Draft Environmental Assessment

for

Implementing Area Development Plans Buckley Space Force Base, CO

December 2023

CUI PRE-DECISIONAL NOT FOR RELEASE OUTSIDE DOD

This page intentionally left blank.

Privacy Advisory

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 Personal home addresses and phone numbers will not be published in the Final EA.

Table of Contents

List of Tables

List of Figures

List of Acronyms and Abbreviations

Acronym	Definition
PM10	10 micrometers
PM2.5	2.5 micrometers
ACAM	Air Conformity Applicability Model
ACM	asbestos-containing material
ADEP	Area Development Execution Plan
ADF-C	Aerospace Data Facility - Colorado
ADP	Area Development Plan
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
AFMAN	Air Force Manual
AMOP	Asbestos Management and Operations Plan
AMSL	Above mean sea level
ANG	Air National Guard
APE	Area of Potential Effect
AQCR	Air Quality Control Region
ARNG	Army National Guard
AT/FP	Antiterrorism/Force Protection
AVN	Aviation
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BSRMP	Buckley Specific RACS Management Plan
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CBSG	Colorado Basic Standards for Groundwater
CDC	Child Development Center
CDOT	Colorado Department of Transportation
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH4	Methane
CO	Carbon Monoxide
CO^2	carbon dioxide
CO2e	carbon dioxide equivalent
COC	Contaminant of Concern
COA	Course of Action

CRP	Compliance -Related Cleanup Program
CWA	Clean Water Act
DAF	U.S. Department of the Air Force
dB	decibel
DCE	dichlorethene
DFAC	Dining facility
DNL	Day-night average sound level
DoD	Department of Defense
EA	Environmental Assessment
ECARS	Employee-vehicle Certification and Reporting System
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
ERP	Environmental Restoration Program
E&SC	Erosion and Sediment Control
ESA	Endangered Species Act
F	Fahrenheit
FEMA	Federal Emergency Management Act
FIRM	Flood Insurance Rate Map
FONPA	Finding of No Practical Alternative
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GHG	greenhouse gas
HAP	Hazardous Air Pollutants
HQ	Headquarters
HVAC	heating, ventilation, and air conditioning
HWMP	Hazardous Waste Management Plan
IPaC	Information for Planning and Consulting
INRMP	Installation Natural Resource Management Plan
LBP	lead-based paint
LDC	Leadership Development Center
LID	low-impact development
LMOP	Lead Management and Operations Plan
LRS	Logistic Readiness Squadron
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MDA	Missile Defense Agency
MS4	Municipal Separate Storm Sewer System

MSGP	Multi-Sector General Permit
MVA	megavolt ampres
MWR	Metro Water Recovery
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO2	Nitrogen oxide
N2O	Nitrous oxide
NOSC	Navy Operational Support Center
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRO	National Reconnaissance Office
O3	Ozone
Pb	Lead
PAA	Primary Aerospace Vehicle Authorization
PCB	Polychlorinated biphenyls
PCE	Perchlorate, tetrachloroethene
pCi/L	Picocuries per liter
POV	Privately Owned Vehicle
RA	Resident Air
RACS	Regulated Asbestos Contaminated Soil
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SARA	Superfund Amendments and Reauthorization Act
SFB	Space Force Base
SIP	State Implementation Plan
SO2	Sulfur dioxide
SPCC	Spill Prevention, Control and Countermeasures
SPoC	Space Operations Command
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TLF	Temporary Lodging Facility
TMP	Transportation Management Plan
U.S.C.	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

USSF	United States Space Force
UFC	Unified Facilities Code
USEPA	United States Environmental Protection Agency
USPFO	United States Property and Fiscal Officer
UXO	Unexploded Ordnance

CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

Buckley Space Force Base (SFB) has prepared this Environmental Assessment (EA) to evaluate the potential environmental impacts associated with implementing activities outlined within the five Area Development Plans (ADPs) that together encompass the entirety of Buckley SFB (see Figures 1.2-1 through 1.2-3). These ADPs summarize projects that are scheduled to occur within the next 20 years or more; however, this EA assesses the potential impacts expected to result from construction and operation of the short-term projects proposed for construction within the next 5 years. This document has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] 4321, et seq.), the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (Title 40 *Code of Federal Regulations* Parts 1500–1508 [40 CFR 1500-1508]), and Air Force policy and procedures (32 CFR 989). Please note, the United States Space Force (USSF) is the lead agency for this Proposed Action, and as a branch of the U.S. Armed Forces administrated by the Department of the Air Force (DAF), it operates under that Department's policy, guidance, and plans. The DAF is the preparer of this EA in compliance with the above regulations.

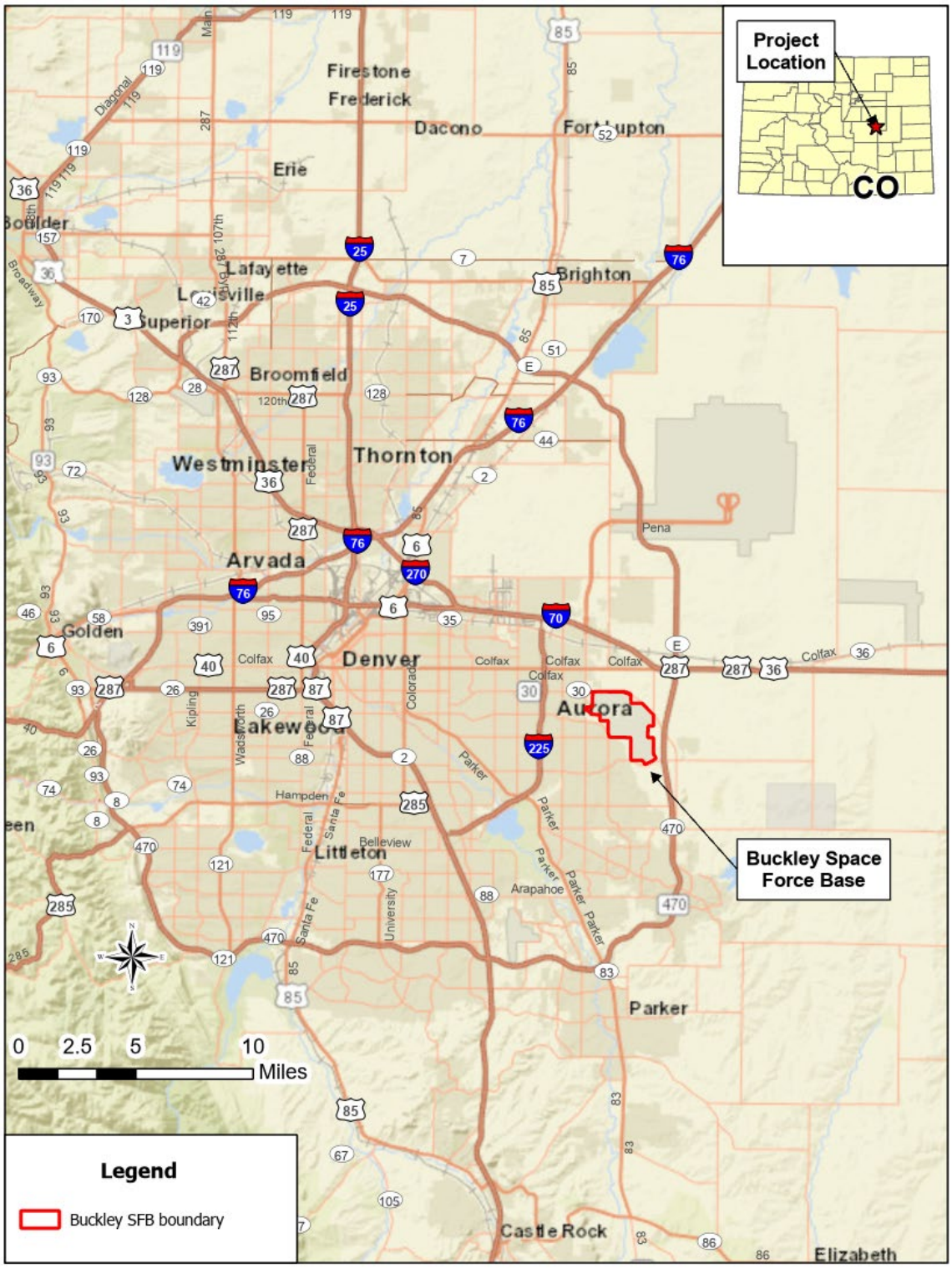
Area development is an ongoing process at Buckley SFB. Every year, structures are demolished, new facilities are constructed, and infrastructure is upgraded and improved. The intent of the installation is to streamline NEPA compliance and facilitate the area development process by evaluating in one integrated document the potential impacts on the natural and human environments of those projects planned or programmed for implementation at Buckley SFB over the next 5 years (Proposed Action). These projects, sorted by district, are listed in Table 1.2-1.

The information presented in this document will serve as the basis for deciding whether the Proposed Action would result in a significant impact to the human environment, requiring the preparation of an environmental impact statement (EIS), or whether no significant impacts would occur, in which case a finding of no significant impact (FONSI) would be appropriate. If the execution of any part of the proposed action would involve "construction" in a wetland as defined in Executive Order (EO) 11990, *Protection of Wetlands*, or "action" in a floodplain under EO 11988, *Floodplain Management*, a Finding of No Practicable Alternative (FONPA) would be prepared in conjunction with the FONSI.

1.2 BACKGROUND

Buckley SFB occupies approximately 3,311 acres of federally owned land within Arapahoe County, Colorado, within the Denver metropolitan area. Space Base Delta 2 is the host of the installation, and their mission is to provide "installation support functions for the resident air operations, space-based missile warning capabilities, space surveillance operations, and space communications missions" (Buckley SFB, 2023). Space Base Delta 2 currently supports more than 110 base partners located on the base and in the community. The six major base partners are Space Delta 4 (Missile Warning Delta), 140th Wing, Colorado Air National Guard (ANG), the Navy Operational Support Center, the Aerospace Data Facility-Colorado, the Army Aviation Support Facility, and the Air Reserve Personnel Center. Approximately 3,000 active-duty personnel from every service, 4,000 National Guard and Reserve personnel, 4 commonwealth international partners, 2,400 civilian employees, and 2,500 contract employees work at the base. In addition, Buckley SFB serves more than 88,000 retirees, veterans, and dependents (Buckley SFB, 2023).

Figure 1.2-1 General Location of Buckley SFB



.

