increase in renewable energy generation, including the construction and use of GSHPs at the VA Hospital (Project C4) and the 1.5-MW solar plant to service the KANG area (Project S1).

Heating and Cooling. Short-term and long-term, negligible, adverse effects would be expected to occur to the installation's heating and cooling systems. New buildings would have stand-alone heating and cooling systems, adding to the overall air conditioning and boiler capabilities of McConnell AFB. Routine maintenance on these systems will be required.

Liquid Fuel. Long-term, minor, beneficial effects on the liquid fuel supply would be expected as a result of the Proposed Action due to the removal and disposal of existing USTs of various sizes and associated automatic tank gauging systems and the construction of one AST (Project I2).

Natural Gas. Short-term, negligible, adverse effects on the natural gas system would be expected during demolition and construction associated with the proposed selected projects. Short-term interruptions could be experienced when buildings are disconnected from or connected to the McConnell AFB natural gas system. The discontinuation of natural gas services would be temporary and coordinated with area users prior to disconnection. Long-term, minor, adverse effects would be expected from an increase in

building space that requires heating. The Proposed Action would result in a minor increase in natural gas demands at the installation.

Water Supply. Short-term, negligible, adverse effects on the water supply systems would be expected from the Proposed Action. Short-term interruptions could be experienced when buildings are disconnected from or connected to the McConnell AFB water supply system. Water necessary for construction would be obtained from the existing water supply system. Construction water needs would be limited and have little effect on the installation's water supply system. Any potential disruption of components of the water supply system would be temporary and coordinated with area users prior to starting the work.

Storm Water System. Short-term, negligible, adverse effects would be expected from implementation of the Proposed Action due to temporary disturbance of the storm water systems during construction activities. Long-term, minor, direct, adverse effects on the McConnell AFB storm water system would be expected as a result of a net increase in impervious surfaces associated with the Proposed Action. However, long-term, minor, direct, beneficial effects are expected because the McConnell Creek Stream Restoration (Project NI1) should improve storm water management on the installation.

Sanitary Sewer. Short-term, negligible, adverse effects on the sanitary sewer and wastewater systems would be expected from the Proposed Action. Short-term interruptions could be experienced when buildings are disconnected from or connected to the sanitary sewer and wastewater systems. However, disruption of components of the sanitary sewer and wastewater system would be temporary and coordinated with area users prior to starting the work. No long-term effects are anticipated.

Solid Waste Management. Short-term, minor, adverse effects would result from increased construction and demolition debris production associated with the Proposed Action. Solid waste generated from the proposed construction and demolition activities would consist of building materials such as solid pieces of concrete, metals (e.g., conduit, piping, and wiring), and lumber. Contractors would be required to recycle construction and demolition debris to the maximum extent practicable in accordance with installation policy, thereby diverting it from landfills. The contractor would dispose of non-recyclable construction and demolition debris at an offsite permitted landfill facility, which would have a long-term, negligible, adverse effect on solid waste management by permanently using landfill capacity.

The proposed demolition, construction, and infrastructure improvement projects would result in a short-term, minor, adverse effect as a result of increased solid waste generation. As indicated in **Table 4-5**, approximately 63,208 tons of solid waste would be generated over the next 5 years from implementing the selected projects of the Proposed Action (USEPA 2009). Clean demolition and construction debris (e.g., concrete, asphalt) would be ground, recycled, and used for fill and roadwork rather than disposed of in a landfill, whenever possible.

Table 4-5. Anticipated Generation of Construction and Demolition Debris

Proposed Projects Addressed in this IDEA	Project Size (ft^2)	Multiplier (pounds/ft^2)	Total Waste Generated	
			Pounds	U.S. Tons
Demolition	768,980	158	121,498,840	60,749
Construction	1,005,054	4.34	4,361,934	2,181
Pavement Construction	555,000	1	555,000	278
			Total	**63,208**

Source: USEPA 2009

Long-term, moderate, beneficial effects are expected on waste management from the construction of a new recycling facility at the Base Civil Engineering and Contracting Complex (Project C6).

Pollution Prevention. It is anticipated that the Proposed Action would not affect the Pollution Prevention Program at McConnell AFB. The installation's pollution prevention plans aim to minimize waste and meet the requirements of the CWA during the proposed construction and demolition activities. Quantities of hazardous materials and chemical purchases, off-installation transport of hazardous waste, disposal of solid waste, and energy consumption would continue. Operation of new facilities under the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the existing conditions.

Transportation. Short-term, minor, direct, adverse effects on the transportation network would be expected from implementing the Proposed Action due to increased traffic and parking lot use associated with demolition and construction equipment and contractor vehicles. The construction and demolition phases of the Proposed Action would require delivery of materials to, and removal of debris from, demolition and construction sites. Construction traffic would compose a small percentage of the total existing traffic on the installation. Many of the heavy construction vehicles would be driven to the site and kept on site for the duration of construction and demolition activities, resulting in relatively few additional trips. The proposed installation development activities would occur at different times and locations on McConnell AFB over a 5-year period, which would further reduce construction traffic. Any potential increases in traffic volume associated with the proposed demolition and construction activities would be temporary.

Long-term, minor, adverse effects on traffic can be expected due to possible localized traffic increases from consolidation projects and the construction of the VA Hospital. Long-term, minor, beneficial effects on transportation would be expected from the road realignment in the KANG MSA area (Project C3) and the construction of the sidewalk from Building 1 to Building 250 (Project I3), which would include a pedestrian footbridge spanning McConnell Creek.

4.3.10 Hazardous Materials and Waste

The Proposed Action would not result in any long-term, adverse effects on hazardous materials use or hazardous waste generation. Short-term, minor, adverse effects resulting from use of hazardous materials during construction, such as sealants and solvents, would be minimal.

Hazardous Materials and Petroleum Products. Products containing hazardous materials would be procured and used during proposed construction activities. It is anticipated that the quantity of products containing hazardous materials used during construction would be minimal and their use would be of short duration. Cumulatively, there would be a large quantity of hazardous materials used. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal, state, and local regulations. Contractors would report the use of hazardous materials to the 22 CES/CEAN. A list of all hazardous materials should include a copy of each material's Material Safety Data Sheet, an estimate of how much material would be used, amount stored, duration of use, and location of the facility prior to the start of work. This increase in hazardous materials would not affect overall management plans or capacities for handling these materials. Therefore, the Proposed Action would have no impact on hazardous materials management at McConnell AFB. Contractors would use environmental protection measures to prevent releases and ensure that any releases do not result in contamination.

Long-term, negligible, beneficial impacts on hazardous materials and petroleum product management could occur with respect to storage conditions because the older buildings would be replaced with new

facilities that have modern hazardous material and petroleum product storage areas. Hazardous materials and petroleum products stored and used during operation of the proposed facilities would be similar in type and quantity to current conditions.

Hazardous and Petroleum Wastes. It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be negligible. Contractors would be responsible for the disposal of hazardous wastes in accordance with Federal and state laws and regulations, and the *McConnell AFB Hazardous Waste Management Plan*. This increase would not be expected to affect the management plans or capacities for handling this waste. Therefore, the Proposed Action would contribute negligibly to the installation's hazardous waste management program and result in no adverse impacts.

Long-term, negligible, beneficial impacts on management of hazardous and petroleum wastes could occur with respect to storage conditions because the older buildings would be replaced with new facilities that have modern hazardous and petroleum waste storage areas. Hazardous and petroleum wastes generated and stored during operation of the proposed facilities would be similar in type and quantity to current conditions.

Pollution Prevention. Quantities of hazardous materials and chemical purchases, off-installation transport of hazardous wastes, disposal of municipal solid wastes, and energy consumption would continue and increase during construction. Operations associated with the Proposed Action would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition. The Pollution Prevention Program at McConnell AFB would accommodate the Proposed Action.

Storage Tanks. Short-term, minor, adverse impacts on storage tanks would be expected because Project I2 would remove and dispose of 11 heating oil USTs and their associated automatic tank gauging systems. One AST would be constructed to replace the 11 USTs proposed for removal. Should one of the USTs proposed for removal have leaked, groundwater and soil remediation would be conducted where necessary. The Proposed Action would result in a long-term, minor, beneficial impact from replacing 11 older USTs with one modern AST.

Asbestos-Containing Materials. Specifications for proposed construction activities (as discussed in **Section 3.10**) and USAF regulations prohibit the use of ACM for new construction. Of the buildings analyzed as part of the Proposed Action, Buildings 750, 795, 1090, 430, 1169, 1128, and 1220 are known to contain ACM (MAFB 2007c); however, all buildings scheduled for renovation or demolition would be surveyed by the contractor for ACM prior to commencing activities. The 22 CES/CEAN maintains maintenance and abatement records. Sampling for ACM would be handled in accordance with the McConnell AFB Asbestos Management and Operating Plan and USAF policy.

In Kansas, the removal of friable ACM must be performed by a Kansas-licensed asbestos abatement contractor. Written notification of the intent to demolish buildings with ACM is also required under 40 CFR 61.145; an Asbestos Demolition Notification Form must be sent to KDHE. Many buildings proposed for renovation or demolition have ACM (MAFB 2007c). The 22 CES/CEAN would review all project design and construction plans and coordinate with KDHE as appropriate.

Lead-Based Paint. Specifications for proposed construction activities (as discussed in **Section 3.10**) and USAF regulations prohibit the use of LBP for new construction. Buildings scheduled for renovation or demolition could contain LBP (MAFB 2007c) and, therefore, would need to be surveyed by the contractor for LBP prior to commencing activities. The 22 CES/CEAN maintains maintenance and abatement records. Sampling for LBP would occur prior to renovation or demolition activities and would

be handled in accordance with the McConnell AFB Lead-Based Paint Management Plan and USAF policy.

Polychlorinated Biphenyls. Because the facilities on McConnell AFB are considered PCB-free, no impacts associated with PCBs are expected from the Proposed Action.

Radon. McConnell AFB is within an area of moderate potential for radon gas decay, which means that indoor activity is on average between 2 and 4 pCi/L (USEPA 2011c). Radon gas is typically found in underground or enclosed spaces. It could be necessary to install ventilation and monitor any of the proposed projects that would involve underground or enclosed spaces. Ventilation and monitoring of radon levels would ensure that there would be no long-term, adverse impacts associated with radon gas.

Pesticides. No impacts associated with pesticides would be expected. The Proposed Action would not require any significant change in the quantities of pesticides used or significantly alter pesticide application areas. Future pesticide applications at the proposed project sites would be conducted according to Federal, state, and local regulations and the installation's Integrated Pest Management Plan.

Environmental Restoration Program. There is the potential for construction workers to encounter contamination from ERP sites during construction and demolition activities. Therefore, it is recommended that a health and safety plan be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil-removal activities within ERP Sites are required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. In addition to this training, supervisors are required to have an OSHA Site Supervisor certification. Should contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and McConnell AFB programs and procedures. Hazardous Waste Operations and Emergency Response training regulations that protect workers and the public at or near a hazardous waste clean-up site are discussed in 29 CFR 1910.120 and 29 CFR Part 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, response and investigation for liability and cost recovery, and established the Hazardous Sites Cleanup Fund. Any proposed project that has the potential to interfere with an ERP site must be coordinated on an individual basis with KDHE and USEPA. The 22 CES/CEAN would review all project design and construction plans and coordinate with KDHE and USEPA as appropriate. See **Sections 4.4.1**, **4.4.2**, **4.4.3**, and **4.4.4** for a discussion of projects that could affect or be affected by ERP sites. No activities are proposed within an MMRP site.

4.3.11 Safety

The Proposed Action would not result in significant effects on safety. The following subsections describe the effects on safety that would result from the Proposed Action.

Construction Safety. Short-term, minor, adverse effects could occur from the implementation of the Proposed Action. The short-term risk associated with demolition and construction contractors would slightly increase at McConnell AFB during the normal workday as demolition and construction activity levels would increase. However, all demolition and construction contractors are required to follow and implement OSHA and USAF safety standards to establish and maintain safety procedures. Projects associated with the Proposed Action would not pose new or unacceptable safety risks to installation personnel or activities at the installation. The proposed projects would enable McConnell AFB to meet future mission objectives at the installation and conduct or meet mission requirements in a safe operating environment. No long-term effects on safety would be expected.

Construction workers could encounter soil or groundwater contamination as a result of an ERP site or previously unknown soil or groundwater contamination. Projects that are near or within ERP sites increase the potential for construction workers to encounter contamination. Prior to commencement of construction and demolition activities at or within the vicinity of active ERP sites, a health and safety plan should be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. In addition, supervisors would be required to obtain an OSHA Site Supervisor Certification. These hazards are discussed in more detail in **Section 4.3.10**, *Hazardous Materials and Waste*.

Of the buildings analyzed as part of the Proposed Action, Buildings 750, 795, 1090, 430, 1169, 1128, and 1220 are known to contain ACM and Building 795 is known to contain LBP (MAFB 2007c). Long-term, beneficial effects on safety would be expected from the removal of ACM and LBP materials by reducing potential exposure to personnel. Short-term, adverse effects could be experienced during demolition, construction, and infrastructure improvement activities, but adherence to all Federal, state, local regulations, and McConnell AFB management plans would result in negligible adverse effects on safety.

Demolition, construction, and infrastructure improvement activities would be accomplished in accordance with Federal, state, and local regulations to minimize safety hazards associated with hazardous materials, wastes, and substances.

Explosives and Munitions Safety. Short-term, minor, adverse effects could occur during demolition and construction activities within existing QD arcs. Contractors working within a QD arc could be exposed to an increased risk of potential explosions. Through coordination with the installation Safety Office, no handling or transportation of hazardous materials would occur within QD arcs while construction workers are within these areas. This would minimize explosive safety risks to construction workers. Any construction activities within the area of known MRAs should be cautious of MEC or related material. If there is an inadvertent discovery of MEC during construction activities, work would cease immediately and the Explosive Ordnance Disposal Unit would be contacted. Work would resume once all MEC are cleared and the site has been deemed safe to continue work. All proposed projects located within established QD arcs or in the area of an MRA would be mission-necessary and consistent with current land uses.

4.4 Detailed Environmental Consequences of the Proposed Action

4.4.1 Selected Demolition Projects

4.4.1.1 D1. Demolish Buildings 181 to 184

Project D1 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project D1.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the demolition of Buildings 181 to 184. The noise emanating from demolition equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a demolition site. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. The proposed demolition site is within a portion of McConnell AFB that was previously used for accompanied housing. Populations potentially affected by the increased noise levels would primarily include USAF personnel and their families staying at the

visiting officer quarters, approximately 200 feet from the demolition site, and USAF personnel working in the industrial and administrative facilities approximately 500 feet from the demolition site. The closest residents to this housing area would experience noise levels of 78 to 82 dBA.

Land Use. Long-term, minor, beneficial effects would be expected from the demolition of Buildings 181 to 184. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated, and unnecessary facilities and creating space for future projects. The land made available by demolition of Buildings 181 to 184 would reduce the amount of undisturbed land required for future development and would contribute to the goal of reducing the physical plant footprint on the installation according to the "20/20 by 2020" initiative (see **Section 2.1**). Demolition of Buildings 181 to 184 is consistent with the McConnell AFB IDP, which identifies Project D1 as a core district project (MAFB 2011a). Demolition of the buildings that are within the Housing-Accompanied land use category would make approximately 110,800 ft^2 available for future projects. The land use designation would not change and would be compatible with adjacent land uses.

Air Quality. Short-term, negligible to minor, adverse effects on air quality would be expected from the demolition of Buildings 181 through 184. Demolition activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of demolition equipment and haul trucks transporting debris, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during demolition activities to suppress emissions. All emissions associated with demolition activities would be temporary in nature. It is not expected that emissions from the demolition of Buildings 181 through 184 would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the demolition of Buildings 181 through 184 are summarized in **Table 4-6**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-6. Estimated Air Emissions Resulting from Project D1

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	2.077	0.123	0.821	0.169	0.126	0.122	241.938
Construction Fugitive Dust	-	-	-	-	2.175	0.217	-
Haul Truck On-Road	0.070	0.051	0.207	0.006	0.084	0.022	17.829
Construction Commuter	0.074	0.074	0.669	0.001	0.007	0.004	88.750
Total D1 Emissions	**2.222**	**0.248**	**1.697**	**0.175**	**2.391**	**0.366**	**348.518**
Percent of SCKI AQCR Inventory	**0.005**	**0.001**	**0.001**	**0.005**	**0.0025**	**0.003**	**0.00042***

Note: * Percent of State of Kansas CO_2 emissions.

Demolition of Buildings 181 through 184 would also result in long-term, minor, beneficial effects on air quality due to the elimination of long-term air emissions sources (e.g., boilers, furnaces, electrical generators) at these facilities that would be deactivated and removed during the demolition process. The deactivation and removal of these air emissions sources would contribute to reducing the total air emissions produced at McConnell AFB.

Geological Resources. Project D1 would be expected to result in short-term, minor, adverse effects, and long-term, beneficial effects on soils. Soils previously were compacted and highly disturbed in this area

when Buildings 181 to 184 were constructed. Short-term effects during demolition could involve additional vegetation removal and compaction of surrounding soils under the weight of construction equipment, which could result in temporary increased soil erosion and transport in storm water runoff during demolition activities. Adverse effects would be minimized with implementation of environmental protection measures including wetting of soils, and implementation of erosion and storm water management practices to contain soil and runoff on site. Construction of berms along nearby water bodies would decrease the amount of potential sedimentation in adjacent water bodies. Wetting of soils would occur on a daily basis as needed to prevent erosion and generation of dust. No long-term effects would be expected. No impacts on topography or geology would be anticipated from this action.

Water Resources. Short-term, negligible, adverse effects on water resources would be expected from Project D1. Short-term, adverse effects would involve a potential increase in soil erosion and sedimentation of receiving water bodies as a result of demolition and the removal of vegetation. These impacts would be minimized with implementation of BMPs in accordance with the CWA Final Rule, including wetting of soils, and implementation of erosion and storm water management practices to contain soil and runoff on site. Additionally, implementation of environmental protection measures in accordance with the McConnell AFB SWPPP is required to minimize the potential for exposed soils or other contaminants from construction activities to reach nearby surface waters. Such environmental protection measures could include the use of silt fences, covering of soil stockpiles, use of secondary containment for the temporary storage of hazardous liquids, detention/retention ponds, and establishment of buffer areas, as appropriate.

There is a risk that demolition equipment could leak fuels or that hazardous materials or spills could occur during demolition activities. To minimize the risk of a spill, all fuels and other potentially hazardous materials would be contained, stored, used, and disposed of appropriately. In the unlikely event that a spill or leak of fuel or other contaminants were to occur, there could be adverse effects on the receiving water bodies. Procedures identified in the installation's SPCC Plan would be followed to contain and clean up a spill quickly to minimize the potential for and extent of contamination. See **Section 4.3.10** on *Hazardous Materials and Wastes* for further information.

The decrease in impervious surface area associated with removal of Buildings 181 to 184 would be expected to reduce the volume and velocity of storm water runoff and the associated potential for erosion and offsite transport of sediments. Long-term, minor, beneficial impacts would be expected following the restoration of the site to match the surrounding areas.

Demolition activities would not occur within or adjacent to floodplains or wetlands and no effects on floodplains or wetlands would be expected to occur from this action. Demolition would not require trenching to the depth of groundwater. Demolition activities would stay within existing building footprints and would follow environmental protection measures, as required. Adherence to an ESCP and SWPPP would prevent surface water degradation.

Biological Resources. Short-term, negligible, adverse effects on vegetation would be expected from Project D1 due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation would consist primarily of manicured lawns and associated landscaping. The Project D1 area would be restored to match the surrounding area using regionally appropriate plants.

Short-term, negligible, adverse effects on wildlife would be expected from Project D1 due to temporary disturbances from noise, demolition activities, and heavy equipment use. High-noise events could cause wildlife to engage in escape or avoidance behaviors. Most wildlife species in the vicinity of demolition activities would be expected to recover quickly once the demolition noise and disturbances have ceased. Therefore, no long-term, adverse effects on wildlife would be expected.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as necessary.

Cultural Resources. Demolition of Buildings 181 to 184 would not result in significant effects on cultural resources. Buildings 181 to 184 are covered by the 2008 ACHP Program Comment regarding Capehart and Wherry Era Housing and Associated Structures and Landscape Features. The Program Comment covers all undertakings involving these buildings, including demolition, and satisfies the USAF's compliance with Section 106 of the NHPA. No NRHP-eligible resources are nearby. An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b).

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from the demolition of Buildings 181 and 184. It is assumed that equipment and supplies necessary to complete the demolition activities would be obtained locally, and local contractors would be used. The demand for workers as part of the demolition activities would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. Proposed activities would occur entirely on McConnell AFB and would have little potential to affect off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected to result from the proposed demolition of Buildings 181 and 184 because Project D1 does not involve any change in personnel, housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects on infrastructure (in particular, solid waste collection and disposal) would be expected to occur as a result of the generation of debris during demolition activities. Debris not recycled would be landfilled, which would be considered a long-term, minor, adverse effect. No other impacts on infrastructure (e.g., disruption to utilities, transportation, or other installation infrastructure) would occur during demolition activities. Long-term, negligible, beneficial effects would be realized from the removal of utilities and outdated structures; the reduction in utility demand from implementation of D1 would be minor.

Hazardous Materials and Waste. Short-term, minor, adverse impacts associated with hazardous materials and waste would be expected as a result of this project. Demolition of Buildings 181 to 184 would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

No long-term impacts on hazardous materials management or hazardous waste generation would be expected as a result of this project. However, because of their age, Buildings 181 to 184 should be assumed to contain both ACM and LBP. Sampling for ACM and LBP would occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with McConnell AFB management plans for asbestos and LBP, and local regulations.

The demolition of Buildings 181 to 184 would not affect or be affected by ERP sites. If contamination is encountered during demolition activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

Long-term, minor, beneficial impacts would be associated with the demolition of Buildings 181 to 184 due to the elimination of older buildings, resulting in a reduced potential for exposure to, and maintenance of, ACM and LBP.

Safety. Short-term, minor, adverse effects could occur during demolition activities. Demolition activities pose an increased risk of demolition-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Demolition areas would be fenced and appropriately marked with signs. Demolition equipment and associated trucks transporting material to and from demolition sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Because of the age of Building 181 to 184, it should be assumed they contain ACM and LBP. These materials require appropriate characterization, removal, handling, and disposal during demolition activities by qualified personnel. Long-term, beneficial effects on safety would also be experienced from the removal of ACM and LBP materials by reducing exposure to personnel.

4.4.1.2 D2. Demolish Building 750 and 985

Project D2 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project D2.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the demolition of Buildings 750 and 795. The noise emanating from demolition equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a demolition site. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for administrative functions. Populations potentially affected by the increased noise levels would include USAF personnel working in facilities approximately 200 feet from the demolition site. The closest personnel would experience noise levels of 78 to 82 dBA.

Land Use. Long-term, minor, beneficial effects would be expected from the demolition of Buildings 750 and 795. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated, and unnecessary facilities and creating space for future projects. The land made available by demolition of Buildings 750 and 795 would reduce the amount of undisturbed land required for future development and would contribute to the goal of reducing the physical plant footprint on the installation according to the "20/20 by 2020" initiative. Demolition of Buildings 750 and 795 is consistent with the McConnell AFB IDP, which identifies Project D2 as a core district project (MAFB 2011a). Demolition of the buildings, which are within the Administrative and Community Commercial land use categories, would make approximately 196,735 ft^2 available for future projects. The land use designation would not change and would be compatible with adjacent land uses.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the demolition of Buildings 750 and 795. Demolition activities would result in temporary effects on local and regional air

quality, primarily from site-disturbing activities, the operation of demolition equipment and haul trucks transporting debris, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during demolition activities to suppress emissions. All emissions associated with demolition activities would be temporary in nature. It is not expected that emissions from Project D2 would contribute to or affect local or regional attainment status with the NAAQS. Emissions from the demolition of Buildings 750 and 795 are summarized in **Table 4-7**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-7. Estimated Air Emissions Resulting from Project D2

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	4.457	0.264	1.762	0.362	0.270	0.261	519.056
Construction Fugitive Dust	-	-	-	-	4.696	0.470	-
Haul Truck On-Road	0.217	0.157	0.638	0.017	0.258	0.067	54.933
Construction Commuter	0.074	0.074	0.669	0.001	0.007	0.004	88.750
Total D2 Emissions	**4.748**	**0.495**	**3.069**	**0.380**	**5.231**	**0.803**	**662.739**
Percent of SCKI AQCR Inventory	**0.011**	**0.001**	**0.002**	**0.011**	**0.0054**	**0.006**	**0.0008***

Note: * Percent of State of Kansas CO_2 emissions.

Demolition of Buildings 750 and 795 would also result in long-term, minor, beneficial effects on air quality due to the elimination of long-term air emissions sources (e.g., boilers, furnaces, electrical generators) at these facilities that would be deactivated and removed during the demolition process.

Geological Resources. Project D2 would be expected to result in short-term, minor, adverse effects, and long-term, beneficial effects on soils. Demolition of Buildings 750 and 795 would result in short-term, negligible, adverse effects on soils from compaction, soil erosion, and sedimentation. Environmental protection measures and an ESCP would be implemented to minimize effects. Long-term, beneficial effects on soils would be expected following demolition activities, once the area is revegetated. Revegetation with native vegetation or grasses would decrease rates of erosion and sedimentation and promote soil productivity. No impacts on topography or geology would be anticipated.

Water Resources. Short-term, negligible, adverse effects on water resources could occur during demolition activities, as the potential for sedimentation and storm water runoff volume and velocity might increase during and immediately following demolition activities. Additionally, construction equipment leaks or spills could be transported to receiving water bodies during storm events. Adherence to environmental protection measures and SPCC Plan procedures would minimize adverse effects. Once restoration is complete and vegetation is reestablished, long-term, minor, beneficial effects would be expected as sedimentation and impervious surface area decreases. Storm water runoff velocity and volume would also incrementally decrease, which would contribute to an increase in groundwater recharge. Both buildings are approximately 250 feet from the 100-year floodplain and approximately 700 feet from McConnell Creek. Adverse effects on receiving waters would be minimized during demolition activities through implementation of appropriate environmental protection measures. No wetlands are present on the project site; therefore, no direct impacts on wetlands would be expected from this proposed demolition project.

Biological Resources. Short-term, negligible, adverse effects on vegetation would be expected from Project D2 due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation would consist primarily of manicured lawns and associated landscaping. The Project D2 area would be restored to match the surrounding area using regionally appropriate plants.

Short-term, negligible, adverse effects on wildlife would be expected from Project D2 due to temporary disturbances from noise, demolition activities, and heavy equipment use. High-noise events could cause wildlife to engage in escape or avoidance behaviors. Most wildlife species in the vicinity of demolition activities would be expected to recover quickly once the demolition noise and disturbances have ceased. Therefore, no long-term, adverse effects on wildlife would be expected.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. Demolition of Buildings 750 and 795 would not result in significant effects on cultural resources. Buildings 750 and 795, proposed for demolition, have been surveyed and evaluated as not eligible for the NRHP. The SHPO has concurred with these findings (MAFB 2011d) (see **Appendix D**). Their demolition would not affect any other cultural resources, as none are located nearby. An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). Given the previous development of the sites, it is unlikely that archaeological sites exist in the project areas.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from the demolition of Buildings 750 and 795. It is assumed that equipment and supplies necessary to complete the demolition activities would be obtained locally, and local contractors would be used. The demand for workers as part of the demolition would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. Proposed activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- and off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated. No long-term effects on socioeconomic resources would be expected from the proposed demolition of Buildings 750 and 795 because Project D2 does not involve any change in personnel, housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, minor, adverse effects to solid waste would be expected to result from the generation of demolition debris. Debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Removal of Buildings 750 and 795 would result in a slight decrease in demand for certain utilities. No other impacts on infrastructure (e.g., disruption to utilities, transportation, or other installation infrastructure) would occur during demolition activities. Long-term, beneficial effects would be realized from the removal of outdated utilities (e.g., electrical and heating units). Long-term, beneficial effects on storm water systems would be expected from the decrease in impervious surfaces.

Hazardous Materials and Waste. Short-term, minor, adverse impacts associated with hazardous materials and waste would be expected as a result of this project. Demolition of Buildings 750 and 795 would result in a short-term increase in the use of hazardous materials and petroleum products and the

generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Long-term, minor, beneficial impacts would be associated with the demolition of Buildings 750 and 795 resulting in a reduced potential for exposure to, and maintenance of, ACM and LBP. Buildings 750 and 795 contain ACM; Building 795 contains LBP. These materials would be properly characterized, handled, and disposed of in accordance with the McConnell AFB management plans for ACM and LBP, and local regulations.

The demolition of Buildings 750 and 795 would not affect or be affected by ERP sites. If contamination is encountered during demolition activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

Safety. Short-term, minor, adverse effects could occur during demolition activities. Demolition activities pose an increased risk of demolition-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Demolition areas would be fenced and appropriately marked with signs. Demolition equipment and associated trucks transporting material to and from demolition sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Buildings 750 and 795 contain ACM; Building 795 contains LBP. These materials require appropriate characterization, removal, handling, and disposal during demolition activities by qualified personnel. Long-term, beneficial effects on safety would also be experienced from the removal of ACM and LBP materials by reducing exposure to personnel.

4.4.1.3 D3. Demolish Building 1090

Project D3 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project D3.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the demolition of Building 1090. The noise emanating from demolition equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a demolition site. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for industrial functions. Populations potentially affected by the increased noise levels would include USAF personnel working in civil engineering shops, supply facilities, transportation maintenance and operations facility, and utility operations. Typical distance for these personnel would be approximately 500 feet from the demolition site. The closest personnel would experience noise levels of 70 to 74 dBA.

Land Use. Long-term, minor, beneficial effects would be expected from the demolition of Building 1090. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated, and unnecessary facilities and creating space for future projects. The land made available by demolition of Building 1090 would reduce the amount of undisturbed land required for future development and would contribute to the goal of reducing the physical plant footprint on the installation according to the "20/20 by 2020" initiative. Demolition of Building 1090 is consistent with

the McConnell AFB IDP, which identifies Project D3 as a core district project (MAFB 2011a). Demolition of the building, which is within the Industrial land use category, would make approximately 459,394 ft^2 available for future projects. The land use designation would not change and would be compatible with adjacent land uses.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the demolition of Building 1090. Demolition activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of demolition equipment and haul trucks transporting debris, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during demolition activities to suppress emissions. All emissions associated with demolition activities would be temporary in nature. It is not expected that emissions from Project D3 would contribute to or affect local or regional attainment status with the NAAQS. Emissions from the demolition of Building 1090 are summarized in **Table 4-8**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-8. Estimated Air Emissions Resulting from Project D3

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	8.501	0.504	3.361	0.691	0.514	0.499	989.965
Construction Fugitive Dust	-	-	-	-	12.023	1.202	-
Haul Truck On-Road	0.436	0.315	1.281	0.034	0.518	0.135	110.375
Construction Commuter	0.116	0.115	1.041	0.001	0.011	0.007	138.056
Total D3 Emissions	**9.053**	**0.935**	**5.684**	**0.727**	**13.066**	**1.843**	**1,238.396**
Percent of SCKI AQCR Inventory	**0.021**	**0.003**	**0.003**	**0.021**	**0.0136**	**0.014**	**0.0015***

Note: * Percent of State of Kansas CO_2 emissions.

Demolition of Building 1090 would also result in long-term, minor, beneficial effects on air quality due to the elimination of long-term air emissions sources (e.g., boilers, furnaces, electrical generators) at these facilities that would be deactivated and removed during the demolition process.

Geological Resources. Project D3 would be expected to result in short-term, minor to moderate, adverse effects, and long-term, beneficial effects on soils. Soils previously were compacted and highly disturbed in this area when Building 1090 was constructed. Due the presence of ACM in the building, proper abatement procedures, environmental protection measures, and an ESCP would be implemented to minimize impacts and ensure contamination of soils does not occur. No effects on topography or geology would be anticipated. Long-term, beneficial effects on soils would be expected following demolition activities, once the area is revegetated. Revegetation with native vegetation or grasses would decrease rates of erosion and sedimentation and promote soil productivity.

Water Resources. Short-term, negligible, adverse effects could occur during demolition activities as sedimentation and storm water runoff volume and velocity might increase. Additionally, construction equipment leaks or spills could be transported to receiving water bodies during storm events. Adherence to environmental protection measures and SPCC Plan procedures would minimize adverse effects. Once restoration is complete and vegetation is reestablished, long-term, minor, beneficial effects would be expected as sedimentation and impervious surface area decrease. Storm water runoff velocity and volume would decrease, which would contribute to an increase in groundwater recharge.

No wetlands are present on the project site; therefore, no direct impacts on wetlands would be expected from this proposed demolition project. Building 1090 is not within or adjacent to any floodplains or surface waters so these resources would not be affected.

Biological Resources. Short-term, negligible, adverse effects on vegetation would be expected from Project D3 due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation would consist primarily of manicured lawns and associated landscaping. The Project D3 area would follow INRMP guidelines to restore the surrounding area by using regionally appropriate plants.

Short-term, negligible, adverse effects on wildlife would be expected from Project D3 due to temporary disturbances from noise, demolition activities, and heavy equipment use. High-noise events could cause wildlife to engage in escape or avoidance behaviors. Most wildlife species in the vicinity of demolition activities would be expected to quickly recover once the demolition noise and disturbances have ceased. Therefore, no long-term, adverse effects on wildlife would be expected.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as necessary.

Cultural Resources. Demolition of Building 1090 would not have an adverse effect on any historic properties. Although Building 1090 is located 650 feet east of an NRHP-eligible hangar (Building 1107) and the demolition would likely cause increased dust, noise, and vibration during demolition activities, these impacts would be short-term and not classified as adverse under Section 106 and not significant under NEPA. An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). Given the previous development of the site, archaeological sites are unlikely.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from the demolition of Building 1090. It is assumed that equipment and supplies necessary to complete the demolition activities would be obtained locally, and local contractors would be used. The demand for workers as part of the demolition would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. Proposed activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- and off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated. No long-term effects on socioeconomic resources would be expected to result from the proposed demolition of Building 1090 because Project D3 does not involve any change in personnel, housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, minor, adverse effects on solid waste would be expected to result from the generation of demolition debris. Removal of Building 1090 would result in a decrease in demand for utilities. No other impacts on infrastructure (e.g., disruption to utilities, transportation, or other installation infrastructure) would occur during demolition activities. Long-term, beneficial effects would result from the removal of outdated utilities (e.g., electrical and heating units). Long-term, beneficial effects on storm water systems would result from the decrease in impervious surfaces.

Hazardous Materials and Waste. Short-term, minor, adverse impacts associated with hazardous materials and waste would be expected as a result of this project. Demolition of Building 1090 would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

No long-term impacts on hazardous materials management or hazardous waste generation would be expected as a result of this project. However, Building 1090 is known to contain ACM. Sampling for ACM and LBP would occur prior to any demolition activities so that these materials can be properly characterized, handled, and disposed of in accordance with McConnell AFB management plans for asbestos and LBP, and local regulations.

Building 1090 is located within the administrative boundaries of ERP Site SS-03, where soil and groundwater contamination have been confirmed (see **Figure 4-1**). Remedial action could be necessary prior to renovation activities and existing monitoring wells would need to be protected from damage during these activities. If contaminated soil is encountered during demolition and site preparation activities, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

Long-term, minor, beneficial impacts would be associated with the demolition of Building 1090 due to the elimination of an older building, resulting in a reduced potential for exposure to, and maintenance of, ACM and LBP.

Safety. Short-term, minor, adverse effects could occur during demolition activities. Demolition activities pose an increased risk of demolition-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Demolition areas would be fenced and appropriately marked with signs. Demolition equipment and associated trucks transporting material to and from demolition sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Building 1090 is known to contain ACM. ACM requires appropriate characterization, removal, handling, and disposal during demolition activities by qualified personnel. Long-term, beneficial effects on safety would be experienced from the removal of ACM by reducing exposure potential to personnel.