Figure 1.2-2 Buckley SFB

Figure 1.2-3 Map of Each ADP within Buckley SFB

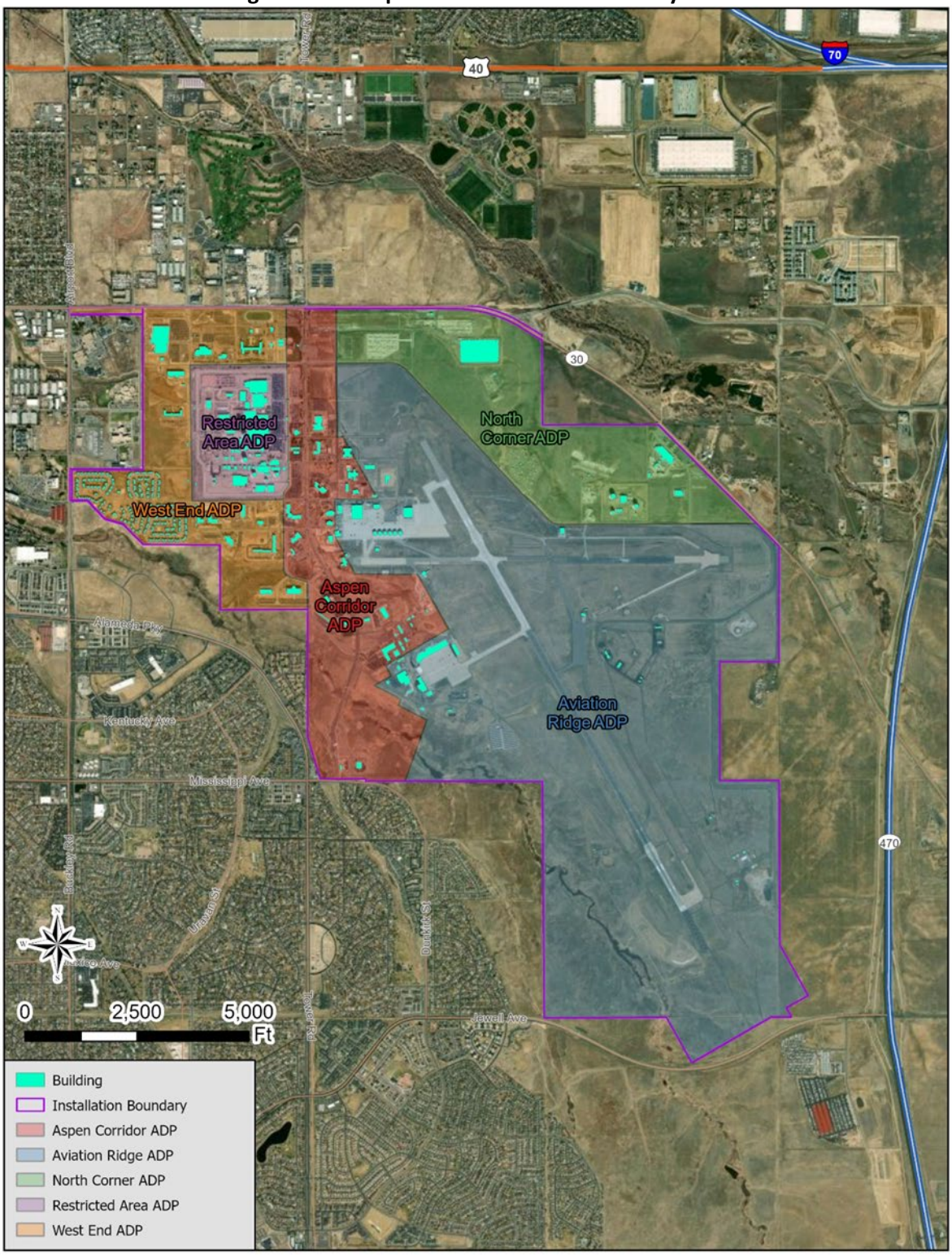


Table 1.2-1. Projects Included in Buckley SFB ADPs

Name of Project	Type of Project	Purpose and Need
Aspen Corridor ADP		
Renovate Brand Name Food Options - Building 630	Renovation	The **purpose** of this project is to provide a gathering place for installation events with a centrally located dining option. This project is **needed** to provide personnel with quality food service options.
Renovate Space Delta 4 HQ - Building 620	Renovation	The **purpose** of this project is to support the headquarters of Space Delta 4 and enhance the working environment by modernizing interior finishes and the exterior to give the building a fresh look. This project is **needed** to address building deficiencies arising from age and use.
Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022	Construction	The **purpose** of this project is to provide Outdoor Rec with a covered area/warehouse for protection of equipment and vehicles. This project is **needed** to improve access to the site since it currently only has a single ingress/egress point and to protect equipment from damage caused by exposure to the elements.
LDC Sidewalk Network Improvements	Construction	The **purpose** of this project is to create a sidewalk system to connect the Air Reserve Personnel Center to the Leadership Development Center. This project is **needed** to increase connectivity between buildings and associated parking areas.
ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout	Construction	The **purpose** of this project is to relocate parking outside of the Restricted Area fence and to install a traffic roundabout. This project is **needed** for additional mission growth at the Restricted Area and to reduce security risks associated with personal vehicles within the fence line.
ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout	Construction	The **purpose** of this project is to relocate additional parking outside of the Restricted Area fence and to install a traffic roundabout. This project is **needed** for additional mission growth at the Restricted Area and to reduce security risks associated with personal vehicles within the fence line.
Aviation Ridge ADP		
Fire Protection Water Storage Tank	Construction	The **purpose** of this project is to increase water storage capacity. This project is **needed** to enable the fire suppression systems at Building 1500 and Building 1510 to meet Air Force fire protection requirements.

Table 1.2-1. Projects Included in Buckley SFB ADPs

Name of Project	Type of Project	Purpose and Need
Helo Slide	Construction	The **purpose** of this project is to provide a separate landing training area for ARNG aircraft. This project is **needed** since this training currently takes place on the runway, which interferes with other runway operations.
140th ANG Aircraft Ground Equipment	Construction	The **purpose** of this project is to construct a new vehicle maintenance area. This project is **needed** to support the proper maintenance of equipment and support the 140th ANG.
ARNG Motorpool Expansion	Construction	The **purpose** of this project is to address deficiencies in size and condition of the 169th FA BN parking area. This project is **needed** to reduce overcrowding and improve parking area security and drainage.
Lighting Vault Driveway	Construction	The **purpose** of this project is to provide additional parking spaces. This project is **needed** to increase current parking capacity.
ARNG POV Parking Expansion	Construction	The **purpose** of this project is to increase capacity for POV parking at Building 1000 for 2-135th AVN BN. This project is **needed** since Soldiers must currently park POVs at another facility or on the side of the road.
East Taxiway	Construction	The **purpose** of this project is to construct a new taxiway in order to address issues related to age, condition, function, and access. This project is **needed** to support mission requirements and address safety concerns.
Small East Ramp	Construction	The **purpose** of this project is to construct a new apron and ramp that meet mission requirements. This project is **needed** since the current apron is located within the runway lateral clearance zone and the current design does not support 24-hour operations.
Water Supply Repairs	Renovation	The **purpose** of this project is to construct a new water line and service line to provide resiliency and an alternate supply of water. This project is **needed** since the existing water service line in the northeast corner of the base is inadequate for fire protection.
Gas Service Repairs	Renovation	The **purpose** of this project is to construct natural gas branch mains to serve the northeast corner of the base. This project is **needed** since the existing infrastructure is unable to support future development.

Table 1.2-1. Projects Included in Buckley SFB ADPs

Name of Project	Type of Project	Purpose and Need
Wastewater Projects	Construction/ Renovation	The **purpose** of this project is to construct a new sewage lift station. This project is **needed** to support development in the northeast and east areas of Buckley SFB.
Munitions Complex	Construction	The **purpose** of this project is to construct a munitions storage and maintenance complex. This project is **needed** to improve safety and occupational efficiencies, and create a safe area for development of the airfield to support the expanding mission of the base.
Snow Barn	Construction	The **purpose** of this project is to construct a building to store snowplows and snow blowers. This project is **needed** to provide a covered storage area and to protect this equipment from damage caused by exposure to the elements.
Relocate/Repair Sunlight Way	Construction	The **purpose** of this project is to replace an existing asphalt access road. This project is **needed** to provide a properly configured and constructed roadway required to support airfield and training functions for 18 PAA F-16 Aircraft.
North Corner ADP		
NRO Expansion	Construction	The **purpose** of this project is to add radomes and an associated administrative building in support of mission requirements. This project is **needed** due to mission expansion in the Restricted Area.
Realign Steamboat Ave Out of Graded Clear Zone	Construction	The **purpose** of this project is to reroute the road to meet airfield safety requirements. This project is **needed** since the road currently is located within the graded clear zone, in violation of airfield safety requirements.
Close NOSC Gate	Demolition	The **purpose** of this project is to close and demolish a gate so that it no longer needs to be monitored. This project is **needed** as the tenant does not have adequate personnel to monitor this gate.
RV Storage Yard Fix	Renovation	The **purpose** of this project is to provide a dedicated place to perform RV repairs. This project is **needed** to enhance the services provided by the FSS to its customers.
FamCamp Expansion	Construction	The **purpose** of this project is to construct 25 additional recreational vehicle hookup sites at an existing campground. This project is **needed** due to the current high occupancy demand and to increase recreational opportunities within the installation.

Table 1.2-1. Projects Included in Buckley SFB ADPs

Name of Project	Type of Project	Purpose and Need
Restricted Area ADP		
ADF-C Node		
Renovated/Upgraded Existing Fueling Station	Renovation	The **purpose** of this project is to renovate and upgrade the fueling station to externally refuel the power plant storage tanks. This project is **needed** for resiliency and security.
Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot	Construction	The **purpose** of this project is to convert the contractor parking lot outside the Building 450 gatehouse to a Vehicle Inspection Gate and backup Fueling Station to serve as an alternate to the primary fueling station. This project is **needed** to support the ADF-C Electrical Master Plan and to support recurring projects and overall Restricted Area security requirements.
Central Uninterrupted Power Supply	Construction	The **purpose** is to construct an Uninterrupted Power Supply in support of a long-term conversion from a distributed uninterruptible power supply system. This project is **needed** for power resiliency and redundancy.
Expand Northwest Parking and Relocate Fence	Construction	The **purpose** of this project is to move the fence line so the northwest parking lot is entirely outside of the Restrict Area fence to reduce security risk. This surface parking would accommodate parking demand. This project is **needed** to improve security and increase developable area.
Chiller Plant Expansion	Renovation	The **purpose** of this project is to expand the existing chiller plant so that it can provide district chilled water to facilities. This project is **needed** due to the existing output being insufficient.
Space-Delta 4 Node		
Repair Replacement Generator B416 PL-1 Security Lighting	Renovation	The **purpose** of this project is to replace PL-1 exterior security lighting with energy efficient LED lights and to replace the security lighting backup generator in Building 416 with new generator appropriately right-sized for new lighting. This project is **needed** to conserve energy and reduce operating costs.
Demolish Building 448	Demolition	The **purpose** of this project is to demolish Building 448 following completion of the Space Based Infrared System Special Operation Facility. This project is **needed** as the building cannot be repurposed.

Table 1.2-1. Projects Included in Buckley SFB ADPs

Name of Project	Type of Project	Purpose and Need
South Fueling Station	Construction	The **purpose** of this project is to construct an external fueling station for the Space Delta 4 fuel tanks. The project is **needed** to address security and resiliency by restricting fuel deliveries to the outside of the Restricted Area fence.
Covered Walkway between East Parking and Mission Facilities	Construction	The **purpose** of this project is to construct a covered walkway between the east parking lot to the Space Delta mission buildings. This project is **needed** to protect employees from inclement weather, providing safety and security to the workforce.
Demolish Buildings 430, 433	Demolition	The **purpose** of this project is to demolish Buildings 430 and 433 following completion and operation of E-Forge/NextGen. This project is **needed** as the buildings will no longer be serviceable following completion of E-Forge/NextGen.
E-Forge/NextGen Parking Garage (Parking Garage North)	Construction	The **purpose** of this project is to construct a parking garage outside of the fence to meet future parking growth and accommodate Space Delta 4's mission. This project is **needed** to support additional mission growth and reduce security risk associated with POVs within the fence line.
Demolish Space Delta 4 Shops and Warehouses – Buildings 407, 409, 412, 413, 418, 420, 421, 422, 425, 426	Demolition	The **purpose** of this project is to demolish Space Delta 4 legacy facilities, shops and warehouses totaling eight buildings and 34,300 square feet. This project is **needed** to make way for a power generator facility for power independence.
West End ADP		
Youth Ballfields	Construction	The **purpose** of this project is to construct a ballfield to accompany the Youth Center Addition and provide a restroom and snack facility in addition to bleachers for one field. This project is **needed** to support an important Quality of Life indicator in close proximity to the existing residential area.
Steamboat Ave Roundabout	Construction	The **purpose** of this project is to construct a roundabout at the intersection of Steamboat Avenue and Telluride Street. This project is **needed** to improve traffic flow and reduce roadway congestion.
Education Center Expansion – Building 210	Construction	The **purpose** of this project is to provide additional space for airmen at the existing Education Center. This project is **needed** since the existing Education Center is already undersized and use is expected to grow as missions expand.

Table 1.2-1. Projects Included in Buckley SFB ADPs

Name of Project	Type of Project	Purpose and Need
Skate Park	Construction	The **purpose** of this project is to expand the recreation capacity in the West End. This project is **needed** to increase Quality of Life indicators.
Pave Contractor Parking	Construction	The **purpose** of this project is to pave the gravel lot used by contractors in the Restricted Area. This project is **needed** to organize contractor parking and reduce security risks.
Chapel Expansion – Building 316	Construction	The **purpose** of this project is to expand Fellowship Hall and provide additional spiritual worship space. This project is **needed** to meet increased demands for worship space and associated parking.
Youth Center Expansion – Building 350	Construction	The **purpose** of this project is to expand the existing youth center by 5,300 square feet. This project is **needed** to provide extra space for existing and future needs.
Fitness Center Expansion – Building 35	Construction	The **purpose** of this project is to expand the existing fitness center by 17,800 square feet. This project is **needed** to accommodate current and future mission growth.
ACFT Parking Lot	Construction	The **purpose** of this project is to construct a parking lot accommodating 105 parking spaces. This project is **needed** to provide parking for the new ACFT field and overflow parking for the softball fields.

ADF-C = Aerospace Data Facility – Colorado; ADP = Area Development Plan; ANG = Air National Guard; ARNG = Army National Guard; AVN = Aviation; BN = Battalion; HQ = headquarters; LDC = Leadership Development Center; LED = light-emitting diode; NOSC = Naval Operations Support Center; NRO = National Reconnaissance Office; PAA = Primary Aerospace Vehicle Authorized; POV = personally owned vehicle; RV = recreational vehicle

1.3 PURPOSE AND NEED

The overall purpose of the Proposed Action is to support current and future mission requirements by maintaining and providing needed infrastructure. The Proposed Action is needed for the base to continue providing infrastructure that is adequate to the needs of Space Base Delta 2 and the units it supports. Continued development of infrastructure at Buckley SFB must take into account future facility construction, demolition, renovation, transportation needs, airfield alterations and enhancements, land use planning, energy requirements, stormwater management, and development constraints and opportunities. Each of the projects included in the Proposed Action has a specific purpose and need as presented in Table 1.2-1.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

Consistent with the CEQ regulations, the scope of analysis presented in this EA is defined by the potential range of environmental impacts that would result from implementation of the Proposed Action or alternatives. CEQ regulations (40 CFR 1501.9) state that an agency shall identify and eliminate from detailed study those issues which are not likely to be relevant or which have been covered by prior environmental review. This document is "issue driven," in that it concentrates on those resources that may be affected by implementation of the Proposed Action or alternatives.

Resources that have a potential for impact were considered in detail in order to determine if implementing the Proposed Action or alternatives would have a significant impact on environmental resources. The resources analyzed in detail include socioeconomics/environmental justice, land use/aesthetics, utilities, transportation, hazardous materials management, hazardous waste management, Environmental Restoration Program (ERP) sites, storage tanks, asbestos-containing material (ACM), lead-based paint (LBP), ordnance, geology and soils, water resources, air quality, noise, biological resources, and cultural resources. The affected environment and the potential environmental consequences relative to these resources are described in Chapter 3.0, Affected Environment and Environmental Consequences.

1.5 RELEVANT LAWS AND REGULATIONS

A required component of preparing this EA is a thorough identification of all federal environmental laws, regulations, and directives that apply to the Proposed Action. Table 1.5-1 lists laws and regulations the USSF determined require review regarding their relevancy to the Proposed Action.

Table 1.5-1: Laws and Regulations Relevant to the Proposed Action

Federal Laws and Regulations
American Indian Religious Freedom Act of 1978 (42 United States Code [U.S.C.] 1996)
Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a et seq.)
Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm), Supplemental Regulations of 1984
Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)
Clean Air Act (CAA) of 1970 (42 U.S.C. 7401 et seq.) and CAA Amendments of 1990
Clean Water Act (CWA) of 1977 as amended (33 U.S.C. 1251 et seq.)
Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9675)
Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.)
Migratory Bird Treaty Act (MBTA) of 1918 as amended (16 U.S.C. 703-712)
National Environmental Policy Act (NEPA) of 1969 as amended (42 U.S.C. 4321-4347)
National Historic Preservation Act (NHPA) of 1966 as amended (16 U.S.C. 470 et seq.)
Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013)
Noise Control Act of 1972 (42 U.S.C. 4901 et seq.)
Occupational Safety and Health Act of 1970 (29 U.S.C. 659-678)

Table 1.5-1: Laws and Regulations Relevant to the Proposed Action

Pollution Prevention Act of 1990 (42 U.S.C. 13101-13109)
Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. 6901 et seq.)
Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d)
Superfund Amendments and Reauthorization Act (42 U.S.C. 9601-9675)
Title II of the Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.)
Protection of Historic Properties (36 CFR 800)
CEQ Regulations on Implementing NEPA (40 CFR 1500-1508)
U.S. Army Corps of Engineers Wetlands Policy, including Wetland Delineation Manual and supplements
Executive Orders
Executive Order 11988, Floodplain Management
Executive Order 11990, Protection of Wetlands
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments
Executive Order 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis
Executive Order 14008, Tackling the Climate Crisis at Home and Abroad
Department of Air Force Regulations
Environmental Impact Analysis Process (32 CFR 989)
Environmental Management (DAFI 31-7001)
Civil Engineer Operations (AFI 32-1001)
The Environmental Restoration Program (DAFI 32-7020)
Air Quality Compliance Program (AFI 32-7040)
Water Quality Compliance (AFI 32-7041)
Solid and Hazardous Waste (AFMAN 32-7002)
Hazardous Waste Management Guide (Air Force Pamphlet 32-7043)
Water and Fuel Systems (Air Force Manual [AFMAN 32]-1067)
Environmental Impact Analysis Process (AFI 32-7061)
Air Force Base Comprehensive Planning (AFI 32-7062)
Environmental Compliance and Pollution Prevention (AFMAN 32-7002)
Environmental Conservation (AFMAN 32-7003)
Pollution Prevention Program (AFI 32-7080)
Conservation, Management, and Enforcement (30th Space Wing Instruction [SWI] 32-701)
Lead Management and Operations Plan (LMOP)
Asbestos Management and Operations Plans (AMOP)
Buckley Specific RACS Management Plan (BSRMP)
Buckley Stormwater Pollution Prevention Plan (SWPPP)
Staffing of NEPA Documents (CZ Business Rule 27)

1.6 FEDERAL, STATE, AND LOCAL PERMITS, LICENSES, AND FEES

The contractor responsible for conducting construction and demolition activities would obtain required federal, state, and local permits. The contractor would cooperate with the installation to ensure compliance with applicable Air Force, federal, state, and local regulations, permits, and/or requirements.

1.7 PUBLIC INVOLVEMENT

The DAF coordinated with other federal agencies with jurisdiction by law or special expertise over the Proposed Action and Alternatives to inform the range of issues to be addressed in this EA. Coordination letters, and responses received, are consolidated in Appendix A and discussed in Chapter 3, as appropriate.

Consistent with National Historic Preservation Act of 1966 (NHPA) implementing regulations (36 CFR Part 800), Department of Defense (DoD) Instruction 4710.02, *Interactions with Federally Recognized Tribes*, AFI 90-2002, Air Force Interaction with Federally Recognized Tribes, and Air Force Manual (AFMAN) 32-7003, Environmental Conservation, the DAF is also consulting with federally recognized Tribes that are historically affiliated with the geographic region of Buckley SFB regarding the potential to affect properties of cultural, historical, or religious significance to the Tribes. Table 1.7-1 provides information regarding the Native American Tribes consulted. Appendix B contains additional details, including copies of communications.

Table 1.7-1. Summary of Native American Tribal Consultation

Native American Tribe	Communication Type and Date	Status of Response
Apache Tribe of Oklahoma	Mailed Letter June 2023	No Response received to date
Northern Arapaho Tribe of the Wind River Reservation, Wyoming	Mailed Letter June 2023	No Response received to date
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, Montana	Mailed Letter June 2023	No Response received to date
Cheyenne and Arapaho Tribes, Oklahoma	Mailed Letter June 2023	No Response received to date
Cheyenne River Sioux Tribe of the Cheyenne River Reservation, South Dakota	Mailed Letter June 2023	No Response received to date
Comanche Nation, Oklahoma	Mailed Letter June 2023	No Response received to date
Crow Tribe of Montana	Mailed Letter June 2023	No Response received to date
Eastern Shoshone Tribe of the Wind River Reservation, Wyoming	Mailed Letter June 2023	No Response received to date
Flandreau Santee Sioux Tribe of South Dakota	Mailed Letter June 2023	No Response received to date
Fort Belknap Indian Community of the Fort Belknap Reservation of Montana	Mailed Letter June 2023	No Response received to date
Fort Sill Apache Tribe of Oklahoma	Mailed Letter June 2023	No Response received to date
Jicarilla Apache Nation, New Mexico	Mailed Letter June 2023	No Response received to date
Kiowa Indian Tribe of Oklahoma	Mailed Letter June 2023	No Response received to date
Little Shell Tribe of Chippewa Indians of Montana	Mailed Letter June 2023	No Response received to date

Table 1.7-1. Summary of Native American Tribal Consultation

Native American Tribe	Communication Type and Date	Status of Response
Lower Brule Sioux Tribe of the Lower Brule Reservation, South Dakota	Mailed Letter June 2023	No Response received to date
Mescalero Apache Tribe of the Mescalero Reservation, New Mexico	Mailed Letter June 2023	No Response received to date
Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana	Mailed Letter June 2023	No Response received to date
Oglala Sioux Tribe	Mailed Letter June 2023	No Response received to date
Pawnee Nation of Oklahoma	Mailed Letter June 2023	No Response received to date
Pueblo of Taos, New Mexico	Mailed Letter June 2023	No Response received to date
Pueblo of Zuni, New Mexico	Mailed Letter June 2023	No Response received to date
Rosebud Sioux Tribe of the Rosebud Indian Reservation, South Dakota	Mailed Letter June 2023	No Response received to date
Santee Sioux Nation, Nebraska	Mailed Letter June 2023	No Response received to date
Southern Ute Indian Tribe of the Southern Ute Reservation, Colorado	Mailed Letter June 2023	No Response received to date
Spirit Lake Tribe, North Dakota	Mailed Letter June 2023	No Response received to date
Standing Rock Sioux Tribe of North & South Dakota	Mailed Letter June 2023	No Response received to date
Three Affiliated Tribes of the Fort Berthold Reservation, North Dakota	Mailed Letter June 2023	No Response received to date
Upper Sioux Community, Minnesota	Mailed Letter June 2023	No Response received to date
Ute Indian Tribe of the Uintah & Ouray Reservation, Utah	Mailed Letter June 2023	No Response received to date
Ute Mountain Ute Tribe	Mailed Letter June 2023	No Response received to date
Yankton Sioux Tribe of South Dakota	Mailed Letter June 2023	No Response received to date

1

2

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter presents information on the Proposed Action of implementing the five ADPs of Buckley SFB and undertaking all of the 46 short-term projects proposed therein. Due to the uncertainty introduced when considering projects planned to occur 5 to 20 or more years into the future, these mid-range, long-range, and capacity projects will be assessed in future NEPA documentation and will not be discussed within this EA. An additional 26 short-term projects were included in the ADPs but are not assessed within this EA; these are summarized in Section 2.2.8. Section 2.2 describes the Proposed Action at Buckley SFB; Section 2.3 discusses the No-Action Alternative; and Section 2.4 discusses alternatives considered but eliminated from further consideration.

2.2 PROPOSED ACTION

The Proposed Action involves implementing a range of projects outlined in five ADPs that together encompass the entirety of Buckley SFB. These ADPs layout the projects planned for each area of the installation. The proposed projects are discussed in terms of type and generally classified as construction, renovation, and demolition. Projects are also discussed in terms of being "vertical" or "horizontal." As used in the Area Development Execution Plans (ADEPs) for each of the five ADPs, these are defined as follows:

- **Vertical projects** are buildings that need to be completed to fulfill the plan.
- **Horizontal projects** include, but are not limited to, paving, pavement removal, construction of sidewalks and fences, introduction of plating strips, installation of pervious pavers, landscaping, realignment of streets, new streets, installation of bollards, and definition of access points and staging areas with concrete curbs.

2.2.1 Facility Design

The Proposed Action includes construction projects and operation of facilities to support the requirements of Buckley SFB units and tenants. The proposed facility design to meet square footage requirements would vary by project, but all facilities would meet required standards in accordance with AFMAN 32-1084, *Facility Requirements*.

Proposed new facilities would be served by redundant and resilient utility infrastructure, including electricity; natural gas; heating, ventilation, and air conditioning (HVAC); water/sewer; communications/data; fire protection and life safety; and stormwater management. These systems would be designed, operated, and maintained in accordance with applicable DoD Unified Facilities Criteria (UFC). The aesthetic design of the facilities would display a dignified architectural character without excessive ornamentation while maintaining compatibility with Buckley SFB design criteria or guidelines.