4.4.1.4 D4. Demolish Building 430

Project D4 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project D4.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the demolition of Building 430. The noise emanating from demolition equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a demolition site. Heavy construction equipment would not be operational during the entire demolition period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for administrative functions and is surrounded by green space to the south and east and aircraft operations and maintenance

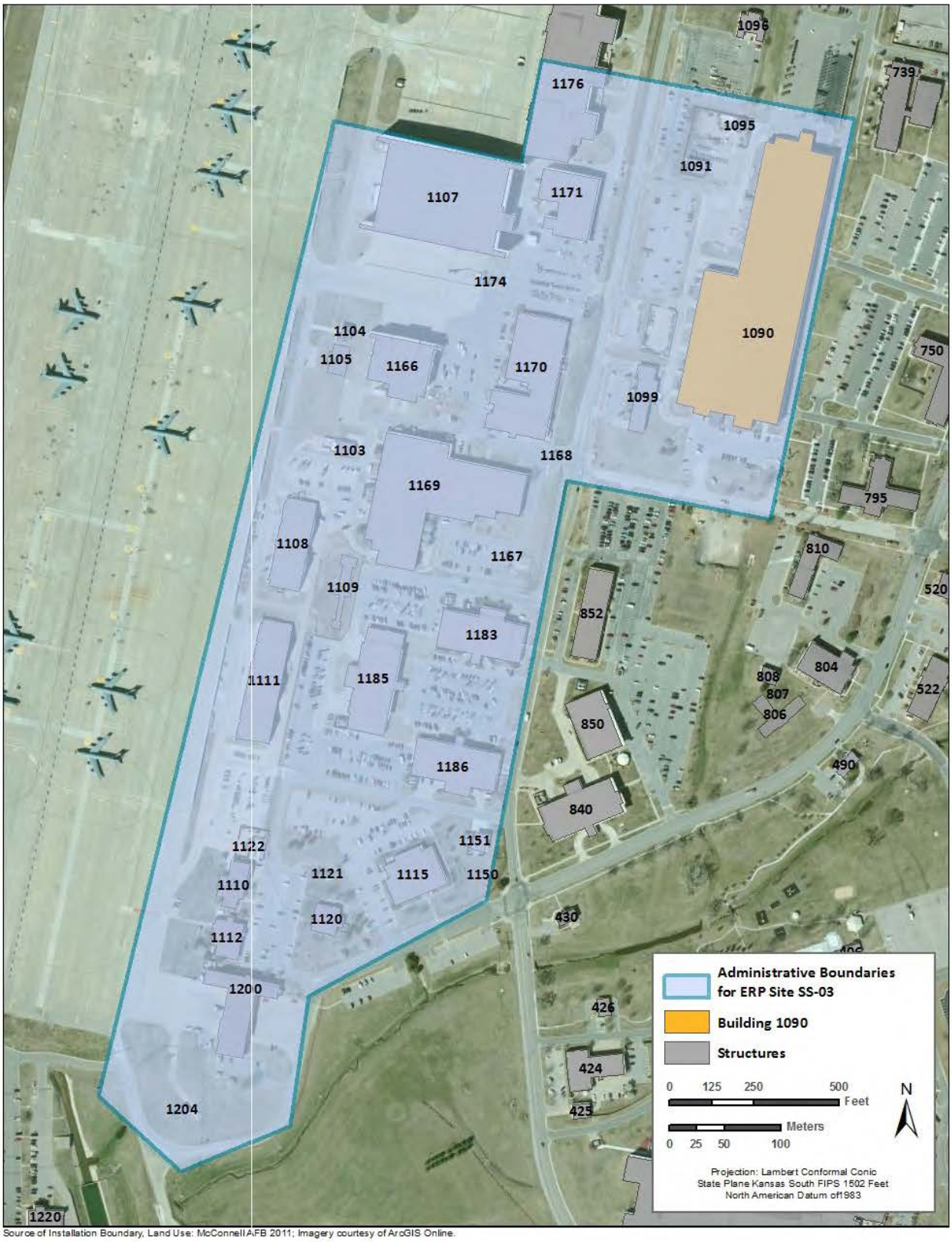


Figure 4-1. ERP Site SS-03 Administrative Boundaries

to the north. Populations potentially affected by the increased noise levels would include USAF personnel working in adjacent aircraft operations and maintenance facilities approximately 200 feet from the demolition site and USAF personnel working in the administration facilities approximately 400 feet from the demolition site. The closest personnel would experience noise levels of 72 to 76 dBA.

Land Use. Long-term, minor, beneficial effects would be expected from the demolition of Building 430. Demolition activities would have beneficial effects on the installation's organizational functions by removing old, outdated, and unnecessary facilities and creating space for future projects. The land made available by demolition of Building 430 would reduce the amount of undisturbed land required for future development and would contribute to the goal of reducing the physical plant footprint on the installation according to the "20/20 by 2020" initiative. Demolition of Building 430 is consistent with the McConnell AFB IDP, which identifies Project D4 as a core district project (MAFB 2011a). Demolition of the building, which is within the Administrative land use category, would make approximately 2,051 ft^2 available for future projects. The land use designation would not change and would be compatible with adjacent land uses.

Building 430 is partially located within the boundaries of two ERP Sites: SS-02 and ST-17. SS-02 is the site of a former UST and gasoline spill. ST-17 is the site of a former filling station and is currently undergoing long-term monitoring for groundwater contaminated by methyl tertiary-butyl ether. Demolition of Building 430 would take into account any land use restrictions in place due to the presence of both ERP sites.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the demolition of Building 430. Demolition activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of demolition equipment and haul trucks transporting debris, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during demolition activities to suppress emissions. All emissions associated with demolition activities would be temporary in nature. It is not expected that emissions from Project D4 would contribute to or affect local or regional attainment status with the NAAQS. Emissions from the demolition of Building 430 are summarized in **Table 4-9**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-9. Estimated Air Emissions Resulting from Project D4

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	0.069	0.004	0.027	0.006	0.004	0.004	8.025
Construction Fugitive Dust	-	-	-	-	0.004	0.000	-
Haul Truck On-Road	0.003	0.002	0.010	0.000	0.004	0.001	0.827
Construction Commuter	0.003	0.003	0.025	0.000	0.000	0.000	3.287
Total D4 Emissions	**0.075**	**0.009**	**0.061**	**0.006**	**0.013**	**0.006**	**12.139**
Percent of SCKI AQCR Inventory	**0.0002**	**0.00002**	**0.00003**	**0.0002**	**0.00001**	**0.00004**	**0.00001***

Note: * Percent of State of Kansas CO_2 emissions.

Demolition of Building 430 would also result in long-term, minor, beneficial effects on air quality due to the elimination of long-term air emissions sources (e.g., boilers, furnaces, electrical generators) at these facilities that would be deactivated and removed during the demolition process.

Geological Resources. Effects from implementing Project D4 would be short-term, minor to moderate, adverse, and long-term beneficial. Demolition of Building 430 would result in short-term, negligible, adverse effects on soils from compaction, soil erosion, and sedimentation. Environmental protection measures and an ESCP would be implemented to minimize effects. An ERP site is present within the area proposed for demolition associated with Project D4. Prior to any demolition associated with Project D4, any areas of soil, pavement, or building surfaces that appear to have been contaminated by hazardous or petroleum wastes would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of demolition activities. The handling, storage, transportation, and disposal of hazardous substances and contaminated soils would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. No effects on topography or geology would be anticipated. Long-term, beneficial effects could occur from the remediation of contaminated soils and if the site is revegetated. Revegetation with native vegetation or grasses would decrease rates of erosion and sedimentation and promote soil productivity.

Water Resources. Short-term, negligible, adverse effects could occur during demolition activities as sedimentation and storm water runoff volume and velocity might increase. Additionally, construction equipment leaks or spills could be transported to receiving water bodies during storm events. Adherence to environmental protection measures and SPCC Plan procedures would minimize adverse effects. Once restoration is complete and vegetation is reestablished, long-term, minor, beneficial effects would be expected as sedimentation and impervious surface area decrease. Storm water runoff velocity and volume would incrementally decrease, which would contribute to an increase in groundwater recharge.

No wetlands are present on the project site; therefore, no direct impacts on wetlands would be expected from this proposed demolition project. Building 430 lies within the 100-year floodplain. Following demolition, long-term, minor, beneficial effects on the floodplain would occur from the restoration of floodplain functions and values in this vicinity.

Biological Resources. Short-term, negligible, adverse effects on vegetation would be expected from Project D4 due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation would consist primarily of manicured lawns and associated landscaping. All trees and vegetation associated with Project D4 would be replaced or relocated as applicable and the area restored to match the surroundings.

Short-term, negligible, adverse effects on wildlife would be expected from Project D4 due to temporary disturbances from noise, demolition activities, and heavy equipment use. High-noise events could cause wildlife to engage in escape or avoidance behaviors. Most wildlife species in the vicinity of demolition activities would be expected to recover quickly once the demolition noise and disturbances have ceased. Therefore, no long-term, adverse effects on wildlife would be expected.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. Demolition of Building 430 would not result in significant effects on cultural resources. Demolition of Building 430 is not expected to affect historic properties because none are present in the area. Building 430 has been surveyed and evaluated as not eligible for the NRHP. It is not located near any other NRHP-eligible properties. The SHPO has concurred with these findings (MAFB 2011d) (see **Appendix D**). An archaeological survey has not identified archaeological sites or TCPs in

the proposed project area (MAFB 2004b). Given the previous development of the site, archaeological sites are unlikely.

Socioeconomics and Environmental Justice. Short-term, negligible, beneficial effects on socioeconomic resources would be expected from the demolition of Building 430. It is assumed that equipment and supplies necessary to complete the demolition would primarily be obtained locally and primarily local contractors would be used. The demand for workers as part of the demolition would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. Due to the small size of the project, the effects would be considered negligible. Proposed activities would occur entirely on McConnell AFB and, therefore, would have little potential to affect off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected to result from the proposed demolition of Building 430 because Project D4 does not involve any change in personnel, housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, minor, adverse effects on solid waste would be expected to result from the generation of demolition debris. Debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, beneficial effects would be realized from the removal of outdated utilities (e.g., electrical and heating units). Long-term, beneficial effects on storm water systems would be expected from the decrease in impervious surface area, particularly as Building 430 is located within the 100-year floodplain. Demolition of this building would restore the functions and values of the floodplain within the vicinity of the project, leading to more effective storm water flow attenuation.

Hazardous Materials and Waste. Short-term, minor, adverse impacts associated with hazardous materials and waste would be expected as a result of this project. Demolition of Building 430 would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Long-term, minor, beneficial impacts would be associated with the demolition of Building 430 due to the elimination of a building containing ACM, which would reduce potential exposure and maintenance issues. ACMs would be properly characterized, handled, and disposed of in accordance with McConnell AFB management plans for ACM, and local regulations.

Two ERP sites (ST-17 and SS-02) are associated with Building 430 and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to demolition and existing monitoring wells would need to be protected from damage during demolition activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

Safety. Short-term, minor, adverse effects could occur during demolition activities. Demolition activities pose an increased risk of demolition-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear

protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Demolition areas would be fenced and appropriately marked with signs. Demolition equipment and associated trucks transporting material to and from demolition sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Building 430 is known to contain ACMs. ACMs require appropriate characterization, removal, handling, and disposal during demolition activities by qualified personnel. Long-term, beneficial effects on safety would also be experienced from the removal of ACM by reducing potential exposure to personnel.

Building 430 is almost completely contained between two ERP sites, ST-17 and SS-02. ST-17 is currently undergoing long-term monitoring for groundwater contaminated by methyl tertiary-butyl ether (MAFB 2011a). Wells for monitoring would either need to be avoided or moved prior to demolition activities. Demolition activities could affect the monitoring of these sites (see **Figure 2-4**). SS-02 was the site of a former UST and gasoline spill. There is a potential for workers to encounter contamination during demolition activities within ERP sites. These sites could have short-term, negligible to minor, adverse impacts on workers in this area due to exposure. However, prior to commencement of demolition activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable Federal, state, and local regulations and policies. See **Section 4.3.10**, *Hazardous Materials and Wastes*, for more information regarding the potential for contamination at this location.

4.4.2 Selected Construction Projects

4.4.2.1 C1. Maintenance Group Consolidation

Project C1 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project C1.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the effort to centralize maintenance activities. The noise emanating from construction and remodeling equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for aircraft operations and maintenance. Populations potentially affected by the increased noise levels would include USAF personnel working in adjacent aircraft operations and maintenance facilities approximately 200 feet from the site of the Building 1128 addition and USAF personnel working in the facilities approximately 150 feet from the Building 1169 renovation and conversion. The closest personnel to the building construction would experience noise levels of 81 to 85 dBA.

Land Use. No effects on land use would be expected from consolidation of the Maintenance Group into Buildings 1128, 1169, and 1220. The consolidation activities would occur within the Aircraft Operations and Maintenance land use category. The current and future land use designation would remain the same, and no change in functionality is anticipated. Furthermore, consolidation is consistent with the

McConnell AFB IDP, which identifies Project C1 as one of the primary short-range MILCON projects (MAFB 2011a). Building 1169 is located within the boundaries of ERP Site SS-03; however, no new ground-disturbing activities would occur at Building 1169. Any land use restrictions in place at ERP Site SS-03 would not impact consolidation activities.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction and renovation for the Maintenance Group Consolidation (Buildings 1128, 1169, and 1220). Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction and paving equipment and haul trucks transporting building materials, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature. Emissions from the construction of the proposed Maintenance Group Consolidation are summarized in **Table 4-10**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-10. Estimated Air Emissions Resulting from Project C1

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	4.784	0.611	2.109	0.378	0.344	0.334	541.810
Construction Fugitive Dust	-	-	-	-	2.098	0.210	-
Haul Truck On-Road	0.069	0.050	0.202	0.005	0.082	0.021	17.427
Construction Commuter	0.132	0.132	1.190	0.002	0.013	0.008	157.778
Total C1 Emissions	**4.985**	**0.793**	**3.501**	**0.385**	**2.536**	**0.573**	**717.015**
Percent of SCKI AQCR Inventory	**0.012**	**0.002**	**0.002**	**0.011**	**0.0026**	**0.004**	**0.00087***

Note: * Percent of State of Kansas CO_2 emissions.

Long-term, negligible, adverse effects on air quality would be expected from the operation of the Maintenance Group Consolidation. Long-term, minor, adverse effects on air quality would be expected from the use of natural gas heaters to provide comfort heating to the proposed facility. While these operating emissions would increase the overall air emissions from McConnell AFB, the added emissions would be offset by a reduction in air emissions from the demolition of older buildings that use more emissions-intensive heating systems. Emissions from Project C1 would not contribute to or affect local or regional attainment status with respect to the NAAQS.

Geological Resources. The proposed Maintenance Group Consolidation would be expected to result in short-term, minor, and long-term, negligible, adverse effects on soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, and excavation to accommodate the Building 1128 addition. Clearing of vegetation would increase erosion and sedimentation potential. As a result of constructing the addition to Building 1128, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity, which is the capacity of the soil to produce vegetative biomass, would decline in disturbed areas and be eliminated in those areas within the footprint of the Building 1128 addition. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly

level to sloping, well-drained soils. No known construction limitations exist for the soils. No effects on topography or geology would be anticipated.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from implementation of Project C1. Building 1220 lies within the 100-year floodplain; however, the footprint of this building would not change under this action. Short-term effects on water resources could occur from the removal of vegetation and grading and excavation of soil for construction of the Building 1128 addition, and installation of barricades, holding areas, fences, and access roads. Long-term, minor, adverse effects on water resources would occur from the increase in impervious surface area from the Building 1128 addition and compaction of soils due to foot and vehicle traffic, which could result in a decrease in soil permeability and water infiltration rates and potential subsequent alteration of drainage patterns.

Disturbance of soil, removal of vegetation, and increases in impervious surface area associated with development could result in erosion of disturbed soils and transport of sediment and other pollutants into nearby water bodies during storm water flow events. Maintaining onsite storm water infiltration during construction activities would allow groundwater to recharge and minimize storm water runoff. Long-term, minor, adverse impacts would occur from an increase in soil compaction and impervious surfaces, which would lead to increased erosion and sedimentation rates, and would contribute to increased storm water runoff volume and velocity. This project would disturb more than one acre of land, so an NPDES construction permit would be required.

In the event of a spill or leak of fuel or other contaminants, there could be adverse effects on receiving water bodies. All fuels and other potentially hazardous materials would be contained and stored appropriately. In the event of a spill, procedures identified in the installation's SPCC Plan would be followed to contain and clean up a spill quickly. Environmental protection measures identified in the SPCC Plan would minimize the potential for and extent of associated contamination.

Biological Resources. Short-term to long-term, negligible, and adverse effects on vegetation would be expected from the construction of Project C1. Adverse effects resulting from the permanent loss of vegetation associated with the Building 1128 addition would be negligible. Temporary disturbance would result from trampling and limited removal on adjoining lands and from use of heavy equipment during Building 1128 renovation activities. Affected vegetation would consist primarily of manicured lawns and associated landscaping. All ground disturbed during construction activities that does not include site improvements would be covered with sod, where appropriate.

Project C1 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project C1 locations would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project C1 site should be habituated to noise disturbances.

Project C1 is within the developed portion of the installation with no suitable habitat, and no protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. Implementation of Project C1 would not result in significant effects on cultural resources. Building 1169 was surveyed and evaluated as not eligible for the NRHP; the SHPO has concurred with this finding (MAFB 2011d) (see **Appendix D**). The 6,300-ft^2 addition to Building 1128 is expected to have short- and long-term, negligible to minor adverse impacts on cultural resources under

NEPA. Building 1128 is located 280 feet north of the NRHP-eligible Building 1106. Depending on the design, the addition to Building 1128 will not be visually incompatible with Building 1106 and should not affect its integrity of setting and feeling. However, as the addition will face the north (non-primary) façade of Building 1106, any adverse effect would be expected to be long-term, but minor. If the design of the addition to Building 1128 is consistent with the 2005 Architectural Compatibility Plan (MAFB 2005b), the addition should not adversely affect Building 1106. The project would not be adverse under Section 106 and no significant impacts would be expected. If the SHPO disagrees with this assessment, McConnell AFB would consult further with the SHPO and possibly the ACHP in accordance with 36 CFR Part 800, regulations implementing Section 106. An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project C1. It is assumed that equipment and supplies necessary to complete the construction would be obtained primarily locally, and local contractors would be used. The demand for workers as part of the construction would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project C1 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, negligible, adverse and beneficial effects would be expected to occur. Adverse effects would occur because utility demand would increase very slightly in terms of electricity demand for the Building 1128 addition. This change in utility demand would be negligible when compared with total installation usage. Beneficial effects would occur because the consolidation project would improve airfield operations.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Renovation and expansion of Building 1128 would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations. Buildings 1128, 1169, and 1220 contain ACMs. ACMs should be properly characterized, handled, and disposed of in accordance with McConnell AFB management plans for ACMs, and local regulations.

Building 1169 is located within ERP Site SS-03 and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to renovation activities and existing monitoring wells would need to be protected from damage during these activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

Construction activities at Buildings 1128 and 1220 would not affect or be affected by an ERP site. If contamination is encountered during renovation activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from consolidation of the maintenance group and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Building 1169 is entirely within known ERP site SS-03. The site is currently undergoing restoration for chlorinated solvent-contaminated groundwater. Therefore, relocation of the activities associated with Building 1169 could affect the monitoring of that site. There is also a potential for workers to encounter contamination during relocation activities within this ERP site. This site could have short-term, negligible to minor, adverse impacts on workers in this area due to exposure to contaminated material. However, prior to commencement of construction activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable Federal, state, and local regulations and policies.

Buildings 1169, 1128, and 1220 are known to contain ACMs. ACMs require appropriate characterization, removal, handling, and disposal during demolition activities by qualified personnel. Long-term, beneficial effects on safety would also be experienced from the removal of ACM by reducing potential exposure to personnel.

4.4.2.1.1 Alternative to Project C1

As described in **Section 2.2.3**, an alternative for Project C1 would be to consolidate Maintenance Group activities by renovating Buildings 1128, 1169, and 1220. The alternative to Project C1 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from the alternative to Project C1.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the implementation of the alternative to Project C1. The noise-emanating renovation activities would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. This area of McConnell AFB is used for aircraft operations and maintenance. Populations potentially affected by the increased noise levels during renovation activities would include USAF personnel working in adjacent aircraft operations and maintenance facilities approximately 200 feet from the site of the Building 1128 addition and USAF personnel working in the facilities approximately 150

feet from the Building 1169 renovation and conversion. The closest personnel to the building construction would experience noise levels of 81 to 85 dBA.

Land Use. No effects on land use would be expected from the implementation of the alternative to Project C1. The consolidation activities would occur within the Aircraft Operations and Maintenance land use category. The current and future land use designation would remain the same, and no change in functionality is anticipated. Furthermore, consolidation is consistent with the McConnell AFB IDP, which identifies Maintenance Group consolidation as one of the primary short-range MILCON projects (MAFB 2011a). Building 1169 is located within the boundaries of ERP Site SS-03; however, no new ground-disturbing activities would occur. Any land use restrictions in place at ERP Site SS-03 would not impact consolidation activities.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the renovation of Buildings 1128, 1169, and 1220. Construction activities would result in temporary effects on local and regional air quality, primarily from the transportation of building materials and from workers commuting to the job site. All emissions associated with construction activities would be temporary in nature. Long-term, negligible, adverse effects on air quality would be expected from operations. Long-term, minor, adverse effects on air quality would be expected from the use of natural gas heaters to provide comfort heating to the proposed facility. While these operating emissions would increase the overall air emissions from McConnell AFB, the added emissions would be offset by a reduction in air emissions from the demolition of older buildings that use more emissions-intensive heating systems. Emissions from the alternative to Project C1 would not contribute to or affect local or regional attainment status with respect to the NAAQS.

Geological Resources. Implementation of the alternative to Project C1 would not be expected to result in any adverse impacts on geological resources. All activities under the alternative would be contained within existing buildings and no ground-disturbing activities would be required. No effects on topography or geology would be anticipated.

Water Resources. Implementation of the alternative to Project C1 would not be expected to result in any adverse impacts on water resources. Building 1220 lies within the 100-year floodplain; however, the footprint of this building would not change under this action and no ground-disturbing activities would be required.

Biological Resources. No adverse effects on vegetation would be expected from the implementation of the alternative to Project C1. Construction noise during renovation activities would have the potential to temporarily disturb wildlife; however, these impacts would be expected to be temporary and negligible. Most wildlife species near Project C1 locations would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the project area should be habituated to noise disturbances. No impacts on protected species or sensitive species would occur as no ground-disturbing activities would occur.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under Section 106 would be expected from the proposed renovation of Buildings 1128, 1169, and 1220 under the alternative to Project C1. All three buildings have been surveyed and evaluated as not eligible for the NRHP; the SHPO has concurred with this finding (see **Appendix D**). An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b).

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from the implementation of the alternative to Project C1. It is assumed that equipment and supplies necessary to complete the renovations would be obtained locally and local

contractors would be used. The demand for workers for renovation activities would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because the project does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during renovation activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, negligible, beneficial effects would be expected to occur. Beneficial effects would occur because the consolidation project would improve airfield operations. No change in utility consumption would be anticipated from implementation of the alternative.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Renovation activities would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations. Buildings 1128, 1169, and 1220 contain ACMs. ACMs would be properly characterized, handled, and disposed of in accordance with McConnell AFB management plans for ACMs, and local regulations.

Building 1169 is located within ERP Site SS-03 and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to renovation activities and existing monitoring wells would need to be protected from damage during these activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

Renovation activities at Buildings 1128 and 1220 would not affect or be affected by an ERP site. If contamination is encountered during renovation activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from consolidation of the maintenance group and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during renovation activities. Renovation activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from the renovation sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Building 1169 is entirely within known ERP site SS-03. The site is currently under treatment for chlorinated solvent-contaminated groundwater. Therefore, renovation activities associated with Building 1169 could affect the monitoring of that site. There is also a potential for workers to encounter contamination during renovation activities working within this ERP site. This site could have short-term, negligible to minor, adverse impacts on workers in this area due to exposure to contaminated material. However, prior to commencement of construction activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable Federal, state, and local regulations and policies.

Buildings 1169, 1128, and 1220 are known to contain ACMs. ACMs require appropriate characterization, removal, handling, and disposal during demolition activities by qualified personnel. Long-term, beneficial effects on safety would also be experienced from the removal of ACM by reducing potential exposure to personnel.

4.4.2.2 C2. Air Traffic Control Tower

Project C2 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project C2.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the construction of a new Air Traffic Control Tower. The noise emanating from construction and remodeling equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for aircraft operations and maintenance and is surrounded by open space to the south, west, and east and airfield to the north. Populations potentially affected by the increased noise levels would include USAF personnel working in industrial facilities approximately 1,100 feet north of the construction site. The closest personnel to the building construction would experience noise levels of 63 to 67 dBA.

Land Use. No effects on land use would be expected from construction of the Air Traffic Control Tower. The construction of the facility would be within the Aircraft Operations and Maintenance land use category. The current and future land use designation would remain the same and no change in functionality is anticipated. Furthermore, construction of the facility is consistent with the McConnell AFB IDP, which identifies Project C2 as one of the primary short-range MILCON projects (MAFB 2011a). Construction of the Air Traffic Control Tower would occur within the boundaries of ERP Site Solid Waste Management Unit- (SWMU) 207, which is a carbon tetrachloride/trichloroethylene plume. Construction would take into account any land use restrictions in place due to the presence of the ERP site.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction of the proposed Air Traffic Control Tower. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction and paving equipment and haul trucks transporting building materials to the work site, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during

construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature.

Long-term, minor, adverse effects on air quality would be expected from the use of natural gas boilers to provide comfort heating to the proposed facility and the use of an emergency electrical generator. While these operating emissions would increase the overall air emissions from McConnell AFB, the added emissions would be offset by a reduction in air emissions from the demolition of older buildings that use more emissions intensive heating systems and emergency electrical generators. Emissions from Project C2 would not contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction and operation of the proposed Air Traffic Control Tower are summarized in **Table 4-11**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-11. Estimated Air Emissions Resulting from Project C2

Activity (Year)	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion (2014)	4.829	0.469	2.128	0.382	0.347	0.336	547.434
Construction Fugitive Dust (2014)	-	-	-	-	0.866	0.087	-
Haul Truck On-Road (2014)	0.021	0.016	0.063	0.002	0.026	0.007	5.442
Construction Commuter (2014)	0.083	0.082	0.744	0.001	0.008	0.005	98.611
Building Heating System (2015+)	0.133	0.015	0.223	0.002	0.020	0.020	318.838
Total 2014 C2 Emissions	**4.934**	**0.566**	**2.935**	**0.385**	**1.246**	**0.434**	**651.487**
Total 2015+ C2 Emissions	**0.133**	**0.015**	**0.223**	**0.002**	**0.020**	**0.020**	**318.838**
Percent of SCKI AQCR Inventory *	**0.011**	**0.002**	**0.001**	**0.011**	**0.0013**	**0.003**	**0.00079****

Note: * Based on maximum year emissions. ** Percent of State of Kansas CO_2 emissions.

Geological Resources. Construction of Project C2 would result in short-term, minor, and long-term, negligible, adverse effects on soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, and excavation to accommodate the new Air Traffic Control Tower. Clearing of vegetation would increase erosion and sedimentation potential. As a result of constructing the tower, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of the new tower. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils. No effects on topography or geology would be anticipated.

The proposed site for the Air Traffic Control Tower is on an ERP site. Prior to construction activities, soils would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in

accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from implementation of Project C2. Adverse effects would occur from the removal of vegetation and excavation of soil for construction of the facility and installation of utilities, resulting in increased sedimentation and storm water runoff velocity. Long-term, minor, adverse effects on water resources would occur from the compaction of soils due to foot and vehicle traffic and could result in a decrease in soil permeability and water infiltration rates, and potential subsequent alteration of drainage patterns. A decrease in soil permeability and water infiltration associated with compaction can reduce the rate and volume of groundwater recharge in the affected area. Decreased soil permeability would alter natural storm water flow regimes. While the reduction in soil permeability and water infiltration rates as a result of soil compaction is an adverse effect, the reduction of recharge area and rate of recharge for the groundwater basins would be negligible when compared with the total recharge area that is available.

No wetlands are present on the project site; therefore, no direct impacts on wetlands would be expected from the proposed Air Traffic Control Tower. Project C2 is not within or adjacent to any floodplains or surface waters so these resources would not be affected. However, this project is located within an ERP site. In the event that contaminated soil is encountered, proper abatement procedures would be followed. In the event that a petroleum or chemical spill occurs, procedures identified in McConnell AFB's SPCC Plan would be followed to contain and clean up a spill quickly. Environmental protection measures identified in the SPCC Plan would minimize the potential for and extent of associated contamination.

Biological Resources. Short-term to long-term, negligible, adverse effects on vegetation would be expected from the construction of Project C2. Adverse effects resulting from the permanent loss of vegetation associated with the construction of the Air Traffic Control Tower would be negligible. Affected vegetation would consist primarily of nonnative grasses and associated landscaping. All ground disturbed during construction activities that does not include site improvements would be covered with sod, where appropriate.

Project C2 would have short-term to long-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project C2 would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project C2 site should be habituated to noise disturbances. Project C2 would result in permanent loss of habitat (less than 1 acre); however, much of this area has been previously disturbed and is not considered to be high-value habitat.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under Section 106 would be expected from the proposed construction of the Air Traffic Control Tower. The construction area is not near any NRHP-eligible buildings or structures. Following construction of the new tower, Building 70 would be demolished (see Project D7 in the cumulative effects analysis). An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, negligible, beneficial effects on socioeconomic resources would be expected from Project C2. It is assumed that equipment and supplies necessary to complete construction would be primarily obtained locally, and primarily local contractors would be used. The demand for workers for construction would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. Due to the small size of the project, the effects would be considered negligible. The proposed construction would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project C2 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, negligible, beneficial effects would be expected to occur because the new Air Traffic Control Tower would improve airfield operations.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from construction of the air traffic control tower. Construction would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations. No long-term impacts on hazardous materials management or hazardous waste generation would be expected as a result of this project.

The proposed air traffic control tower is located within ERP site SMWU-207 and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to construction activities and existing monitoring wells would need to be protected from damage during these activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from consolidation of the maintenance group and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

The proposed air traffic control tower is located entirely within the southern portion of ERP site SMWU-207 (see **Figure 2-2**). The groundwater in this area is contaminated with tetrachloride/ trichloroethylene. Access to this site is currently restricted. See **Section 3.10**, *Hazardous Materials and Wastes*, for more information regarding this ERP site. There is a potential for workers to encounter contamination during construction activities. However, prior to commencement of construction activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable Federal, state, and local regulations and policies.

4.4.2.3 C3. KANG Munitions Storage Area Renovation

Project C3 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project C3.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the KANG munitions storage area renovation. The noise emanating from demolition and construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for industrial facilities and is surrounded by open space and the airfield. Populations potentially affected by the increased noise levels would include USAF personnel working in industrial facilities to the northeast of this facility, approximately 700 feet from the demolition and construction site. The closest personnel would experience noise levels of 67 to 71 dBA.

Land Use. No effects on land use would be expected from renovation of the KANG Munitions Storage Area. Renovation activities would occur within the Industrial land use category. The current and future land use designation would remain the same and no change in functionality is anticipated. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a). Renovation of the Munitions Storage Area would occur within the boundaries of ERP Site LF-33. LF-33 is an abandoned landfill formerly used for construction debris; groundwater contaminants detected in monitoring wells include tetrachloroethylene, trichloroethylene, and manganese. Construction activities would take into account any land use restrictions in place due to the presence of the ERP site. Renovation of the KANG Munitions Storage Area would also occur within a 1,625-foot munitions storage area QD arc. Based on the conditions associated with the QD arc, construction activities associated with the repairs could have restrictions applied when the QD arc is active.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the renovations of the KANG Munitions Storage Area. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction and paving equipment and haul trucks transporting building materials to the work site, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature.

No long-term air emissions would be expected from the operation of the KANG Munitions Storage Area. Emissions from Project C3 would not contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction and operation of the proposed KANG Munitions

Storage Area are summarized in **Table 4-12**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-12. Estimated Air Emissions Resulting from Project C3

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	5.075	0.564	2.225	0.402	0.361	0.351	576.167
Construction Fugitive Dust	-	-	-	-	2.560	0.256	-
Haul Truck On-Road	0.072	0.052	0.211	0.006	0.086	0.022	18.220
Construction Commuter	0.099	0.099	0.892	0.001	0.009	0.006	118.334
Total C3 Emissions	**5.246**	**0.715**	**3.329**	**0.409**	**3.016**	**0.635**	**712.721**
Percent of SCKI AQCR Inventory	**0.012**	**0.002**	**0.002**	**0.012**	**0.0031**	**0.005**	**0.00086***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. Construction of Project C3 would result in short-term, minor, and long-term, negligible, adverse effects on soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, and excavation to accommodate the new MSM igloos and the road realignment. Clearing of vegetation would increase erosion and sedimentation potential. As a result of the new construction, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of the new tower. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns, especially as portions of the renovation are located within the 100-year floodplain. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils. No effects on topography or geology would be anticipated.

The proposed KANG Munitions Storage Area is on an ERP site. Prior to construction activities, soils would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from implementation of Project C3. The proposed KANG MSA renovation lies within the 100-year floodplain; therefore, this project would require a FONPA. To minimize potential impacts, construction would follow guidelines for construction in the floodplain, including elevating structures to the base flood level, placing sensitive equipment on upper levels of facilities, constructing sidewalks, roads and parking lots with pervious materials, and creating new storm water retention areas for projects that create net impervious surface areas, to the maximum practicable extent. Additionally, an approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur.

Short-term effects on water resources could occur from the removal of vegetation and grading and excavation of soil for demolition of old igloos and construction of the new igloos, and installation of barricades, holding areas, fences, and access roads. Long-term, minor, adverse effects on water resources would occur from the compaction of soils due to foot and vehicle traffic, which could result in a decrease in soil permeability and water infiltration rates and potential subsequent alteration of drainage patterns.

Disturbance of soil and removal of vegetation associated with demolition and development could result in erosion of disturbed soils and transport of sediment and other pollutants into nearby water bodies during storm water flow events. Maintaining onsite storm water infiltration during construction activities would allow groundwater to recharge and minimize storm water runoff. Long-term, minor, adverse impacts would occur from an increase in soil compaction and impervious surface area, which would lead to increased erosion and sedimentation rates, and would contribute to increased storm water runoff volume and velocity. This project would disturb a net of more than 20 acres of land, so an NPDES construction permit requiring compliance with the numeric effluent limitation for turbidity in addition to the non-numeric effluent limitations would be needed.

No wetlands are present on the project site; therefore, no direct impacts on wetlands would be expected from Project C3. However, portions of this project are within an ERP site. In the event that contaminated soil is encountered, proper abatement procedures would be followed. In the event that a petroleum or chemical spill occurs, procedures identified in McConnell AFB's SPCC Plan would be followed to contain and clean up a spill quickly. Environmental protection measures identified in the SPCC Plan would minimize the potential for and extent of associated contamination.

Biological Resources. Short-term to long-term, negligible, adverse effects on vegetation would be expected from the construction of Project C3. Adverse effects resulting from the permanent loss of vegetation associated with the 20 MSM igloos would be negligible. Project C1 would also result in trampling and limited removal of vegetation on adjoining lands and from use of heavy equipment during the demolition of MSM igloos. Affected vegetation would consist primarily of nonnative grasses and associated landscaping. All ground disturbed during construction activities that does not include site improvements would be covered with sod, where appropriate.

Project C3 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project C3 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project C3 site should be habituated to noise disturbances.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as necessary.

Cultural Resources. Renovation of the KANG MSA would not result in significant effects on cultural resources. The ACHP *Program Comment for World War II and Cold War-Era (1939–1974) Ammunition Storage* applies to Cold War era storage igloos in the KANG MSA. The program comment satisfies the USAF's compliance with Section 106 of the NHPA regarding any potential impacts on ammunitions storage facilities from the proposed construction of up to 20 new MSM igloos and the demolition of up to 6 existing igloos. An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project C3. It is assumed that the equipment and supplies necessary to complete the construction would be obtained locally and local contractors would be used. The demand for workers as part of construction would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project C3 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Any contaminated debris and waste would be sampled to determine the extent of contamination and disposed of in accordance with Federal, state, and installation regulations. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. Long-term, negligible, beneficial effects would be expected to occur because the area renovation would include a road realignment that would improve the road system within the KANG area.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Renovations within the KANG Munitions Storage Area would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

No long-term impacts on hazardous materials management or hazardous waste generation would be expected as a result of this project. However, because of the age of the igloos proposed for demolition, they should be assumed to contain both ACM and LBP. Sampling for ACM and LBP would occur prior to any renovation activities so that these materials can be properly characterized, handled, and disposed of in accordance with McConnell AFB management plans for asbestos and LBP, and local regulations.

Two ERP sites (LF-11 and LF-33) are associated with the KANG Munitions Storage Area renovations and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to construction and demolition activities and existing monitoring wells would need to be protected from damage during these activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from renovation of the KANG Munitions Storage Area and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents,

but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected. Additionally, Project C3 is located within a QD arc, and its collocation within this arc could have a minor to negligible, adverse effect on construction workers during construction activities. Long-term impacts on safety would be negligible since the area is already within a QD arc.