Access to the facilities would be limited to authorized personnel and visitors and would be continuously managed by DAF, DoD, or other federal security personnel. The proposed facilities would be designed and built in accordance with applicable DoD antiterrorism/force protection (AT/FP) requirements specified in UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings* (December 2018) and UFC 4-023-03, *Design of Buildings to Resist Progressive Collapse* (Change 3, November 2016). All projects would comply with federal and state laws and regulations, including permitting and design requirements. For example, applicable requirements of Section 438 of the Energy Independence and Security Act of 2007 (EISA), which requires federal projects to incorporate into the design, to the maximum extent technically feasible, low-impact development (LID) measures to maintain the pre-development hydrology of a site. Such measures could include, but would be limited to, permeable pavement, rain gardens, and water retention areas. Construction activities would also be conducted in accordance with the applicable

requirements of the U.S. Environmental Protection Agency's (USEPA) National Pollutant Discharge Elimination System (NPDES) and associated permits to manage the quantity and quality of stormwater discharged from each project site and minimize the pollution and sedimentation of receiving water bodies. These "regulatory compliance measures" and other applicable design commitments are discussed throughout the resource-specific impact analyses in Chapter 3. As the DAF would comply with each of these requirements if it selects to implement the Proposed Action, the analysis assumes compliance with these measures when assessing the impacts.

2.2.2 Construction and Demolition

Construction activities would include site preparation (e.g., vegetation clearing; soil excavation, filling, grading, and leveling; trenching or directional boring to install/extend utilities); identification and extension of utility infrastructure systems; installation of foundation piles and concrete foundation slab; erection of structural steel; establishment of vehicle parking areas; and modification or extension of existing roads and pedestrian sidewalks. The amount of land disturbance and excavation and the amount of demolition or construction would vary for each of the proposed ADP projects and would depend on final design.

Temporary laydown areas and storage areas would be established prior to construction and renovation. Site preparation would include the installation of erosion and sediment control best management practices (BMPs) and the clearing and grubbing of existing vegetation on the site, as needed. Once the site is prepared, excavation would begin for foundation footings and utilities using heavy excavation equipment. If not currently existing at the site, communication, electricity, potable water, sanitary sewer, and stormwater utilities would be extended from existing utility infrastructure while excavations are open. Once complete, excavations outside the foundation would be backfilled and compacted.

Vertical construction would occur after the foundation is complete. Construction contractors would complete the superstructure, exterior finishes, utilities work, and interior finishes of the facility. Construction materials would be delivered via designated construction traffic route from off-site vendors.

Demolition would be completed using standard construction equipment and may include excavators, man lifts, graders, bobcats, and trucks to haul away debris. No other method of demolition such as burning or implosion would be employed. Dust control measures would be implemented as needed and practicable. Some crushing of vegetation may occur surrounding the immediate area of demolition. Staging areas would be used for the temporary storage of equipment or demolition debris until transported to an appropriate offsite disposal facility. Demolition of existing structures and supporting infrastructure would generate solid waste from demolition debris. The demolition contractor would be responsible for solid waste management and disposal off-Base at landfills with appropriate capacity and in accordance with all federal, state, and local regulations. Any ACM, if present, would be removed prior to demolition or renovation activities and disposed of at a proper facility. Materials such as concrete, steel, and asphalt from any demolition or renovation activities would be recycled or otherwise diverted from landfills to the extent practicable. Machinery such as mobile cranes, loaders, tractors, forklifts, air compressors, and welding equipment may be used during this phase. Following construction, areas temporarily disturbed would be re-seeded with approved seed mixtures. Finally, grading and landscaping would occur. Construction and revegetation efforts would be performed in accordance with the base Installation Facilities Standards, which apply to architecture and landscaping design.

2.2.3 Aspen Corridor ADP

The Aspen Corridor ADP summarizes the planning process and the development of the preferred alternative (including the short-term projects assessed within this EA) over the course of a virtual 4-day workshop. Key components of this process included the following:

1. Installation staff and stakeholders conducted an exercise to identify strengths, weaknesses, opportunities, and threats of the existing ADP and also reviewed and updated maps of building

conditions, constraints, and developable areas. Following these exercises, the planning group consolidated input and presented findings during a site analysis and program review.

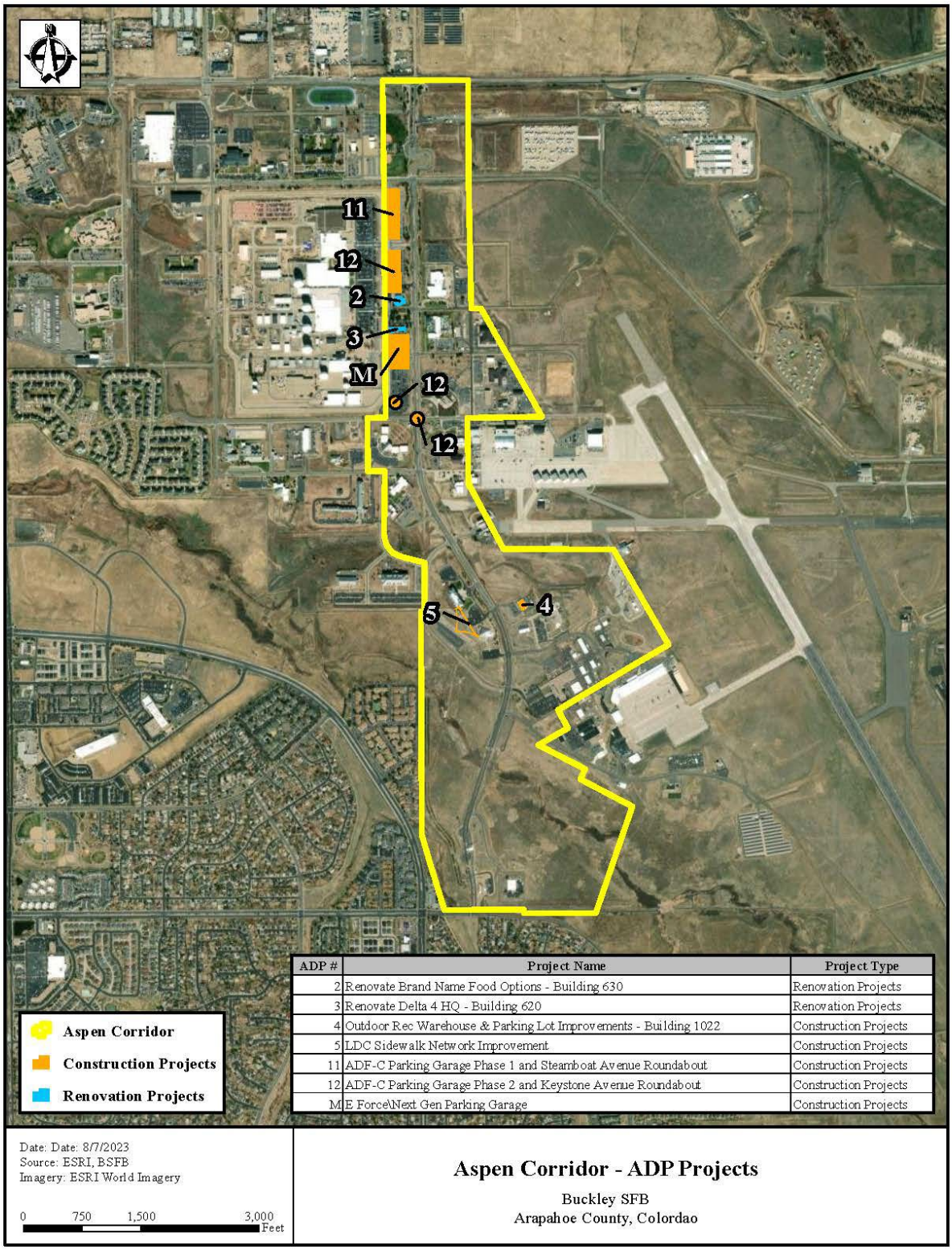
2. Installation staff and stakeholders developed a planning vision and goals for Aspen Corridor using Illustrative Plans from the existing 2014 ADP and Visual Preference Survey data. These goals were used to develop project alternatives. Stakeholders provided feedback on the alternatives and chose components of each to move forward into the preferred alternative.
3. The planning group and stakeholders refined the preferred alternative and created a step-wise plan. This plan showed how one major project could incorporate several different requirements to take advantage of funding opportunities and proposed overall phases for the development.

The Final Aspen Corridor ADP presents the details and outcomes of this workshop. As developed during the ADP planning process, the vision for Aspen Corridor is to "create an appealing boulevard framed by consistent architecture and water-wise landscapes." This vision is supported by three goals:

1. **Appealing boulevard.** Create a central corridor with infrastructure for pedestrians, bicycles, and vehicles; planting strips with trees and attractive landscape; and outdoor seating near the town square. Traffic should be controlled by functional roundabouts, and car parks should be provided behind buildings or landscaping and hidden from the corridor.
2. **Consistent architecture.** Create facilities that follow Buckley SFB's mountain-west architectural style and are consistent with the Installation Facility Standards. Facilities should be flexible, multi-story where appropriate, and provide for a variety of uses.
3. **Water-wise landscapes.** Landscaping should be attractive and regionally appropriate. Plants should be drought and cold tolerant and low maintenance. Landscaping may be irrigated with reclaimed water.

This EA assesses six proposed short-term projects within Aspen Corridor that would help Buckley SFB achieve these stated goals. Figure 2.2-1 identifies the locations of the four proposed construction projects and two proposed renovation projects, which are summarized in the following subsections.

Figure 2.2-1 Aspen Corridor - ADP Projects



ADP #	Project Name	Project Type
2	Renovate Brand Name Food Options - Building 630	Renovation Projects
3	Renovate Delta 4 HQ - Building 620	Renovation Projects
4	Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022	Construction Projects
5	LDC Sidewalk Network Improvement	Construction Projects
11	ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout	Construction Projects
12	ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout	Construction Projects
M	E Force\Next Gen Parking Garage	Construction Projects

2.2.3.1 *Construction Projects*

Table 2.2-1 summarizes the five proposed short-term construction projects within Aspen Corridor.

Table 2.2-1. Short-Term Construction Projects Proposed within the Aspen Corridor ADP

Project Name	Project Number	Project Description
Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022	4	A new, 6,000-square foot warehouse would be constructed on top of existing paving. Minimal sitework would be needed. Extra parking would be added to the site as needed over time. A second driveway and improvements to the parking area are also proposed. Proposed improvements would include the demolition of approximately 2,780 square feet of existing pavement and the construction of 12,799 square feet of new pavement. An additional 778 square feet of curb and gutter are also proposed.
LDC Sidewalk Network Improvements	5	Construct approximately 3,000 square feet of proposed sidewalk to improve the existing sidewalk network.
ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout	11	The first phase of ADF-C parking garages moves parking outside of the Restricted Area fence to allow for more developable land inside the fence. The garage would be two floors: a ground floor and a second floor above ground. The garage must remain under the height restrictions imposed by the look angles of the radomes. The west wall of the garage, adjacent to the ADF-C, would align with and replace the outside fence of the Restricted Area. The wall would be constructed of solid concrete for security and snow protection and would be stamped with motifs to be attractive. The garage is set back from Aspen Street to allow for future infill development of buildings along the corridor's street edge. The garage would have an architecturally emphasized entry and stairway on the corner. Parking garage top floor can accommodate 990-kilowatt photovoltaic (solar) panels over parking stalls and would generate 1.6 million kilowatt-hours per year. Remove 345 existing parking spaces. Create 1,412 new parking spaces (net increase of 1,067). Roundabout at Steamboat Avenue mitigates congestion. . Construct a 459,000-square foot parking garage as well as 42,531 square feet of pavement, 3,898 square feet of curb and gutter, and 7,394 square feet of sidewalk. Demolish 175,750 square feet of pavement and 7,158 square feet of sidewalk.
ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout	12	The second phase of the ADF-C parking garages continues to move parking outside of the Restricted Area fence to allow for more developable land inside the fence. The garage would be two floors: a ground floor and a second floor above ground. The garage must remain under the height restrictions imposed by the look angles of the radomes. The west wall of the garage, adjacent to the ADF-C, would align with and replace the

		outside fence of the Restricted Area. The wall would be constructed of solid concrete for security and snow protection and would be stamped with motifs to be attractive. The garage is set back from Aspen Street to allow for future infill development of buildings along the corridor's street edge. The garage would have an architecturally emphasized entry and stairway on the corner. Parking garage top floor can accommodate 990-kilowatt photovoltaic (solar) panels over parking stalls and would generate 1.6 million kilowatt-hours per year. Remove 353 existing parking spaces. Create 1,200 new parking spaces (net increase of 847). Roundabout near Building 620 mitigates congestion. Construct a 390,000-square foot parking garage as well as 36,575 square feet of pavement, 2,226 square feet of median, 10,036 square feet of sidewalk, and 1,611 square feet of curb and gutter. Demolish a 209-square foot structure as well as 168,476 square feet of pavement and 9,806 square feet of sidewalk.
E Forge\Next Gen Parking Garage	M	Construct a 2-story parking garage encompassing a total of approximately 140,000 square feet. In addition, 7,514 square feet of sidewalk would be constructed, and 15,811 square feet of open space would be created. This project would also include the demolition of approximately 48,275 square feet of pavement.