The eastern portion of the KANG munitions storage area is within ERP Site LF-33 (SWMU-106). Construction and demolition activities could affect the monitoring and remediation of this site. There is a potential for workers to encounter contamination during construction activities. However, prior to commencement of construction activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable Federal, state, and local regulations and policies.

There are also two known MRA sites located to the southeast of Project C3: the Former Machine Gun Calibration Site (FR357) and Former MP Weapons training Area (TM359). FR357 was checked for MEC in 2007, however, no munitions debris was observed. This site is continuing to undergo additional testing for perchlorales. TM358 also underwent a visual survey in 2007 and small arms were found. Though these sites do not overlap Project C3, they could still pose minor, adverse safety impacts on workers in the area. If there is inadvertent discovery of MEC during construction activities, McConnell AFB guidelines would be followed.

4.4.2.4 C4. Veterans Administration Hospital

Project C4 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project C4.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of construction of the VA Hospital. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for outdoor recreation. Populations potentially affected by the increased noise levels would include USAF personnel working in industrial facilities to the west of the proposed facility, approximately 400 feet from the construction site. The closest personnel would experience noise levels of 72 to 76 dBA.

Project C4 would be constructed in an area of McConnell AFB that is lightly occupied. Operation of the facility would shift vehicle traffic to a portion of the installation that does not currently experience high traffic volumes. Therefore, long-term, negligible, adverse effects on the noise environment could result from increased vehicle traffic.

Project C4 would be constructed within the 65 to 69 dBA DNL noise zone. Air Force Pamphlet 32-1010, *Land Use Planning*, recommends using the AICUZ guidance in installation planning. According to USAF land use compatibility guidelines, which are outlined in the AICUZ guidance, hospitals are generally considered a compatible land use within the 65 to 69 dBA DNL noise zone, if noise level-reduction measures are incorporated into the design and construction of the facility. However, measures to achieve an overall noise level reduction do not necessarily solve all noise difficulties (such as outdoor noise) and additional evaluation is warranted. It is recommended that USAF guidelines are referenced before or during the design of the hospital facility. This project could result in long-term, minor to moderate, adverse effects on the noise environment if the proposed hospital is built within the 65 to 69 dBA DNL noise zone.

Land Use. Long-term, minor, adverse effects on land use would be expected from the construction of the VA Hospital. The hospital would be constructed within the Outdoor Recreation land use category on the site of a former golf course. Construction would require a change in the designation of the land use to the Medical land use category. More generally, the project area is evolving from Outdoor Recreation to being developed; therefore, the location of the hospital would be compatible with surrounding development that is occurring near the proposed project site. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a).

Construction of the VA Hospital would occur within the boundaries of ERP Site FT-06. FT-06 contains groundwater contaminated with chlorinated solvents and is currently undergoing remediation. Construction activities would take into account any land use restrictions in place due to the presence of the ERP site.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction of the proposed VA Hospital. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction and paving equipment and haul trucks transporting building materials to the work site, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature.

Long-term, minor, adverse effects on air quality would be expected from the use of natural gas boilers to provide comfort heating and possibly steam to the proposed facility and the use of an emergency electrical generator. While these operating emissions could increase the overall air emissions from McConnell AFB, the added emissions would be offset by a reduction in air emissions from the demolition of older buildings that use more emissions intensive heating systems and emergency electrical generators. Emissions from Project C4 would not contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction and operation of the proposed VA Hospital are summarized in **Table 4-13**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Geological Resources. Construction of the proposed VA Hospital would be expected to result in short-term, minor, and long-term, negligible, adverse effects on geology and soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, excavation, and support installation to accommodate the hospital. Clearing of vegetation would increase erosion and sedimentation potential. As a result of constructing the addition, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of the hospital. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns, especially as a portion of the hospital is located within the 100-year floodplain. Soil erosion- and sediment-control measures would be included in site plans to

Table 4-13. Estimated Air Emissions Resulting from Project C4

Activity (Year)	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion (2016)	4.829	0.469	2.128	0.382	0.347	0.336	547.434
Construction Fugitive Dust (2016)	-	-	-	-	0.866	0.087	-
Haul Truck On-Road (2016)	0.021	0.016	0.063	0.002	0.026	0.007	5.442
Construction Commuter (2016)	0.083	0.082	0.744	0.001	0.008	0.005	98.611
Building Heating System (2017+)	1.989	0.219	3.341	0.024	0.302	0.302	4,772.748
Emergency Generator (2017+)	5.120	0.144	1.360	0.081	0.160	0.160	263.974
Total 2016 C4 Emissions	**4.933**	**0.567**	**2.935**	**0.385**	**1.247**	**0.435**	**651.487**
Total 2017+ C4 Emissions	**7.109**	**0.363**	**4.701**	**0.105**	**0.462**	**0.462**	**5,036.722**
Percent of SCKI AQCR Inventory *	**0.017**	**0.003**	**0.002**	**0.013**	**0.014**	**0.013**	**0.006****

Note: * Based on maximum year emissions. ** Percent of State of Kansas CO_2 emissions.

minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. Foundation and building supports will likely be installed in the Quaternary deposits underlying McConnell AFB. However, negligible effects on geology would be anticipated from implementing the Proposed Action, as no geologic formations would be changed and no geologic hazards would be exacerbated by the action. No impacts on topography are anticipated to occur.

The proposed VA Hospital is on an ERP site. Prior to construction activities, soils would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from Project C4. The northern edge of the proposed VA Hospital lies within the 100-year floodplain; therefore, this project would require a FONPA. To minimize potential impacts, construction would follow guidelines for construction in the floodplain, including elevating structures to the base flood level; placing sensitive equipment on upper levels of facilities; constructing sidewalks, roads and parking lots with pervious materials; and creating new storm water retention areas for projects that create net impervious surface areas, to the maximum practicable extent. Additionally, an approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur.

Short-term effects on water resources could occur from the removal of vegetation and grading and excavation of soil for construction of the facility, and installation of barricades, holding areas, fences, and access roads. Long-term, minor, adverse effects on water resources would occur from the compaction of soils due to foot and vehicle traffic, and an increase in impermeable surface area within the floodplain,

which could result in a decrease in water infiltration rates and storm water flow attenuation rates, and potential subsequent alteration of drainage patterns.

Disturbance of soil and removal of vegetation associated with construction could result in erosion of disturbed soils and transport of sediment and other pollutants into nearby water bodies during storm water flow events. Maintaining onsite storm water infiltration during construction activities would allow groundwater to recharge and minimize storm water runoff. Long-term, minor, adverse impacts would occur from an increase in soil compaction and impervious surfaces, which would lead to increased erosion and sedimentation rates, and would contribute to increased storm water runoff volume and velocity. This project would disturb more than one acre of land, so an NPDES construction permit would be required.

No wetlands are present on the project site; therefore, no direct impacts on wetlands would be expected from the Project C4. However, portions of this project are within an ERP site. In the event that contaminated soil is encountered, proper abatement procedures would be followed. All fuels and other potentially hazardous materials would be contained, stored, used, and disposed of appropriately. In the event that a petroleum or chemical spill occurs, procedures identified in McConnell AFB's SPCC Plan would be followed to quickly contain and clean up a spill. Environmental protection measures identified in the SPCC Plan would minimize the potential for and extent of associated contamination.

Biological Resources. Construction from Project C4 would have short- and long-term, negligible, adverse effects on vegetation. Adverse effects resulting from the permanent loss of vegetation associated with the former golf course would be negligible, as much of this area has been planted with cool-season grasses. Project C4 would also result in short-term effects from trampling and limited removal of vegetation on adjoining lands and from use of heavy equipment. Affected vegetation would consist primarily of turf grasses and associated golf course landscaping. All ground disturbed during construction activities that does not include site improvements would be covered with sod, where appropriate.

Project C4 would have short-term and long-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project C4 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project C4 site should be habituated to noise disturbances. Project C4 would result in the permanent loss of low-quality habitat (turf grasses and golf course landscaping). Project C4 is located within the former golf course footprint, which has remained mostly undeveloped except for the current Military Working Dog Facility. Effects would be negligible as the landscape is low-quality habitat.

No protected and sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. Construction of the VA Hospital would not result in significant effects on cultural resources. In advance of the construction of the VA Hospital, the existing Military Working Dog Facility would be demolished. No impacts on cultural resources under NEPA or effects on historic properties under the NHPA would be expected from proposed construction or demolition activities. The proposed construction area is not near any historic buildings or structures evaluated NRHP-eligible. There are no known archaeological sites or TCPs in the area. If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project C4. It is assumed that equipment and supplies necessary to complete the construction would be obtained locally and local contractors would be used. The demand for workers as part of construction would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. However, the proposed location of Project C4 is near the installation boundary. Therefore, it is possible that off-installation residents could experience short-term intermittent noise and traffic associated with the proposed construction. This could have a disproportionate adverse effect on low-income and minority populations but would be negligible to minor. Therefore, no significant short-term environmental justice issues would be anticipated.

Long-term, negligible, beneficial socioeconomic effects would be anticipated due to increase of an estimated 100 FTE employees at the proposed VA Hospital. These employees would most likely be existing local residents.

To allow for easy patient access to the new facility, the installation fence line would be moved to the west around the new hospital to allow access from Rock Road without having to go through an installation gate. This might increase traffic and noise on Rock Road and could disproportionally affect minority and low-income populations. However, the effects would be negligible because Rock Road is a generally low traffic road. Any other long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, negligible, adverse effects would be expected to occur because utility demand would increase very slightly in terms of electricity demand for the VA Hospital. This change in utility demand would be negligible when compared with total installation usage. This utility demand would be partially offset by the installation of GSHPs. The use of this renewable energy at the installation would have a long-term, negligible, beneficial effect.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Construction of the proposed VA Hospital and the proposed demolition of the existing Military Working Dog Facility would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

The proposed VA Hospital and existing Military Working Dog Facility are located within ERP Site FT-06 and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to demolition and construction activities and existing monitoring wells would need to be protected from damage during these activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from the proposed construction of the Veterans Administration Hospital and demolition of the Military Working Dog Facility and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

Part of Project C4 is located within ERP site FT-06. The area is currently being treated for chlorinated solvent contamination in groundwater. This area is being remediated with pump-and-treat technology (MAFB 2011a). There is a potential for workers to encounter contamination during construction activities. However, prior to commencement of construction activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination materials are encountered, they would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable Federal, state, and local regulations and policies.

4.4.2.5 C5. Military Working Dog Facility

Project C5 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project C5. There are two potential locations of the Military Working Dog Facility. The impacts described below apply to either location.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the Military Working Dog Facility construction. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for outdoor recreation. Populations potentially affected by the increased noise levels would include USAF personnel working in industrial facilities to the east of this facility, approximately 500 feet from the construction site. The closest personnel would experience noise levels of 70 to 74 dBA.

Land Use. Long-term, minor, adverse effects on land use would be expected from the construction of the Military Working Dog Facility. The facility would be constructed within the Outdoor Recreation land use category. Construction would require a change in the designation of the land use to the Administrative land use category. The location of the facility would be compatible with surrounding development that is occurring near the proposed project site. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a).

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction of the proposed Military Working Dog Facility. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction and

paving equipment and haul trucks transporting building materials to the work site, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature.

Long-term, minor, adverse effects on air quality would be expected from the use of natural gas boilers to provide comfort heating to the proposed facility. While these operating emissions could increase the overall air emissions from McConnell AFB, the added emissions would be offset by a reduction in air emissions from the demolition of older buildings that use more emissions intensive heating systems. Emissions from Project C5 would not contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction and operation of the proposed Military Working Dog Facility are summarized in **Table 4-14**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-14. Estimated Air Emissions Resulting from Project C5

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	3.390	0.307	1.488	0.269	0.242	0.235	385.725
Construction Fugitive Dust	-	-	-	-	2.531	0.253	-
Haul Truck On-Road	0.029	0.021	0.084	0.002	0.034	0.009	7.255
Construction Commuter	0.066	0.066	0.595	0.001	0.006	0.004	78.889
Total C5 Emissions	**3.484**	**0.393**	**2.168**	**0.272**	**2.813**	**0.500**	**471.870**
Percent of SCKI AQCR Inventory	**0.008**	**0.001**	**0.001**	**0.008**	**0.0029**	**0.004**	**0.00057***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. The proposed Working Dog Facility would be expected to result in short-term, minor, and long-term, negligible, adverse effects on soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, and excavation to accommodate the facility. Clearing of vegetation would increase erosion and sedimentation potential. As a result of constructing the facility, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of the facility. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils. No effects on topography or geology would be anticipated.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from the implementation of Project C5. Adverse effects would occur from the removal of vegetation and excavation of soil for construction of the facility and installation of utilities, resulting in increased sedimentation and storm water runoff velocity. Long-term, minor, adverse effects on water resources would occur from the compaction of soils due to foot and vehicle traffic could result in a decrease in soil permeability and water infiltration rates, and potential subsequent alteration of drainage patterns. A decrease in soil permeability and water infiltration associated with compaction can reduce the rate and

volume of groundwater recharge in the affected area. Decreased soil permeability would alter natural storm water flow regimes. While the reduction in soil permeability and water infiltration rates as a result of soil compaction is an adverse effect, the reduction of recharge area and rate of recharge for the groundwater basins would be negligible when compared with the total recharge area that is available.

No wetlands or floodplains are present on the project site; therefore, no direct impacts on wetlands or floodplains would be expected from construction of the proposed Military Working Dog Facility. In the event of a spill, procedures identified in McConnell AFB's SPCC Plan would be followed to contain and clean up a spill quickly. Environmental protection measures identified in the SPCC Plan would minimize the potential for and extent of associated contamination.

Biological Resources. Construction from Project C5 would have long- and short-term, negligible, adverse effects on vegetation. Adverse effects resulting from the permanent loss of vegetation would be negligible as much of this area is open space. Affected vegetation would consist primarily of nonnative grasses and associated landscaping. There are few opportunities for historic native plant communities to occur on McConnell AFB and there have been no observations made of any sensitive vegetative species occurring on the installation. All ground disturbed during construction activities that does not include site improvements would be covered with sod, where appropriate.

Project C5 would have short-term and long-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project C5 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project C5 site should be habituated to noise disturbances. Project C5 would result in the permanent loss of low-value habitat (landscaped nonnative grasses). Additionally, aquatic species that use adjacent wetlands could be impacted by the indirect adverse effects of sedimentation into adjacent wetlands. However, environmental protection measures would be used to minimize the movement of sediment into habitat.

No protected or sensitive species have been observed in the vicinity; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under the NHPA would be expected from the proposed construction of the Military Working Dog Facility. The proposed and alternative construction areas are not near any historic buildings or structures evaluated NRHP-eligible. There are no known archaeological sites or TCPs in the area, and none would be anticipated. If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project C5. It is assumed that equipment and supplies necessary to complete the construction activities would be obtained locally and local contractors would be used. The demand for workers as part of the construction would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to adversely affect on- or off-installation residents. However, one of the possible locations of Project C5 is located near the installation boundary. Therefore, it is possible that residents could experience short-term intermittent noise and traffic associated with the proposed construction activities. This could have a disproportionate adverse effect on low-income and

minority populations but would be negligible to minor. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project C5 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, negligible, adverse effects would be expected to occur because utility demand would increase very slightly in terms of electricity demand for the new facility. This change in utility demand would be negligible when compared with total installation usage.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Construction of the Military Working Dog Facility would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Construction activities at the proposed location of the Military Working Dog Facility would not affect or be affected by an ERP site. If contamination is encountered during construction activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from construction of the Military Working Dog Facility and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

4.4.2.6 C6. Base Civil Engineering and Contracting Complex

Project C6 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project C6.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the construction of the Base Civil Engineering and Contracting Complex. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational

during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for industrial facilities with aircraft operations and maintenance directly to the west. Populations potentially affected by the increased noise levels would include USAF personnel working in the aircraft operations and maintenance facilities to the west of this facility, approximately 150 feet from the construction site and USAF personnel working in the industrial facilities to the east, approximately 250 feet from the construction site. The closest personnel would experience noise levels of 81 to 85 dBA.

Project C6 would be constructed within the 75 to 79 dBA DNL noise zone. According to USAF land use compatibility guidelines, government services are generally considered a compatible land use within the 65 to 69 dBA DNL noise zone if noise level-reduction measures are incorporated into the design and construction of the facility. However, measures to achieve an overall noise level reduction do not necessarily solve all noise difficulties (such as outdoor noise) and additional evaluation is warranted. It is recommended that USAF guidelines are referenced before or during the design of the Base Civil Engineering and Contracting Complex. This project could result in long-term, minor to moderate, adverse effects on the noise environment if the proposed facility is built within the 75 to 79 dBA DNL noise zone.

Land Use. No effects on land use would be expected from construction of the Base Civil Engineering and Contracting Complex. Facility construction would be within the Industrial land use category. The current and future land use designation would remain the same and no change in functionality is anticipated. Furthermore, construction of the facility is consistent with the McConnell AFB IDP, which identifies Project C6 as one of the primary long-range MILCON projects (MAFB 2011a).

The proposed construction of the Base Civil Engineering and Contracting Complex could occur in other compatible areas of the Industrial land use category, but environmental constraints such as ERP Sites; munitions, QD arcs, and other safety criteria; and AT/FP setback requirements must be considered prior to siting and construction.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction of the proposed Base Civil Engineering and Contracting Complex. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction and paving equipment and haul trucks transporting building materials to the work site, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature.

Long-term, minor, adverse effects on air quality would be expected from the use of natural gas boilers to provide comfort heating to the proposed facility and the use of an emergency electrical generator. While these operating emissions could increase the overall air emissions from McConnell AFB, the added emissions would be offset by a reduction in air emissions from the demolition of older buildings that use more emissions-intensive heating systems and an emergency electrical generator. The emergency generator to be used in the new complex will be moved from an existing location on installation. Therefore, no increase in emissions due to emergency generators is expected. Emissions from Project C6 would not contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction and operation of the proposed Base Civil Engineering and Contracting Complex are summarized in **Table 4-15**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**.

Table 4-15. Estimated Air Emissions Resulting from Project C6

Activity (Year)	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion (2018)	5.841	0.749	2.539	0.469	0.409	0.396	672.267
Construction Fugitive Dust (2018)	-	-	-	-	25.664	2.566	-
Haul Truck On-Road (2018)	0.378	0.273	1.110	0.030	0.449	0.117	95.640
Construction Commuter (2018)	0.116	0.115	1.041	0.001	0.011	0.007	138.056
Building Heating System (2019+)	1.721	0.189	2.891	0.021	0.262	0.262	4,129.564
Emergency Generator (2019+)	5.841	0.749	2.539	0.469	0.409	0.396	672.267
Total 2018 C6 Emissions	**6.334**	**1.138**	**4.690**	**0.500**	**26.533**	**3.086**	**905.963**
Total 2019+ C6 Emissions	**1.721**	**0.189**	**2.891**	**0.021**	**0.262**	**0.262**	**4,129.564**
Percent of SCKI AQCR Inventory *	**0.015**	**0.003**	**0.002**	**0.014**	**0.028**	**0.023**	**0.005****

Notes: * Based on maximum year emissions. ** Percent of State of Kansas CO_2 emissions.

Geological Resources. Construction of the proposed Base Civil Engineering and Contracting Complex would be expected to result in short-term, minor, and long-term, negligible, adverse effects on soils. Short-term effects, occurring during construction activities, would result from disturbance of soils, clearing of vegetation, grading, paving, and excavation to accommodate the large complex. Clearing of vegetation would increase erosion and sedimentation potential. As a result of constructing the complex, long-term, negligible, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of the complex. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the complex. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils. No effects on topography or geology would be anticipated.

Water Resources. Effects on water resources from implementation of Project C6 would be short- and long-term, minor, and adverse. Short-term, minor, adverse effects would occur from compacting soils, grading, and removing vegetation, which would result in increased soil erosion, sedimentation, and storm water runoff volume and velocity. Adverse effects would occur from the removal of vegetation and excavation of soil for construction of the facility and installation of utilities, resulting in increased sedimentation and storm water runoff velocity. Long-term, minor, adverse effects on water resources would occur from the increase in impervious surface area and associated storm water runoff flow, and potential subsequent alteration of drainage patterns.

No wetlands or floodplains are present on the project site; therefore, no direct impacts on wetlands or floodplains would be expected from this proposed construction project. In the event of a spill, SPCC Plan procedures would be implemented to contain and clean up the spill. This project would disturb more than 10 acres of land, so an NPDES construction permit on or after 2 February 2014 would require discharges to be monitored to ensure compliance with effluent limitations as specified by the permitting authority.

Biological Resources. Construction of Project C6 would have long-term and short-term, negligible, adverse effects on vegetation. Adverse effects from the permanent loss of vegetation would be negligible as this is in a previously disturbed area of McConnell AFB. Affected vegetation primarily consists of nonnative, regularly mowed grasses and scattered landscaping trees and shrubs. All ground disturbed during construction activities that does not include site improvements would be covered with sod, where appropriate.

Project C6 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near the Project C6 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project C6 site should be habituated to noise disturbances.

Project C6 is within the developed portion of the installation with no suitable habitat; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. Construction of the Base Civil Engineering and Contracting Complex would not result in significant effects on cultural resources. The Base Civil Engineering and Contracting Complex is proposed to be constructed following the demolition of Building 1090 (see Project D3 in **Section 4.4.1.3**). The Base Civil Engineering and Contracting Complex would have a footprint of 142,471 ft^2. The project could have short-term, negligible to minor, adverse effects on cultural resources under NEPA. The new complex will be located 650 feet east of NRHP-eligible Building 1107 but will face the rear façade (east) and will not visually impact the historic property's integrity of setting or feeling. No archaeological sites or TCPs are in the vicinity of the area because the construction location is in a highly developed area with previously disturbed ground. If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project C6. It is assumed that equipment and supplies necessary to complete the construction activities would be obtained locally and local contractors would be used. The demand for workers as part of construction would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated. No long-term effects on socioeconomic resources would be expected because Project C6 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, negligible, adverse and beneficial effects would be expected to occur. Adverse effects would occur because utility demand would increase very slightly in terms of electricity demand for the new complex. This change in utility demand would be negligible when compared with total installation usage. Beneficial effects would occur because the complex would contain a new recycling facility.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Construction of the Base Civil Engineering and Contracting Complex would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Construction activities at the proposed location of the Base Civil Engineering and Contracting Complex would not affect or be affected by an ERP site. If contamination is encountered during construction activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from construction of the Base Civil Engineering and Contracting Complex and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

4.4.3 Selected Infrastructure Projects

4.4.3.1 I1. Taxiway Repairs

Project I1 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project I1.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the taxiway repairs. The noise emanating from demolition, construction, and repaving equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire repair period, which would limit the duration of increased noise levels. This area of McConnell AFB is part of the airfield. Populations potentially affected by the increased noise levels would include USAF personnel working in the industrial facilities, aircraft operations and maintenance facilities, and community facilities to the west of the taxiway. The closest personnel would be working in the industrial facility approximately 250 feet from the taxiway repair site and would experience noise levels of 78 to 80 dBA.

Land Use. No effects on land use would be expected from taxiway repair activities. Repair activities would occur within the Airfield land use category. The current and future land use designation would remain the same and no change in functionality is anticipated. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a).

Air Quality. Short-term, moderate, adverse effects on air quality would be expected from the Taxiway Alpha Repairs. Construction activities would result in temporary effects on local and regional air quality,

primarily from site-disturbing activities, the operation of construction equipment and paving equipment and haul trucks transporting materials, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature. It is not expected that emissions from Project I1 would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction of the Civil Engineering Open Storage Yard are summarized in **Table 4-16**. Note that the emissions in **Table 4-19** are the total for all years 2012 through 2015. Emissions for each year have been prorated at 15 percent for 2012 and 28.33 percent for each year thereafter through 2015. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**. No long-term air emissions would be produced as a result of Project I1.

Table 4-16. Estimated Air Emissions Resulting from Project I1

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	8.762	0.515	3.502	0.730	0.532	0.517	1,045.536
Construction Fugitive Dust	-	-	-	-	82.313	8.231	-
Haul Truck On-Road	0.626	0.453	1.841	0.049	0.745	0.194	158.590
Construction Commuter	0.132	0.132	1.190	0.002	0.013	0.008	157.778
Total I1 Emissions	**9.521**	**1.099**	**6.533**	**0.781**	**83.603**	**8.949**	**1,361.904**
Percent of SCKI AQCR Inventory	**0.022**	**0.003**	**0.003**	**0.023**	**0.087**	**0.066**	**0.00165***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. Effects from Project I1 would be short-term, negligible, adverse and long-term, negligible, beneficial on soils. No impacts on topography or geology would be anticipated to occur. Short-term, negligible, adverse effects would result from taxiway repair. Construction vehicles could compress soils, decreasing permeability and rates of storm water runoff infiltration. During the taxiway repairs, it is possible that a spill or leak of vehicle or other fluids could occur. In the event of a spill, the installation's SPCC Plan would be followed to contain and clean up a spill quickly. There remains the possibility that a spill or leak could occur, but implementation of the environmental protection measures identified in the SPCC plan would minimize the potential for and extent of associated contamination. Long-term, negligible, beneficial effects on soils would occur from a net decrease in impervious surface area associated with this project, and an associated net increase in soil permeability and productivity.

Water Resources. Short-term, negligible, adverse effects on water resources would be expected from implementation of Project I1. Short-term effects would occur from the repair of taxiways to the east runway, resulting in increased soil erosion, sedimentation, and storm water runoff volume and velocity. An approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur.

Long-term, minor, beneficial impacts would occur from a net decrease in impervious surface area associated with this project. While the increase in soil permeability and water infiltration rates as a result of the decrease in impervious surface is a beneficial effect, the increase in recharge area and rate of recharge for the groundwater basins would be negligible when compared with the total recharge area that is available. This project would disturb greater than 1 acre of land, and an NPDES construction permit would be required. Project I1 is not within or adjacent to the 100-year floodplain or any wetland. Therefore, no direct effects on floodplains or wetlands would be expected from this proposed

infrastructure improvement project. In the event of a spill, SPCC Plan procedures would be implemented to contain and clean up the spill.

Biological Resources. Construction from Project I1 would have short-term, negligible, adverse effects on vegetation due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation primarily consists of nonnative, regularly mowed grasses associated with the airfield. All ground disturbed during construction activities that does not include site improvements will be reseeded with appropriate groundcover.

Project I1 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project I1 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project I1 site should be habituated to noise disturbances.

Project I1 is within the developed portion of the installation with no suitable habitat; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under the NHPA would be expected from the proposed taxiway repairs. McConnell AFB is still considering the NRHP-eligibility of the installation's runways, taxiways, and aprons and are treating the resources as NRHP-eligible until a final determination of eligibility has been made either with consensus of the SHPO or by the Keeper of the NRHP (MAFB 2011c). McConnell AFB proposes to repair cracks and chips, repave and seal joints, replace edge lighting, and correct signage. None of these modifications should negatively impact the integrity of Taxiway Alpha as it relates to its association with early development of the Wichita Municipal Airport and with the subsequent development of McConnell AFB. These repairs should not adversely affect other NRHP-eligible properties that face the flight line (Buildings 9, 1106, 1107, 1218, and 1219). No archaeological sites exist in the project area based on the results of surveys of the installation. No archaeological sites or TCPs are anticipated to be affected because the construction location is in a highly developed area with previously disturbed ground. If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project I1. It is assumed that equipment and supplies necessary to complete the taxiway repairs would be obtained primarily locally, and local contractors would primarily be used. The demand for workers as part of the taxiway repairs would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed taxiway repairs would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect off-installation residents adversely. However, portions of the taxiway repair activities would occur near the installation boundary. Therefore, it is possible that residents could experience short-term, intermittent noise and traffic associated with the project. This could have a disproportionate adverse effect on low-income and minority populations but would be negligible to minor. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project I1 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during this infrastructure improvement project. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, minor, beneficial effects would be expected to occur because this project would improve airfield operations.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Taxiway repair activities would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Taxiway repair activities would not affect or be affected by an ERP site. If contamination is encountered during repair activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from repair of the taxiways and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during repair activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

4.4.3.2 I2. Demolition of Underground Storage Tanks and Construction of One Aboveground Storage Tank

Project I2 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project I2.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the removal and disposal of 11 USTs and their associated gauging systems and the construction of 1 AST. The noise emanating from removal and construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire removal/disposal and construction period, which would limit the duration of increased noise levels. The demolition of USTs and installation of one AST would occur throughout the northeast section of McConnell AFB. These areas include aircraft operations and maintenance facilities, administrative facilities, unaccompanied housing facilities, industrial facilities, and community facilities. Populations potentially affected by the increased noise levels would include USAF personnel working in all of the aforementioned facilities and USAF personnel living in the unaccompanied housing facilities.

Land Use. No effects on land use would be expected from demolition of up to 11 USTs and construction of one new AST. These activities would occur within the Industrial land use category. The current and

future land use designation would remain the same and no change in functionality is anticipated. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a). USTs proposed for removal at Buildings 1107, 1115, and 1166 are found within the boundary of ERP Site SS-03. SS-03 is a spill site that contains groundwater contaminated with a chlorinated solvent. At present, the groundwater at the site is being pumped and treated. UST removal activities would take into account any land use restrictions in place due to the presence of the ERP site.

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the demolition of USTs and construction of one AST under Project I2. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction equipment and haul trucks transporting materials and excavated soil, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature. It is not expected that emissions from Project I2 would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions are summarized in **Table 4-17**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**. No long-term air emissions would be produced as a result of Project I2.

Table 4-17. Estimated Air Emissions Resulting from Project I2

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	3.367	0.322	1.477	0.266	0.240	0.233	381.745
Construction Fugitive Dust	-	-	-	-	0.231	0.023	-
Haul Truck On-Road	0.004	0.003	0.011	0.000	0.005	0.001	0.980
Construction Commuter	0.022	0.022	0.198	0.000	0.002	0.001	26.296
Total I2 Emissions	**3.393**	**0.347**	**1.687**	**0.267**	**0.478**	**0.259**	**409.021**
Percent of SCKI AQCR Inventory	**0.008**	**0.001**	**0.001**	**0.008**	**0.0005**	**0.002**	**0.00049***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. Effects from Project I2 would be short-term, minor, adverse and long-term, minor, beneficial on soils. Short-term, minor, adverse effects would result from excavation and removal of the USTs. Construction vehicles could compress soils, decreasing permeability and rates of storm water runoff infiltration. It is possible that a spill or leak of vehicle or other fluids could occur. In the event of a spill, the installation's SPCC Plan would be followed to contain and clean up a spill quickly. There remains the possibility that a spill or leak could occur, but implementation of the environmental protection measures identified in the SPCC plan would minimize the potential for and extent of associated contamination.

Environmental protection measures and an ESCP would be instituted to protect soils from erosion and sedimentation. A site-specific soil testing should be conducted prior to initiating construction activities to identify the extent and breadth of soil contamination within the ERP sites. Further remediation consisting of removal of the contaminated soil could be necessary prior to the implementation of Project I2. Any soil that appears to have been contaminated by hazardous or petroleum wastes would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of the upgrade activities. The handling, storage, transportation, and

disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. No effects on topography or geology would be anticipated.

Long-term, beneficial effects could occur from the remediation of contaminated soils and if the contaminated sites are revegetated with native vegetation, where possible. Revegetation would result in a decrease in rates of erosion and sedimentation, and would promote soil productivity.

Water Resources. Short-term, negligible, adverse effects would be expected to occur during removal of USTs as sedimentation, and storm water runoff volume and velocity might increase. Additionally, the risk of excavating contaminated soils within the ERP sites and the risk of construction equipment leaks or spills could occur, and the contamination could be transported to receiving water bodies during storm events. Environmental protection measures would minimize adverse effects. In the event that contaminated soil is encountered, proper abatement procedures would be followed. All fuels and other potentially hazardous materials would be contained, stored, used, and disposed of appropriately. Long-term, minor, beneficial impacts would occur from the removal of the aged USTs and their associated impervious surface area and inherent risk of leaks.

No wetlands or floodplains are present on the project site; therefore, no direct effects on wetlands would be expected from this proposed infrastructure improvement project. In the event of a spill, SPCC Plan procedures would be implemented to contain and clean up the spill.

Biological Resources. Construction from Project I2 would have short-term, negligible, adverse effects on vegetation due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during UST removal and AST construction activities. Affected vegetation primarily consists of nonnative, regularly mowed grasses and scattered landscaping trees and shrubs. All ground disturbed during construction activities that does not include site improvements will be reseeded with appropriate species.

Project I2 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project I2 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project I2 site should be habituated to noise disturbances.

Project I2 is within the developed portion of the installation with no suitable habitat; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. UST removal and installation of one AST would not result in significant effects on cultural resources. McConnell AFB proposes to remove 11 USTs and their associated tank gauging systems and construct one AST near Building 408. No impacts on cultural resources under NEPA or effects on historic properties under NHPA would be expected from the removal of the USTs at Buildings 350, 352, 408, 515, 710, 739, 971, 1090, and 1115. Although NRHP-eligible Building 1107 is located 300 feet north of Building 1116, removal of a UST at or near it should not cause any adverse effects under Section 106 or meet the threshold of significant under NEPA given the large, industrial nature of Building 1107 and short-term nature of construction. No impacts on cultural resources would be expected from the construction of an AST near Building 408 An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b).If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, negligible, beneficial effects on socioeconomic resources would be expected from Project I2. It is assumed that equipment and supplies necessary to complete the removal of up to 11 USTs and installation of 1 AST would be obtained locally and local contractors would be used. The demand for workers would be negligible and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. Due to the small size of the project, the effects would be considered negligible. The proposed project would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Some of the possible locations of Project I2 are near the installation boundary. However, the adjacent off-installation area is not densely populated. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project I2 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during implementation of Project I2. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Any contaminated debris and waste associated with the USTs or the ERP sites would be sampled to determine the extent of contamination and disposed of in accordance with Federal, state, and installation regulations. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. Long-term, minor, beneficial effects would be expected to occur due to the removal of the aged USTs and the installation of a new AST.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. The demolition of 11 heating oil USTs and construction of 1 AST would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Closeout and removal of the USTs would be conducted in accordance with AFI 32-7044, *Storage Tank Compliance*. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

The USTs at Buildings 1107 and 1166 are within ERP Site SS-03 and groundwater contamination has been confirmed. Remedial action could be necessary prior to demolition activities and existing monitoring wells would need to be protected from damage during these activities. The UST at Building 710 is adjacent to ERP Site SS-31. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated; the installation's waste streams would not be altered. Removal of the 11 heating oil USTs would be expected to result in long-term beneficial impacts as they are a potential source of soil and water contamination.

Safety. Safety related to removal of USTs would have short-term, minor, adverse effects on workers and nearby personnel. There is concern that unregulated and regulated USTs could leak, which could have adverse impacts on workers and the surround area. In the event of a leak, the installations hazardous

waste management plan should be adhered to. However, removal of these USTs will lead to long-term, beneficial impacts because of a less likely chance of leakage and less exposure to personnel.

Short-term, negligible to minor, adverse effects associated with safety could occur during repair activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

4.4.3.3 I3. Sidewalk from Building 1 to Building 250

Project I3 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project I3.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the sidewalk construction. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for administrative facilities, medical facilities, and open space. The majority of the construction will occur on open space. Populations potentially affected by the increased noise levels would include USAF personnel working in Building 1, which is approximately 100 feet from one end of the sidewalk construction and the USAF personnel working in Building 250, approximately 250 feet from the other end of the sidewalk construction. The closest personnel could experience noise levels of 84 to 88 dBA. However, this would be for a short duration as the majority of the project occurs on open space.

Land Use. No effects on land use would be expected from constructing a sidewalk connecting Buildings 1 and 250. These activities would occur within the Administrative and Community Commercial land use categories. The current and future land use designation would remain the same and no change in functionality is anticipated. Furthermore, construction of a sidewalk is consistent with the McConnell AFB IDP, which identifies development of a walking campus as a goal (MAFB 2011a).

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction of a sidewalk between Building 1 and Building 250 under Project I3. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction equipment and haul trucks transporting materials, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature. It is not expected that emissions from Project I3 would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction of a sidewalk between Building 1 and Building 250 are summarized in **Table 4-18**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**. No long-term air emissions would be produced as a result of Project I3.