2.2.3.2 *Renovation Projects*

Table 2.2-2 summarizes the two proposed short-term renovation projects within Aspen Corridor.

Table 2.2-2. Short-Term Renovation Projects Proposed within the Aspen Corridor ADP

Project Name	Project Number	Project Description
Renovate Brand Name Food Options - Building 630	2	Renovate the existing Building 630. The building footprint encompasses 5,210 square feet. A new, 436-square foot patio with outdoor dining will be located at the front of the building facing west. In addition, approximately 3,095 square feet of open space and 1,861 square feet of sidewalk are proposed.
Renovate Space Delta 4 HQ - Building 620	3	Renovate the 10,530 square-foot Building 620 to support the headquarters for Space Delta 4 including modernizing interior finishes and the exterior to give building a fresh look. Offices would remain in Building 620 for 5 to 10 years until a new MILCON construction project can be completed for the organization.

2.2.3.3 *Demolition Projects*

No short-term demolition projects are planned for Aspen Corridor.

2.2.4 Aviation Ridge ADP

The Aviation Ridge ADP summarizes the planning process workshop and the development of the preferred alternative (including the short-term projects assessed within this EA). This planning process involved four steps:

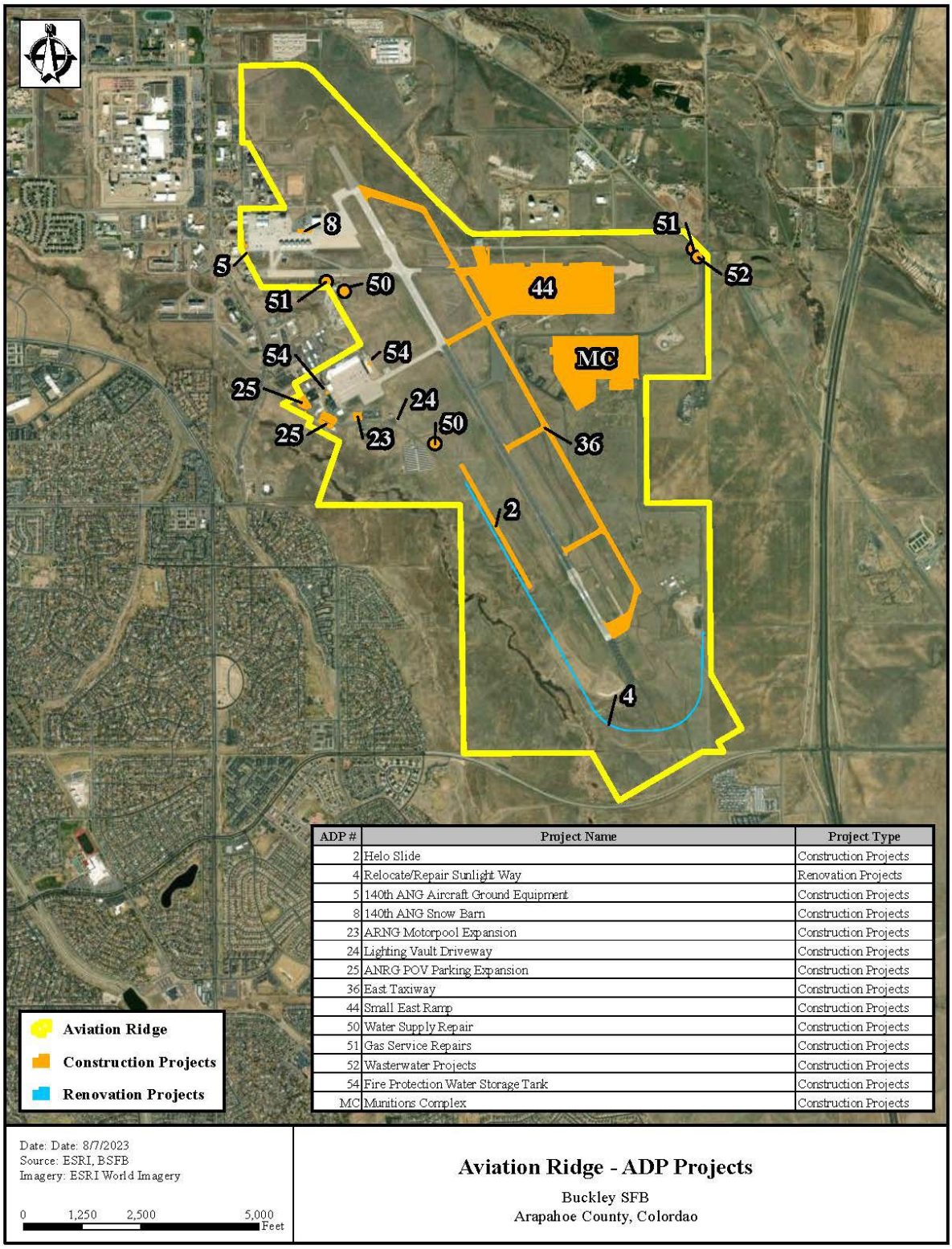
1. Stakeholders walked the site and identified and evaluated the buildings, pavement, and landscapes. Assets and liabilities were noted.
2. Stakeholders identified short- and long-term projects and project requirements. Information such as facility size, location, parking requirements, cost, and funding year were recorded and reviewed as a group.
3. Design began by participants taking turns developing streets, buildings, parking, and open space within the existing constraints. One design was selected as the preferred, which was developed with greater detail into an Illustrative Plan.
4. Using the process plan as an underlay, participants developed a more detailed design that also considered the existing site constraints. The resulting plan illustrates the capacity for development based on the vision, goals, and design principles established at the workshop. Using the Illustrative Plan as an underlay, participants created a Regulating Plan that identified the development parcels, allowable uses, minimum and maximum building heights, built-to lines, parking zones, entry zones, and required entry locations.

The Final Aviation Ridge ADP presents the details and outcomes of this planning process. As stated in the Aviation Ridge ADP, the planning team's vision is to "develop, operate, and maintain Aviation Ridge with efficient access, consolidated facilities, and compliant infrastructure." This vision is supported by three overarching goals:

1. **Efficient access.** Promote efficient accessibility by designing a safe transportation system with multiple access points.
2. **Consolidated facilities.** Consolidate compatible functions to create a compact and efficient campus environment.
3. **Compliant infrastructure.** Design infrastructure that complies with safety and environmental requirements while meeting the demands of the installation.

This EA assesses 14 proposed short-term projects within Aviation Ridge that would help Buckley SFB achieve these stated goals. Figure 2.2-2 identifies the locations of the 13 proposed construction projects and 1 proposed renovation project, which are summarized in the following subsections.

Figure 2.2-2 Aviation Ridge - ADP Projects



ADP #	Project Name	Project Type
2	Helo Slide	Construction Projects
4	Relocate/Repair Sunlight Way	Renovation Projects
5	140th ANG Aircraft Ground Equipment	Construction Projects
8	140th ANG Snow Barn	Construction Projects
23	ARNG Motorpool Expansion	Construction Projects
24	Lighting Vault Driveway	Construction Projects
25	ANRG POV Parking Expansion	Construction Projects
36	East Taxiway	Construction Projects
44	Small East Ramp	Construction Projects
50	Water Supply Repair	Construction Projects
51	Gas Service Repairs	Construction Projects
52	Wasterwater Projects	Construction Projects
54	Fire Protection Water Storage Tank	Construction Projects
MC	Munitions Complex	Construction Projects

2.2.4.1 *Construction Projects*

Table 2.2-3 summarizes the 13 proposed short-term construction projects within Aviation Ridge.

Table 2.2-3. Short-term Construction Projects Proposed within the Aviation Ridge ADP

Project Name	Project Number	Project Description
Fire Protection Water Storage Tank	54	Increase water storage capacity for the Building 1510 and Building 1500 fire suppression systems from 140,000 gallons to 200,000 gallons. This project would include 32,678 square feet of horizontal demolition.
Helo Slide	2	Construct approximately 225,000 square feet of new apron. This project would also include approximately 9,815 square feet of vertical demolition, 11,119 square feet of road demolition, and 35,237 square feet of horizontal demolition.
140th ANG Aircraft Ground Equipment	5	Construct a 12,449-square foot vehicle maintenance area, a 227-square foot water tank, 281 square feet of sidewalk, and 21,672 square feet of parking lot. Approximately 2,348 square feet of sidewalk would be demolished, and an additional 6,565 square feet of horizontal demolition are proposed.
ARNG Motorpool Expansion	23	Construct 27,273 square feet of parking area.
Lighting Vault Driveway	24	Construct 805 square feet of parking area.
ARNG POV Parking Expansion	25	Construct 146,526 square feet of parking area, 17,858 square feet of sidewalk, and a 5,983-square foot planting strip. Approximately 2,738 square feet of sidewalk would be demolished. In addition, 115,376 square feet of horizontal demolition and 4,536 square feet of vertical demolition are also proposed.
East Taxiway	36	Construct approximately 1.58 million square feet of new apron. In addition, approximately 1.8 million square feet of horizontal demolition are proposed, and 192,557 square feet of road would be demolished.
Small East Ramp	44	Construct 3,086,941 square feet of apron. Approximately 176 square feet of vertical demolition and 122,388 square feet of horizontal demolition are also proposed.
Wastewater Projects	52	Construct a new, larger sewage lift station suitable to collect sanitary sewage for this area due to the topography and lack of service connection. The sewage lift station would discharge by force main to the existing South Piccadilly Road 24-inch sanitary sewer gravity flow collection main.
Munitions Complex	MC	Construct a Munitions Storage and Maintenance Complex. Complex will consist of 9 small Storage Igloos (904 square feet), 4 larger Storage Igloos (2,100 square feet), 1 Administrative Facility (12,000 square feet), 1 Conventional Maintenance Facility

Table 2.2-3. Short-term Construction Projects Proposed within the Aviation Ridge ADP

Project Name	Project Number	Project Description
		with 2 bays (6,600 square feet), and one Missile Maintenance Facility (6,600 square feet). The complex also includes a 40,000-square foot Munitions Assembly Conveyer pad with a 12,000-square foot covered area. Facilities will include spaces for administrative offices, bathrooms, break room, janitor closets, office storage, maintenance shop areas, parts storage, inspection and loading areas. Include utilities and connections, lighting, paving, parking, walks, curbs and gutters, storm drainage, landscaping, signage, information systems and site improvements. Fire protection and alarm systems, carbon monoxide detection and alarm systems, Building Information Systems, Energy Monitoring Control Systems, security and closed-circuit television system, and mass notification systems are included. The facilities will be designed to a minimum life of 40 years in accordance with Unified Facilities Criteria 1-200-02 and will include energy efficiencies, building envelope and integrated building systems performance measures. Sustainable principles and life- cycle cost-effective practices will be integrated into the design, development and construction of the project in accordance with Unified Facilities Criteria 1-200-02. This project will comply with Department of Defense minimum antiterrorism requirements in Unified Facilities Criteria 4-010-01. Estimated air conditioning is 175 tons.
140th ANG Snow Barn	8	Construct a 17,986-square foot vehicle maintenance project.
Water Supply Repair	50	Construct a new 16-inch water branch main routed to the northeastern corner of the base and a 12-inch looped water service line that ties into it.
Gas Service Repairs	51	Provide two 6-inch natural gas branch mains.

2.2.4.2 *Renovation Projects*

Table 2.2-4 summarizes the one proposed short-term renovation project within Aviation Ridge.

Table 2.2-4. Short-term Renovation Projects Proposed within the Aviation Ridge ADP

Project Name	Project Number	Project Description
Relocate/Repair Sunlight Way	4	A properly configured and constructed roadway is required to support airfield and training functions outlined in ANGH 32-1084 to support 18 PAA F-16 Aircraft. Full-depth replacement of existing asphalt access road altering the route and security fence to meet current airfield criteria. This project would include construction of 193,309 square feet of road and demolition of 100,701 square feet of pavement.

2.2.4.3 *Demolition Projects*

No short-term demolition projects are planned for Aviation Ridge.

2.2.5 North Corner ADP

Development of the North Corner ADP followed the same 4-step process as that described in Section 2.2.4 for Aviation Ridge. The Final North Corner ADP presents the details and outcomes of this planning process.

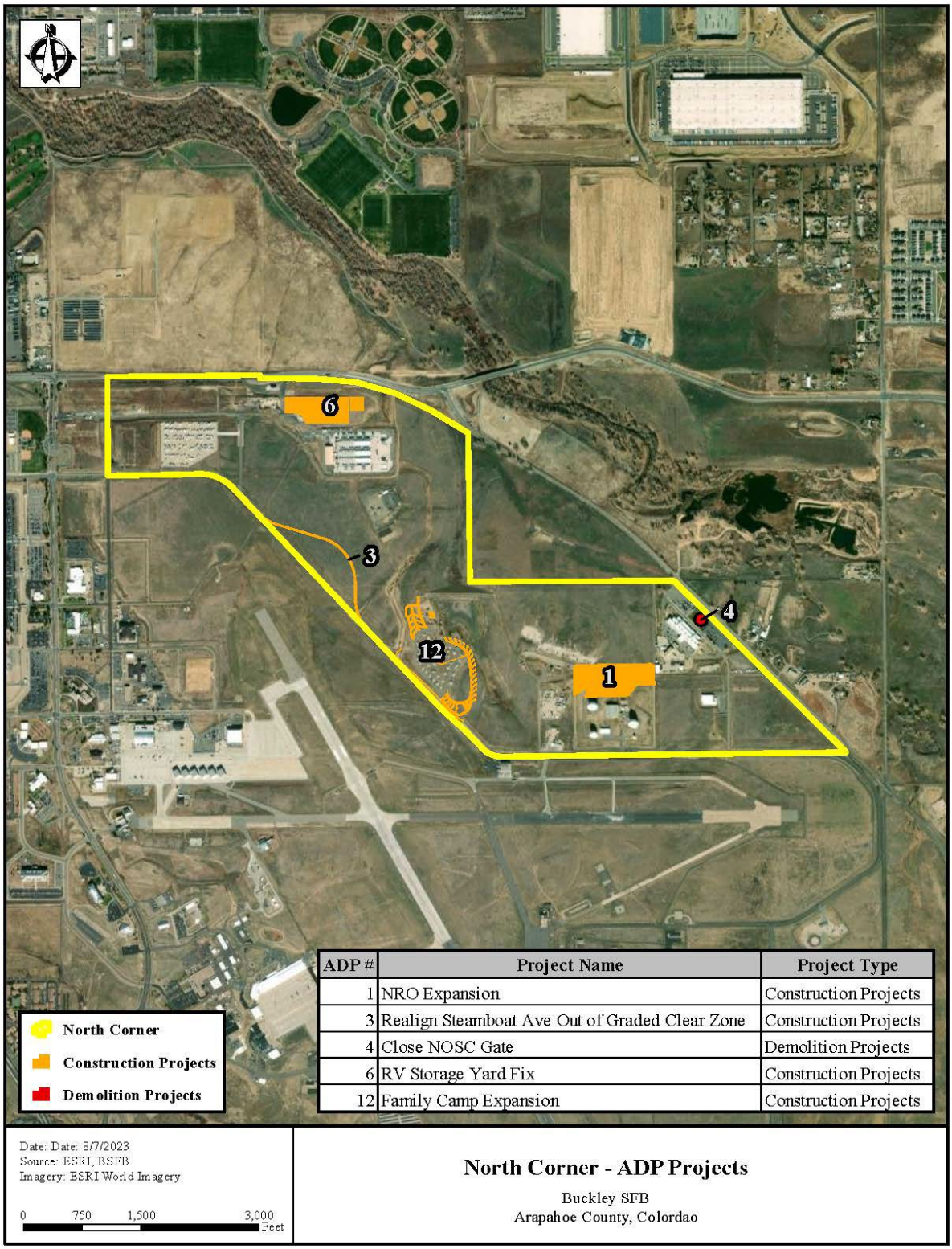
Previous master planning efforts identified North Corner as a training district. While this remains an important function of the area, the current ADP develops North Corner with more industrial facilities and expanded recreational opportunities with additional RV sites at the FamCamp and an expanded trail network. Consolidation of ARNG functions is another important feature of this ADP. Please note that some goals of the ADP would be met by longer-term or capacity projects and remain beyond the short-term projects assessed within this EA.

As stated in the North Corner ADP, the planning team's vision is to "create a joint mission support district through a network of open spaces, roads, and trails as well as consolidated training areas and facilities." This vision is supported by three goals:

1. **Network of open spaces, roads, and trails.** Create a connected network of open spaces to support training and passive and active recreation, which also mitigate stormwater and act as buffers to separate disparate uses. A connected road networks will allow for safe, logical, and efficient transportation, and a connected trail network will support fitness and recreation.
2. **Consolidated training areas.** Provide areas for consolidated training near Camp Rattlesnake, but away from development to consolidate and expand training capabilities.
3. **Consolidated facilities.** Construct consolidated facilities that are flexible, multi-story where appropriate, and provide for a variety of uses.

This EA assesses five proposed short-term projects within North Corner that would help Buckley SFB achieve these stated goals. Figure 2.2-3 identifies the locations of the three proposed construction projects and one proposed demolition project, which are summarized in the following subsections.

Figure 2.2-3 North Corner - ADP Projects



ADP #	Project Name	Project Type
1	NRO Expansion	Construction Projects
3	Realign Steamboat Ave Out of Graded Clear Zone	Construction Projects
4	Close NOSC Gate	Demolition Projects
6	RV Storage Yard Fix	Construction Projects
12	Family Camp Expansion	Construction Projects

2.2.5.1 *Construction Projects*

Table 2.2-5 summarizes the four proposed short-term construction projects within North Corner.

Table 2.2-5. Short-term Construction Projects Proposed within the North Corner

Project Name	Project Number	Project Description
NRO Expansion	1	Add two new radomes to the Remote Terminal Facility. Construct an administrative building. Construction of 28,401 square feet of road and demolition of 13,295 square feet of road.
Realign Steamboat Ave Out of Graded Clear Zone	3	Construct 4,865-square foot planting strip, 56,444 square feet of road, and 5,758 square feet of sidewalk. Demolish 34,964 square feet of sidewalk and 60,914 square feet of road.
RV Storage Yard Fix	6	Construct 263,917 square feet of parking area and 1,769 square feet of road. In addition, 30,385 square feet of horizontal demolition are proposed.
FamCamp Expansion	12	FamCamp expansion allows for additional camp sites for tents and full RV hookups sited with respect to views to the Rocky Mountains, topography, and other environmental considerations. FSS currently maintains a FamCamp with 38 RV sites and this plan includes an expansion of the FamCamp for a total of 63 sites. An additional 25 RV sites are to be constructed after removal of the existing dam pending approval of a separate NEPA analysis.

2.2.5.2 *Renovation Projects*

No short-term renovation projects are planned for North Corner.

2.2.5.3 *Demolition Projects*

Table 2.2-6 summarizes the one proposed short-term demolition project within North Corner.

Table 2.2-6. Short-term Demolition Projects Proposed within the North Corner

Project Name	Project Number	Project Description
Close NOSC Gate	4	Demolish 15,953 square feet of road.

2.2.6 Restricted Area ADP

The Restricted Area ADP summarizes the planning process and the development of the preferred alternative (including the short-term projects assessed within this EA) over the course of a 3-day workshop. Key components of this process included the following:

1. Installation staff and stakeholders conducted an exercise to identify current strengths, weaknesses, opportunities, and threats of the existing ADP and performed a Visual Preference Survey. Following these exercises, the planning team toured the district and assessed building conditions, pavement conditions, landscape constraints, and assets and liabilities. The planning team then documented the findings.

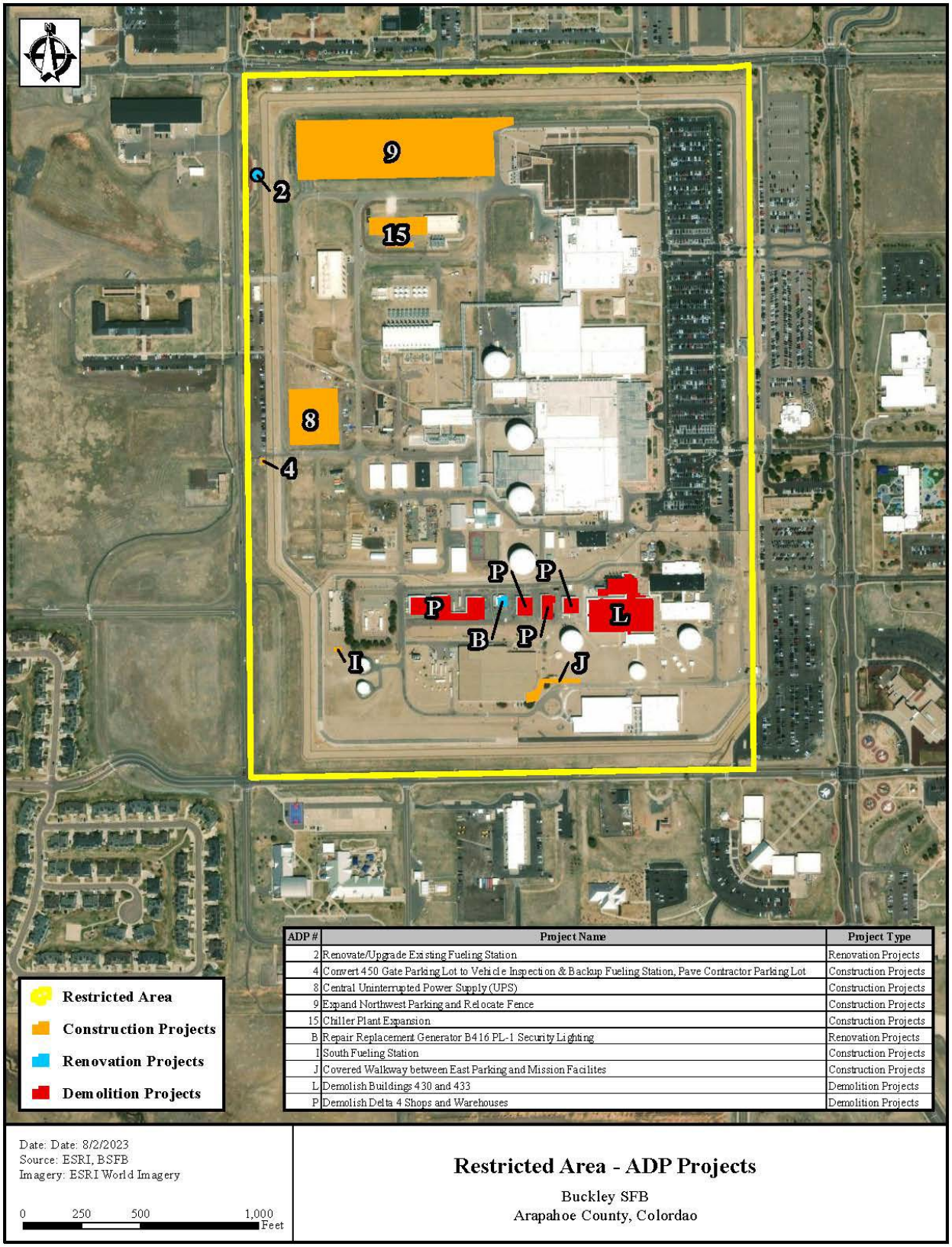
2. The planning group developed a planning vision statement and goals for the district, then presented a preliminary development program to stakeholders to ensure the alternatives would capture all requirements for the Restricted Area. Three teams facilitated by the planning team designed minimum development, medium development, and maximum development alternatives for the district, simulating different budgets and intensities of development. Each team presented their alternative to the group, who in turn scored the alternatives against the planning vision. Stakeholders also noted common themes among the alternatives to carry forward into the preferred alternative. The planning team and stakeholders then created the preferred alternative based upon the feedback from the alternatives.
3. The planning team refined the preferred alternative, ordered each project in a step-wise plan, calculated the building area and parking, and created a 3-dimensional model of each building in the district. This plan showed how one major project could incorporate several different requirements to take advantage of funding opportunities and proposed overall phases for the development.