Table 4-18. Estimated Air Emissions Resulting from Project I3

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	0.044	0.003	0.017	0.004	0.003	0.003	5.283
Construction Fugitive Dust	-	-	-	-	0.121	0.012	-
Haul Truck On-Road	0.002	0.001	0.005	0.000	0.002	0.001	0.423
Construction Commuter	0.033	0.033	0.297	0.000	0.003	0.002	39.445
Total I3 Emissions	**0.078**	**0.037**	**0.320**	**0.004**	**0.129**	**0.017**	**45.151**
Percent of SCKI AQCR Inventory	**0.0002**	**0.0001**	**0.0002**	**0.0001**	**0.0001**	**0.0001**	**0.00005***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. Implementation of Project I3 would result in short- and long-term, negligible, adverse effects on soils. No impacts on topography or geology would be anticipated to occur. Short-term, negligible, adverse effects would result from construction of the sidewalk and pedestrian bridge. Construction vehicles would clear vegetation and grade and pave the project area, which would compress soils, decreasing permeability and rates of storm water runoff infiltration. During the construction, it is also possible that a spill or leak of vehicle or other fluids could occur. In the event of a spill, the installation's SPCC Plan would be followed to contain and clean up a spill quickly. There remains the possibility that a spill or leak could occur, but implementation of the environmental protection measures identified in the SPCC plan would minimize the potential for and extent of associated contamination.

Long-term, negligible, adverse effects on soils would occur from a net increase in impervious surface area associated with this project. Soil productivity would decline in paved areas. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from Project I3. Project I3 would entail the construction of a sidewalk through the 100-year floodplain; therefore, this project would require a FONPA. To minimize potential impacts, construction would follow guidelines for construction in the floodplain, including elevating structures to the base flood level; placing sensitive equipment on upper levels of facilities; constructing sidewalks, roads and parking lots with pervious materials; and creating new storm water retention areas for projects that create net impervious surface areas, to the maximum practicable extent. Additionally, an approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur.

The project would also require the construction of a pedestrian footbridge spanning McConnell Creek. Adverse effects would occur from the removal of vegetation and excavation of soil for construction of the sidewalk and footbridge, resulting in increased sedimentation and storm water runoff velocity. Long-term, minor, adverse effects on water resources would occur from the compaction of soils due to

foot and vehicle traffic and an increase in impervious surface area. This could result in a decrease in soil permeability and water infiltration rates, and potential subsequent alteration of drainage patterns. A decrease in soil permeability and water infiltration associated with compaction and an addition in impervious surface area, particularly when located in a floodplain, can reduce the rate and volume of groundwater recharge in the affected area. Decreased soil permeability would alter natural storm water flow regimes. While the reduction in soil permeability and water infiltration rates as a result of soil compaction is an adverse effect, the reduction of recharge area and rate of recharge for the groundwater basins would be negligible when compared with the total recharge area that is available.

Biological Resources. Construction from Project I3 would have short-term, negligible, adverse effects on vegetation due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation primarily consists of nonnative, regularly mowed grasses and scattered landscaping trees and shrubs. All trees and vegetation associated with Project I3 would be replaced or relocated as applicable. All ground disturbed during construction activities that does not include site improvements will be reseeded with appropriate species.

Project I3 would have short-term, negligible to minor, indirect, adverse and beneficial effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project I3 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project I3 site should be habituated to noise disturbances. The planting of eastern redbud and sugar maple trees will result in long-term beneficial impacts by providing habitat for local species such as the house sparrow, black-capped chickadee, and blue jay.

Project I3 is within the developed portion of the installation with no suitable habitat; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under the NHPA would be expected from the proposed construction of a sidewalk between Building 1 and 250. In addition to the sidewalk, eight trees would be planted along the alignment. The proposed project area is not near any historic buildings or structures evaluated NRHP-eligible. An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project I3. It is assumed that equipment and supplies necessary to complete the sidewalk installation and remediation activities would be obtained locally and local contractors would be used. The demand for workers as part of the sidewalk installation would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed installation activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. Therefore, no significant short-term environmental justice issues would be anticipated. No long-term effects on socioeconomic resources would be expected because Project I3 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and therefore, no significant effects on environmental justice would be expected. Further, most long-term effects would likely affect on-installation residents more than off-installation populations.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during this infrastructure improvement project. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, minor, beneficial effects would be expected to occur because this project would improve pedestrian transportation on the installation.

Hazardous Materials and Waste. Short-term, negligible, adverse effects associated with hazardous materials and waste would be expected from this project. Construction of a sidewalk between Buildings 1 and 250 would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Construction activities would not affect or be affected by an ERP site. If contamination is encountered during construction activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from construction activities and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during repair activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

4.4.3.4 I4. East Runway Repairs

Project I4 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project I4.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the runway repairs. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire repair period, which would limit the duration of increased noise levels. This area of McConnell AFB is part of the airfield. Populations potentially affected by the increased noise levels would include USAF personnel working in the industrial and aircraft operations and maintenance facilities to the east of the runway. The closest personnel to the repair site would be working in the aircraft operations and maintenance facility approximately 750 feet from the runway repair site and would experience noise levels of 67 to 71 dBA.

Land Use. No effects on land use would be expected from East Runway repair activities. Repair activities would occur within the Airfield land use category. The current and future land use designation would remain the same and no change in functionality is anticipated. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a).

Repair of the East Runway would occur within the 1,625-foot QD arc for the munitions storage area. Based on the conditions associated with the QD arc, construction activities associated with the repairs could have restrictions applied when the QD arc is active.

Air Quality. Short-term, moderate, adverse effects on air quality would be expected from the East Runway Repairs under Project I4. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction equipment and haul trucks transporting materials, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature. Although moderate, adverse effects on air quality could occur due to Project I4, it is not expected that emissions would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the East Runway Repairs are summarized in **Table 4-19**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**. No long-term air emissions would be produced as a result of Project I4.

Table 4-19. Estimated Air Emissions Resulting from Project I4

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	27.290	1.610	10.859	2.244	1.654	1.604	3,215.418
Construction Fugitive Dust	-	-	-	-	147.107	14.711	-
Haul Truck On-Road	1.274	0.921	3.743	0.100	1.515	0.394	322.478
Construction Commuter	0.198	0.197	1.785	0.002	0.019	0.012	236.667
Total I4 Emissions	**28.762**	**2.728**	**16.386**	**2.347**	**150.295**	**16.721**	**3,774.563**
Percent of SCKI AQCR Inventory	**0.067**	**0.007**	**0.008**	**0.068**	**0.156**	**0.123**	**0.00456***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. Implementation of Project I4 would result in short- and long-term, negligible, adverse effects on soils. No impacts on topography or geology would be anticipated to occur. Short-term, negligible, adverse effects would result from pavement repair. Construction vehicles would compress soils, decreasing permeability and rates of storm water runoff infiltration. During the construction, it is also possible that a spill or leak of vehicle or other fluids could occur. In the event of a spill, the installation's SPCC Plan would be followed to contain and clean up a spill quickly. There remains the possibility that a spill or leak could occur, but implementation of the environmental protection measures identified in the SPCC plan would minimize the potential for and extent of associated contamination.

A long-term, negligible, beneficial effect on soil would occur from a net decrease in impervious surface area associated with this project. Soil productivity would improve where the site is returned to a natural state. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the site. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the construction site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils.

Water Resources. Implementation of Project I4 would result in short- and long-term, minor, adverse effects on water resources. Short-term effects would occur from the repair of the east runway, resulting in

increased soil erosion, sedimentation, and storm water runoff volume and velocity. An approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur.

Long-term, minor, adverse impacts would occur from an increase in soil compaction and impervious surface area, which could lead to increased erosion and sedimentation rates and would incrementally contribute to increased storm water runoff volume and velocity. A decrease in soil permeability and water infiltration associated with compaction and additional impervious surfaces would reduce the rate and volume of groundwater recharge in the affected area. Decreased soil permeability could alter natural storm water flow regimes. While the reduction in soil permeability and water infiltration rates as a result of soil compaction and additional impervious surface is an adverse effect, the reduction of recharge area and rate of recharge for the groundwater basins would be negligible when compared with the total recharge area that is available.

Biological Resources. Construction from Project I4 would have short-term, negligible, adverse effects on vegetation due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during activities. Affected vegetation primarily consists of nonnative, regularly mowed grasses associated with the airfield. All ground disturbed during construction activities that does not include site improvements will be reseeded with appropriate ground cover.

Project I4 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project I4 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project I4 site should be habituated to noise disturbances. Additionally, aquatic species that use adjacent wetlands could be impacted by the indirect adverse effects of sedimentation into adjacent wetlands. However, environmental protection measures would be used to minimize the movement of sediment into habitat.

Project I4 is within the developed portion of the installation with no suitable habitat; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under the NHPA would be expected from the proposed east runway repairs. McConnell AFB is still considering the NRHP-eligibility of the installation's runways, taxiways, and aprons and are treating the resources as NRHP-eligible until a final determination of eligibility has been made either with consensus of the SHPO or by the Keeper of the NRHP (MAFB 2011d). McConnell AFB proposes to repair pavement and shoulder approach, and edge lighting systems. None of these modifications will negatively impact the integrity of Taxiway Alpha as it relates to its association with early development of the Wichita Municipal Airport and with the subsequent development of McConnell Air Force Base. In addition, the repairs will not adversely affect other NRHP-eligible properties that face the flight line (Buildings 9, 1106, 1107, 1218, and 1219). An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project I4. It is assumed that equipment and supplies necessary to complete the east runway repairs would be obtained locally and local contractors would be used. The demand for workers as part of the east runway repairs would be minor and would not outstrip the local

supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed east runway repairs would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. However, portions of the east runway repairs are near the installation boundary. Therefore, it is possible that residents could experience short-term intermittent noise and traffic associated with the proposed project. This could have a disproportionate adverse effect on low-income and minority populations but would be negligible to minor. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project I4 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and therefore, no significant effects on environmental justice would be expected.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of debris generated during this infrastructure improvement project. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, minor, beneficial effects would be expected to occur because this project would improve airfield operations.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Repair activities on the East Runway would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Repair activities would not affect or be affected by an ERP site. If contamination is encountered during repair activities, it would be handled, stored, transported, and disposed of in accordance with applicable Federal, state, and local regulations.

No long-term, adverse impacts on hazardous materials and wastes would be anticipated from repair of the East Runway and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during repair activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

The southern portion of the runway repairs is in the QD arc associated with the small arms range and could have short-term, negligible to minor, adverse impacts on safety to workers in this area. However, since these are short-term repair activities, long-term impacts would be negligible.

4.4.4 Selected Natural Infrastructure Management Projects

4.4.4.1 NI1. McConnell Creek Stream Restoration

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the McConnell Creek stream restoration. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire restoration period, which would limit the duration of increased noise levels. This area of McConnell AFB is used for community facilities, open space, and outdoor recreation. Populations potentially affected by the increased noise levels would include USAF personnel working in the administrative, community, and aircraft operations and maintenance facilities on either side of McConnell Creek. The closest personnel to the restoration site would be working in the community facilities approximately 150 feet from the restoration site and would experience noise levels of 81 to 85 dBA.

Land Use. No effects on land use would be expected from McConnell Creek Stream Restoration activities. Repair activities would occur within the Open Space, Outdoor Recreation, Community Service and Community Commercial land use categories. The current and future land use designation would remain the same and no change in functionality is anticipated. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a).

Air Quality. Short-term, negligible to minor, adverse effects on air quality would be expected from the proposed McConnell Creek Stream Restoration project at McConnell AFB. Stream restoration construction activities would result in temporary effects on local and regional air quality primarily from site-disturbing activities, the operation of construction equipment and haul trucks transporting materials, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during work activities to suppress emissions. All emissions associated with the proposed McConnell Creek Stream Restoration project would be temporary in nature. It is not expected that emissions from Project NI1 would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the stream restoration activities are summarized in **Table 4-20**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**. No long-term air emissions would be produced as a result of Project NI1.

Table 4-20. Estimated Air Emissions Resulting from Project NI1

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	0.104	0.006	0.039	0.009	0.006	0.006	12.354
Construction Fugitive Dust	-	-	-	-	5.986	0.599	-
Haul Truck On-Road	0.006	0.005	0.019	0.001	0.008	0.002	1.633
Construction Commuter	0.044	0.044	0.397	0.001	0.004	0.003	52.593
Total NI1 Emissions	**0.155**	**0.055**	**0.455**	**0.010**	**6.004**	**0.609**	**66.579**
Percent of SCKI AQCR Inventory	**0.0004**	**0.0001**	**0.0002**	**0.0003**	**0.0062**	**0.004**	**0.00008***

Note: * Percent of State of Kansas CO_2 emissions.

Geological Resources. Implementation of the McConnell Creek Stream Restoration project would result in short-term, minor, adverse, and long-term, minor, beneficial effects on soils. Short-term effects would occur due to disturbance of the McConnell Creek banks, when erosion of the banks and the associated suspension of sediment particles in the water column would increase (i.e., increased turbidity). Short-term vegetation removal along the banks would also result in soil disturbance and increased erosion and sedimentation potential. Adverse effects would be minimized with implementation of environmental protection measures, including wetting of soils, and implementation of erosion and storm water management practices to contain soil and runoff before entering the creek. Long-term, minor, beneficial effects on soil stability would occur as the stream banks are shored up and the flood detention capacity of the creek is increased. No impacts on topography or geology would occur.

Water Resources. Short-term, minor, adverse effects on water resources would be expected from implementation of Project NI1. The proposed stream restoration project lies within the 100-year floodplain; therefore, a FONPA would be required. To minimize potential impacts, an approved ESCP would be followed during construction, and construction BMPs in accordance with the CWA Final Rule would be implemented to retain runoff and promote recharge of groundwater. No mitigation measures would be required because no significant impacts would occur.

Short-term effects on water resources could occur from the removal of vegetation, grading and excavation of soil on the stream banks, and constructing detention ponds along the creek. Disturbance of soil and removal of vegetation associated with restoration could result in erosion of disturbed soils and transport of sediment and other pollutants into McConnell Creek during storm water flow events. Maintaining onsite storm water infiltration during construction activities would minimize storm water runoff. This project would disturb more than one acre of land, so an NPDES construction permit would be required. In the event of a spill or leak of fuel or other contaminants, there could be adverse effects on the receiving water bodies. All fuels and other potentially hazardous materials would be contained, stored, used, and disposed of appropriately. In the event of a spill, procedures identified in the installation's SPCC Plan would be followed to contain and clean up a spill quickly. Environmental protection measures identified in the SPCC Plan would minimize the potential for and extent of associated contamination.

According to the 2001 Wetland Delineation Report for McConnell AFB, portions of McConnell Creek exhibit wetland characteristics (MAFB 2011). For the purposes of analysis in this IDEA, it is assumed that the wetlands are jurisdictional; however, the USACE will be contacted to make a final determination on their jurisdictional status. Short-term, minor, adverse effects could occur from impacts on wetlands from implementation of Project NI1; therefore, this project would require a FONPA. Effects on wetlands would be reduced through design, siting, and proper implementation of environmental protection measures. These would include the following:

- Flagging the boundary of the wetland to avoid unnecessary construction equipment and personnel from entering the wetland area
- Phasing construction activities so that smaller areas of land are disturbed at the same time to limit soil exposure
- Installing sedimentation basins and detention or retention ponds to contain sediment and runoff in the construction area
- Following the procedures in the SPCC Plan to contain and clean up spills of fuels and other potentially hazardous material quickly.
- Developing an ESCP

- Developing a construction-grading plan in order to divert storm water runoff away from nearby wetlands
- Utilizing docks or boardwalks across wetland areas, rather than filling in the wetland area to create a pathway
- Minimizing the use of heavy machinery in wetlands
- Restricting construction activities to drier periods of the year
- Disposing of construction debris in a nonwetland area.

Proper implementation of these measures would ensure that no effects on surrounding wetlands or other waters of the United States would occur. Correspondence with regulatory and resource agencies prior to commencing any ground-breaking construction activities would be completed and permits would be obtained, as necessary.

Long-term, minor, beneficial impacts would be expected on water resources, as the creek would be better equipped to handle surface runoff and prevent flooding.

Biological Resources. Construction from Project NI1 would have short-term, negligible, adverse effects on vegetation due to temporary disturbances (e.g., trampling and limited removal) on adjoining lands and from use of heavy equipment during stream restoration activities. Affected vegetation primarily consists of nonnative grasses and scattered landscaping trees and shrubs. All trees and vegetation associated with Project NI1 would be replaced or relocated as applicable. All ground disturbed during construction activities that does not include site improvements will be reseeded with appropriate ground cover.

Project NI1 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project NI1 location would recover quickly once the construction noise and disturbances have ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project NI1 site should be habituated to noise disturbances.

Long-term, beneficial effects on aquatic and riparian wildlife from Project NI1 would be expected. Bank stabilization and revegetation would improve McConnell AFB stream water quality by reducing erosion. Increased sedimentation of stream beds reduces the quality and quantity of food availability and breeding habitat for both invertebrates and vertebrates. An increase in both food and broods would produce long-term, beneficial effects on both aquatic and terrestrial species.

Project NI1 is within the developed portion of the installation with no suitable habitat; therefore, no adverse impacts on protected and sensitive species would be expected. Environmental protection measures would be implemented to minimize impacts on migratory birds as appropriate.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under the NHPA would be expected from the proposed restoration of McConnell Creek. McConnell Creek has been surveyed for cultural resources and none were found (MAFB 2004b). An archaeological survey has not identified archaeological sites or TCPs in the proposed project area (MAFB 2004b). If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, negligible, beneficial effects on socioeconomic resources would be expected from the restoration of McConnell Creek. It is assumed that equipment and supplies necessary to complete the proposed activities would be obtained locally and local contractors

would be used. The demand for workers as part of the restoration of McConnell Creek would be negligible and would not outstrip the local supply of workers in the region. Proposed activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and it would have no potential to adversely affect on- or off-installation residents. Therefore, no environmental justice issues would be anticipated. No long-term effects on socioeconomic resources would be expected to result from the proposed restoration of McConnell Creek because it would not involve any change in personnel or housing or the long-term use of public services.

Infrastructure. Short-term, negligible, adverse effects would be expected as a result of vegetative debris generated during this infrastructure improvement project. However, this debris should be able to be mulched and reused on the installation. Long-term, moderate, beneficial effects would be expected to occur because this project would increase the capacity of McConnell Creek to accept storm water flows while minimizing erosion and would improve the installation's storm water infrastructure.

Hazardous Materials and Waste. Short-term, minor, adverse impacts associated with hazardous materials and waste would be expected as a result of this project. Restoration of the McConnell Creek stream would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous and petroleum wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations.

Two ERP sites (ST-17 and SS-03) are associated with the restoration activities on McConnell Creek stream and soil and groundwater contamination have been confirmed. Remedial action could be necessary prior to restoration activities and existing monitoring wells would need to be protected from damage during these activities. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the *McConnell AFB Hazardous Waste Management Plan* and all applicable Federal, state, and local regulations and policies.

No long-term, adverse impacts on hazardous materials management or hazardous waste generation would be expected as a result of the proposed restoration project.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

A portion of the McConnell Creek runs through ERP Site SS-03 and adjacent to ST-17. These sites could have short-term, negligible to minor, adverse impacts on workers in this area. Construction activities could affect the monitoring of these sites. Monitoring wells in this area would need to be avoided. There is also a potential for workers to encounter contamination during construction activities. However, prior to commencement of construction activities at or within the vicinity of active ERP sites, a health and safety plan would be prepared in accordance with OSHA regulations. Workers performing soil-removal activities within ERP sites would be required to have OSHA 40-hour Hazardous Waste Operations and Emergency Response training. This would minimize any potential impacts from exposure to contaminated materials. If contamination is encountered, it would be handled, stored, transported, and disposed of in accordance with the installation's hazardous waste management plan and all applicable

Federal, state, and local regulations and policies. See **Section 4.3.10**, *Hazardous Materials and Wastes*, for more information regarding the potential for contamination at this location.

4.4.5 Selected Strategic Sustainability Performance Projects

4.4.5.1 S1. Solar Plant

Project S1 would not result in significant effects. The following subsections break down by resource areas the non-significant effects that would result from Project S1.

Noise. Short-term, minor, adverse effects on the noise environment would be expected as a result of the solar plant construction. The noise emanating from construction equipment would be localized, short-term, and intermittent during machinery operations. **Table 3-2** shows the predicted noise levels for various pieces of construction equipment operating at 50 feet from the source, and **Table 4-2** shows estimated cumulative noise levels that would be expected at varying distances from a construction site. Heavy construction equipment would not be operational during the entire construction period, which would limit the duration of increased noise levels. Populations potentially affected by the increased noise levels would include USAF personnel working in the administrative facilities approximately 300 feet to the east of the solar plant construction site. The closest personnel would experience noise levels of 78 to 82 dBA.

Land Use. Long-term, minor, adverse effects on land use would be expected from the construction of the solar plant. The solar plant would be constructed within the Open Space land use category and would require a change in the designation of land use to the Industrial land use category. This project is not identified in the IDP, but would be consistent with overall development planning for McConnell AFB (MAFB 2011a).

Air Quality. Short-term, minor, adverse effects on air quality would be expected from the construction of a Solar Plant under Project S1. Construction activities would result in temporary effects on local and regional air quality, primarily from site-disturbing activities, the operation of construction equipment and haul trucks transporting materials, and workers commuting to the job site. Appropriate fugitive dust-control measures would be employed during construction activities to suppress emissions. All emissions associated with construction activities would be temporary in nature. It is not expected that emissions from Project S1 would contribute to or affect local or regional attainment status with respect to the NAAQS. Emissions from the construction of the Solar Plant are summarized in **Table 4-21**. Emissions estimation spreadsheets and a summary of methodology used are included in **Appendix E**. Long-term, significantly beneficial effects on regional air emissions would be produced as a result of Project S1. The design of this project indicates the Solar Plant will produce the amount of electricity equivalent to 50 percent of the current electrical load for McConnell AFB.

Geological Resources. Implementation of Project S1 would result in short- and long-term, negligible to minor, adverse effects on soils. Short-term, negligible, adverse effects would result from site clearing and grading. Construction vehicles could compress soils, decreasing permeability and rates of storm water runoff infiltration. It is possible that a spill or leak of vehicle or other fluids could occur. In the event of a spill, the installation's SPCC Plan would be followed to contain and clean up a spill quickly. There remains the possibility that a spill or leak could occur, but implementation of the environmental protection measures identified in the SPCC plan would minimize the potential for and extent of associated contamination. Environmental protection measures and an ESCP would be instituted to protect soils from erosion and sedimentation.

Table 4-21. Estimated Air Emissions Resulting from Project S1

Activity	NO_x tpy	VOC tpy	CO tpy	SO_2 tpy	PM_{10} tpy	$PM_{2.5}$ tpy	CO_2 tpy
Construction Combustion	3.934	0.296	1.707	0.317	0.274	0.266	453.533
Construction Fugitive Dust	-	-	-	-	19.309	1.931	-
Haul Truck On-Road	0.310	0.225	0.912	0.024	0.369	0.096	78.604
Construction Commuter	0.022	0.022	0.198	0.000	0.002	0.001	26.296
Total S1 Emissions	**4.267**	**0.542**	**2.818**	**0.341**	**19.955**	**2.294**	**558.433**
Percent of SCKI AQCR Inventory	**0.010**	**0.001**	**0.001**	**0.010**	**0.0207**	**0.017**	**0.00068***

Note: * Percent of State of Kansas CO_2 emissions.

As a result of constructing the solar plant, long-term, minor, adverse effects would occur as soils would be compacted, and soil structure disturbed and modified. Soil productivity would decline in disturbed areas and be eliminated in those areas within the footprint of the plant. Localized loss of soil structure due to compaction from foot and vehicle traffic could result in changes in drainage patterns. Soil erosion- and sediment-control measures would be included in site plans to minimize long-term erosion and sediment production at the complex. Use of storm water-control measures that favor reinfiltration would minimize the potential for erosion and sediment production as a result of future storm events. The soils underlying the plant site are deep, nearly level to sloping, well-drained soils. No known construction limitations exist for the soils. No effects on topography or geology would be anticipated.

Water Resources. Short- and long-term, minor, adverse effects on water resources would be expected from Project S1. Short-term, adverse effects on water resources would occur from the removal of vegetation and grading and excavation of soil for construction of the solar plant. Long-term, minor, adverse effects on water resources would occur from the compaction of soils due to foot and vehicle traffic, which could result in a decrease in soil permeability and water infiltration rates and potential subsequent alteration of drainage patterns.

Disturbance of soil and removal of vegetation associated with construction could result in erosion of disturbed soils and transport of sediment and other pollutants into nearby water bodies during storm water flow events. Maintaining onsite storm water infiltration during construction activities would allow groundwater to recharge and minimize storm water runoff. Long-term, minor, adverse impacts would occur from an increase in soil compaction and impervious surfaces, which would lead to increased erosion and sedimentation rates, and would contribute to increased storm water runoff volume and velocity. This project would disturb more than 10 acres of land, so an NPDES construction permit would be required.

Biological Resources. Long-term, minor, adverse effects on vegetation would be expected from the permanent removal of vegetation associated with Project S1. Affected vegetation includes nonnative grasses, shrubs, and trees. All ground disturbed during construction activities that does not include site improvements will be reseeded with appropriate species, as applicable.

Project S1 would have short-term, negligible to minor, indirect, adverse effects on wildlife due to temporary disturbances from noise, construction activities, and heavy equipment use. Most wildlife species near Project S1 location would recover quickly once the construction noise and disturbances have

ceased. Additionally, McConnell AFB is heavily developed and aircraft operations are frequent, so wildlife inhabiting the Project S1 site should be habituated to noise disturbances.

No direct, adverse effects on protected and sensitive species are expected from Project S1, as there have been no observations of any Federal- or state-listed species or suitable habitat at McConnell AFB. Environmental protection measures would be implemented to minimize impacts on migratory birds as applicable.

Cultural Resources. No impacts on cultural resources under NEPA or effects on historic properties under NHPA would be expected from construction of the solar plant. These areas are not near any historic buildings or structures evaluated NRHP-eligible. No archaeological sites or TCPs are known or would be anticipated. If an unanticipated discovery of archaeological materials is made, work would be temporarily halted and the procedures outlined in the ICRMP would be followed.

Socioeconomics and Environmental Justice. Short-term, minor, beneficial effects on socioeconomic resources would be expected from Project S1. It is assumed that equipment and supplies necessary to complete the construction activities would be obtained locally and local contractors would be used. The demand for workers as part of the construction activities would be minor and would not outstrip the local supply of workers, as there are more than 19,000 construction workers in the Wichita Metropolitan Statistical Area. The proposed construction activities would occur entirely on McConnell AFB in a non-residential portion of the installation, and would have little potential to affect on- or off-installation residents adversely. However, the possible locations of Project S1 are located near the installation boundary. Therefore, it is possible that residents could experience short-term intermittent noise and traffic associated with the proposed construction activities. This could have a disproportionate adverse effect on low-income and minority populations but would be negligible to minor. Therefore, no significant short-term environmental justice issues would be anticipated.

No long-term effects on socioeconomic resources would be expected because Project S1 does not involve any change in personnel or housing or the long-term use of public services. Any long-term, adverse effects on minority and low-income populations would not be significant, and, therefore, no significant effects on environmental justice would be expected.

Infrastructure. Short-term, negligible, adverse effects from Project S1 would be expected as a result of debris generated during construction activities. Construction debris is generally composed of clean materials, and most of this waste would be recycled. However, debris not recycled would be landfilled, which would be considered a long-term, irreversible, adverse effect. Long-term, moderate, beneficial effects would be expected to occur from operation of the solar plant, as the use of this renewable energy source would offset the utility needs of the KANG area.

Hazardous Materials and Waste. Short-term, negligible, adverse impacts associated with hazardous materials and waste would be expected from this project. Construction of a solar plant would result in a short-term increase in the use of hazardous materials and petroleum products and the generation of hazardous wastes. Contractors would be responsible for the management of these materials, which would be handled in accordance with McConnell AFB hazardous materials management and hazardous waste management plans and Federal, state, and local regulations. No long-term, adverse impacts on hazardous materials and wastes would be anticipated from construction of the new solar plant and the installation's waste streams would not be altered.

Safety. Short-term, negligible to minor, adverse effects associated with safety could occur during construction activities. Construction activities pose an increased risk of construction-related accidents, but this level of risk would be managed by adherence to established Federal, state, and local safety

regulations. Workers would be required to wear protective gear such as ear protection, steel-toed boots, hard hats, gloves, and other appropriate safety gear. Construction areas would be fenced and appropriately marked with signs. Construction equipment and associated trucks transporting material to and from construction sites would be directed to roads and streets that have a lesser volume of traffic. Therefore, no long-term, adverse effects on safety would be expected.

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5. Cumulative Effects, Best Management Practices, and Adverse Effects

5.1 Cumulative Effects

CEQ regulations stipulate that the cumulative effects analysis in an EA should consider the potential environmental effects resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). CEQ guidance in considering cumulative effects affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with a proposed action. The scope must consider other projects that coincide with the location and timetable of a proposed action and other actions. Cumulative effects analyses must also evaluate the nature of interactions among these actions (CEQ 1997).

5.1.1 Projects Identified with the Potential for Cumulative Effects

The scope of the cumulative effects analysis involves both timeframe and geographic extent in which effects could be expected to occur, and a description of what resources could be cumulatively affected. For the purposes of this analysis, the temporal span of the Proposed Action is 5 years (i.e., 2012 to 2017). For most resources, the spatial area for consideration of cumulative effects is McConnell AFB, though a larger area is considered for some resources such as air quality and noise. An effort was undertaken to identify projects at McConnell AFB and in the areas surrounding the installation for evaluation in the context of the cumulative effects analysis.

5.1.1.1 Past Actions at McConnell AFB

Past activities are those actions that occurred within the geographic scope of cumulative effects that have shaped the current environmental conditions of the project area. Flying operations began in Wichita in 1916 when Cessna opened an aircraft manufacturing plant. Military operations at Wichita Municipal Airport, which became McConnell AFB, began in the early 1940s; McConnell AFB became a permanent military installation in 1953 (Larsen 2006). For many resource areas, such as biological resources, infrastructure, and hazardous materials and waste, the effects of past actions are now part of the existing environment and are incorporated in the description of the affected environment.

In 2007, HQ AMC and 22 ARW prepared an IDEA and FONSI analyzing 14 demolition projects, 25 facilities construction and renovation projects, and 38 infrastructure projects, all spanning 5 years (MAFB 2007a). The projects analyzed in the 2007 IDEA added a maximum of 12 acres of impervious surfaces. Old buildings were removed, existing facilities were repaired and expanded, and new facilities were constructed, resulting in better land use function and organization. The 2007 IDEA identified the following environmental consequences:

- Short-term, minor, adverse effects localized to construction areas on the noise environment, air quality, safety, geological resources, water resources, biological resources, and hazardous materials and wastes.
- Short-term, indirect, minor, beneficial effects on socioeconomics on the local community from construction costs; however, expenditures associated with construction have no long-lasting community benefits.
- Long-term, direct, minor, beneficial effects on land use, safety, and infrastructure from the construction of new facilities and demolition of existing facilities on the installation.

- Short-term, minor, adverse and long-term, minor, beneficial effects from the removal of ACM and LBP in older buildings.
- No short- or long-term effects on floodplains, wetlands, threatened and endangered species, archaeological resources, or historic architectural resources.

5.1.1.2 Recently Completed, Ongoing, and Near-Future Actions at McConnell AFB

Construction, demolition, and infrastructure upgrades are a continuously occurring activity at McConnell AFB. There are several recently completed, ongoing, or anticipated projects for 2012 (see **Table 5-1**); it is anticipated that these projects will be completed prior to the completion of this IDEA. Ground-disturbing activities will already have occurred prior to implementation of the Proposed Action, and most of these projects will have negligible, long-term environmental effects. Therefore, most of these projects would be expected to have negligible potential for cumulative effects when considered with the Proposed Action and other installation development projects. The Family Camp expansion is cited near wetlands, the 100-year floodplain, and an ERP site. The running track is cited in the 100-year floodplain, an ERP site, and QD arcs. The UST removal and AST installation project involves Building 1107, an historic resource. An additional backup generator at Building 16 would result in minor increases in air emissions. Repairing major leaks in water systems could also occur in wetlands and floodplains, depending on the locations of the leaks, though no long-term disturbance of sensitive areas will occur. These projects are considered in this cumulative analysis where there is the potential for cumulative effects (see **Figure 5-1** for project locations).

5.1.1.3 Reasonably Foreseeable Future Actions at McConnell AFB

Many installation development projects are planned and reasonably foreseeable at McConnell AFB. **Appendix A** is a compilation of all demolition (see **Table A-1**), construction (see **Table A-2**), infrastructure improvement (see **Table A-3**), natural infrastructure management (see **Table A-4**), and strategic sustainability performance projects (see **Table A-5**) that could be completed during the lifespan of this IDEA, as funding becomes available. These projects are reasonably foreseeable, and so they are included in this cumulative effects analysis. **Table 5-2** summarizes the areas of disturbance and changes in impervious surfaces from the Proposed Action and all other present and reasonably foreseeable future installation development activities that have been identified to date.

Figures 5-2, **5-3**, **5-4**, **5-5,** and **5-6** show all proposed project locations as currently planned. Some of these projects are in the early planning stages, so the final siting has not been completed for all projects. **Table 5-3** summarizes in tabular form the potential environmental consequences associated with the installation development projects that are identified in **Appendix A** but not analyzed as a selected project in **Section 4** of this IDEA as a part of the Proposed Action.

All demolition and construction activities generally would be expected to result in some increased noise, increased air emissions, potential for erosion and transport of sediment into surface water bodies, generation of small amounts of hazardous materials and wastes, and generation of construction and demolition waste. All demolition and construction activities generally would be expected to result in short-term job creation and materials procurement. These types of short-term, construction-related effects would occur regardless of project location and are not constraints to development. In the absence of unique constraints, the potential for environmental effects of a demolition or construction project smaller in scope than those analyzed as selected projects in this EA would be expected to result in less than significant environmental effects.

Table 5-1. 2012 Projects at McConnell AFB (Recently Completed, Ongoing, or Near-Future)

Project Description	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Demolish Buildings 981, 804, 490, 1346, 979, 696, 1336, 1501, 1103, 1167, 1110, and 1336	95,126	-33,755
Expand the existing Family Camp within the KRA (includes 10 recreational vehicle pads, associated utilities, and access roads) (see **Figure 5-1**)	180,000	+10,800
Construct a 5-kilometer running track around the perimeter of the former golf course using a rubberized surface (see **Figure 5-1**)	226,375	+196,848
Construct a medical administrative and record storage facility south of Building 250 fronting on Leavenworth Street	18,907	+3,500
Install 12 wells in the lawn area for a GSHP system to provide energy-efficient heating and cooling for the new Medical Records Building, next to the new Clinic	2,700	0
Renovate the existing playgrounds in the Preschool and Toddler section of the Child Development Center	18,220	+6,968
Remove one 5,000-gallon and two 2,000-gallon USTs from Building 1171 and replace with existing 5,000-gallon AST relocated from the northwest side of Building 1107 (see **Figure 5-1**)	4,000	+1,000
Repair existing basketball courts, tennis courts, and softball field	105,156	0
Repair softball fields 2 and 3, including repairing the turf, replanting grass, and adjustment and repair of the sprinkler system	185,000	0
Construct a third 1.5-MW backup generator and 6,000-gallon diesel AST at Building 16 to increase emergency power backup from 3 MW to 4.5 MW (see **Figure 5-1**)	1,282	+1,282
Remove existing grass surface on the soccer field, then grade and replace with a new artificial turf surface	76,823	0
Investigate the entire water system with modern acoustic equipment to determine water leaks at joints and services and repair major leaks	500,000	0
Total	**1,413,589**	**+186,643**

5.1.1.4 Actions Outside McConnell AFB

The City of Wichita, unincorporated areas of Sedgwick County, and the City of Derby surround McConnell AFB; these areas have comprehensive plans that guide future development activities (City of Wichita-Sedgwick County 1999, City of Derby 2006). The communities surrounding McConnell AFB seek to avoid encroachment into CZ and APZ areas and minimize residential and other incompatible development within the 1994 AICUZ "maximum mission" noise contours.

In January 2012, Boeing announced that it will close its Wichita facilities by the end of 2013 (McMillin 2012). Boeing's expansive facilities abut McConnell AFB, and any future uses of those facilities are not known at this time.