The Final Restricted Area ADP presents the details and outcomes of this workshop. As stated in the Restricted Area ADP, the planning team's vision is to "create a technical center worthy of its National Defense mission that is connected, highly efficient, and visually appealing." This vision is supported by three goals:

1. **Connected.** Create a compact campus with covered walkways, connected sidewalks, and linked green infrastructure. The district should be free of fences separating tenants. The campus should also include technological connections via new and efficient data connections through communication ducts in utility corridors.
2. **Highly efficient.** Replace aging and inefficient infrastructure with modern infill facilities to create a mixed-use district with a compact layout and multi-story perimeter parking garages. Building uses including operations, administration, industrial facilities, dining, and fitness will all co-exist in the same district. New infrastructure should be guided by resiliency and security planning in order to keep the mission operating without interruption.
3. **Visually appealing.** Construct modern buildings with dramatic design, layered architecture, and defined outdoor spaces. Modern building facades should have windows, texture, horizontality, and connection. The campus should follow Buckley SFB's mountain-west architectural style and include quads, trees, and narrow buildings. Industrial and utility operations should be consolidated in the back of the district, out of sight from the installation gate. Facilities should be flexible, multi-story where appropriate, and provide for a variety of uses. Landscaping should be attractive and regionally appropriate. Plants should be drought and cold tolerant and low maintenance. Landscaping may be irrigated with reclaimed water.

This EA assesses 11 proposed short-term projects within the Restricted Area that would help Buckley SFB achieve these stated goals. Five of these are located within the ADF-C Node, and six are located within the Space Delta 4 Node. Figure 2.2-4 identifies the locations of the seven proposed construction projects, two proposed renovation projects, and three proposed demolition projects, which are summarized in the following subsections.

Figure 2.2-4 Restricted Area - ADP Projects



ADP #	Project Name	Project Type
2	Renovate/Upgrade Existing Fueling Station	Renovation Projects
4	Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot	Construction Projects
8	Central Uninterrupted Power Supply (UPS)	Construction Projects
9	Expand Northwest Parking and Relocate Fence	Construction Projects
15	Chiller Plant Expansion	Construction Projects
B	Repair Replacement Generator B416 PL-1 Security Lighting	Renovation Projects
I	South Fueling Station	Construction Projects
J	Covered Walkway between East Parking and Mission Facilites	Construction Projects
L	Demolish Buildings 430 and 433	Demolition Projects
P	Demolish Delta 4 Shops and Warehouses	Demolition Projects

2.2.6.1 *Construction Projects*

Table 2.2-7 summarizes the six proposed short-term construction projects within the Restricted Area. Of these, four would be located within the ADF-C Node, and two would be located within the Space Delta 4 Node.

Table 2.2-7. Short-term Construction Projects Proposed within the Restricted Area ADP

Project Name	Project Number	Project Description
ADF-C Node		
Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot	4	Construct a 2,000-square foot proposed control center, 39,905 square feet of pavement, 6,978 square feet of sidewalk, and 2,545 square feet of curb and gutter. In addition, 54,294 square feet of open space would be created. Demolition of a 415-square foot building and 578 linear feet of fence would also occur.
Central Uninterrupted Power Supply	8	Construct a 27,000-square foot building, 14,346 square feet of pavement, and 1,724 square feet of curb and gutter. In addition, 50,291 square feet of open space would be created. Demolition of 14,552 square feet of pavement would also occur.
Expand Northwest Parking and Relocate Fence	9	Increase parking in the northwest portion of the ADF-C and relocate the fence so no POVs are located within the secured area. Increases the parking capacity of 639 spaces and installs a pedestrian turnstile in the fence. This project involves construction of 429,575 square feet of pavement and 8,010 square feet of curb and gutter. In addition, 162,419 square feet of open space would be created. This project would also require the demolition of 17,989 linear feet of fencing and 194,192 square feet of pavement.
Chiller Plant Expansion	15	Expand the chiller plant to provide district chilled water to the facilities including a 20,000-square foot chiller plant as well as eight additional structures totaling 2,530 square feet. Approximately 22,267 square feet of open space would also be created.
Space Delta 4 Node		
South Fueling Station	I	Construction of an external fueling station for the Space Delta 4 fuel tanks. Construct approximately 9,157 square feet of pavement and 1,664 square feet of curb and gutter. This project includes addition of new fuel storage tanks and fuel transfer lines.
Covered Walkway between East Parking and Mission Facilities	J	Construct a covered walkway between the east parking lot to the Space Delta 4 mission buildings Construct 14,060 square feet of covered walkway and 300 square feet of sidewalk. Approximately 15,283 square feet of open space would also be created.

2.2.6.2 *Renovation Projects*

Table 2.2-8 summarizes the two proposed short-term renovation projects within the Restricted Area. Of these, one would be located within the ADF-C Node, and one would be located within the Space Delta 4 Node.

Table 2.2-8. Short-term Renovation Projects Proposed within the Restricted Area ADP

Project Name	Project Number	Project Description
ADF-C Node		
Renovated/Upgraded Existing Fueling Station	2	Construct approximately 6,080 square feet of pavement and 889 square feet of curb and gutter.
Space Delta 4 Node		
Repair Replacement Generator B416 PL-1 Security Lighting	B	Replace PL-1 exterior security lighting with energy-efficient LED lights. Replace security lighting backup generator in B416 with a new generator right-sized for new lighting. Construct 1,414 square feet of security lighting.

2.2.6.3 *Demolition Projects*

Table 2.2-9 summarizes the three proposed short-term demolition projects within the Restricted Area. These projects would be located within the Space Delta 4 Node.

Table 2.2-9. Short-term Demolition Projects Proposed within the Restricted Area ADP

Project Name	Project Number	Project Description
Space Delta 4 Node		
Demolish Building 448	F	Upon completion of the Space Based Infrared System Special Operation Facility, demolish Building 448. Demolish 1,470 square feet of building space and 2,271 square feet of pavement.
Demolish Buildings 430, 433	L	After completion and operation of E-Forge/NextGen, the operations in these buildings will be moved into the E-Forge/NextGen facility and these buildings can be demolished. Demolish 47,383 square feet of building space and 4,319 square feet of pavement.
Demolish Space Delta 4 Shops and Warehouses	P	Demolish Space Delta 4 legacy facilities, shops and warehouses totaling 8 buildings and 34,384 square feet. In addition, approximately 91,743 feet of pavement would be demolished.

2.2.7 West End ADP

The West End ADP summarizes the planning process and the development of the preferred alternative (including the short-term projects assessed within this EA) over the course of a virtual 5-day workshop. Key components of this process included the following:

1. Installation staff and stakeholders conducted an exercise to identify strengths, weaknesses, opportunities, and threats of the existing ADP and also reviewed and updated maps of buildings

conditions, constraints, and developable areas. A proposed program was developed based on all stakeholder input.

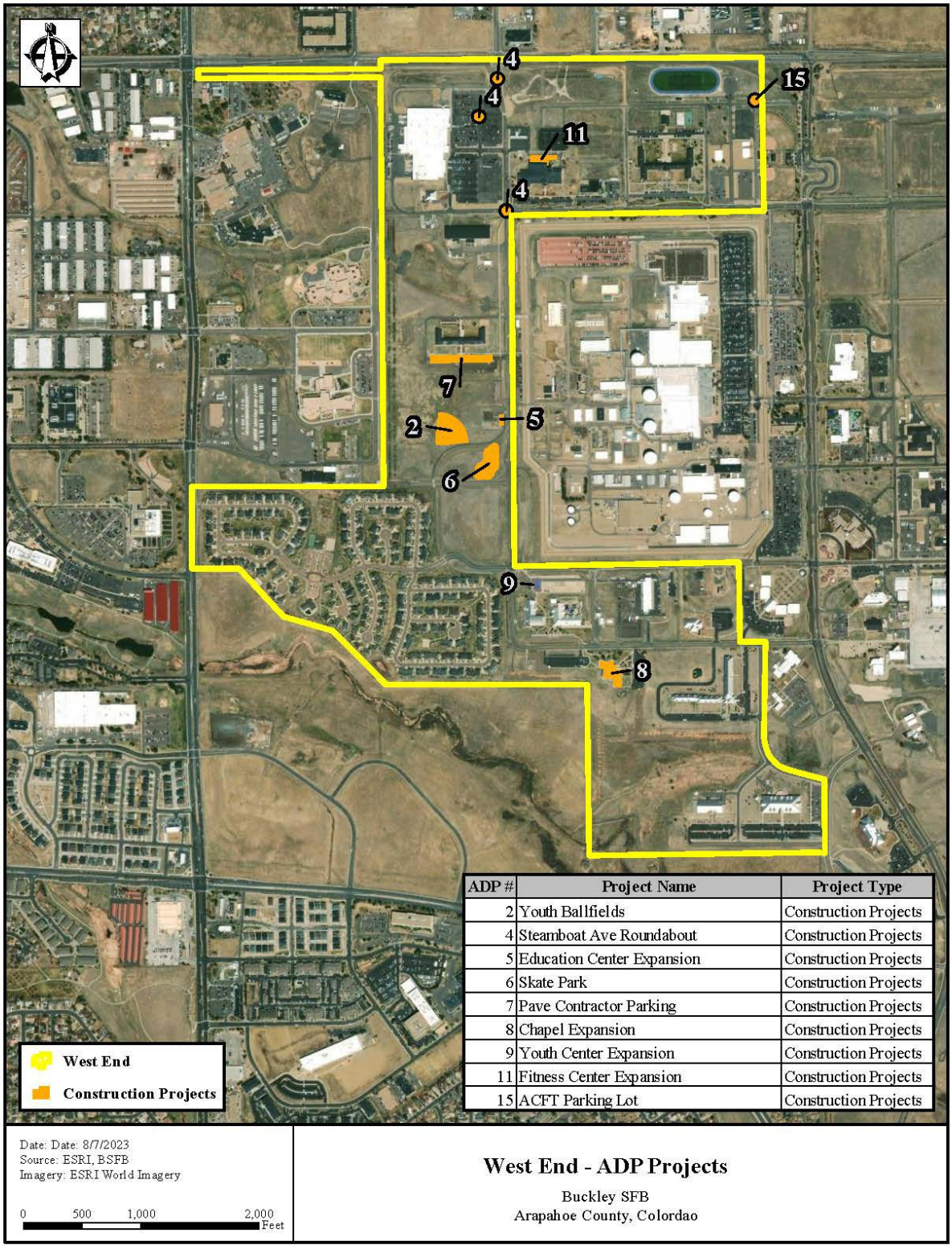
2. The planning group participated in a Visual Preference Survey and developed a planning vision and goals. Using input from participants and the 2013 ADP, the planning group began assessing alternative designs.
3. The planning group refined a preferred alternative and created a step-wise plan. This plan showed how one major project could incorporate several different requirements to take advantage of funding opportunities and proposed overall phases for the development.

The Final West End ADP presents the details and outcomes of this workshop. As stated in the West End ADP, the planning team's vision is to "create a cohesive neighborhood community designed to capture mountain views and use consistent architecture with regional landscapes." This vision is supported by four goals:

1. **Cohesive neighborhood community.** Create a neighborhood connected to recreation, entertainment, shopping, dining, and employment to support the community of families living on base.
2. **Mountain views.** Design buildings and landscaping to highlight and accentuate the views to the Rocky Mountains.
3. **Consistent Architecture.** Construct facilities that follow Buckley SFB's mountain-west architectural style and are consistent with the Installation Facility Standards. Facilities should be flexible, multi-story where appropriate, and provide for a variety of uses.
4. **Regional landscapes.** Landscaping should be attractive and regionally appropriate. Plants should be drought and cold tolerant and low maintenance. Landscaping may be irrigated with reclaimed water.

This EA assesses nine proposed short-term projects within the West End, all of which are construction projects that would help Buckley SFB achieve these stated goals. Figure 2.2-5 identifies the locations of the proposed short-term construction projects, which are summarized in the following subsections.

Figure 2.2-5 West End - ADP Projects



ADP #	Project Name	Project Type
2	Youth Ballfields	Construction Projects
4	Steamboat Ave Roundabout	Construction Projects
5	Education Center Expansion	Construction Projects
6	Skate Park	Construction Projects
7	Pave Contractor Parking	Construction Projects
8	Chapel Expansion	Construction Projects
9	Youth Center Expansion	Construction Projects
11	Fitness Center Expansion	Construction Projects
15	ACFT Parking Lot	Construction Projects

2.2.7.1 *Construction Projects*

Table 2.2-10 summarizes the nine proposed short-term construction projects within the West End.