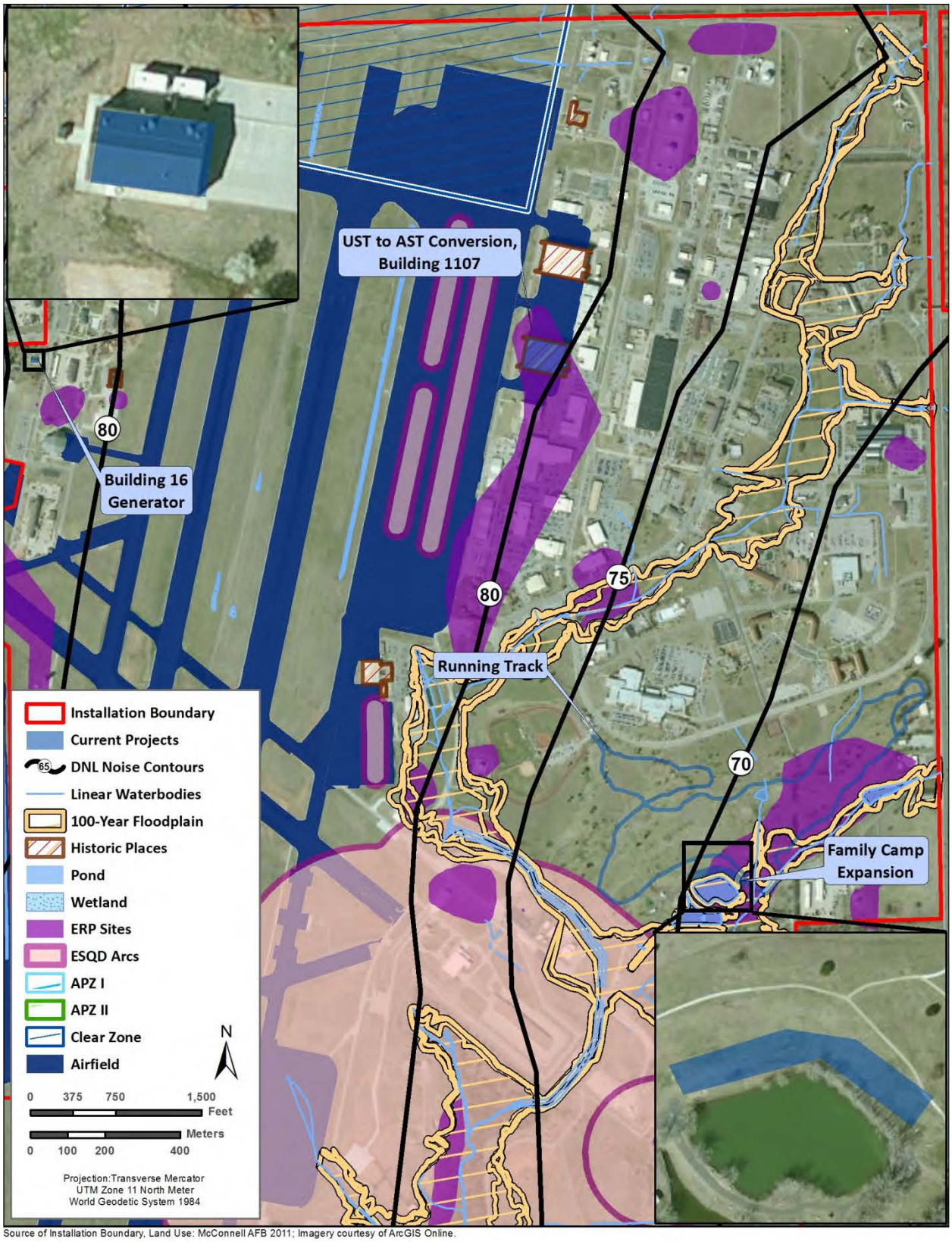


Figure 5-1. Locations of Recently Completed, Ongoing, and Near-Future Projects with Environmental Constraints

Table 5-2. Projects Areas and Changes in Impervious Surface for all Reasonably Foreseeable Future Actions (including the Proposed Action)

Project Type	Total Project Area (ft^2)	Change in Impervious Surfaces (ft^2)
Proposed Action [1]	8,774,809	–1,117,912
All Other Demolition Projects [2]	393,936	–388,886
All Other Construction Projects [2]	1,239,056	+827,410
All Other Infrastructure Improvement Projects [2]	7,185,586	+511,165
All Other Natural Infrastructure Management Projects [2]	556,000	+6,000
All Other Strategic Sustainability Performance Projects [2]	94,136	+50
Total of All Projects	**18,243,523**	**–162,173**

Notes: Changes in impervious surfaces are not necessarily equivalent to the project area square footage because some facilities proposed for demolition are multiple stories, and many new facilities would be multiple stories. Furthermore, some infrastructure improvement and natural infrastructure management projects would disturb area but not add impervious surfaces.

1. See **Table 2-6**.
2. Calculated from tables in **Appendix A**.

5.1.2 Cumulative Effects Analysis

A cumulative effects analysis must be conducted within the context of the resource areas. The magnitude and context of the effect on a resource area depends on whether the cumulative effects exceed the capacity of a resource to sustain itself and remain productive (CEQ 1997). The following discusses potential cumulative effects that could occur as a result of implementing the Proposed Action and other past, present, and reasonably foreseeable future actions. Major mission changes at McConnell AFB are not considered a reasonably foreseeable future action and are not addressed in this analysis. No significant adverse, cumulative effects were identified in the cumulative effects analysis.

Noise

Military training and development activities have occurred at McConnell AFB since the 1940s. Aircraft operations and automobile traffic are the dominant noise sources. Construction and demolition activities occurring at the same time and in the same vicinity could have short-term, minor, adverse, cumulative effects on the noise environment. Most installation development activities would occur at different times and different locations over the next 5 years. Construction activities would result in short-term, localized increased noise levels.

There are several projects that are proposed within the noise zones at McConnell AFB. Projects C23 (Visitor Quarters) and C24 (Temporary Lodging Facility) are proposed within the 65 to 69 dBA DNL noise zone. Projects C21 (Consolidated Administration Building), C25 (Chapel and Religious Education Center), and C26 (Library and Education Center) are proposed within the 70 to 74 dBA DNL noise zone. Projects C7 (Dining Facility Addition) and C18 (Volleyball Court and Horseshoe Pits) are proposed within the 75 to 79 dBA DNL noise zone. Air Force Pamphlet 32-1010, *Land Use Planning*, recommends using the AICUZ guidance in installation planning. According to USAF land use compatibility guidelines, which are outlined in the AICUZ guidance, transient lodging facilities,

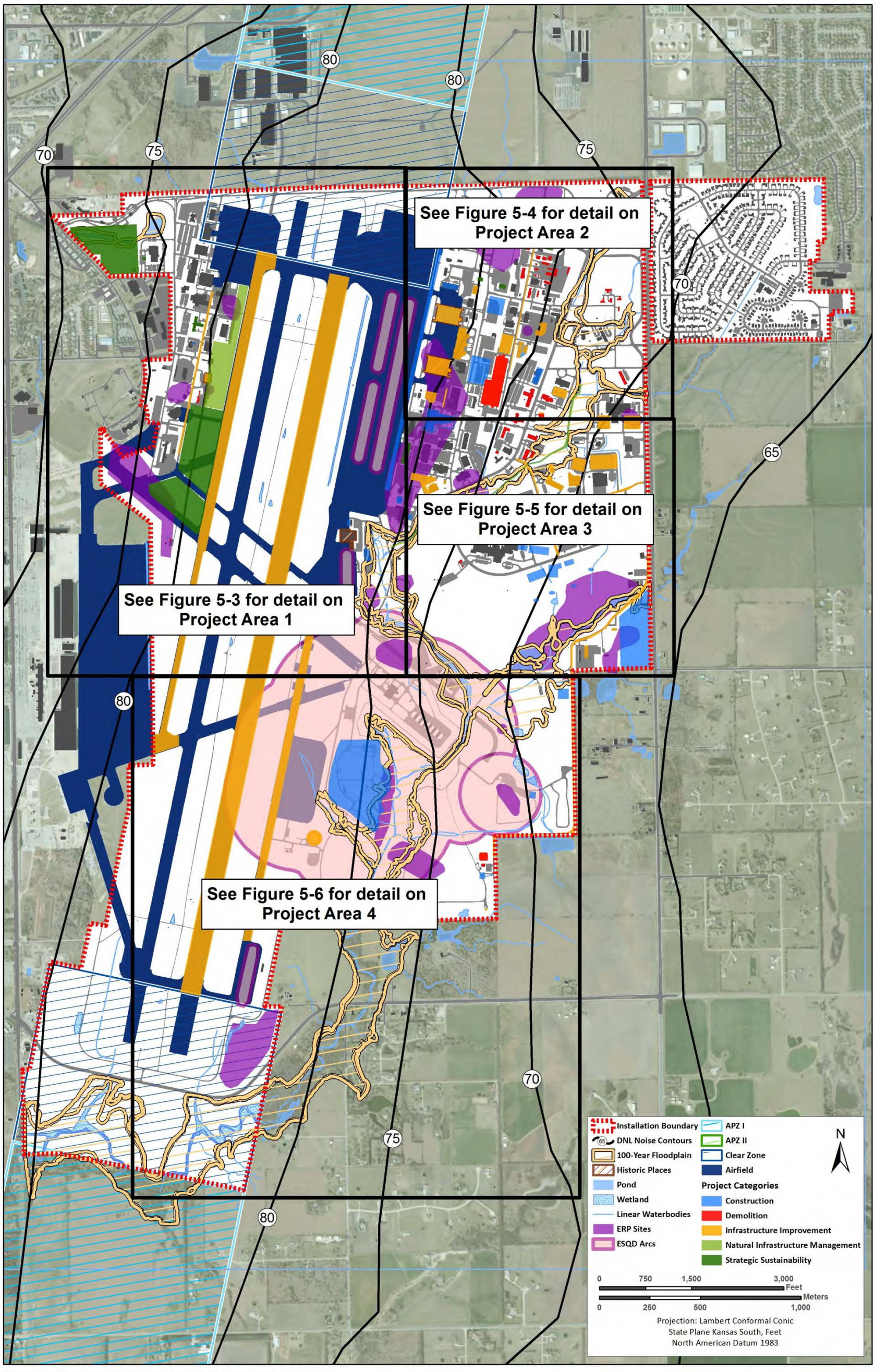
government services, education and cultural activities, and dining facilities are generally considered a compatible land use within the noise zones that they are proposed, if noise level-reduction measures are incorporated into the design and construction of the facility. However, measures to achieve an overall noise level reduction do not necessarily solve all noise difficulties, such as outdoor noise, and additional evaluation is warranted. Building location, site planning, and the use of barriers can help minimize outdoor exposure. Recreational activities, such as volleyball, are generally not considered compatible within the 75 to 79 dBA DNL noise zone. It is recommended that USAF guidelines are referenced before or during the design of these projects. These projects could result in long-term, minor to moderate, adverse effects on the noise environment if the proposed land uses are constructed within the specified noise zones. The planned facilities would generate negligible noise after construction activities have occurred. Therefore, the addition of multiple facilities within high-noise areas would not contribute to adverse, cumulative effects on the noise environment.

Several planned projects would shift vehicle traffic patterns, which could result in both adverse and beneficial effects. Project C21 would shift vehicle traffic to a portion of the installation that does not currently experience high traffic volumes, so this could result in long-term, negligible, adverse effects on the noise environment from increased traffic. Projects I3 and I13 would result in the construction of pedestrian bridges. Currently, crossing McConnell Creek in these areas requires vehicle travel. Increased pedestrian access across McConnell Creek could reduce vehicle travel as personnel choose to walk instead of drive for intra-installation travel. This could result in long-term, negligible, beneficial effects on the noise environment from decreased traffic. Cumulatively, these three projects would not be expected to change the noise environment noticeably; aircraft operations will continue to the most noticeable contributor to noise levels.

Land Use

Military training and development activities have occurred at McConnell AFB since the 1940s. Land use at McConnell AFB is guided by the IDP (MAFB 2011a) to ensure safe, compatible development. Cumulatively, implementation of all installation development projects would be expected to result in long-term, beneficial effects on land use. Demolition projects would remove old, outdated facilities and make land available in previously disturbed areas for new construction. Minor, adverse cumulative effects would be expected from the implementation of Projects C4, C5, C8, C25, C28, and S1. These projects are sited in areas of incompatible land use and it is recommended that the land use designations be changed to a compatible use for each project. Following the change in land use designation, the location of each facility would be compatible with surrounding land use.

Several planned demolition, construction, infrastructure, natural infrastructure management, and strategic sustainability performance projects are sited in areas with safety concerns, including QD arcs and ERP sites. Refer to the *Safety* and *Hazardous Materials and Wastes* cumulative effects subsections for discussions on safety. From a land use perspective, development activities that would violate existing USAF plans or policies would be incompatible and adverse. Several construction activities are proposed within QD arcs (Projects C3, C17, I4, I6, I16, I31, I32, and S2); however, none of these projects would be expected to conflict with land use planning criteria. Any ground-disturbing activities in and around ERP sites have the potential to encounter contaminated soil or groundwater. Projects D3, D4, D7, C1, C2, C3, C4, C9, C11, C14, C18, C20, C29, I2, I5, I6, I11, I15, I20, I22, I23, I31, I33, I34, NI1, NI2, NI3, S2, and S6 would occur on or near ERP sites, none of which currently have Land Use Controls. ERP sites could have Land Use Controls in the future, which would need to be incorporated into the project design. Projects C7, C18, C21, C23, C24, C25, and C26 are planned in high-noise areas of McConnell AFB, which could result in incompatible land uses; refer to the *Noise* cumulative effects subsection for further discussion of noise levels.



Source of Data: Imagery courtesy of ArcGIS Online and its data suppliers; Data layers: McConnell AFB 2010.

Figure 5-2. Overview Map of Subdivided Project Areas for All Projects

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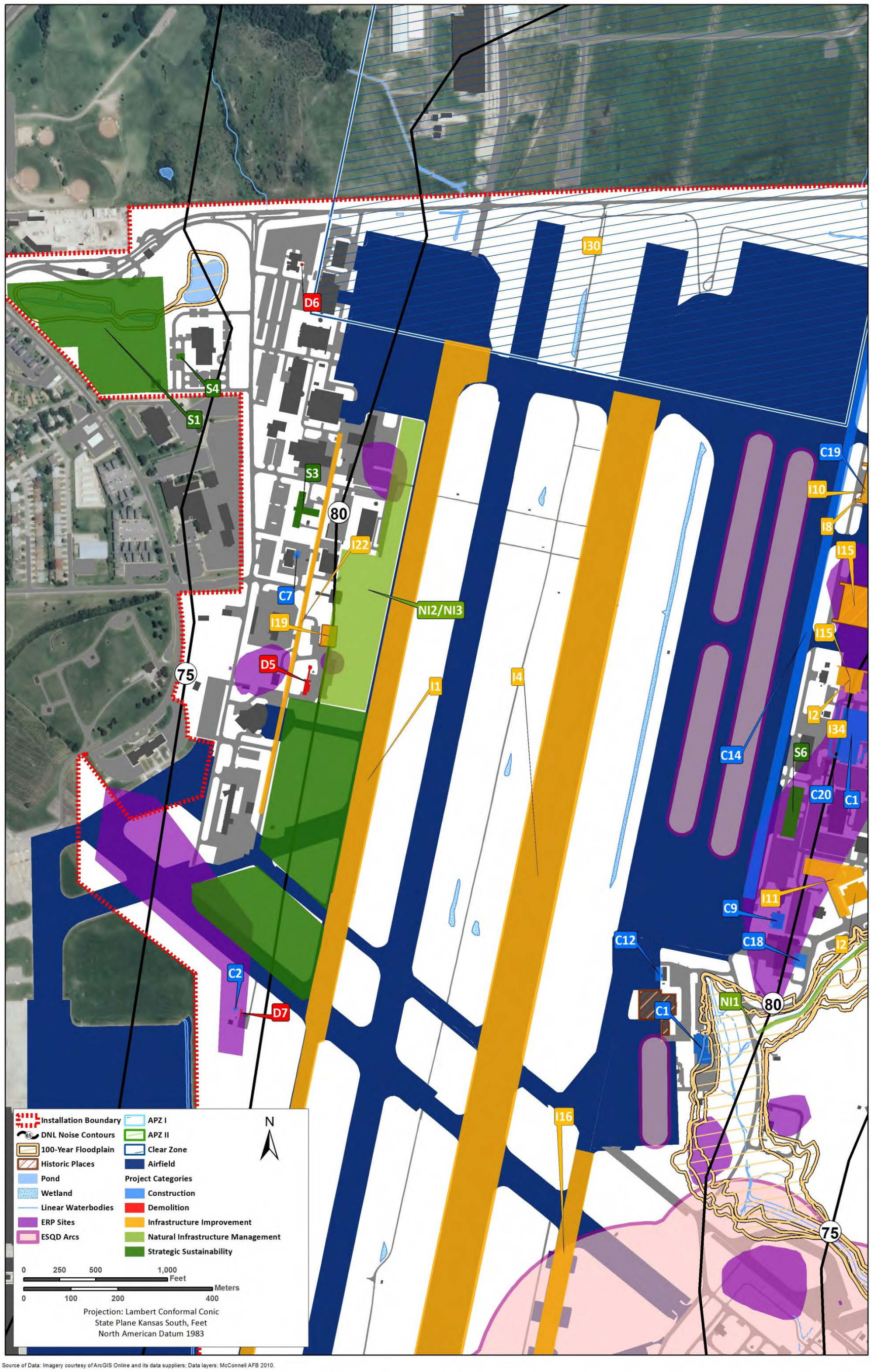

Source of Data: Imagery courtesy of ArcGIS Online and its data suppliers; Data layers: McConnell AFB 2010.

Notes: Project numbers and associated descriptions are shown in **Tables A-1** through **A-5**. Projects D9, I5, I6, and S2 are not shown because they would occur at numerous facilities, underground, or installationwide.

Figure 5-3. Possible Locations and Environmental Constraints Associated with All Projects (Project Area 1)

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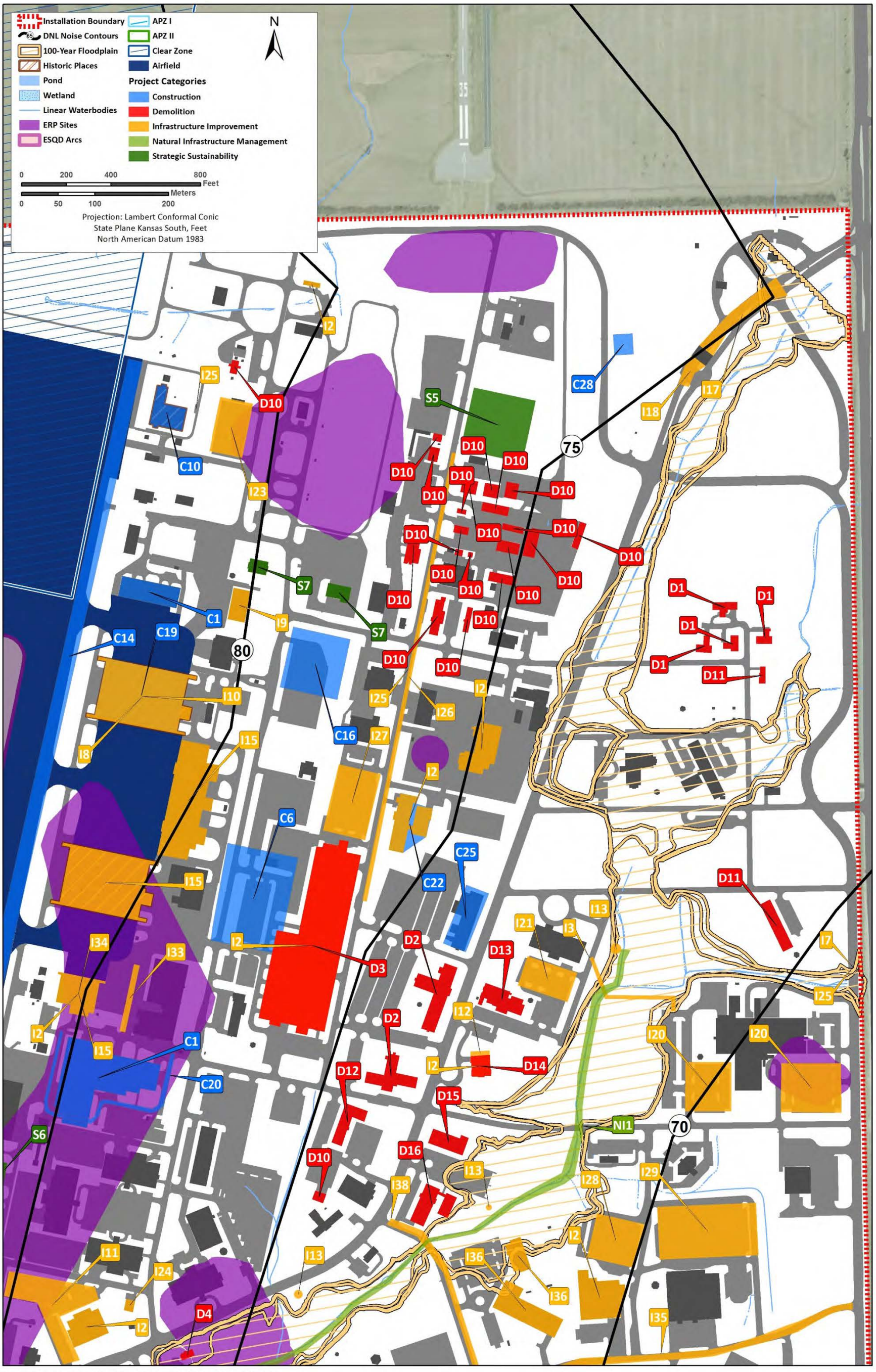

Notes: Project numbers and associated descriptions are shown in **Tables A-1** through **A-5**. Projects D9, I5, I6, and S2 are not shown because they would occur at numerous facilities, underground, or installationwide.

Figure 5-4. Possible Locations and Environmental Constraints Associated with All Projects (Project Area 2)

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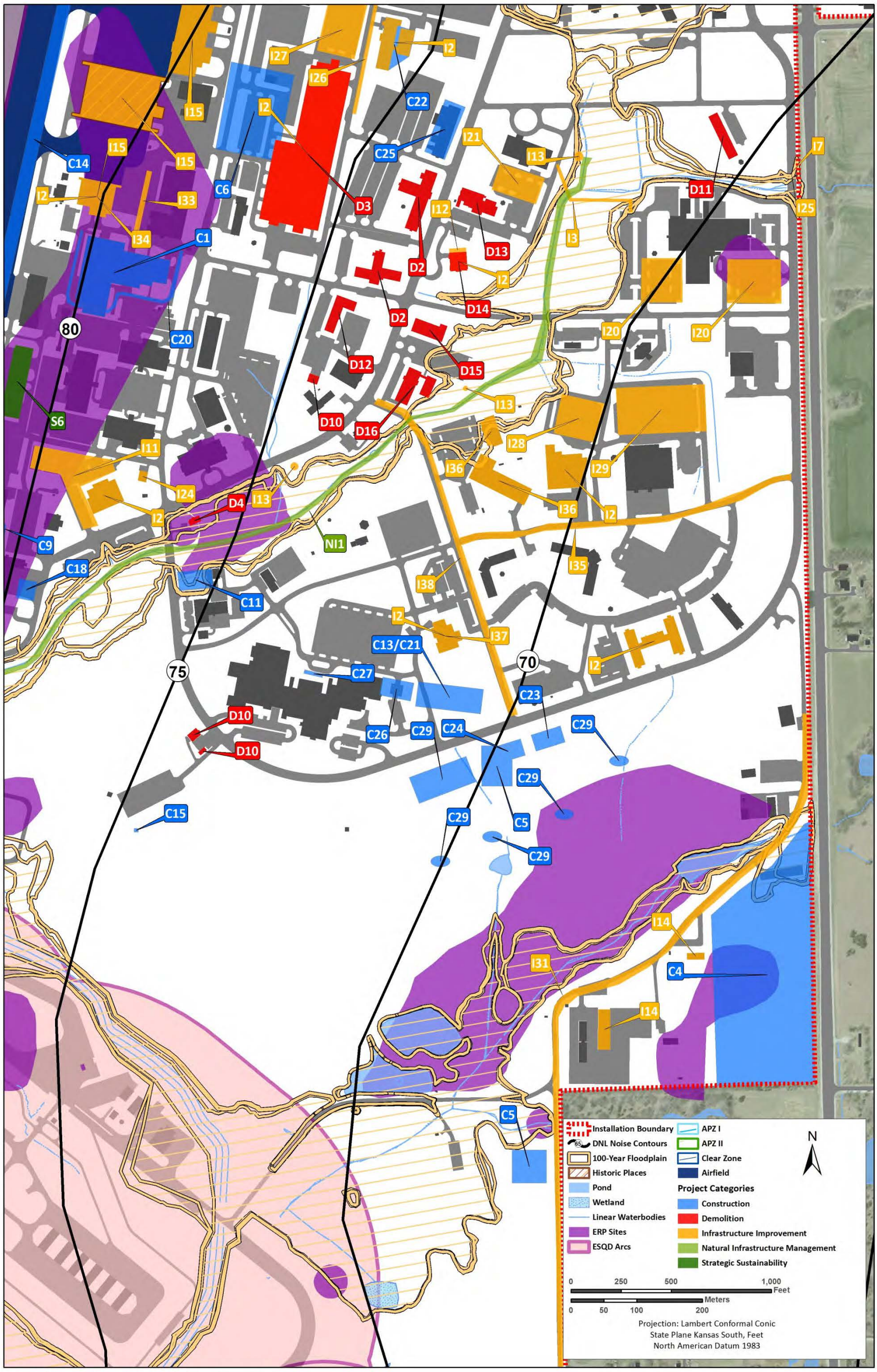

Source of Data: Imagery courtesy of ArcGIS Online and its data suppliers; Data layers: McConnell AFB 2010.

Notes: Project numbers and associated descriptions are shown in **Tables A-1** through **A-5**. Projects D9, I5, I6, and S2 are not shown because they would occur at numerous facilities, underground, or installationwide.

Figure 5-5. Possible Locations and Environmental Constraints Associated with All Projects (Project Area 3)

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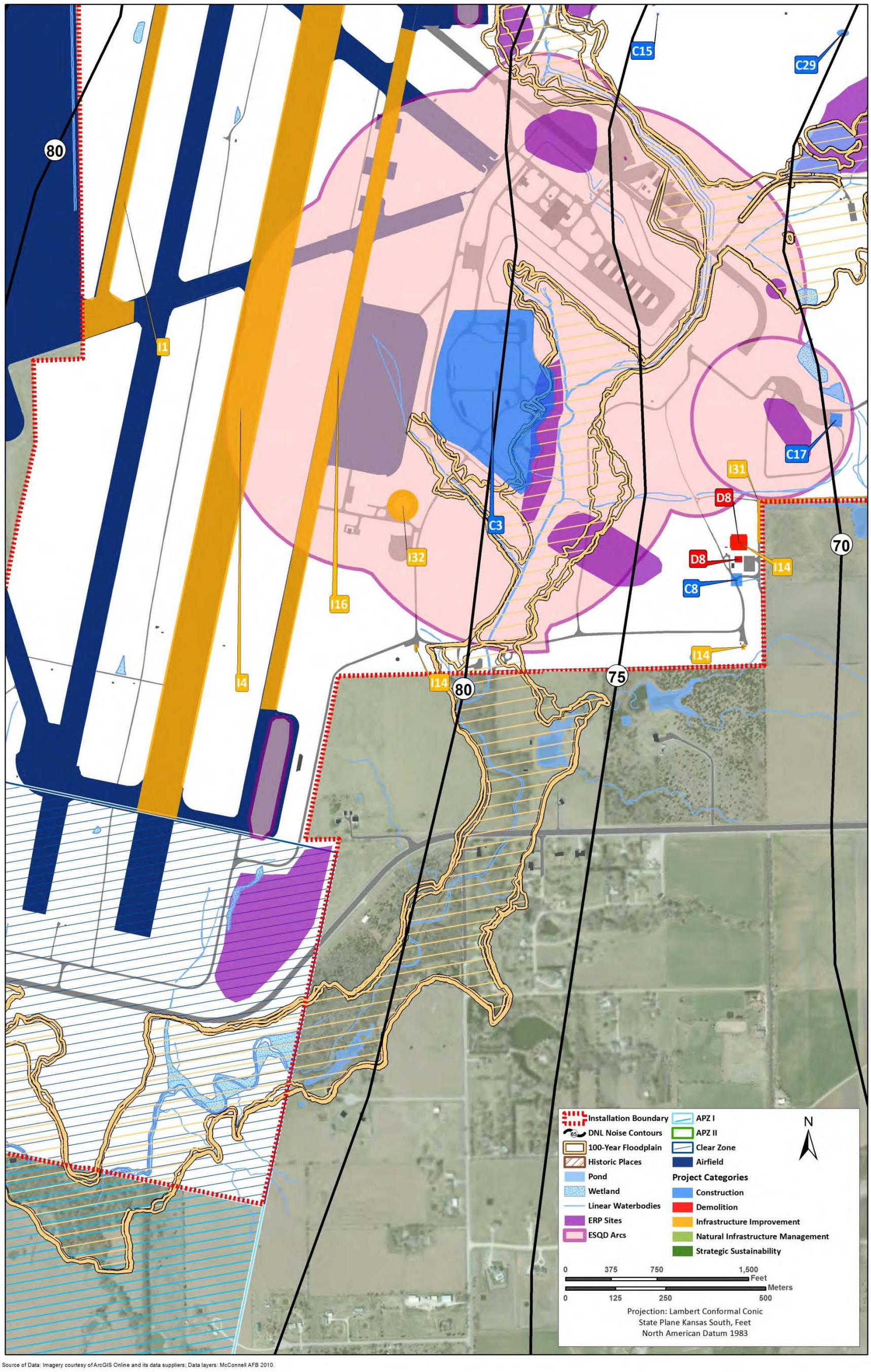

Source of Data: Imagery courtesy of ArcGIS Online and its data suppliers; Data layers: McConnell AFB 2010.

Notes: Project numbers and associated descriptions are shown in **Tables A-1** through **A-5**. Projects D9, I5, I6, and S2 are not shown because they would occur at numerous facilities, underground, or installationwide.

Figure 5-6. Possible Locations and Environmental Constraints Associated with All Projects (Project Area 4)

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Table 5-3. Potential Environmental Consequences Associated with Constraints to Development from All Other Proposed Projects Listed in Appendix A

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Demolition Projects											
D5. Demolish Power Check Pads (5-3)	-	+	♦	-	-	-	-	+	-	-	-
D6. Demolish Vaults 53 and 55 (5-3)	-	+	♦	-	-	-	-	+	-	-	-
D7. Demolish Building 70 (5-3)	-	+	♦	-	-	-	-	+	-	♦ ERP LBP	♦ ERP
D8. Demolish Buildings 1540 and 1541 (5-6)	-	+	♦	-	+	-	-	+	-	♦/+ ACM LBP	-
D9. Demolish Abandoned Piping and Underground Fuel Oil Tanks (not shown)	-	+	♦	-	-	-	-	+	+	+	-

Legend:
- No effects or negligible effects + Potential minor beneficial effects ♦ Potential minor adverse effects ■ Potential moderate adverse effects

Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	Noise	Land Use	Air Quality	Geological Resources	Water Resources	Biological Resources	Cultural Resources	Socioeconomics and Environmental Justice	Transportation and Infrastructure	Hazardous Materials and Wastes	Safety
Other Demolition Projects (continued)											
D10. Demolish Buildings 681–685, 688–690, 692–697, 699, 801, 808, 937, 938, 948, 976, 1290, and 1291 (5-4)	-	+	♦	-	+	-	-	+	-	♦/+ ACM LBP	-
D11. Demolish Buildings 185 and 202 (5-4, 5-5)	-	+	♦	-	-	-	-	+	-	♦/+ ACM LBP	-
D12. Demolish Building 810 (5-4, 5-5)	-	+	♦	-	-	-	-	+	-	♦/+ ACM	-
D13. Demolish Building 510 (5-4, 5-5)	-	+	♦	-	-	-	-	+	-	♦/+ ACM	-
D14. Demolish Building 515 (5-4, 5-5)	-	+	♦	-	-	-	-	+	-	♦/+ ACM	-
D15. Demolish Building 520 (5-4, 5-5)	-	+	♦	-	-	-	-	+	-	♦/+ ACM	-
D16. Demolish Building 522 (5-4, 5-5)	-	+	♦	-	-	-	-	+	-	♦/+ ACM	-

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Construction Projects											
C7. Building 36 Addition (5-3)	♦ NS	-	♦	-	-	-	-	+	-	-	-
C8. Indoor Combat Arms Training Facility (5-6)	-	♦ LUD	♦	-	♦	-	-	+	-	-	-
C9. Airfield Operations and Weather Facility (5-3, 5-5)	-	-	♦	-	-	-	-	+	+	♦ ERP	♦ ERP
C10. Alert Facility (5-4)	-	-	♦	-	-	-	-	+	+	-	-
C11. Automatic Car Wash (5-5)	-	-	♦	-	♦ FP	-	-	+	-	♦ ERP	♦ ERP
C12. Airfield Lighting Vault Addition (5-3)	-	-	♦	-	-	-	-	+	+	-	-
C13. Wing Headquarters Facility Annex (5-5)	-	-	♦	-	-	-	-	+	-	-	-
C14. Blast Deflector Installation (5-3, 5-4, 5-5)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
C15. Athletic Grounds Maintenance Shed (5-5)	-	-	♦	-	-	-	-	+	-	-	-

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Constructions Projects (continued)											
C16. Construct New Service Station (5-4)	-	-	♦	-	♦	-	-	+	+	♦ HAZ	-
C17. Urban Training Center Expansion (5-6)	-	♦ QD	♦	-	-	-	-	+	-	-	♦ QD
C18. Volleyball Court and Horseshoe Pits (5-3, 5-5)	■ NS	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
C19. Building 1106 Hangar Door Repairs (5-3, 5-4)	-	-	-	-	-	-	♦ NRHP	+	-	♦ ACM	-
C20. Repair Access Roads B/1169/1103 (5-3, 5-4, 5-5)	-	-	♦	-	-	-	-	+	+	♦ ERP	♦ ERP
C21. Consolidated Administration Support Building (5-5)	♦ NS	-	♦	-	♦	-	-	+	-	-	-
C22. Consolidated Communications Complex (5-4, 5-5)	-	-	♦	-	-	-	-	+	+	♦ ACM	-
C23. Visitor Quarters (5-5)	♦ NS	-	♦	-	♦	-	-	+	-	-	-

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Constructions Projects (continued)											
C24. Temporary Lodging Facility (5-5)	♦ NS	-	♦	-	♦	-	-	+	-	-	-
C25. Chapel and Religious Education Center (5-4, 5-5)	♦ NS	♦ LUD	♦	-	-	-	-	+	-	-	-
C26. Library/ Education Center (5-5)	♦ NS	-	♦	-	-	-	-	+	-	-	-
C27. Dole Center Fountain (5-5)	-	-	♦	-	-	-	-	+	-	-	-
C28. Munitions Entry Gate (5-4)	-	♦ LUD	♦	-	-	-	-	+	-	-	-
C29. Krueger Recreation Area Improvements (5-5)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
Other Infrastructure Projects											
I5. Repair Airfield Lighting System (not shown)	-	-	-	-	-	-	-	+	+	♦ ERP	♦ ERP

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Infrastructure Projects (continued)											
I6. Sanitary Sewer Lines Repair (installationwide, not shown)	-	♦ QD	♦	-	♦ FP	-	-	+	+	♦ ERP	♦ ERP QD
I7. Wichita Street Repairs (5-4)	-	-	♦	-	- FP	-	-	+	+	-	-
I8. Building 1106 Water System Upgrades (5-3, 5-4)	-	-	-	-	-	-	- NRHP	+	+	♦ ACM	-
I9. Building 1127 Concrete Pad (5-4)	-	-	♦	-	-	-	-	+	-	-	-
I10. Repair Hangar 1106 (5-3, 5-4)	-	-	-	-	-	-	♦ NRHP	+	-	♦ ACM	-
I11. Building 1115 Force Protection Barrier (5-3, 5-4, 5-5)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
I12. Building 515 Force Protection Barrier (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-

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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Infrastructure Projects (continued)											
I13. McConnell Creek Pedestrian Bridges (5-4, 5-5)	+	-	♦	-	♦ FP	-	-	+	+	-	-
I14. Septic Systems Replacement (5-5, 5-6)	-	-	♦	-	-	-	-	+	-	-	-
I15. Hangar Fire Suppression Repair (5-3, 5-4, 5-5)	-	-	-	-	-	-	-	+	-	♦ ERP ACM	♦ ERP
I16. Taxiway Foxtrot Repairs (5-3, 5-6)	-	♦ QD	■ LQP	-	-	-	-	+	+	-	♦ QD
I17. East Gate Vehicle Retention Barriers (5-4)	-	-	♦	-	♦ FP	-	-	+	-	-	-
I18. 8-Inch Waterline to East Gate (5-4)	-	-	♦	-	-	-	-	+	-	-	-
I19. Repair Building 9 Roof (5-3)	-	-	-	-	-	-	♦ NRHP	+	-	♦ ACM LBP	-

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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Infrastructure Projects (continued)											
I20. Building 250 Vehicle Standoff (5-4)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
I21. Building 1 Force Protection Barrier (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-
I22. Falcon Road Shoulder Repair (5-3)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
I23. Maintenance Fence Relocation (5-4)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
I24. Building 1151 Concrete Driveway (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-
I25. Wichita Street, Hutchinson Street, and Building 978 Pavement Patching (5-4, 5-5)	-	-	■ LQP	-	- FP	-	-	+	-	-	-
I26. Hutchinson Street Repairs (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-
I27. Building 1090 Security Fence (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	♦ ERP	-

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Infrastructure Projects (continued)											
I28. Building 352 Vehicle Standoff (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-
I29. Building 313 Vehicle Standoff (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-
I30. Flightline Fence Cable System (5-3)	-	-	-	-	-	-	-	+	-	-	-
I31. Mulvane and Udall Street Repairs (5-5, 5-6)	-	♦ QD	■ LQP	-	♦ FP	-	-	+	-	♦ ERP	♦ ERP QD
I32. Fire Training Pit Pavement Repair (5-6)	-	♦ QD	♦	-	-	-	-	+	-	-	♦ QD
I33. Piper Street and Aerospace Ground Equipment Storage Lot Pavement Repairs (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	♦ ERP	♦ ERP
I34. Building 1166 Transformers Repair (5-3, 5-4)	-	-	-	-	-	-	-	+	-	♦ ERP	♦ ERP
I35. Lawrence Street Realignment (5-4, 5-5)	-	-	♦	-	-	-	-	+	-	-	-

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Infrastructure Projects (continued)											
I36. Buildings 337 and 338 Vehicle Standoff (5-4, 5-5)	-	-	♦	-	♦ FP	-	-	+	-	-	-
I37. Building 408 Vehicle Standoff (5-5)	-	-	♦	-	-	-	-	+	-	-	-
I38. Parsons Street Realignment (5-4)	-	-	♦	-	♦ FP	-	-	+	-	-	-
Other Natural Infrastructure Management Projects											
NI2. Buffalo Grass Installation (5-3)	-	-	♦	-	+	-		+	-	♦ ERP	♦ ERP
NI3. Installationwide Irrigation Wells (5-3)	-	-	♦	-	-	-		+	-	♦ ERP	♦ ERP
Other Strategic Sustainability Performance Projects											
S2. Energy Improvements (installationwide, not shown)	-	♦ QD	-	-	-	-	-	+	+	♦ ERP	♦ ERP
S3. Building 35 Mechanical Systems Upgrade (5-3)	-	-	-	-	-	-	-	+	+	-	-

Legend:
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Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Project Identification Number and Title *(Figure showing location indicated in parentheses)*	**Noise**	**Land Use**	**Air Quality**	**Geological Resources**	**Water Resources**	**Biological Resources**	**Cultural Resources**	**Socioeconomics and Environmental Justice**	**Transportation and Infrastructure**	**Hazardous Materials and Wastes**	**Safety**
Other Strategic Sustainability Performance Projects (continued)											
S4. Building 65 Ground Source Heat Pumps Upgrade (5-3)	-	-	-	-	-	-	-	+	-	-	-
S5. Ground Source Heat Pumps (5-4)	-	-	♦	-	-	-	-	+	+	-	-
S6. Building 1111 Solar Panels (5-3, 5-5)	-	-	♦	-	-	-	-	+	+	♦ ERP	♦ ERP
S7. Building 952 and 955 Heat Recovery Systems (5-4)	-	-	♦	-	-	-		+	-	-	-

Legend:
- No effects or negligible effects + Potential minor beneficial effects ♦ Potential minor adverse effects ■ Potential moderate adverse effects

Key:

ACM	Might disturb asbestos-containing material	HAZ	Change in quantity or storage for hazardous materials or wastes	LUD	Change in Land Use Designation	QD	Within QD arcs
ERP	In an Environmental Restoration Program Site	LBP	Might disturb lead-based paint	NRHP	Affects NRHP-eligible resource	Wet	In or near wetlands
FP	Within 100-year Floodplain	LQP	Large quantity of asphalt paving	NS	Noise-sensitive facility or land use in high-noise environment		

Air Quality

Historically, air quality in the SCKI AQCR has not had a significant adverse affect from anthropogenic sources. McConnell AFB is within an attainment area for all criteria pollutants. Construction and demolition activities occurring at the same time and in the same vicinity could have short-term, minor to moderate, adverse, cumulative effects on air quality. To provide a cumulative air quality analysis, the estimated emissions for implementation of all planned installation development projects are shown in **Table 5-4.** The total annual emissions are compared to the stationary source plus mobile source significance criteria. Construction-related emissions would last only during the year of those construction activities and cumulatively would not be significant. **Table 5-5** provides stationary source emissions from the most significant planned installation development projects. These emissions are compared to stationary source significant permitting thresholds to demonstrate that cumulative effects due to stationary source emissions increases would not have significant air permitting impacts (i.e., would not trigger Title V or PSD permitting).

Considering facility demolition and construction cumulatively, there would be an increase in the amount of occupied facility space on McConnell AFB (approximately 502,000 ft^2). New facilities would use boilers, furnaces, and emergency generators, all of which would be sources of air emissions. However, the demolition of older and less energy-efficient buildings would remove older and more emissive boilers, furnaces, and emergency generators from the installation and decrease air emissions. It is anticipated that long-term, minor, beneficial cumulative effects on air quality could occur from removing older equipment during demolition and replacing it with newer, cleaner, more efficient equipment. In addition, the Solar Plant (Project S1, see **Section 4.4.5**) that is anticipated to replace 50 percent of the current electricity load would add to long-term, beneficial, cumulative effects on regional air quality, assuming this results in less local utility power plant emissions.

All required air permits would be obtained prior to construction of projects. Impacts on the McConnell AFB Class II Permit-By-Rule Operating Permit would also be evaluated and incorporated where necessary.

The Proposed Action and other development activities would cumulatively generate GHG emissions during construction activities. These installation development activities would generate an estimated 23,155 tpy of CO_2 in 2019, the highest anticipated year. This is equivalent to 21,002 metric tpy of CO_2. Estimated gross CO_2 emissions in the State of Kansas were 75 million metric tons in 2009 (DOE/EIA 2011). Cumulative estimated CO_2 emissions in 2019 would represent 0.028 percent of the State of Kansas's 2009 CO_2 emissions and less than 0.000004 percent of the U.S. 2009 CO_2 emissions. Although the current facilitywide GHG emissions are unknown, it is anticipated they are well below 51,000 tpy, which, when combined with the maximum annual GHG emissions from installation development activities, would be below GHG major source thresholds. GHG emissions cumulatively would not be significant for the installation development activities at McConnell AFB.

Geological Resources

Soils at McConnell AFB have undergone modifications as a result of development and military activities. Individually, all construction and demolition activities could have short-term, negligible to minor, adverse effects as a result of vegetation removal, compaction of surrounding soils, and increased soil erosion and sedimentation. Considered cumulatively, planned installation development activities have the potential for short-term, minor, adverse effects and long-term, minor, beneficial effects on topography and soil. Construction and demolition activities occurring at the same time and in the same vicinity could have

Table 5-4. Estimated Annual Air Emissions Resulting from the Proposed Action and Other Installation Development Projects

Project	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
	tpy	tpy	tpy	tpy	tpy	tpy	tpy
Total 2012 Proposed Action Emissions	1.428	0.165	0.98	0.117	12.541	1.342	204.286
Total 2012 Other Project Emissions	0.410	0.232	1.285	0.028	14.668	1.518	149.140
Total 2012 Emissions	**1.838**	**0.397**	**2.265**	**0.145**	**27.209**	**2.860**	**353.426**
Total 2013 Proposed Action Emissions	9.905	1.352	7.049	0.781	28.615	3.475	1,451.406
Total 2013 Other Project Emissions	6.48	0.783	4.509	0.508	28.023	3.191	962.201
Total 2013 Emissions	**16.385**	**2.135**	**11.558**	**1.289**	**56.638**	**6.666**	**2,413.61**
Total 2014 Proposed Action Emissions	21.511	2.344	13.859	1.717	43.36	5.633	2,983.646
Total 2014 Other Project Emissions	11.425	2.206	9.909	0.898	31.689	3.958	1,780.84
Total 2014 Emissions	**32.936**	**4.55**	**23.768**	**2.615**	**75.049**	**9.591**	**4,764.49**
Total 2015 Proposed Action Emissions	6.224	0.673	3.761	0.49	24.186	2.815	1,113.732
Total 2015 Other Project Emissions	9.363	2.036	9.004	0.743	78.622	8.538	1,552.15
Total 2015 Emissions	**15.587**	**2.709**	**12.765**	**1.233**	**102.808**	**11.353**	**2,665.88**
Total 2016 Proposed Action Emissions	14.529	2.224	10.141	1.125	19.706	2.931	2,337.433
Total 2016 Other Project Emissions	7.939	1.227	6.001	0.634	56.063	6.137	1,169.07
Total 2016 Emissions	**22.468**	**3.451**	**16.142**	**1.759**	**75.769**	**9.068**	**3,506.50**
Total 2017 Proposed Action Emissions	40.501	3.712	24.644	2.811	176.749	20.112	9,767.272
Total 2017 Other Project Emissions	7.448	1.290	5.820	0.592	45.830	5.089	1,109.273
Total 2017 Emissions	**47.949**	**5.002**	**30.464**	**3.403**	**222.579**	**25.201**	**10,876.55**
Total 2018 Proposed Action Emissions	13.576	1.516	9.614	0.607	27.015	3.568	6,261.523
Total 2018 Other Project Emissions	15.291	3.103	13.598	1.196	47.903	5.890	2,384.284
Total 2018 Emissions	**28.867**	**4.619**	**23.212**	**1.803**	**74.918**	**9.458**	**8,645.807**
Total 2019 Proposed Action Emissions	8.963	0.567	7.815	0.128	0.744	0.744	9,485.124
Total 2019 Other Project Emissions	5.696	0.626	9.570	0.068	0.865	0.865	13,670.334
Total 2019 and Later Emissions	**14.659**	**1.193**	**17.385**	**0.196**	**1.609**	**1.609**	**23,155.458**
Stationary Source plus Mobile Source Significance Criteria	**250**	**250**	**250**	**250**	**250**	**250**	**NA**

Notes: Total Year emissions are the sum of mobile and stationary source emissions.

NA = Not Applicable

Table 5-5. Estimated Annual Stationary Source Air Emissions Due to the Proposed Action and Other Installation Development Projects

Project	NO_x	VOC	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
	tpy	tpy	tpy	tpy	tpy	tpy	tpy
Current Annual Emissions*	14.33	0.87	9.96	0.27	1.07	1.07	NDA
Total 2012 Emissions	NDA and/or NEIM						
Total 2013 Emissions	NDA and/or NEIM						
Total 2014 Emissions	NDA and/or NEIM						
Total 2015 Emissions	0.133	0.015	0.223	0.002	0.02	0.02	318.838
Total 2016 Emissions	0.133	0.015	0.223	0.002	0.02	0.02	318.838
Total 2017 Emissions	7.242	0.378	4.924	0.107	0.482	0.482	5,355.560
Total 2018 Emissions	7.242	0.378	4.924	0.107	0.482	0.482	5,355.560
Total 2019 Emissions	14.659	1.193	17.385	0.196	1.609	1.609	23,155.458
Sum of Current Annual Emissions and Maximum Annual Emissions Thereafter	28.989	2.063	27.345	0.466	2.679	2.679	>23,155.458
Current Operating Permit Threshold	**50**	**50**	**50**	**50**	**50**	**50**	**None**
Stationary Source Significance Criteria (Title V Permit)	**100**	**100**	**100**	**100**	**100**	**100**	**100,000**
PSD Permit Significance Criteria	**250**	**250**	**250**	**250**	**250**	**250**	**75,000**

Note: * Based on most recent annual emissions inventory report, which is for 2009.

Key:

NDA = No Data Available

NEIM = Any net increase is expected to be minimal.

short-term, minor, adverse cumulative effects on soil resources, but implementation of the ESCP would be expected to minimize potentially adverse cumulative effects. Cumulatively, implementation of all planned installation development activities would result in a decrease in impervious surfaces at McConnell AFB, which would have long-term, beneficial effects on soils, following soil stabilization.

Demolition of pavements and facilities would partially offset potentially long-term, adverse, cumulative effects from construction of facilities by providing areas of previously disturbed soil requiring minimal grading. Site plans are not available for all projects since most are in the early planning stages. Based on the planned demolition and construction footprints, and the infrastructure improvement and natural infrastructure management project sizes, it is estimated that, cumulatively, the Proposed Action and all other installation development activities have the potential to disturb as much as 21 million ft^2 (approximately 472 acres) of soil over the next 5 years. This estimate was calculated by approximating that the area disturbed would be twice the building footprint for demolition and construction activities and

equal to the project size for infrastructure improvement, natural infrastructure management projects, and strategic sustainability performance projects.

Any ground-disturbing activities in and around ERP sites have the potential to encounter contaminated soil or groundwater. Projects D3, D4, D7, C1, C2, C3, C4, C9, C11, C14, C18, C20, C29, I2, I5, I6, I11, I15, I20, I22, I23, I31, I33, I34, NI1, NI2, NI3, S2, and S6 would occur on ERP sites. Prior to construction activities in areas of possible contamination, soils would be sampled to determine the extent of contamination, and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. Long-term, beneficial, cumulative effects would occur from the removal of contaminated soils.

The Proposed Action would have no effects on geology, so no cumulative effects would be expected. All new facilities would be designed in accordance with UFC 3-310-03 and EO 12699, which would cumulatively reduce potential adverse effects following a seismic event. New facilities are proposed in areas of McConnell AFB that are disturbed by previous development or are immediately surrounded by existing facilities or infrastructure; these areas are not considered available for agricultural use. Cumulatively, no effects on prime farmland would occur.

Water Resources

Military land uses at McConnell AFB and agricultural and suburban land uses surrounding McConnell AFB have affected surface water quality; the Arkansas River is on the CWA 303(d) List of Impaired Waters. It is USAF policy to avoid constructing new facilities in wetlands or the 100-year floodplain in order to protect the functional uses of those resources unless there is no practicable alternative (AFI 32-1021, *Integrated Natural Resources Management* and EO 11988).

Individual projects disturbing more than 1 acre would require an NPDES permit and the use of environmental protection measures identified in the ESCP and SWPPP. Construction and demolition activities occurring at the same time and in the same vicinity could have short-term, minor, adverse, cumulative effects on water resources. Adherence to the NPDES construction permits (for projects greater than 1 acre) would minimize the potential for short-term, adverse, cumulative effects on water quality. Environmental protection measures would be used to control erosion and sedimentation and minimize storm water from leaving the construction site, reducing the potential for short-term, adverse, cumulative effects.

The creation of new impervious pavements would be offset by the demolition of existing pavements and facilities, resulting in long-term, beneficial, cumulative effects on water resources, if all projects are implemented as planned. Site plans are not available for all projects since most are in the early planning stages. Based on the planned demolition and construction footprints, and the infrastructure improvement and natural infrastructure management project sizes, it is estimated that, cumulatively, the Proposed Action and all other installation development activities have the potential to decrease impervious surfaces by 151,373 ft^2 (3.5 acres) over the next 5 years (see **Table 5-2** for summary and **Appendix A** for individual project sizes). Adherence to EISA Section 438 would minimize the potential for long-term, adverse, cumulative effects on water quality, even if all projects are not implemented. Post-construction hydrological conditions would be expected to remain comparable to preconstruction hydrological conditions, which would reduce the potential for long-term, adverse, cumulative effects on water quality and flood conditions. Overall, long-term, cumulative effects would be expected to be beneficial because impervious surfaces would decrease and larger construction projects would incorporate storm water management to ensure post-construction hydrology is not adversely affected.

Any ground-disturbing activities in and around ERP sites have the potential to encounter contaminated soil or groundwater. Projects D3, D4, D7, C1, C2, C3, C4, C9, C11, C14, C18, C20, C29, I2, I5, I6, I11, I15, I20, I22, I23, I31, I33, I34, NI1, NI2, NI3, S2, and S6 would occur on ERP sites. Any groundwater monitoring wells that have been installed around ERP sites would need to be protected from damage during construction and demolition activities. Prior to construction activities in areas of possible contamination, groundwater would be sampled to determine the extent of contamination, and remediated in accordance with Federal, state, and installation regulations. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures.

As discussed in **Section 4.3.5**, the Proposed Action could directly affect wetlands (Project NI1) and floodplains (Projects D4, C1, C3, C4, I3, and NI1). Other projects are planned in or near wetlands and floodplains. The Family Camp expansion is planned within wetlands and the floodplain, and a running track is cited in the 100-year floodplain (see **Figure 5-1**). Projects C11, I7, I13, I17, I25, I31, I36, and I38 are within the 100-year floodplain. Project I6 is installationwide and, therefore, has the potential to cross floodplains. **Table 5-6** summarizes potential effects on wetlands and floodplains from all other development activities at McConnell AFB. Correspondence with regulatory and resource agencies prior to commencing any ground-breaking construction activities would be completed and permits would be obtained, as necessary. Cumulatively, multiple development projects occurring in or near wetlands and floodplains could be considered a long-term, minor, adverse effect, but effects would not be significant considering the scope of these projects and the use of appropriate impact minimization measures.

Biological Resources

Natural vegetative communities have been highly modified by past development and military operations. Ninety percent of the installation is landscaped and urban. The installation supports wildlife species that are common in developed areas. McConnell AFB has an INRMP that is a reference and planning document for managing the installation's natural resources while maintaining mission readiness (MAFB 2004a). Implementation of the Proposed Action and other installation development activities would not be expected to affect threatened or endangered species, so cumulative effects would not occur.

Considered cumulatively, planned installation development activities have the potential for short-term, minor, adverse effects and long-term, minor, adverse effects on vegetation and wildlife. The majority of all planned installation development projects would occur in the improved areas of McConnell AFB. The permanent removal of modified and landscaped areas would be a long-term, negligible, adverse, cumulative effect. Demolition of facilities would partially offset potentially long-term, adverse, cumulative effects from construction of facilities by providing previously developed areas that require less vegetation removal. Projects that result in the permanent removal of trees, including Project S1 (Solar Plant), would contribute to long-term, minor, adverse, cumulative effects on vegetation and wildlife. Project S1 is analyzed in detail in **Sections 4.4.4.1** and **4.4.5.1**. All trees and affected vegetation would be replaced or relocated, if possible. Cumulative effects from vegetation removal would not be significant.

Construction and demolition activities occurring at the same time and in the same vicinity could have short-term, minor, adverse cumulative effects on wildlife as a result of noise. Construction-related noise emissions would only last during those activities and would not be cumulatively significant. Installation development projects could generate noise from new mechanical equipment or changes in vehicle traffic accessing different facilities; these changes in noise would have negligible long-term, cumulative effects on wildlife because wildlife inhabiting the installation are accustomed to noise disturbances in developed areas. Cumulative effects on wildlife would not be significant.

Table 5-6. Summary of Potential Effects on Wetlands and Floodplains from All Other Development Activities at McConnell AFB

Project	Project Size (ft^2)	Change in Impervious Surfaces (ft^2)	Potential Long-term Effect on Wetlands	Potential Long-term Effect on Floodplains
Family Camp Expansion	180,000	+10,800	Minor, adverse effects with environmental protection measures	Minor, adverse effects with environmental protection measures
Running Track	226,375	+196,848	--	Minor, adverse effects with environmental protection measures
C11. Automatic Car Wash	16,374	+16,374	--	Minor, adverse effects with environmental protection measures
I6. Sanitary Sewer Lines Repair	12,513	0	--	No long-term effects
I7. Wichita Street Repairs	461,430	0	--	No long-term effects
I13. McConnell Creek Pedestrian Bridges	173,603	+173,603	--	Minor, adverse effects with environmental protection measures
I17. East Gate Vehicle Retention Barriers	91,640	0	--	Negligible to minor, adverse effects with environmental protection measures
I25. Wichita Street, Hutchinson Street, and Building 978 Pavement Patching	820,982	0	--	No long-term effects
I31. Mulvane and Udall Street Repairs	283,590	0	--	Negligible effects
I36. Buildings 337 and 338 Vehicle Standoff	60,777	+20,259	--	Minor, adverse effects with environmental protection measures
I38. Parsons Street Realignment	82,800	+10,800	--	Minor, adverse effects with environmental protection measures

Demolition, construction, infrastructure improvement, natural infrastructure management, and strategic sustainable performance projects would be conducted in a manner to avoid adverse effects on migratory birds to the extent practicable. Implementation of environmental protection measures (see **Section 5.2**) would minimize the potential for adverse effects on migratory birds from individual projects, which would, therefore, reduce the potential for cumulative effects on migratory birds.

Cultural Resources

McConnell AFB has and continues to meet its stewardship responsibilities regarding the identification and evaluation of cultural resources under Section 110 of the NHPA. Through multiple architectural surveys, McConnell AFB has evaluated its cultural resources including Cold War-era buildings and structures for exceptional significance. The installation continues to reevaluate these buildings and structures for NRHP eligibility as they approach 50 years of age. McConnell AFB has identified six buildings and one structure that are NRHP-eligible and has been consulting with the SHPO regarding these resources (MAFB 2011c, MAFB 2011d).

Three planned projects have the potential for minor, adverse effects on cultural resources. Project C19 calls for repair of the aircraft doors on Building 1106, a hangar being treated as NRHP-eligible. The aircraft doors are a character-defining feature of the hangar, and repairs that do not meet the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (Standards) would constitute a long-term, minor to moderate, adverse effect on Building 1106. Effects would be reduced below the threshold of significance under NEPA if McConnell AFB consults with the SHPO to resolve adverse effects. The nature of Project C19 does not have the potential to affect archaeological materials or TCPs, and none are known.

Project I10 would entail repairs to roof flashing and the attachment of an exhaust vent on Building 1106. The roof is a character-defining feature of the hangar, and repairs that do not meet the above-cited Standards would constitute a long-term, minor to moderate, adverse effect on Building 1106. Effects would be reduced below the threshold of significance under NEPA if McConnell AFB consults with the SHPO to resolve adverse effects. The nature of Project I10 does not have the potential to affect buried archaeological materials.

Project I19 entails repairs to the roof and windows of Building 9, a 1929 NRHP-eligible hangar. Improper roof and window repairs might impact the character-defining features of the structure and could have long-term, minor to moderate, adverse effects on Building 9. Effects would be reduced below the threshold of significance under NEPA if McConnell AFB consults with the SHPO to resolve adverse effects. The nature of Project I19 does not have the potential to affect buried archaeological materials.

Project I8 entails upgrades to the water system of NRHP-eligible Building 1106. These upgrades should not cause any adverse effects under Section 106 or meet the threshold of significance under NEPA. The upgrades should not impact the integrity of significance of Building 1106.

Implementation of the Proposed Action at McConnell AFB would be expected to have short-term, negligible to minor, adverse effects on cultural resources. Numerous architectural and archaeological surveys at McConnell AFB have identified no areas of archaeological sensitivity, and six buildings and one structure that are NRHP-eligible. Some of the Proposed Action and future planned activities involve demolition of nearby structures or buildings and repairs that have the potential to impact NRHP-eligible buildings negatively. Cumulative effects would range from negligible to minor and adverse under NEPA and would not likely be considered adverse effects on historic properties under Section 106. The greatest of these effects and overall project impacts could be reduced below the threshold of significance through implementation of measures developed in consultation with the SHPO and consulting parties to avoid or resolve adverse effects.

Taken collectively and considering past and future effects on cultural resources at McConnell AFB, the Proposed Action and future planned activities would not be expected to have significant effects on cultural resources under NEPA with the implementation of measures developed in consultation with the SHPO and consulting parties to avoid or resolve adverse effects.

Socioeconomics and Environmental Justice

McConnell AFB contributes substantially to the local economy. Cumulatively, installation development activities would have short-term, minor to moderate, beneficial effects on the local community through the procurement of goods and services. Construction-related expenditures would not generate any long-lasting cumulative benefits. Implementation of the projects identified in this cumulative effects discussion would occur mostly on McConnell AFB. Disproportionate impacts on minority or low-income populations would not occur.

Transportation and Infrastructure

McConnell AFB has well-developed infrastructure systems that are maintained and improved as needed. Many of the installation development activities planned over the next 5 years would provide necessary maintenance and increase capacity. Individually, installation development activities could have short-term, negligible, adverse effects during construction, demolition, or installation activities on infrastructure systems (e.g., power supply or communications connections could be temporarily lost while new facilities are connected).

Numerous infrastructure improvement projects are planned that would improve reliability and safety of utilities, communications, and transportation system to support the population and military mission. These include water system and waterline upgrades (Projects I8 and I18), septic system replacement (Project I14), sanitary sewer line repairs (Project I6), airfield pavement and lighting repairs (Projects C9, C12, I1, I4, I5, and I16), and roadway repairs (Projects C20, I22, I25, I26, I31, I33, I35, and I38). Implementation of planned installation development projects would have long-term, minor to moderate, beneficial, cumulative effects on the airfield, transportation systems, electrical supply, water supply, and communications systems.

Considering facility demolition and construction cumulatively, there would be an increase in the amount of facility space (approximately 502,000 ft^2) and decrease in amount of impervious surfaces (151,373 ft^2) on McConnell AFB. An increase in facility space could be expected to require slightly increased use of electrical supply, natural gas, water supply, sanitary sewer and wastewater treatment, and communications systems, though there would be no or negligible increases in personnel associated with the installation development projects. However, older and less efficient buildings would be removed, and newer facilities would be expected to be more energy- and water-efficient, offsetting long-term, minor, adverse, cumulative effects on utility systems. Additionally, several projects are planned in the near future that would reduce the use of some utilities. Project S1 (Solar Plant), also a KANG project, and Project S6 would provide alternate sources of energy for McConnell AFB. Project S2 (Energy Improvements) would replace and upgrade HVAC, lighting, and plumbing in numerous older facilities to improve efficiency. Projects S3, S4, and S5 would provide more efficient HVAC by installing or maintaining GSHPs. Project S7 would provide a heat recovery system for two buildings. Cumulatively, strategic sustainability projects would be expected to reduce energy demands.

Implementation of all planned installation development projects would result in short- and long-term adverse effects as a result of increased solid waste generation. As indicated in **Table 5-7**, approximately 98,648 tons of construction and demolition debris would be generated over the next 5 years. Demolition waste is managed by individual contracts, but it is anticipated that much of the clean demolition and construction debris could be recycled instead of disposed of in a landfill or rubble fill. Construction and demolition waste is a short-term, adverse effect in that it would only be generated during those activities, but the disposal of construction and demolition waste in a landfill would be a permanent effect.

Table 5-7. Cumulative Anticipated Generation of Construction and Demolition Debris

Project Type	Project Size (ft^2)	Multiplier (pounds/ft^2)	Total Waste Generated	
			Pounds	U.S. Tons
Proposed Action [1]	--	--	--	63,208
All Other Demolition Projects [2]	393,936	158	62,241,888	31,121
All Other Construction Projects [2]	1,239,056	4.34	5,377,503	2,689
All Other Infrastructure Improvement Pavement Projects [3]	3,260,576	1	3,260,576	1,630
			Total	**98,648**

Source: USEPA 2009

Notes:

1. See **Table 4-5**.

2. See **Table 5-2** for project areas.

3 Includes project areas from Projects I7, I9, I13, I16, I22, I24, I25, I26, I31, I32, I33, I35, and I38.

Hazardous Materials and Wastes

Hazardous wastes and materials and 25 ERP sites occur at McConnell AFB as a result of its historic use as a military installation. McConnell AFB has a hazardous materials management plan, hazardous waste management plan, integrated solid waste management plan, asbestos management and operating plan, lead-based paint management plan, pest management plan, and pollution prevention management action plan that guide the use, handling, storage, and disposal of regulated materials in accordance with USAF, Federal, state, and local laws and regulations.

Individual installation development projects would require the use of small quantities of hazardous materials and generate small quantities of hazardous wastes, resulting in short-term, negligible, adverse effects. Construction and demolition activities occurring at the same time and in the same vicinity could have short-term, negligible to minor, adverse, cumulative effects on hazardous materials and waste management. Adherence to construction site management plans for hazardous materials and wastes would limit potentially adverse cumulative effects. Some installation development projects could increase the use or storage of hazardous or petroleum materials, such as the new service station (Project C16). It is anticipated that increased hazardous or petroleum material used and wastes generated would be managed by existing McConnell AFB management plans and practices. Cumulatively, long-term effects would not be significant.

ACM and LBP is known or suspected in numerous facilities planned for demolition or repairs. The risk of exposure to ACM or LBP during demolition activities would be a short-term, adverse effect. The appropriate identification, handling, removal, and disposal of those ACM and LBP would occur in accordance with McConnell AFB management plans and USAF, Federal, state, and local laws and regulations. Cumulatively, long-term, beneficial effects would be expected from the removal of ACM and LBP from McConnell AFB.

Any ground-disturbing activities in and around ERP sites have the potential to encounter contaminated soil or groundwater. Projects D3, D4, D7, C1, C2, C3, C4, C9, C11, C14, C18, C20, C29, I2, I5, I6, I11, I15, I20, I22, I23, I31, I33, I34, NI1, NI2, NI3, S2, and S6 would occur on ERP sites. Any existing groundwater monitoring wells that have been installed around ERP sites would need to be protected from damage during construction and demolition activities. The risk of exposure to soil or groundwater

contamination during ground-disturbing activities would be a short-term, adverse effect; the increased risk would not necessarily be considered an adverse, cumulative effect when considering all installation development projects together. Prior to construction activities in areas of possible contamination, soils and groundwater would be sampled to determine the extent of contamination, and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. Long-term, beneficial, cumulative effects could be expected from the removal of contamination and remedial activities, if necessary.

Safety

McConnell AFB complies with all applicable USAF AFOSH and OSHA regulations and munitions safety criteria to provide a safe working environment while supporting military readiness and training activities. Individual installation development projects could pose an increased risk for a safety mishap during construction and demolition activities. Construction and demolition activities occurring at the same time and in the same vicinity could have short-term, minor, adverse, cumulative effects by increasing local construction traffic accessing sites, increasing maintenance and repair activities, and creating highly noisy environs that could mask verbal or mechanical warning signals. Adherence to USAF AFOSH and OSHA regulations would minimize the potential for adverse effects on construction workers. Cumulative effects on construction safety would be short-term and negligible to minor.

Installation development activities in some areas of McConnell AFB inherently pose a greater risk because of operational or environmental safety issues, including QD arcs and ERP sites. Some proposed construction activities would occur within QD arcs (Projects C3, C17, I6, I16, I31, and I32). Construction activities within QD arcs must be coordinated with appropriate airfield or weapons safety personnel to ensure the safety of construction workers. Some facilities are planned within QD arcs. In accordance with USAF Manual 91-201, new construction of nonexplosives facilities within an explosive clear zone would require preparation and approval of an explosives site plan. Planned infrastructure improvements within QD arcs would have no long-term, adverse effects.

Any ground-disturbing activities in and around ERP sites have the potential to encounter contaminated soil or groundwater. Projects D3, D4, D7, C1, C2, C3, C4, C9, C11, C14, C18, C20, C29, I2, I5, I6, I11, I15, I20, I22, I23, I31, I33, I34, NI1, NI2, NI3, S2, and S6 would occur on ERP sites. Prior to construction activities in areas of possible contamination, soils and groundwater would be sampled to determine the extent of contamination and remediated in accordance with Federal, state, and installation regulations. If results of the sampling indicated the presence of contamination, remediation efforts would take place prior to commencement of construction activities. The handling, storage, transportation, and disposal of hazardous substances would be conducted in accordance with applicable Federal, state, and local regulations; USAF regulations; and McConnell AFB management procedures. Long-term, beneficial, cumulative effects on safety would occur from the remediation or removal of contaminated soils and groundwater.

Installation development activities would be expected to have long-term, beneficial, cumulative effects on safety by maintaining and improving facilities, pavements, and infrastructure systems. Demolition of old and underused facilities would remove ACM, LBP, and other health and safety concerns. Many planned projects repair degraded roadways (C20, I7, I22, I25, I26, I31, I33, I35, and I38), improve airfield lighting (C12 and I5), repair fire safety systems (I15), and upgrade force protection and security measures (I11, I12, I17, I20, I21, I27, I28, I29, I36, and I37). Cumulatively, these projects contribute to a safer working environment for all personnel at McConnell AFB.

5.2 Environmental Protection Measures

The Proposed Action would not result in significant adverse effects on the land or the surrounding area. However, environmental protection measures and other minimization measures would be implemented to eliminate or reduce the impacts of non-significant adverse effects.

General environmental protection measures that would be included, as applicable, as parts of installation development projects are summarized as follows:

- Fugitive dust-control techniques such as watering and stockpiling would be used to minimize adverse effects. All such techniques would comply with applicable regulations. These environmental protection measures would minimize adverse effects associated with air quality, soil, and water resources.
- Clearing and grubbing would be timed with construction to minimize the exposure of cleared surfaces. Such activities would not be conducted during periods of wet weather. Construction activities would be staged to allow for the stabilization of disturbed soils. These environmental protection measures would minimize adverse effects associated with soil and water resources.
- Soil erosion-control measures, such as soil erosion-control mats, silt fences, straw bales, diversion ditches, riprap channels, water bars, water spreaders, vegetative buffer strips, and hardened stream crossings, would be used as appropriate. These environmental protection measures would minimize adverse effects associated with soil and water resources.
- Storm water management would be used as appropriate during construction to minimize offsite runoff. Following construction, storm water management systems would ensure that predevelopment site hydrology is maintained or restored to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow. These environmental protection measures would minimize adverse effects associated with water resources.
- Minimize the disturbance of environmental resources and topography by integrating existing vegetation, trees, and topography into site design. These environmental protection measures would minimize adverse effects associated with soil and biological resources.
- Any groundbreaking construction activities should be performed before migratory birds return to McConnell AFB or after all young have fledged to avoid incidental take. These environmental protection measures would minimize adverse effects associated with biological resources.
- If construction or demolition is scheduled to start during the period in which migratory bird species are present, steps should be taken to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures and use of various excluders (e.g., noise). Birds can be harassed to *prevent* them from nesting within the project area. Once a nest is established, they should not be harassed until all young have fledged and are capable of leaving the nest site. These environmental protection measures would minimize adverse effects associated with biological resources.
- If construction is scheduled to start during the period when migratory birds are present, a site-specific survey for nesting migratory birds should be performed starting at least 2 weeks prior to site clearing. These environmental protection measures would minimize adverse effects associated with biological resources.
- If nesting birds are found during the survey, buffer areas should be established around nests. Construction should be deferred in buffer areas until birds have left the nest. Confirmation that

all young have fledged should be made by a qualified biologist. These environmental protection measures would minimize adverse effects associated with biological resources.

- Where feasible, minimize areas of impervious surface through shared parking, decked or structured parking, increased building height, or other measures as appropriate. These environmental protection measures would minimize adverse effects associated with soil and water resources.
- Provisions would be taken to prevent pollutants from reaching the soil, groundwater, or surface water. During project activities, contractors would be required to perform daily inspections of equipment, maintain appropriate spill-containment materials on site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on construction sites. These environmental protection measures would minimize adverse effects associated with soil, water resources, and hazardous materials and waste.
- Physical barriers and "no trespassing" signs would be placed around the demolition and construction sites to deter children and unauthorized personnel. All construction vehicles and equipment would be locked or otherwise secured when not in use. These environmental protection measures would minimize adverse effects associated with health and safety.
- Construction equipment would be used only as necessary during the daylight hours and would be maintained to the manufacturer's specifications to minimize noise impacts. These environmental protection measures would minimize adverse effects associated with health and safety.

Construction impacts are short-term environmental effects resulting from the Proposed Action. Construction effects might involve temporary changes in noise levels, air quality, water quality, land use, and community access.

5.3 Unavoidable Adverse Effects

Unavoidable adverse effects would result from implementation of the Proposed Action. As discussed in detail in **Section 4**, the Proposed Action would result in short-term, adverse effects associated with construction activities, including increased noise, increased air emissions, minor interruptions to traffic flow, use and generation of small amounts of hazardous materials and wastes, and generation of construction and demolition waste. None of these effects would be significant.

Projects D4, C1, C3, C4, I3, and NI1 would occur in the 100-year floodplain, and, therefore, these projects would require a FONPA. Projects D4, C1, and NI1 would not result in an increase of impervious surfaces within the 100-year floodplain. Short-term, adverse effects associated with construction in Projects D4, C1, and NI1 would be negligible to minor. Projects C3, C4, and I3 would result in new facilities or structures within the floodplain. The 22 ARW has determined that there are no practicable alternatives for these facilities, and these projects would require a FONPA.

Project NI1 would entail restoration activities within a designated wetland. As such, these projects would require a FONPA. Short-term, adverse effects during project construction could occur; however, long-term effects are not anticipated.

5.4 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Effects on the ground surface as a result of the Proposed Action would occur within the boundaries of McConnell AFB. Project C4 (VA Hospital) is proposed within the 65 to 69 dBA DNL noise contour.

According to USAF land use compatibility guidelines, which are outlined in the AICUZ guidance, hospitals are generally considered a compatible land use within the 65 to 69 dBA DNL noise zone, if measures to reduce noise levels are incorporated into the design and construction of the facility. However, measures to achieve an overall noise level reduction do not necessarily solve all noise difficulties (such as outdoor noise) and additional evaluation is warranted. It is recommended that USAF guidelines are incorporated into the design of the hospital facility. This project could result in long-term, minor to moderate, adverse effects on the noise environment if the proposed hospital is built within the 65 to 69 dBA DNL noise zone. Other installation development activities associated with the Proposed Action would not result in any significant or incompatible land use changes on or off the installation. Other proposed projects have been sited according to existing land use zones. Consequently, other construction activities would not be in conflict with installation land use policies or objectives. The Proposed Action would not conflict with any off-installation development plans and policies.

Other planned projects (Projects C7 [Dining Facility Addition], C18 [Volleyball Court and Horseshoe Pits], C21 [Consolidated Administration Building], C23 [Visitor Quarters], C24 [Temporary Lodging Facility], C25 [Chapel and Religious Education Center], C26 [Library and Education Center]) are planned in areas of McConnell AFB that experience high noise levels. According to USAF land use compatibility guidelines, which are outlined in the AICUZ guidance, transient lodging facilities, government services, education and cultural activities, and dining facilities are generally considered a compatible land use within the noise zones that they are proposed, if measures to reduce noise levels are incorporated into the design and construction of the facility. These projects are discussed in the cumulative effects analysis.

5.5 Relationship Between the Short-term Use of the Environment and Long-term Productivity

Short-term uses of the biophysical components of human environment include direct construction-related disturbances and direct effects associated with an increase in activity that occurs over a period of less than 5 years. Long-term uses of human environment are those effects occurring over a period of more than 5 years, including permanent resource loss.

The Proposed Action would not result in an intensification of land use in the surrounding area. Development of the Proposed Action would not represent a significant loss of open space. The long-term beneficial effects of implementing the Proposed Action and other planned installation development activities would support the ongoing and future training missions and other readiness training and operational assignments.

HQ AMC plans to reduce their overall building footprint by 6.6 million ft^2 by 2020. The planned demolition activities at McConnell AFB over the next 5 years would contribute to that goal by removing excess, obsolete, and underused infrastructure capacity and focusing time and funding on maintaining only infrastructure that is needed. This is a long-term benefit for HQ AMC and the USAF.

5.6 Irreversible and Irretrievable Commitments of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action involve the consumption of material resources, energy resources, and human resources. The use of these resources is considered to be permanent. 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 timeframe (e.g., energy and minerals).

Floodplains. The Proposed Action would place Projects D4, C1, C3, C4 (northern edge), I3, and NI1 in the 100-year floodplain. Projects D4 and C1 would not create impervious surfaces, so adverse effects on the floodplain are not anticipated; Project NI1 would benefit the 100-year floodplain. Projects C3, C4, and I3 would follow construction guidelines to reduce adverse effects on the 100-year floodplain. However, long-term effects on the 100-year floodplain could irreversible and irretrievable.

Other recently completed or planned projects (Family Camp Expansion; the Running Track; and Projects C11, I13, I17, I36, and I38) would create potential obstructions or impervious surfaces within the 100-year floodplain. These projects are discussed in the cumulative effects analysis.

Wetlands. Project NI1 could affect wetlands, but would not involve irreversible or irretrievable commitments of resources. The Proposed Action would not have significant effects on wetlands.

Biological Habitat. The Proposed Action would result in the minimal loss of vegetation and wildlife habitat. This loss would not be significant.

Material Resources. Material resources used for the Proposed Action include building materials (for renovation or construction of facilities), concrete and asphalt (for parking lots and roads), and various material supplies (for infrastructure) and would be irreversibly lost. Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. No significant effects would be expected on energy resources used as a result of the Proposed Action, though any energy resources consumed would be irretrievably lost. These include petroleum-based products (e.g., gasoline and diesel fuel) and electricity. During construction, gasoline and diesel fuel would be used for the operation of construction vehicles. During operation, gasoline or diesel fuel would be used for the operation of privately owned and government-owned vehicles. Electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on their availability in the region.

Human Resources. The use of human resources for construction and operation is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action and alternatives represent employment opportunities, and is considered beneficial.

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APPENDIX A

PROPOSED INSTALLATION DEVELOPMENT PROJECTS

Table A-1. Selected and Other Proposed Demolition Projects

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Selected Demolition Projects							
D1. Demolish Buildings 181 to 184	N/A	2013	Housing Accompanied	Demolish Buildings 181 to 184 (Senior Officers Quarters) following privatization.	Potential ACM and LBP	110,800	-110,800
D2. Demolish Buildings 750 and 795.	PRQE 87-5020R1	2014	Administrative and Community Commercial	Demolish Buildings 750 and 795 after construction of new Consolidated Support Center (Project C21).	ACM, LBP	196,735	-196,735
D3. Demolish Building 1090	PRQE 12-0108C	2014	Industrial	Demolish Building 1090 as part of the consolidation of maintenance activities, which are currently divided among 7 buildings.	ACM, ERP Site	459,394	-459,394
D4. Demolish Building 430	PRQE 04-5102	2017+	Administrative	Demolish Building 430 after construction of the Consolidated Education-Library Center (Project C26).	ERP Site, 100-year floodplain, ACM	2,051	-2,051
Other Demolition Projects							
D5. Demolish Power Check Pads	PRQE 07-2900	2013	Industrial	Demolish the Power Check Pads located near Buildings 9 and 12, including the antenna, radio tower concrete footings, paving, foundations, and all concrete.	None	7,500	-7,500
D6. Demolish Vaults 53 and 55	PRQE 07-2903	2013	Aircraft Operations and Maintenance	Demolish Vaults 53 and 55.	None	488	-488
D7. Demolish Building 70	PRQE 10-5144	2013	Aircraft Operations and Maintenance	Demolish existing Air Traffic Control Tower (Building 70) after construction of new Air Traffic Control Tower.	LBP, ERP Site	5,750	-700

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Demolition Projects (continued)							
D8. Demolish Buildings 1540 and 1541	PRQE 05-5155P1	2014	Open Space	Demolish Outdoor Combat Arms Facility (Buildings 1540 and 1541) after construction of Phase 1 of new Indoor Combat Arms Training Facility (Project C8).	ACM, LBP	89,888	-89,888
D9. Demolish Abandoned Piping and Underground Fuel Oil Tanks	PRQE 11-0136	2014	Administrative and Community Service	Demolish abandoned piping in tunnels of buildings 522, 732, 739, 750, and 795. Demolish abandoned under-ground fuel oil tanks for boilers in Building 739.	None	250	-250
D10. Demolish Buildings 681–685, 688–690, 692–697, 699, 808, 937, 938, 948, 976, 1290, and 1291	PRQE 05-5022P1/P2/P3	2014	Industrial	Demolish Buildings 681–685, 688–690, 692–697, 699, 701, 808, 937, 938, 948, 976, 1290, and 1291 following construction of new Base Civil Engineering and Contracting Complex.	ACM, LBP	153,700	-153,700
D11. Demolish Buildings 185 and 202	PRQE 00-5006	2017+	Housing Accompanied	Demolish old Visitors Quarters (Buildings 185 and 202) after construction of new Visitors Quarters.	ACM, LBP	76,100	-76,100
D12. Demolish Building 810	PRQE 87-5019R1	2017+	Administrative	Demolish the Law Center (Building 810) after construction of the Wing Headquarters Facility Annex.	ACM	9,461	-9,461
D13. Demolish Building 510	PRQE 05-5181	2017+	Community Commercial	Demolish Building 510, the Chapel Center, after construction of the new Chapel Center.	ACM	15,453	-15,453

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Demolition Projects (continued)							
D14. Demolish Building 515	N/A	2017+	Administrative	Demolish Building 515 following the consolidation of the Communications Squadron.	ACM	8,078	-8,078
D15. Demolish Building 520	PRQE 12-0113	2017+	Community Commercial	Demolish Building 520, Base Theater.	ACM	10,691	-10,691
D16. Demolish Building 522	PRQE 14-0101B	2017+	Community Commercial	Demolish Building 522, Document Staging, Postal Service Center, and Communications Storage.	ACM	16,577	-16,577
					Total Square Feet	**1,162,916**	**-1,157,866**

Key: ACM = asbestos containing material.
ft^2 = square feet
ERP = Environmental Restoration Program
N/A = Not Applicable

Table A-2. Selected and Other Proposed Construction Projects

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Selected Construction Projects							
C1. Maintenance Group Consolidation	PRQE 12-0102B PRQE 12-0108B PRQE 010-0185	2012-2013	Aircraft Operations and Maintenance	As part of the consolidation of Maintenance Group activities, the Fabrication Shop would move from Building 1169 to Building 1128. Building 1128 would be renovated and a 6,300-ft^2 addition would be constructed. Building 1169 would be converted into the Forward Logistics Facility supporting base supply and mobility storage. Additionally, Building 1220 would be converted into a facility for mobility processing and an air freight/passenger terminal.	Building 1169: ACMs, ERP site; Building 1128: ACMs, Cultural Resources; Building 1220: ACMs, 100-year Floodplain	424,884	+6,300
C2. Air Traffic Control Tower	PRQE 10-5144	2014	Aircraft Operations and Maintenance	Construct a new Air Traffic Control Tower to replace the existing Air Traffic Control Tower.	ERP site	11,000	+1,000
C3. KANG Munitions Storage Area Renovation	N/A	2016	Industrial	Construct up to 20 munitions storage magazine (MSM) igloos, demolition of up to 6 existing igloos, and road realignment within the KANG MSA.	QD arcs, ERP sites, 100-year floodplain, Potential ACM and LBP	1,089,000	+29,120

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Selected Construction Projects (continued)							
C4. Veterans Administration Hospital	N/A	2014	Outdoor Recreation	VA Hospital to be located in former golf course driving range. The hospital would include construction of ground source heat pumps (GSHPs) and 170 parking spots. Prior to construction, the existing Military Working Dog Facility (Building 1330) would be demolished.	ERP site, 100-year floodplain, Noise	232,000	+232,000
C5. Military Working Dog Facility	N/A	2016	Outdoor Recreation	A new Military Dog Facility would be constructed to the west of Mulvane Rd. and Russell Street. The facility would consist of kennels, training area, parking lot, and AT/FP standoff.	None	66,994	+66,994
C6. Base Civil Engineering and Contracting Complex	PRQE 05-5022P1/P2/P3	2017+	Industrial	Construct a Base Civil Engineering Complex consisting of administration, engineering, environmental, readiness, maintenance, explosive ordnance disposal, contracting, recycling, and storage facilities.	None	521,640	+521,640
Other Construction Projects							
C7. Building 36 Addition	PRQE 09-2763	2013	Industrial	Construct an addition to the Dining Facility (Building 36), which will increase available square footage by approximately 50%.	None	1,700	+1,700
C8. Indoor Combat Arms Training Facility	PRQE 05-5155P1	2014	Open Space	Construct Phase 1 of a new Indoor Combat Arms Training Facility.	None	53,421	+53,421
C9. Airfield Operations and Weather Facility	PRQE 89-5012	2014	Aircraft Operations and Maintenance	Construct a new Airfield Operations and Weather Facility.	ERP site	125,192	+18,761

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Construction Projects (continued)							
C10. Alert Facility	PRQE 11-5148	2014	Aircraft Operations and Maintenance	Construction of a new Alert Facility.	None	24,767	+24,767
C11. Automatic Car Wash	PRQE 14-2100	2014	Community Service	Construct an automatic, brushless car wash.	100-year floodplain; ERP Site	16,374	+16,374
C12. Airfield Lighting Vault Addition	PRQE 09-5186	2014	Aircraft Operations and Maintenance	Construction of an addition to the Airfield Lighting Vault.	None	4,850	+4,850
C13. Wing Headquarters Facility Annex	PRQE 87-5019R1	2014	Community Service	Construction of an annex to the existing Wing Headquarters Facility.	None	16,716	+16,716
C14. Blast Deflector Installation	PRQE 07-0169	2015	Airfield	Repair 20 blast defectors and install 4 new blast defectors. Blast defectors would be 14 feet high and designed for a KC-135 engine run.	ERP Site	480	0
C15. Athletic Grounds Maintenance Shed	PRQE 10-0148	2015	Outdoor Recreation	Construct a new storage facility near the main softball fields to store all athletic grounds maintenance equipment.	Adjacent to ERP site	1,200	+400
C16. Construct New Service Station	PRQE 07-0193	2015	Industrial	Construct a new service station near the intersection of Pittsburg Rd. and Topeka St. Four 15,000-gallon ASTs, including offload and issue pumps, bulk issue meters, and high- and low-level alarm and shutoff systems, would be installed.	None	72,605	+72,605
C17. Urban Training Center Expansion	PRQE 04-0097	2015	Outdoor Recreation	Expand the Urban Training Area by addition of additional training buildings.	QD Arc	3,186	+1,400

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Construction Projects (continued)							
C18. Volleyball Court and Horseshoe Pits	PRQE 98-3037	2016	Aircraft Operations and Maintenance	Construct an outdoor volleyball court and horseshoe pits at the Fire Department (Building 1200).	ERP Site	6,464	0
C19. Building 1106 Hangar Door Repairs	PRQE 07-0186	2017	Aircraft Operations and Maintenance	Repair the hangar doors at Building 1106.	Historic building, ACM	0	0
C20. Repair Access Roads Buildings 1169 and 1103	PRQE 07-0143	2017	Aircraft Operations and Maintenance	Repair the existing access roads and installation of a concrete equipment pad.	ERP site	87,561	0
C21. Consolidated Administration Support Building	PRQE 87-5020R1	2017+	Community Service	Construct a new base consolidated administration support building.	None	308,639	+188,060
C22. Consolidated Communications Complex	PRQE 14-0101B	2017+	Administrative	Construct an addition to Building 739 to create a consolidated communications complex housing the servers from Building 515 and additional storage and radio maintenance space.	ACM	28,353	+28,353
C23. Visitor Quarters	PRQE 00-5006	2017+	Housing Unaccom-panied	Construct a new Visitors Quarters.	Noise	123,571	+123,571
C24. Temporary Lodging Facility	N/A	2017+	Housing Unaccom-panied	Construct a Temporary Lodging Facility.	Noise	157,327	+157,327
C25. Chapel and Religious Education Center	PRQE 05-5181	2017+	Administrative	Construct a new Chapel And Religious Education Center.	Noise	40,632	+14,315

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Construction Projects (continued)							
C26. Library/ Education Center	PRQE 04-5102	2017+	Community Service	Construct an addition to the Dole Center (Building 412) to create a consolidated Library and Education Center.	Noise	92,942	+34,285
C27. Dole Center Fountain	N/A	2017+	Community Service	Construct a fountain outside of the Dole Center (Building 412).	None	3,571	+1,000
C28. Munitions Entry Gate	N/A	2017+	Outdoor Recreation	Construct gate for transporting munitions on and off installation. Gate would be located off Rock Road near the former golf course driving range. The gate would be open only for special purposes, including Hazardous Materials deliveries, tactical vehicles, or special events.	None	11,291	+11,291
C29. Krueger Recreation Area Improvements	N/A	2017+	Outdoor Recreation	Construct new recreational activities at Krueger Recreation Area, including a skate park, pavilion, and fountains.	ERP site	58,214	+58,214
					Total Square Feet	**3,584,574**	**+1,684,464**

Key: ERP = Environmental Restoration Program
ft^2 = square feet
N/A = Not Applicable
QD = quantity-distance

Table A-3. Selected and Other Proposed Infrastructure Improvement Projects

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Selected Infrastructure Improvement Projects							
I1. Taxiway Repairs	PRQE 04-0078	2012-2015	Airfield	Repair the existing taxiways leading to the east and west runways. The project replaces deteriorated taxiways and shoulder pavement, edge lighting, and signage in compliance with UFC 3-260-1, Airfield and Heliport Planning and Design.	None	1,573,709	-275,486
I2. Demolition of USTs and Construction of One AST	PRQE 08-0146	2012-2015	Industrial	Remove and dispose of existing USTs of various sizes and associated automatic tank gauging systems at Buildings 350, 352, 408, 515, 710, 739, 971, 1090, 1107, 1115, and 1166, and construct 1 AST.	Building 1107, 1116, and 1166: ERP site	5,500	-5,500
I3. Sidewalk from Building 1 to Building 250	PRQE 10-0161	2014	Administrative and Community Commercial	Install a 6-foot wide, 700-foot long sidewalk between Buildings 1 and 250. Installation would include a pedestrian footbridge spanning McConnell Creek and planting of a total of 8 eastern redbud and oak trees along the sidewalk.	100-year floodplain	15,000	+15,000
I4. East Runway Repairs	PRQE 03-0012	2017+	Airfield	Reduce the width of the runway from 300 feet to 200 feet. Repave 10,000 feet of the runway following demolition and replace edge lighting.	QD arcs	3,200,000	-1,200,000

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects							
I5. Repair Airfield Lighting System	PRQE 05-0101P2	2012-2014	Airfield	Repair the airfield lighting circuits and ductwork to comply with UFC requirements. Monthly circuit insulation resistance checks have indicated that the circuits are on the verge of failure and need to be repaired.	ERP sites	2,800,000	0
I6. Sanitary Sewer Lines Repair	PRQE 11-0110	2013	Installation-wide	Repair installation-wide sanitary sewer lines to prevent storm water infiltration.	ERP sites, 100-year floodplain, QD arcs	12,513	0
I7. Wichita Street Repairs	PRQE 07-0129	2013	Community Commercial and Open Space	Repave approximately 1.4 miles of Wichita Street and demolish roadside parking at Buildings 412 and 1290. Construction would improve storm drainage.	100-year floodplain	461,430	0
I8. Building 1106 Water System Upgrades	PRQE 11-0131	2013	Aircraft Operations and Maintenance	Convert the existing hot water system in Building 1106 into a variable flow system to reduce pumping energy requirements.	Historic building, ACM	0	0
I9. Building 1127 Concrete Pad	PRQE 09-0171	2014	Aircraft Operations and Maintenance	Construct a concrete equipment pad on the south side of Building 1127. The pad would have drive-in access from the flightline and would be able to support a forklift and have storage area for up to 4 ISU-70 pallets.	None	3,446	+2,997

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects (continued)							
I10. Repair Hangar 1106	PRQE 08-3135	2014	Aircraft Operations and Maintenance	Repair 56 feet of roof flashing and exhaust vent curbing at the high side of the shed roof where it meets the metal wall panels and windows.	Historic building, ACM	200	0
I11. Building 1115 Force Protection Barrier	PRQE 04-0099F	2014	Aircraft Operations and Maintenance	Construct a landscaped force protection barrier around Building 1115, Security Forces. Construction would require realigning the existing parking lot and installing a security barrier.	ERP Site	88,500	+44,275
I12. Building 515 Force Protection Barrier	PRQE 04-0099	2014	Administrative	Install vehicle retention barriers and realigned parking around Network Control Center (Building 515).	None	82,281	+82,281
I13. McConnell Creek Pedestrian Bridges	PRQE 12-0119	2014	Community Commercial	Construct Pedestrian Walkways and Bicycle Path in Core District Area, including a series of pedestrian footbridges over McConnell Creek.	100-year floodplain	173,603	+173,603
I14. Septic Systems Replacement	PRQE 11-0108	2015	Open Space, Outdoor Recreation	Following study of installation of septic systems at Buildings 1330, 1349, 1501, 1540, and 1560; and the Family Camp, remove and replace septic systems with alternative systems where feasible.	None	5,000	0

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects (continued)							
I15. Hangar Fire Suppression Repair	PRQE 10-0171	2015	Aircraft Operations and Maintenance	Repair fire suppression system in three hangars (Buildings 1107, 1166, and 1176) affecting 6 aircraft maintenance docks.	Building 1107: Historic Building, ERP site; Building 1166: ERP site, ACM; Building 1176: ACM	171,940	0
I16. Taxiway Foxtrot Repairs	PRQE 07-0078	2015	Airfield	Repair Taxiway Foxtrot pavement and shoulder and install taxiway edge lighting. The taxiway does not meet UFC 3-260-01 or AMC criteria. Edge lighting, pavement repairs, remarking of pavement to proper width, properly sized shoulders, and correct signage would be installed to meet these criteria.	None	1,073,598	0
I17. East Gate Vehicle Retention Barriers	PRQE 06-0162	2015	Administrative	Install new serpentine vehicle retention barriers at the East Gate. Barriers would be designed in accordance with the USAF Entry Control Facilities Design Guide to mitigate high-speed approach. Barriers would be placed in such a manner as to inhibit installation entry through the inbound and outbound lanes.	100-Year Floodplain	91,640	0

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects (continued)							
I18. 8-Inch Waterline to East Gate	PRQE 06-0157	2015	Open Space	Install an 8-inch backflow preventer with a bypass line in a lighted underground vault. A water meter would be installed on the same line after the backflow preventer to allow the City of Wichita to meter water consumption.	None	500	0
I19. Repair Building 9 Roof	PRQE 01-0024	2015	Industrial	Repair the roof of Building 9 by locating leaks and making repairs to the ethylene propylene diene monomer (EPDM) roofing system. The lower area of the roofing system would be replaced by new underflooring, EPDM cover, and new gravel overcover. Windows would be repaired by removal and reworking the frames and windows to seal existing leaks.	Historic building, ACM, LBP	13,500	0
I20. Building 250 Vehicle Standoff	PRQE 06-0177	2015	Medical	Construct a vehicle standoff area for Building 250.	ERP site	151,128	+75,514
I21. Building 1 Force Protection Barrier	PRQE 04-0100	2015	Administrative	Install vehicle retention barriers and realigned parking around Building 1, Wing Headquarters.	None	51,289	+25,334
I22. Falcon Road Shoulder Repair	PRQE062020	2015	Industrial	Repair installation road, shoulder to shoulder, along Falcon Drive and move fence line out to the runway.	ERP sites	35,000	0

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects (continued)							
I23. Maintenance Fence Relocation	PRQE 06-0120	2015	Aircraft Operations and Maintenance	Relocate the Maintenance Complex fence.	ERP sites	15,000	0
I24. Building 1151 Concrete Driveway	PRQE 07-0213	2015	Industrial	Construct a 250-foot by 10-foot concrete driveway. Construction would require removing the top soil and creating a compacted rock base. A 6-inch thick concrete slab would be installed on top of the base.	None	3,000	+2,500
I25. Wichita Street, Hutchinson Street, and Building 978 Pavement Patching	PRQE 07-0121	2016	Community Commercial and Aircraft Operations and Maintenance	Repair and maintenance of Wichita Street, Hutchinson Street, and the Building 978 parking lot.	100-year floodplain	820,982	0
I26. Hutchinson Street Repairs	PRQE 07-0128	2016	Industrial	Repave approximately 0.5 miles of Hutchinson Street. Construction would improve storm drainage.	None	87,561	0
I27. Building 1090 Security Fence	PRQE 09-0156	2016	Industrial	Install a commercial security chain-link fence surrounding the parking lot between Buildings 1090 and 1092. The fence would be approximately 9 feet high and would have two controlled access points.	None	6,650	0
I28. Building 352 Vehicle Standoff	PRQE 06-0179	2016	Community Commercial	Realign the Base Exchange (Building 352) parking lot and construct a force protection vehicle standoff.	None	13,865	+1,809

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects (continued)							
I29. Building 313 Vehicle Standoff	PRQE 06-0178	2016	Community Commercial	Realign the Base Commissary (Building 313) parking lot and construct a force protection vehicle standoff.	None	50,361	+6,569
I30. Flightline Fence Cable System	PRQE 07-0133	2017	Airfield	Install a cable system throughout the flightline fence. The installed cable would be weaved through the existing fence and attached periodically to the ground with bollards.	ERP sites, APZ	220,000	0
I31. Mulvane and Udall Street Repairs	PRQE 07-0138	2017	Outdoor Recreation	Overlay approximately 1.75 miles of Mulvane and Udall streets and the Recreation Center Parking Lot with new pavement.	100-year floodplain, QD arcs	283,590	0
I32. Fire Training Pit Pavement Repair	PRQE 07-4147	2017	Industrial	Install 9-inch concrete pavement around crash fire pit training area. Construction would require grading and compacting the existing gravel and installing new pavement on top.	QD Arc	60,444	+52,560
I33. Piper Street and Aerospace Ground Equipment Storage Lot Pavement Repairs	PRQE 07-0143	2017	Aircraft Operations and Maintenance	Repair and repave approximately 0.1 mile of Piper Street and the Aerospace Ground Equipment Storage Lot.	ERP site	87,561	0

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Infrastructure Improvement Projects (continued)							
I34. Building 1166 Transformers Repair	PRQE 07-0142	2017	Aircraft Operations and Maintenance	Replace Building 1166 pole-mounted transformers with a pad mount transformer.	ERP site	600	+400
I35. Lawrence Street Realignment	PRQE 07-0139	2017	Housing Unaccompanied	Realignment of Lawrence Street. Approximately 2,160 square yards of roadway would be moved away from the existing dormitories and Building 338.	None	87,561	+11,421
I36. Buildings 337 and 338 Vehicle Standoff	PRQE 06-0180	2017	Community Service	Construct a vehicle standoff area for Buildings 337 and 338.	100-year floodplain	60,777	+20,259
I37. Building 408 Vehicle Standoff	PRQE 06-0181	2017	Community Service	Construct a vehicle standoff area for the Dining Facility (Building 408).	None	89,266	+11,643
I38. Parsons Street Realignment	PRQE 07-0140	2017	Community Service and Housing Unaccompanied	Realign approximately 1,800 feet of road and associated culverts to meet AT/FP requirements.	100-year floodplain	82,800	+10,800
					Total Square Feet	**11,979,795**	**-954,821**

Key: APZ = Accident Potential Zone
AT/FP = Anti-terrorism/Force Protection
ft^2 = square feet
ERP = Environmental Restoration Program
N/A = Not Applicable
QD = quantity-distance

Table A-4. Selected and Other Proposed Natural Infrastructure Management Projects

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Selected Natural Infrastructure Management Project							
NI1. McConnell Creek Stream Restoration	N/A	2017+	Open Space, Outdoor Recreation, Community Service, and Community Commercial	Restore McConnell Creek, including maintaining surface drainage and construction of retention basins.	Wetlands, 100-year floodplain	343,102	0
Other Natural Infrastructure Management Projects							
NI2. Buffalo Grass Installation	PRQE 10-2480	2012	Airfield	Replace existing grass with buffalo grass to reduce irrigation water demands in the KANG-occupied area.	ERP Sites	550,000	0
NI3. Kansas Air National Guard Irrigation Wells	PRQE 09-2336	2013	Airfield	Install six 200-foot deep water wells to provide water for on-installation irrigation needs. The objective is to supply half of the water for irrigation from new wells and half from the existing storm water retention pond.	ERP Sites	6,000	+6,000
					Total Square Feet	**899,102**	**+6,000**

Key: ft^2 = square feet
ERP = Environmental Restoration Program
KANG = Kansas Air National Guard

Table A-5. Selected and Other Proposed Strategic Sustainability Performance Projects

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Selected Strategic Sustainability Performance Project							
S1. Solar Plant	PRQE 10-2481	2017	Open Space	Construct a 12-acre, 1.5-MW solar plant servicing the KANG.	None	523,000	260,000
Other Strategic Sustainability Performance Projects							
S2. Energy Improvements	PRQE 09-2001	2013	2,4,11,33,36,42,44, 1375, 1394, 1395, 1411 – Industrial 16, 40, 46, 48, 50, 54, 55 – Aircraft Operations and Maintenance 65 – Administrative	Replace and upgrade the heating, ventilation, and air conditioning (HVAC) system; lighting; and plumbing fixtures to improve energy efficiency in Buildings 2, 4, 11, 16, 33, 36, 40, 42, 44, 46, 48, 50, 54, 55, 65, 1375, 1394, 1395, and 1411.	QD arcs and ERP sites	0	0
S3. Building 35 Mechanical Systems Upgrade	PRQE 102-227	2013	Industrial, Administrative	Upgrade the mechanical system, replace chillers and HVAC system, construct ground source heat pump at Building 35 for dual use with Building 36.	None	0	0
S4. Building 65 Ground Source Heat Pumps Upgrade	N/A	2013	Administrative	Upgrade the existing GSHPs west of Building 65 by moving the valves inside to the mechanical room. No new GSHPs would be installed.	None	0	0
S5. Ground Source Heat Pumps	PRQE120143	2014	Industrial	Install centralized GSHPs to serve Buildings 670, 681, 683, 684, and 699.	None	80,000	50

Project Identification Number and Title	Installation Project Number	Fiscal Year	Land Use	Description	Potential Constraints	Project Area (ft^2)	Change in Impervious Surface (ft^2)
Other Strategic Sustainability Performance Projects (continued)							
S6. Building 1111 Solar Panels	PRQE12-0144	2014	Aircraft Operations and Maintenance	Install solar panels at Building 1111 as part of a photovoltaic pilot program.	ERP Site	4,000	0
S7. Building 952 and 955 Heat Recovery Systems	PRQE 11-4106	2017+	Industrial	Install heat recovery systems in Building 952 and 955. The EPACT of 2005 and subsequent EP 13423 establish mandatory energy reduction requirements for all Federal facilities. To continue progress in meeting the energy reduction requirements, this project installs heat recovery units on Buildings 952 and 955.	None	10,136	0
					Total Square Feet	**617,136**	**+260,050**

Key: ft^2 = square feet
ERP = Environmental Restoration Program
N/A = Not Applicable
QD = quantity-distance

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APPENDIX B

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP) AND PUBLIC INVOLVEMENT CORRESPONDENCE

DEPARTMENT OF THE AIR FORCE
22D CIVIL ENGINEER SQUADRON (AMC)
McCONNELL AIR FORCE BASE, KANSAS 67221

SEP 0 4 2012

MEMORANDUM FOR DISTRIBUTION

FROM: 22 CES/CD
53000 Hutchinson Street, Building 695
McConnell AFB, Kansas 67221

SUBJECT: Environmental Assessment of Installation Development at McConnell Air Force Base (AFB), Kansas

1. The 22d Air Refueling Wing (22 ARW) at McConnell AFB, Kansas has initiated an Environmental Assessment of Installation Development (IDEA) addressing selected projects from those programmed and reasonably foreseeable installation development projects identified for the next 5 fiscal years (FY), FY 2012 to FY 2017. McConnell AFB seeks to improve its understanding of the potential environmental consequences associated with the continuing process of installation development by evaluating selected projects in a single environmental assessment. These projects provide for future development of the installation to accommodate future mission and facility requirements. They include transportation, airfield and utility infrastructure enhancements. The analysis in the IDEA considers development constraints and land use relationships. The projects analyzed in the IDEA fall under five categories: demolition, construction, infrastructure improvement, natural infrastructure management and strategic sustainability performance projects.

2. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your participation and solicit comments on the Draft Environmental Assessment for the Proposed Action. Also enclosed is a copy of the distribution list of other Federal, state and local agencies to be contacted regarding this Proposed Action. If you feel there are any additional individuals that should review and comment on the proposal, please feel free to include them in your distribution of this letter and the attached materials.

3. Please provide any comments or information within 45 days from the date of this correspondence to the 22 ARW Public Affairs Office, 57837 Coffeyville Street, Suite 271, McConnell AFB, Kansas 67221.

AMC—UNRIVALED GLOBAL REACH FOR AMERICA...ALWAYS!

4. If members of your staff have any questions, contact the Public Affairs office at (316) 759-3141, or email to 22.PA@us.af.mil.

STEPHEN C. MATTHEWS, GS-13
Deputy Base Civil Engineer

Attachment:
Draft Environmental Assessment

Distribution:
See Attached

IICEP Distribution List

The Draft IDEA and FONSI will be made available to all Federal, state and local contacts listed below for a 45-day review period. A copy of the IICEP letter, a summary of the comments received, and a summary of USAF responses to comments received will be included in the Final IDEA following the close of the review period.

Senator Jerry Moran
P.O. Box 781753
3450 N Rock Rd
Building 200, Suite 209
Wichita, KS 67226

Senator Pat Roberts
155 N Market Street
Suite 120
Wichita, KS 67202

Congressman Mike Pompeo
7701 E. Kellogg
Suite 510
Wichita, KS 67207

Joe Cothern
Environmental Review Coordinator
USEPA, Region VII
901 North 5th Street
Kansas City, KS 66101

USDA Forest Service
Rocky Mountain Region
740 Simms St
Golden, CO 80401

DOT Regional Office Building
FAA Central Region
901 Locust St
Kansas City, MO 64106-2641

Governor Sam Brownback
Office of the Governor
Capitol, 300 SW 10th Ave., Ste. 241S
Topeka, KS 66612-1590

Ms. Jennie Chinn, SHPO, Executive Director
Kansas State Historical Society
6425 Southwest 6th Avenue
Topeka, KS 66615-1099
Mike LeValley
Kansas Field Office
U.S. Fish Wildlife Service
2609 Anderson Avenue
Manhattan, KS 66502-2801

Mike Peterson
Kansas Senate Senator
District 28
2608 Southeast Drive
Wichita, KS 67216

Ponka-We Victors
Kansas House Representative
PO Box 48081
Wichita, KS 67201

John Mitchell
Director, Division of Environment
Kansas Department of Health and Environment
1000 SW Jackson, Suite 400
Topeka, KS 66612-1367

Carl Brewer
City Council, Mayor
City Hall, 1st Floor
MS 1-135
455 N. Main
Wichita, KS 67202

Kristi Zukovich
Sedgwick County
Community Development
510 N. Main, #315
Wichita, KS 67203

Bill Buchanan
Manager's Office
Sedgwick County
525 N. Main, #343
Wichita, KS 67203

John Schlegel
Director of Planning
Wichita Sedgwick County
City Hall, 10th floor
455 N. Main
Wichita, KS 67202-1688

Shawn Maloney
Interim Environmental Health Manager
City of Wichita
Office of Environmental Health
1900 E. 9th St. N.
Wichita, KS 6721

The following correspondence from the United States Fish and Wildlife Service was received during the 45-day public comment period:

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, Kansas 66502

October 5, 2012

22 ARW Public Affairs Office
57837 Coffeyville Street, Suite 271
McConnell AFB, KS 67221

RE: DEA – Installation Development at McConnell AFB FWS Tracking # 2012-CPA-10426

Dear Sir:

This is in response to the Draft Environmental Assessment (DEA) for the Installation Development at McConnell Air Force Base, Sedgwick County, Kansas received September 9, 2012.

These comments are being provided pursuant to our authorities under the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*); section 404(b) of the Clean Water Act (33 U.S.C. 1344); the Migratory Bird Treaty Act of 1918 (MBTA), as amended (16 U.S.C. 703 *et seq.*); the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*); the Bald and Golden Eagle Protection Act; the Fish and Wildlife Act of 1956; the Sikes Act, as amended (16 USC 670a-670o, 74 Stat. 1052); executive orders 11990 (wetland protection), and 11988 (floodplain management); and are consistent with the intent of the National Environmental Policy Act of 1969.

Construction and operational activities should avoid wetlands, streams, and riparian woodlands to the maximum extent possible. All construction rights-of-way should be surveyed for the presence of marshes and other wetland habitat types. All disturbed riparian areas should be revegetated with native plants as soon as possible after the disturbance occurs. Species composition following revegetation should parallel that which existed prior to the disturbance.

If a permit from the Corps of Engineers is required, the USFWS will be given the opportunity to review the public notice on the proposed action and provide additional comments at that time. Section 404 guidelines require the sequence of avoidance of impacts, minimization of impacts and compensation for unavoidable impacts. When we review the public notice we will request information on alternatives considered, how the project avoided and minimized impacts to aquatic ecosystems, and the compensatory mitigation proposal, if one is required by the Corps.

The Migratory Bird Treaty Act prohibits the taking, killing, possession, and transportation, (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. While the Act has no provision for allowing unauthorized take, the

USFWS realizes that some birds may be killed during project implementation even if all known reasonable and effective measures to protect birds are used. The USFWS Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement, as well as by fostering relationships with individuals, companies, and industries that have taken effective steps to avoid take of migratory birds, and by encouraging others to implement measures to avoid take of migratory birds. It is not possible to absolve individuals, companies, or agencies from liability even if they implement bird mortality avoidance or other similar protective measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without identifying and implementing all reasonable, prudent, and effective measures to avoid that take. Companies are encouraged to work closely with Service biologists to identify available protective measures when developing project plans and/or avian protection plans, and to implement those measures prior to/during construction or similar activities.

The Department of Defense (DoD) has an authorization to take migratory birds, with limitations, that result from DoD military readiness activities. A "military readiness activity" is defined in the Authorization Act to include all training, and operations of the Armed Forces that relate to combat, and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation, and suitability for combat use. **It does not include the routine operation of installation operating support functions, such as: administrative offices; military exchanges; commissaries; water treatment facilities; storage facilities; schools; housing; motor pools; laundries; morale, welfare and recreation activities; shops; and mess halls, the operation of industrial activities or the construction or demolition of facilities listed above.** This language should be incorporated into the DEA, and measures developed to avoid impacts to migratory bird species, and their habitats during the implementation of all aspects of this proposed development plan.

The recommendations provided in this letter are to assist you in minimizing adverse impacts resulting from this project. We normally review projects within 30 days of receipt; please consider this when making your request for comment.

Thank you for this opportunity to comment on the DEA. If we can be of any assistance, please call Ms. Michele McNulty, of this office, at 785-539-3474 ext. 106.

Sincerely,

Daniel W. Mulhern
Acting Field Supervisor

cc: KDWPT, Pratt, KS (Ecological Services)

The following Notice of Availability was published in *The Wichita Eagle* on 4 September 2012, announcing a public review period for the Draft EA and Draft FONSI/FONPA until 21 October 2012. Copies of the Draft IDEA and Draft FONSI/FONPA were made available in the Wichita Central Library, the Plainview Community Library, and the McConnell AFB Library. No public comments were received.

AFFIDAVIT

STATE OF KANSAS \
- SS.
County of Sedgwick /

Mark Fletchall, of lawful age, being first duly sworn, deposeth and saith: That he is Record Clerk of The Wichita Eagle, a daily newspaper published in the City of Wichita, County of Sedgwick, State of Kansas, and having a general paid circulation on a daily basis in said County, which said newspaper has been continuously and uninterruptedly published in said County for more than one year prior to the first publication of the notice hereinafter mentioned, and which said newspaper has been entered as second class mail matter at the United States Post Office in Wichita, Kansas, and which said newspaper is not a trade, religious or fraternal publication and that a notice of a true copy is hereto attached was published in the regular and entire Morning issue of said The Wichita Eagle for _1_ issues - ~~weeks~~, that the first publication of said notice was

made as aforesaid on the **6th** of

September A.D. **2012**, with

subsequent publications being made on the following dates:

And affiant further says that he has personal knowledge of the statements above set forth and that they are true.

Mark Fletchall

Subscribed and sworn to before me this

September 11th, 2012

PENNY L. CASE
Notary Public - State of Kansas
My Appt. Expires 5/28/2014

Penny L Case
Notary Public Sedgwick County, Kansas

Printers Fee: $254.80

PUBLIC NOTICE
United States Air Force

Notice of Availability Draft Environmental Assessment (EA) of Installation Development at McConnell Air Force (AFB), Kansas

The Headquarters Air Mobility Command, in conjunction with McConnell AFB, has completed a Draft EA that evaluates the potential effects of Installation Development at McConnell AFB, Kansas. The analysis considered in detail the potential environmental effects of the Proposed Action and the No Action Alternative. The results, as found in the EA, show that the Proposed Action would not have an adverse impact on the environment, indicating that a Finding of No Significant Impact (FONSI)/ Finding of No Practicable Alternative (FONPA) would be appropriate. An Environmental Impact Statement is not considered necessary to implement the Proposed Action. Copies of the Draft EA showing the analysis are available for review at the following libraries:

Plainview Community Library
2820 S. Roosevelt
Wichita, KS 67210

McConnell AFB Library
53476 Wichita St.
Build 142
McConnell AFB
Wichita 67221

Wichita Central Library
223 S. Main
Wichita, KS 67203

The document is also available at:
www.mcconnell.af.mil

Written comments on the Draft EA are invited and will be accepted for 45 days from the publication of this notice. Comments for consideration by the USAF on this document should be provided in writing to:

22 ARW Public Affairs Office 57837 Coffeyville Street, Suite 221 McConnell AFB, KS 67221
Email: 22.PA@us.af.mil
Phone: (316) 759-2141

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APPENDIX C

STATE HISTORIC PRESERVATION OFFICE STATUS FOR FACILITIES ON MCCONNELL AFB SCHEDULED FOR DEMOLITION WITHIN THE NEXT 5 YEARS

Table C-1. National Register of Historic Places Eligibility Status for Facilities on McConnell AFB Scheduled for Demolition within the Next 5 Years

Facility Number	Structure Name	Construction Date	CAT Code	National Register of Historic Places Status
53	Support Structure	1985	890161	Not eligible (MAFB 2011d)
55	Support Structure	1994	890161	Not eligible (MAFB 2011d)
70	Control Tower	1995	149962	Not eligible (MAFB 2011d)
181	Family Housing	1956	711143	Covered under ACHP Program Comment, *Capehart and Wherry Era Housing and Associated Structures and Landscape Features (1949-1962)*
182	Family Housing	1956	711143	Covered under ACHP Program Comment, *Capehart and Wherry Era Housing and Associated Structures and Landscape Features (1949-1962)*
183	Family Housing	1956	711143	Covered under ACHP Program Comment, *Capehart and Wherry Era Housing and Associated Structures and Landscape Features (1949-1962)*
184	Family Housing	1956	711143	Covered under ACHP Program Comment, *Capehart and Wherry Era Housing and Associated Structures and Landscape Features (1949-1962)*
185	Visiting Officer's Quarters	1953	724417	Covered under ACHP Program Comment, *Capehart and Wherry Era Housing and Associated Structures and Landscape Features (19491-1962)*
202	Visiting Officer's Quarters	1959	724417	Covered under ACHP Program Comment, *Cold War Era Unaccompanied Personnel Housing (1946-1974).*
430	Education Center/Standard Oil Service Station	1954	730441	Not eligible (MAFB 2011d)
510	Base Chapel	1952	730773	Not eligible (MAFB 2011d)
515	Data Processing Installation	1983	610711	Not eligible (MAFB 2011d)
520	Base Theater	1955	740873	Not eligible (MAFB 2011d)
522	Telecommunications Center/Post Exchange/Base Exchange	1955	131111	Not eligible (MAFB 2011d)

Facility Number	Structure Name	Construction Date	CAT Code	National Register of Historic Places Status
681	Explosive Ordinance Disposal	2003	141165	Not eligible (MAFB 2011d)
682	Base Engineer Storage Shed	2000	219947	Not eligible (MAFB 2011d)
683	Air Base Operability Office	1995	610913	Not eligible (MAFB 2011d)
684	Explosive Ordinance Disposal	2005	141165	Not eligible (MAFB 2011d)
685	Civil Engineering Squadron Storage Shed	1998	219947	Not eligible (MAFB 2011d)
688	Base Engineer Storage Shed	1988	219947	Not eligible (MAFB 2011d)
689	Base Engineer Storage Shed	1986	219947	Not eligible (MAFB 2011d)
690	Hazardous Storage Facility	1986	442257	Not eligible (MAFB 2011d)
692	Civil Engineering Pavement and Grounds Building	1965	219943	Not eligible (MAFB 2011d)
693	Air Installations Office Warehouse	1954	610127	Not eligible (MAFB 2011d)
694	Electric Power Station Building	1990	811149	Not eligible (MAFB 2011d)
695	Air Installations Office Administration	1952	610127	Not eligible (MAFB 2011d)
696	Civil Engineering Squadron Shop and Project Engineer's Office	1953	610127	Not eligible (MAFB 2011d)
697	Base Covered Storage	1966	219944	Not eligible (MAFB 2011d)
699	Base Covered Storage	1969	219944	Not eligible (MAFB 2011d)
750	Wing Headquarters/Academic Building	1954	610249	Not eligible (MAFB 2011d)
795	Air Base Group Headquarters	1952	610128	Not eligible (MAFB 2011d)

Facility Number	Structure Name	Construction Date	CAT Code	National Register of Historic Places Status
808	EOD Parking/Storage Facility	1994	219946	Not eligible (MAFB 2011d)
810	Squadron Operations/Training Squadron Headquarters	1955	610112	Not eligible (MAFB 2011d)
937	Base Engineer Covered Storage	1986	219944	Not eligible (MAFB 2011d)
938	Base Engineer Covered Storage	1986	219944	Not eligible (MAFB 2011d)
948	Commissary	1953	610127	Not eligible (MAFB 2011d)
976	Base Engineer Covered Storage/Family Visitation Center	1975	219944	Not eligible (MAFB 2011d)
1090	Aircraft and Troop Supply Warehouse	1952	442758	Not eligible (MAFB 2011d)
1290	Base Engineer Covered Storage/Entomology Shop	1988	219944	Not eligible (MAFB 2011d)
1291	Base Engineer Storage Shed	1993	219947	Not eligible (MAFB 2011d)
1540	Small Arms Training Facility-Range	1996	179475	Not eligible (MAFB 2011d)
1541	Small Arms Training Facility	1985	171476	Not eligible (MAFB 2011d)

Note: 1. Gray shading identifies buildings to be affected by the Proposed Action

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APPENDIX D

DOCUMENTATION ON NRHP ELIGIBILITY EVALUATIONS, SHPO CONCURRENCE, AND MOAS FOR SELECTED PROJECTS

DEPARTMENT OF THE AIR FORCE
22D CIVIL ENGINEER SQUADRON (AMC)
McCONNELL AIR FORCE BASE, KANSAS 67221

SEP 0 4 2012

MEMORANDUM FOR DISTRIBUTION

FROM: 22 CES/CD
53000 Hutchinson Street, Building 695
McConnell AFB, Kansas 67221

SUBJECT: Environmental Assessment of Installation Development at McConnell Air Force Base (AFB), Kansas

1. The 22d Air Refueling Wing (22 ARW) at McConnell AFB, Kansas has initiated an Environmental Assessment of Installation Development (IDEA) addressing selected projects from those programmed and reasonably foreseeable installation development projects identified for the next 5 fiscal years (FY), FY 2012 to FY 2017. McConnell AFB seeks to improve its understanding of the potential environmental consequences associated with the continuing process of installation development by evaluating selected projects in a single environmental assessment. These projects provide for future development of the installation to accommodate future mission and facility requirements. They include transportation, airfield and utility infrastructure enhancements. The analysis in the IDEA considers development constraints and land use relationships. The projects analyzed in the IDEA fall under five categories: demolition, construction, infrastructure improvement, natural infrastructure management and strategic sustainability performance projects.

2. In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, we request your participation and solicit comments on the Draft Environmental Assessment for the Proposed Action. Also enclosed is a copy of the distribution list of other Federal, state and local agencies to be contacted regarding this Proposed Action. If you feel there are any additional individuals that should review and comment on the proposal, please feel free to include them in your distribution of this letter and the attached materials.

3. Please provide any comments or information within 45 days from the date of this correspondence to the 22 ARW Public Affairs Office, 57837 Coffeyville Street, Suite 271, McConnell AFB, Kansas 67221.

AMC—UNRIVALED GLOBAL REACH FOR AMERICA...ALWAYS!

4. If members of your staff have any questions, contact the Public Affairs office at (316) 759-3141, or email to 22.PA@us.af.mil.

STEPHEN C. MATTHEWS, GS-13
Deputy Base Civil Engineer

Attachment:
Draft Environmental Assessment

Distribution:
See Attached

6425 SW 6th Avenue
Topeka, KS 66615

KSR&C No. 11-08-153

Kansas

phone: 785-272-8681
fax: 785-272-8682
cultural_resources@kshs.org

Kansas Historical Society

Sam Brownback, Governor
Jennie Chinn, Executive Director

August 15, 2011

Tina Seemayer
53000 Hutchinson St., Ste. 109
McConnell AFB KS 67221

Re: Cultural Resource Survey for McConnell Air Force Base, Wichita – Sedgwick County

Dear Ms. Seemayer:

We have reviewed the materials received August 4, 2011 in accordance with 36 CFR Part 800. The SHPO concurs with the Department of the Air Force that Buildings 9, 1218, and 1219 are eligible for listing in the National Register. We also concur that 61 buildings and one structure grouping are not eligible for the National Register. We are still considering the eligibility of Building 41 and would like to request more information regarding the H-2 hangar type before making a determination.

Thank you for giving us the opportunity to comment on this proposal. Please refer to the Kansas State Review & Compliance number (KSR&C#) listed above on any future correspondence. Please submit any comments or questions regarding this review to Kim Gant at 785-272-8681, ext. 225 or kgant@kshs.org.

Sincerely,

Jennie Chinn
State Historic Preservation Officer

Patrick Zollner
Director, Cultural Resources Division
Deputy State Historic Preservation Officer

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APPENDIX E

SUMMARY OF AIR EMISSIONS CALCULATIONS

Air Emissions for Project D1

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	2.077	0.123	0.821	0.169	0.126	0.122	241.938
Fugitive Dust	-	-	-	-	2.175	0.217	-
Haul Truck On-Road	0.070	0.051	0.207	0.006	0.084	0.022	17.829
Commuter	0.074	0.074	0.669	0.001	0.007	0.004	88.750
TOTAL	***2.222***	***0.248***	***1.697***	***0.175***	***2.391***	***0.366***	***348.518***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***316.106***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00042%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000006%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project D1 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project D1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	2.222	0.248	1.697	0.175	2.391	0.366
% of Regional	**0.005%**	**0.001%**	**0.001%**	**0.005%**	**0.0025%**	**0.003%**
% of County	**0.014%**	**0.001%**	**0.001%**	**0.018%**	**0.007%**	**0.008%**

Air Emissions for Project D2

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	4.457	0.264	1.762	0.362	0.270	0.261	519.056
Fugitive Dust	-	-	-	-	4.696	0.470	-
Haul Truck On-Road	0.217	0.157	0.638	0.017	0.258	0.067	54.933
Commuter	0.074	0.074	0.669	0.001	0.007	0.004	88.750
TOTAL	***4.748***	***0.495***	***3.069***	***0.380***	***5.231***	***0.803***	***662.739***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***601.104***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00080%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000011%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project D2 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project D2

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	4.748	0.495	3.069	0.380	5.231	0.803
% of Regional	**0.011%**	**0.001%**	**0.002%**	**0.011%**	**0.0054%**	**0.006%**
% of County	**0.029%**	**0.002%**	**0.003%**	**0.040%**	**0.015%**	**0.018%**

Air Emissions for Project D3

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	8.501	0.504	3.361	0.691	0.514	0.499	989.965
Fugitive Dust	-	-	-	-	12.023	1.202	-
Haul Truck On-Road	0.436	0.315	1.281	0.034	0.518	0.135	110.375
Commuter	0.116	0.115	1.041	0.001	0.011	0.007	138.056
TOTAL	***9.053***	***0.935***	***5.684***	***0.727***	***13.066***	***1.843***	***1,238.396***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,123.226***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00150%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000021%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project D3 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project D3

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	9.053	0.935	5.684	0.727	13.066	1.843
% of Regional	**0.021%**	**0.003%**	**0.003%**	**0.021%**	**0.0136%**	**0.014%**
% of County	**0.055%**	**0.004%**	**0.005%**	**0.076%**	**0.038%**	**0.040%**

Air Emissions for Project D4

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	0.069	0.004	0.027	0.006	0.004	0.004	8.025
Fugitive Dust	-	-	-	-	0.004	0.000	-
Haul Truck On-Road	0.003	0.002	0.010	0.000	0.004	0.001	0.827
Commuter	0.003	0.003	0.025	0.000	0.000	0.000	3.287
TOTAL	***0.075***	***0.009***	***0.061***	***0.006***	***0.013***	***0.006***	***12.139***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***11.010***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00001%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000000%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project D4 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project D1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	0.075	0.009	0.061	0.006	0.013	0.006
% of Regional	**0.0002%**	**0.00002%**	**0.00003%**	**0.0002%**	**0.00001%**	**0.00004%**
% of County	**0.000%**	**0.000%**	**0.000%**	**0.001%**	**0.000%**	**0.000%**

Air Emissions for Project C1

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	4.784	0.611	2.109	0.378	0.344	0.334	541.810
Fugitive Dust	-	-	-	-	2.098	0.210	-
Haul Truck On-Road	0.069	0.050	0.202	0.005	0.082	0.021	17.427
Commuter	0.132	0.132	1.190	0.002	0.013	0.008	157.778
TOTAL	***4.985***	***0.793***	***3.501***	***0.385***	***2.536***	***0.573***	***717.015***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***650.332***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00087%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000012%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project C1 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project C1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	4.985	0.793	3.501	0.385	2.536	0.573
% of Regional	**0.012%**	**0.002%**	**0.002%**	**0.011%**	**0.0026%**	**0.004%**
% of County	**0.030%**	**0.003%**	**0.003%**	**0.040%**	**0.007%**	**0.013%**

Air Emissions for Project C2

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
2014	Combustion	4.829	0.469	2.128	0.382	0.347	0.336	547.434
	Fugitive Dust	-	-	-	-	0.866	0.087	-
	Haul Truck On-Road	0.021	0.016	0.063	0.002	0.026	0.007	5.442
	Commuter	0.083	0.082	0.744	0.001	0.008	0.005	98.611
2015+	Building Heating System	0.133	0.015	0.223	0.002	0.020	0.020	318.838
	TOTAL 2014	***4.934***	***0.566***	***2.935***	***0.385***	***1.246***	***0.434***	***651.487***
	TOTAL 2015+	***0.133***	***0.015***	***0.223***	***0.002***	***0.020***	***0.020***	***318.838***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

2014	CO_2 emissions converted to metric tons =	***590.899***	***metric tons***
	State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons*** *(U.S. DOE/EIA 2011)*
	Percent of Kansas' CO_2 emissions =	***0.00079%***	
	United States' CO_2 emissions =	***5,425,600,000***	***metric tons*** *(U.S. DOE/EIA 2011)*
	Percent of USA's CO_2 emissions =	***0.000011%***	

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project C2 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project C2

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	4.934	0.566	2.935	0.385	1.246	0.434
% of Regional	**0.011%**	**0.002%**	**0.001%**	**0.011%**	**0.0013%**	**0.003%**
% of County	**0.030%**	**0.002%**	**0.002%**	**0.040%**	**0.004%**	**0.010%**

Air Emissions for Project C3

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	5.075	0.564	2.225	0.402	0.361	0.351	576.167
Fugitive Dust	-	-	-	-	2.560	0.256	-
Haul Truck On-Road	0.072	0.052	0.211	0.006	0.086	0.022	18.220
Commuter	0.099	0.099	0.892	0.001	0.009	0.006	118.334
TOTAL	***5.246***	***0.715***	***3.329***	***0.409***	***3.016***	***0.635***	***712.721***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***646.438***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00086%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000012%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project C3 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project C3

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	5.246	0.715	3.329	0.409	3.016	0.635
% of Regional	**0.012%**	**0.002%**	**0.002%**	**0.012%**	**0.0031%**	**0.005%**
% of County	**0.032%**	**0.003%**	**0.003%**	**0.043%**	**0.009%**	**0.014%**

Air Emissions for Project C4

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
2016	Combustion	5.211	0.736	2.283	0.415	0.370	0.359	594.555
	Fugitive Dust	-	-	-	-	13.090	1.309	-
	Haul Truck On-Road	0.323	0.233	0.948	0.025	0.384	0.100	81.671
	Commuter	0.132	0.132	1.190	0.002	0.013	0.008	157.778
2017+	Building Heating Systems	1.989	0.219	3.341	0.024	0.302	0.302	4,772.748
	Emergency Generators	5.120	0.144	1.360	0.081	0.160	0.160	263.974
	TOTAL 2016	***5.666***	***1.101***	***4.421***	***0.442***	***13.857***	***1.776***	***834.004***
	TOTAL 2017+	***7.109***	***0.363***	***4.701***	***0.105***	***0.462***	***0.462***	***5,036.722***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

2016	CO_2 emissions converted to metric tons =	***756.442***	***metric tons***	
2017+	CO_2 emissions converted to metric tons =	***4,568.307***	***metric tons***	
	State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
2016	Percent of Kansas' CO_2 emissions =	***0.00101%***		
2017+	Percent of Kansas' CO_2 emissions =	***0.00609%***		
	United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
	Percent of USA's CO_2 emissions =	***0.000014%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project C4 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project C4

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	7.109	1.101	4.701	0.442	13.857	1.776
% of Regional	**0.017%**	**0.003%**	**0.002%**	**0.013%**	**0.0144%**	**0.013%**
% of County	**0.043%**	**0.005%**	**0.004%**	**0.046%**	**0.040%**	**0.039%**

Air Emissions for Project C5

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	3.390	0.307	1.488	0.269	0.242	0.235	385.725
Fugitive Dust	-	-	-	-	2.531	0.253	-
Haul Truck On-Road	0.029	0.021	0.084	0.002	0.034	0.009	7.255
Commuter	0.066	0.066	0.595	0.001	0.006	0.004	78.889
TOTAL	***3.484***	***0.393***	***2.168***	***0.272***	***2.813***	***0.500***	***471.870***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***427.986***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00057%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000008%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project C5 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project C5

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	3.484	0.393	2.168	0.272	2.813	0.500
% of Regional	**0.008%**	**0.001%**	**0.001%**	**0.008%**	**0.0029%**	**0.004%**
% of County	**0.021%**	**0.002%**	**0.002%**	**0.029%**	**0.008%**	**0.011%**

Air Emissions for Project C6

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
2018	Combustion	5.841	0.749	2.539	0.469	0.409	0.396	672.267
	Fugitive Dust	-	-	-	-	25.664	2.566	-
	Haul Truck On-Road	0.378	0.273	1.110	0.030	0.449	0.117	95.640
	Commuter	0.116	0.115	1.041	0.001	0.011	0.007	138.056
2019+	BuildIng Heating System	1.721	0.189	2.891	0.021	0.262	0.262	4,129.564
	TOTAL 2018	***6.334***	***1.138***	***4.690***	***0.500***	***26.533***	***3.086***	***905.963***
	TOTAL 2019+	***1.721***	***0.189***	***2.891***	***0.021***	***0.262***	***0.262***	***4,129.564***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

2018	CO_2 emissions converted to metric tons =	***821.708***	***metric tons***	
2019+	CO_2 emissions converted to metric tons =	***3,745.515***	***metric tons***	
	State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
2018	Percent of Kansas' CO_2 emissions =	***0.00110%***		
2019+	Percent of Kansas' CO_2 emissions =	***0.00499%***		
	United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
	Percent of USA's CO_2 emissions =	***0.000015%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project C6 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project C6

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	6.334	1.138	4.690	0.500	26.533	3.086
% of Regional	**0.015%**	**0.003%**	**0.002%**	**0.014%**	**0.0275%**	**0.023%**
% of County	**0.039%**	**0.005%**	**0.004%**	**0.052%**	**0.077%**	**0.068%**

Air Emissions for Project I1

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
	Combustion	8.762	0.515	3.502	0.730	0.532	0.517	1,045.536
	Fugitive Dust	-	-	-	-	82.313	8.231	-
	Haul Truck On-Road	0.626	0.453	1.841	0.049	0.745	0.194	158.590
	Commuter	0.132	0.132	1.190	0.002	0.013	0.008	157.778
	TOTAL	***9.521***	***1.099***	***6.533***	***0.781***	***83.603***	***8.949***	***1,361.904***
Asumed 15% of Total	***2012 Emissions***	***1.428***	***0.165***	***0.980***	***0.117***	***12.541***	***1.342***	***204.286***
Assumed 28.3% of Total	***2013 Emissions***	***2.698***	***0.311***	***1.851***	***0.221***	***23.688***	***2.536***	***385.873***
Assumed 28.3% of Total	***2014 Emissions***	***2.698***	***0.311***	***1.851***	***0.221***	***23.688***	***2.536***	***385.873***
Assumed 28.3% of Total	***2015 Emissions***	***2.698***	***0.311***	***1.851***	***0.221***	***23.688***	***2.536***	***385.873***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,235.247***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00165%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000023%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.
Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory
Because Project I1 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project I1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	9.521	1.099	6.533	0.781	83.603	8.949
% of Regional	**0.022%**	**0.003%**	**0.003%**	**0.023%**	**0.0867%**	**0.066%**
% of County	**0.058%**	**0.005%**	**0.005%**	**0.082%**	**0.243%**	**0.196%**

Air Emissions for Project I2

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	3.367	0.322	1.477	0.266	0.240	0.233	381.745
Fugitive Dust	-	-	-	-	0.231	0.023	-
Haul Truck On-Road	0.004	0.003	0.011	0.000	0.005	0.001	0.980
Commuter	0.022	0.022	0.198	0.000	0.002	0.001	26.296
TOTAL	***3.393***	***0.347***	***1.687***	***0.267***	***0.478***	***0.259***	***409.021***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***370.982***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00049%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000007%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project I2 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project I2

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	3.393	0.347	1.687	0.267	0.478	0.259
% of Regional	**0.008%**	**0.001%**	**0.001%**	**0.008%**	**0.0005%**	**0.002%**
% of County	**0.021%**	**0.002%**	**0.001%**	**0.028%**	**0.001%**	**0.006%**

Air Emissions for Project I3

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	0.044	0.003	0.017	0.004	0.003	0.003	5.283
Fugitive Dust	-	-	-	-	0.121	0.012	-
Haul Truck On-Road	0.002	0.001	0.005	0.000	0.002	0.001	0.423
Commuter	0.033	0.033	0.297	0.000	0.003	0.002	39.445
TOTAL	***0.078***	***0.037***	***0.320***	***0.004***	***0.129***	***0.017***	***45.151***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***40.952***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00005%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000001%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project I3 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project I3

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	0.078	0.037	0.320	0.004	0.129	0.017
% of Regional	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.0001%**	**0.000%**
% of County	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**	**0.000%**

Air Emissions for Project I4

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	27.290	1.610	10.859	2.244	1.654	1.604	3,215.418
Fugitive Dust	-	-	-	-	147.107	14.711	-
Haul Truck On-Road	1.274	0.921	3.743	0.100	1.515	0.394	322.478
Commuter	0.198	0.197	1.785	0.002	0.019	0.012	236.667
TOTAL	***28.762***	***2.728***	***16.386***	***2.347***	***150.295***	***16.721***	***3,774.563***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***3,423.529***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00456%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000063%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project I4 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project I4

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	28.762	2.728	16.386	2.347	150.295	16.721
% of Regional	**0.067%**	**0.007%**	**0.008%**	**0.068%**	**0.1559%**	**0.123%**
% of County	**0.176%**	**0.012%**	**0.014%**	**0.246%**	**0.436%**	**0.366%**

Air Emissions for Project NI1

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	0.104	0.006	0.039	0.009	0.006	0.006	12.354
Fugitive Dust	-	-	-	-	5.986	0.599	-
Haul Truck On-Road	0.006	0.005	0.019	0.001	0.008	0.002	1.633
Commuter	0.044	0.044	0.397	0.001	0.004	0.003	52.593
TOTAL	***0.155***	***0.055***	***0.455***	***0.010***	***6.004***	***0.609***	***66.579***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***60.387***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00008%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000001%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project NI1 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project NI1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	0.155	0.055	0.455	0.010	6.004	0.609
% of Regional	**0.0004%**	**0.0001%**	**0.0002%**	**0.0003%**	**0.0062%**	**0.004%**
% of County	**0.001%**	**0.000%**	**0.000%**	**0.001%**	**0.017%**	**0.013%**

Air Emissions for Project S1

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	3.934	0.296	1.707	0.317	0.274	0.266	453.533
Fugitive Dust	-	-	-	-	19.309	1.931	-
Haul Truck On-Road	0.310	0.225	0.912	0.024	0.369	0.096	78.604
Commuter	0.022	0.022	0.198	0.000	0.002	0.001	26.296
TOTAL	***4.267***	***0.542***	***2.818***	***0.341***	***19.955***	***2.294***	***558.433***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***506.499***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00068%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000009%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because Project S1 is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from Project S1

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	4.267	0.542	2.818	0.341	19.955	2.294
% of Regional	**0.010%**	**0.001%**	**0.001%**	**0.010%**	**0.0207%**	**0.017%**
% of County	**0.026%**	**0.002%**	**0.002%**	**0.036%**	**0.058%**	**0.050%**

Air Emissions for 2012 Other Projects

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	0.125	0.008	0.047	0.010	0.008	0.007	14.825
Fugitive Dust	-	-	-	-	14.394	1.439	-
Haul Truck On-Road	0.219	0.158	0.643	0.017	0.260	0.068	55.426
Commuter	0.066	0.066	0.595	0.001	0.006	0.004	78.889
TOTAL	***0.410***	***0.232***	***1.285***	***0.028***	***14.668***	***1.518***	***149.140***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***135.270***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00018%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000002%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.
Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory.
Because 2012 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from 2012 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	0.410	0.232	1.285	0.028	14.668	1.518
% of Regional	**0.001%**	**0.001%**	**0.001%**	**0.001%**	**0.0152%**	**0.011%**
% of County	**0.003%**	**0.001%**	**0.001%**	**0.003%**	**0.043%**	**0.033%**

Air Emissions for 2013 Other Projects

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	6.279	0.583	2.715	0.506	0.435	0.422	724.728
Fugitive Dust	-	-	-	-	27.565	2.757	-
Haul Truck On-Road	0.003	0.002	0.009	0.000	0.004	0.001	0.805
Commuter	0.198	0.197	1.785	0.002	0.019	0.012	236.667
TOTAL	***6.480***	***0.783***	***4.509***	***0.508***	***28.023***	***3.191***	***962.201***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***872.716***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00116%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000016%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.
Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory
Because 2013 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from 2013 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	6.480	0.783	4.509	0.508	28.023	3.191
% of Regional	**0.015%**	**0.002%**	**0.002%**	**0.015%**	**0.0291%**	**0.023%**
% of County	**0.040%**	**0.003%**	**0.004%**	**0.053%**	**0.081%**	**0.070%**

Air Emissions for 2014 Other Projects

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	10.101	1.169	4.218	0.814	0.666	0.646	1,166.154
Fugitive Dust	-	-	-	-	29.775	2.977	-
Haul Truck On-Road	1.026	0.742	3.014	0.081	1.220	0.317	259.688
Commuter	0.297	0.296	2.677	0.003	0.028	0.018	355.001
TOTAL	***11.425***	***2.206***	***9.909***	***0.898***	***31.689***	***3.958***	***1,780.843***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,615.225***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00215%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000030%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because 2014 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions for 2014 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	11.425	2.206	9.909	0.898	31.689	3.958
% of Regional	**0.027%**	**0.006%**	**0.005%**	**0.026%**	**0.0329%**	**0.029%**
% of County	**0.070%**	**0.010%**	**0.008%**	**0.094%**	**0.092%**	**0.087%**

Air Emissions for 2015 Other Projects

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	8.087	1.032	3.451	0.663	0.546	0.530	949.370
Fugitive Dust	-	-	-	-	76.884	7.688	-
Haul Truck On-Road	0.979	0.708	2.876	0.077	1.164	0.303	247.779
Commuter	0.297	0.296	2.677	0.003	0.028	0.018	355.001
TOTAL	***9.363***	***2.036***	***9.004***	***0.743***	***78.622***	***8.538***	***1,552.150***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,407.800***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00188%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000026%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because 2015 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from 2015 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	9.363	2.036	9.004	0.743	78.622	8.538
% of Regional	**0.022%**	**0.005%**	**0.005%**	**0.022%**	**0.0816%**	**0.063%**
% of County	**0.057%**	**0.009%**	**0.007%**	**0.078%**	**0.228%**	**0.187%**

Air Emissions for 2016 Other Projects

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	7.304	0.723	3.134	0.595	0.498	0.483	852.998
Fugitive Dust	-	-	-	-	54.991	5.499	-
Haul Truck On-Road	0.469	0.339	1.379	0.037	0.558	0.145	118.850
Commuter	0.165	0.165	1.487	0.002	0.016	0.010	197.223
TOTAL	***7.939***	***1.227***	***6.001***	***0.634***	***56.063***	***6.137***	***1,169.071***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,060.347***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00141%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000020%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because 2016 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions from 2016 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	7.939	1.227	6.001	0.634	56.063	6.137
% of Regional	**0.019%**	**0.003%**	**0.003%**	**0.018%**	**0.0582%**	**0.045%**
% of County	**0.048%**	**0.005%**	**0.005%**	**0.067%**	**0.163%**	**0.134%**

Air Emissions for 2017 Other Projects

	NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
Combustion	6.805	0.780	2.930	0.552	0.468	0.453	791.135
Fugitive Dust	-	-	-	-	44.778	4.478	-
Haul Truck On-Road	0.478	0.345	1.403	0.038	0.568	0.148	120.916
Commuter	0.165	0.165	1.487	0.002	0.016	0.010	197.223
TOTAL	***7.448***	***1.290***	***5.820***	***0.592***	***45.830***	***5.089***	***1,109.273***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO_2 emissions converted to metric tons =	***1,006.111***	***metric tons***	
State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of Kansas' CO_2 emissions =	***0.00134%***		
United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
Percent of USA's CO_2 emissions =	***0.000019%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because 2017 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions for 2017 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	7.448	1.290	5.820	0.592	45.830	5.089
% of Regional	**0.017%**	**0.003%**	**0.003%**	**0.017%**	**0.0475%**	**0.037%**
% of County	**0.045%**	**0.006%**	**0.005%**	**0.062%**	**0.133%**	**0.111%**

Air Emissions for 2018+ Other Projects

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	$PM_{2.5}$ (ton)	CO_2 (ton)
2018	Combustion	13.442	1.658	5.760	1.077	0.923	0.895	1,543.194
	Fugitive Dust	-	-	-	-	45.215	4.521	-
	Haul Truck On-Road	1.453	1.050	4.268	0.114	1.727	0.449	367.755
	Commuter	0.397	0.395	3.570	0.005	0.038	0.024	473.335
2019+	Building Heating System	5.696	0.626	9.570	0.068	0.865	0.865	13,670.334
	TOTAL 2018	***15.291***	***3.103***	***13.598***	***1.196***	***47.903***	***5.890***	***2,384.284***
	TOTAL 2019+	***5.696***	***0.626***	***9.570***	***0.068***	***0.865***	***0.865***	***13,670.334***

Note: Total $PM_{10}/_{2.5}$ fugitive dust emissions are assuming USEPA 50% control efficiencies.

2018	CO_2 emissions converted to metric tons =	***2,162.546***	***metric tons***	
	State of Kansas' CO_2 emissions =	***75,012,129***	***metric tons***	*(U.S. DOE/EIA 2011)*
	Percent of Kansas' CO_2 emissions =	***0.00288%***		
	United States' CO_2 emissions =	***5,425,600,000***	***metric tons***	*(U.S. DOE/EIA 2011)*
	Percent of USA's CO_2 emissions =	***0.000040%***		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA). 2011. *Table 1. State Emissions by Year (Million Metric Tons of Carbon Dioxide).* Available online <http://www.eia.gov/environment/emissions/state/state_emissions.cfm>. Data released October 2011. Data accessed 19 March 2012.

Since future year budgets were not readily available, actual 2008 air emissions inventories for the counties were used as an approximation of the regional inventory Because 2017 Other Projects is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

South Central Kansas Intrastate Air Quality Control Region

	Point and Area Sources Combined					
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2008	42,909	37,346	197,789	3,453	96,406	13,597

Source: USEPA National Emissions Inventory (NEI) (http://neibrowser.epa.gov/eis-public-web/home.html). Site visited on 09 January 2012.

Air Emissions for 2017 Other Projects

	Point and Area Sources Combined					
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Regional Emissions	42,909	37,346	197,789	3,453	96,406	13,597
County Emissions	16,370	22,726	120,166	954	34,449	4,569
Proposed Activity Emissions	15.291	3.103	13.598	1.196	47.903	5.890
% of Regional	**0.036%**	**0.008%**	**0.007%**	**0.035%**	**0.0497%**	**0.043%**
% of County	**0.093%**	**0.014%**	**0.011%**	**0.125%**	**0.139%**	**0.129%**