Table 2.2-10. Short-term Construction Projects Proposed within the West End ADP

Project Name	Project Number	Project Description
Youth Ballfields	2	New youth ballfield will also include a restroom, snack facility, bleachers, and 47 new parking spaces. Space is left for future youth ballfields. Construct 2,232 square feet of proposed structures, 55,788 square feet of recreation area, 17,490 square feet of parks and quads, 15,854 square feet of pavement, 15,719 square feet of sidewalk, and 15,854 square feet of curb and gutter.
Steamboat Ave Roundabout	4	Construct traffic roundabout at the intersections of Steamboat and Telluride Avenues. Construct 370,361 square feet of pavement, 47,232 square feet of sidewalk, 101,541 square feet of parks and quads, 83,914 square feet of median, and 353,139 square feet of curb and gutter. Demolish 170-square foot Building 2 and 490,198 square feet of pavement.
Education Center Expansion	5	Construct a 2,000-square foot administrative building and demolish 1,024 linear feet of fence.
Skate Park	6	Construct 42,785 square feet of pavement.
Pave Contractor Parking	7	Paved existing gravel lot currently used by contractors working in the Restricted Area. A total of 106 new parking spaces would be created. Construct 34,207 square feet of pavement, 19,747 square feet of open space, 4,793 square feet of sidewalk, and 34,207 square feet of curb and gutter.
Chapel Expansion	8	One wing expands the Fellowship Hall to the east; the second provides additional spiritual worship space. Add 89 new parking spaces. Construct 9,000 square feet of building space, 31,425 square feet of pavement, 1,970 square feet of recreation space, 4,481 square feet of sidewalk, and 31,425 square feet of curb and gutter. Demolish 503 square feet of building space and 4,830 square feet of pavement.
Youth Center Expansion	9	A 5,300-square foot expansion of the existing youth center. The project includes the proposed construction of 770 square feet of sidewalk and demolition of 382 square feet of pavement.,
Fitness Center Expansion	11	A 17,800-square foot expansion under development but not funded. Will provide additional capacity to existing fitness center. The project includes the proposed construction of 34,125 square feet of pavement, 1,405 square feet of sidewalk, 31,024 square feet of curb and gutter, and 3,732 square feet of median. Approximately 15,695 square feet of pavement would be demolished.
ACFT Parking Lot	15	New parking lot for the ACFT field totaling 105 spaces. Construct 33,384 square feet of pavement, 4,937 square feet of median, and 33,384 square feet of curb and gutter. Demolish 1,166 square feet of pavement.

2.2.7.2 *Renovation Projects*

No short-term renovation projects planned for West End.

2.2.7.3 *Demolition Projects*

No short-term demolition projects planned for West End.

2.2.8 ADP Projects Not Analyzed within this EA

The five ADPs that encompass Buckley SFB include 26 short-term projects that are not assessed within this EA (see Table 2.2-11). In some cases, these projects have already been constructed, and these impacts are not considered within this EA. Other projects may have initially been considered short-term, but changes in mission or budget may have changed the project timeline.

Table 2.2-11. Short-term Projects Included in Buckley SFB ADPs but Not Assessed within EA

Project Number	Project Name
Aspen Corridor	
1	Renovate Visitor Center - Building 1533
6	Fire Station Admin Expansion - Building 806
7	E-Forge/NextGen Parking Garage
Aviation Ridge	
1	EOD Range
7	140th ANG Corrosion Control
22	ARNG Hangar
49	Fence & Perimeter Road - REPI
North Corner	
2	Blue Marlin
5	Large Vehicle Inspection Point
7	RV Storage Yard
8	U-Store
Restricted Area	
ADF-C Node	
1	Power Plant Expansion 1
3	Underground Fuels Tank
5	Demolish Legacy Power Plant
6	Substation
7	Modular Data Center - Option B
Space Delta 4 Node	
A	Demolish Building 429
C	Perimeter Road Connector
D	Expand Entry Control Building 419

Table 2.2-11. Short-term Projects Included in Buckley SFB ADPs but Not Assessed within EA

Project Number	Project Name
E	Demolish Building 431
G	ERCIP Commercial Utility Feed
H	ERCIP Non-Potable Water Well
K	E-Forge/NextGen
N	Power Interdependence Feed and Generator
West End	
1	Army Combat Fitness Test (ACFT) Field
3	Joint Cryptologic Center (JCC) Expansion

2.3 NO-ACTION ALTERNATIVE

CEQ regulations require consideration of the No-Action Alternative. The No-Action Alternative serves as a baseline against which the impacts of the Proposed Action can be compared. Under the No-Action Alternative, the construction, renovation, and demolition projects proposed under each ADP would not be implemented. In some situations, relevant to the projects addressed in this EA, mission functions would continue to occur in obsolete, deteriorating, and underused or undersized facilities or would be consolidated into other less-appropriate facilities within the installation, if space is available. Buckley SFB would not have new state-of-the-art facilities or sufficient infrastructure to suitably accommodate current and future missions.

Through implementation of the No-Action Alternative, future area 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; however, those development projects would be analyzed through the preparation of project-specific NEPA documentation, as appropriate.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

CEQ NEPA implementing regulations direct federal agencies to "evaluate reasonable alternatives to the Proposed Action" (40 CFR 1502.14[a]) and DAF regulations allow the USAF to "eliminate alternatives from detailed analysis, based on reasonable selection standards" (32 CFR 989.8(c)). Buckley SFB considered a range of reasonable alternatives for each of the five ADPs encompassing the installation. These alternatives were identified and dismissed during the ADP process. The locations and grouping of projects presented within each ADP represent the selected alternative for each ADP based on environmental factors, ability to support mission readiness, needs of Buckley SFB units and tenants, site security, available land for development, and proximity to support functions. The various building, environmental, and operational constraints considered during the ADP planning process included:

- Topography, including steep slopes;
- Utilities;
- Recreation areas;
- Flood zones;
- Existing buildings, pavement, and developed area;

- Building height limitations;
- Historic facilities;
- Airfield clear zone;
- Noise;
- Installation Restoration Program Sites;
- Restricted areas;
- Soil Management Areas;
- Facilities with asbestos containing-materials; and
- Hazardous areas

The ADPs provide further details and maps regarding specific environmental and construction constraints and general area development alternatives for each of the five ADP areas.

2.4.1 Aspen Corridor ADP

During the development of the Aspen Corridor ADP, the planning team examined three alternatives that were eliminated from further analysis:

- Course of Action (COA) 1 – Minimum Development
- COA 2 – Medium Development
- COA 3 – Maximum Development

The medium development alternative built upon elements of the minimum development alternative; in turn the maximum development alternative built upon the medium development alternative. Elements were included or excluded from each COA based on upon level of importance identified during discussions with stakeholders.

The minimum development alternative assigned importance to 6th Avenue gate enhancements, Mississippi gate enhancements, and street trees. However, this alternative was not brought forth for analysis due to its inefficient use of space and limited expansion capacity. Additionally, no capacity was shown around the Town Square for development.

The medium development alternative assigned importance to an outdoor adventure warehouse, a coffee shop, and Town Square. These items were in addition to aspects of the minimum development alternative. This alternative was not brought forth for analysis in this EA due to lack of street trees shown on Aspen Street, which was identified as a required element.

The maximum development alternative assigned importance of each of the 16 criteria considered in the alternative development process. However, one of these elements, purple pipe reclaimed water with a holding tank, was decided to not be the highest use of land. This alternative was not brought forth for analysis in this EA.

Stakeholders considered the desired components of each of the considered COAs and developed the preferred alternative discussed in Section 2.2.3 of this EA.

2.4.2 Aviation Ridge ADP

During the development of the Aviation Ridge ADP, the planning team developed three alternatives:

- Alternative 1 – Status Quo
- Alternative 2 – Medium Impact

- Alternative 3 – Maximum Impact

These alternatives were evaluated against the three goals established at the ADP visioning workshop: efficient access, consolidated facilities, and compliant infrastructure. Alternative 3 was determined to best meet the stated goals. Following the design alternatives analysis and an evaluation of the common themes between them, the planning team developed a preferred alternative based on Alternative 3 but incorporating the pros and cons of all considered alternatives. The preferred alternative is discussed in Section 2.2.4 of this EA.

2.4.3 North Corner ADP

During the development of the North Corner ADP, the planning team developed three alternatives:

- Alternative 1 – Status Quo
- Alternative 2 – Medium Impact
- Alternative 3 – Maximum Impact

These alternatives were evaluated against the goals established at the ADP visioning workshop: consolidated training areas and facilities and enhanced open space, recreation, and trail system. Alternative 3 was determined to best meet the stated goals while considering the existing environmental constraints in place at North Corner. Following the design alternatives analysis and an evaluation of the common themes between them, the planning team developed the preferred alternative based on Alternative 3 but incorporating the pros and cons of all considered alternatives. The preferred alternative is discussed in Section 2.2.5 of this EA.

2.4.4 Restricted Area ADP

During the development of the Restricted Area ADP, the planning team examined three alternatives:

- COA 1 – Minimum Development
- COA 2 – Medium Development
- COA 3 – Maximum Development

These alternatives were evaluated against the three goals established at the ADP visioning workshop: connected, highly efficient, and visually appealing. COA 3 was determined to best meet the stated goals, followed in descending order by COA 2 and COA 1. Following the design alternatives analysis and an evaluation of the common themes between them, the planning team developed a preferred alternative based on COA 3 but incorporating the pros and cons of all considered alternatives. The preferred alternative is discussed in Section 2.2.6 of this EA.

2.4.5 West End ADP

During the development of the West End ADP, the planning team examined three alternatives:

- COA 1 – Existing
- COA 2 – 2013 Plan
- COA 3 – 2021 Workshop Plan

These alternatives were evaluated against the four goals established at the ADP visioning workshop: cohesive neighborhood community, mountain views, consistent architecture, and regional landscapes. Following the design alternatives analysis and an evaluation of the common themes between them, the planning team developed a preferred alternative that is discussed in Section 2.2.7 of this EA.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 AIR QUALITY AND GREENHOUSE GAS/CLIMATE CHANGE

3.1.1 Definition of the Resource

Air quality conditions at a given location are a function of several factors including the quantity and type of pollutants emitted locally and regionally, as well as the dispersion rates of pollutants in the region. Primary factors affecting pollutant dispersal include wind speed and direction, atmospheric stability, climate and temperature, and topography.

The Region of Influence (ROI) is the air quality control region (AQCR) for Buckley SFB. Conditions and air quality within the ROI are described in terms of attainment and the relationship to air quality standards.

3.1.1.1 *Criteria Pollutants*

This section assesses the baseline conditions for air quality and climate change within Buckley SFB and assesses the plausibility of air quality and/or climate change to affect or be affected by the implementation of the ADPs at Buckley SFB. The National Ambient Air Quality Standards (NAAQS) represent the acceptable levels of exposure to criteria pollutants, defined as carbon monoxide (CO); lead (Pb); nitrogen oxides (NO2); ozone (O3); particulate matter, divided into two size classes of aerodynamic size less than or equal to 2.5 micrometers (PM2.5), and aerodynamic size less than or equal to 10 micrometers (PM10); and sulfur dioxide (SO2). NAAQS are divided into two types. Primary air quality standards provide public health protection, including "sensitive populations" such as the elderly. Secondary standards provide public welfare protection, including decreased visibility and damage to animals and crops. Primary NAAQS are used as the basis for determining whether a region is complying with Clean Air Act (CAA) requirements for criteria pollutants. Table 3.1-1 lists the criteria pollutants and their associated NAAQS.

Table 3.1-1 Criteria Air Pollutants

Pollutant	Primary/Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	Primary and Secondary	Rolling 3-month average	0.15 $\mu g/m^3$	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentration, averaged over 3 years
	Primary and Secondary	1 year	53 ppb	Annual Mean
Ozone (O_3)	Primary and Secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

Pollutant		Primary/Secondary	Averaging Time	Level	Form
Particulate Matter (PM)	$PM_{2.5}$	Primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		Primary and Secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and Secondary	24 hours	150 µg/m^3	Not to be exceeded once per year on average over 3 years
Sulfur Dioxide (SO_2)		Primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA, 2023a
Notes: µg = micrograms; CO = carbon monoxide; m^3 = cubic meter; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; $PM_{2.5}$ = particulate matter of diameter 2.5 microns or less; PM_{10} = particulate matter of diameter 10 microns or less; ppb = parts per billion; ppm = parts per million; SO_2 = sulfur dioxide

The ambient air quality in an area is classified by whether it complies with the NAAQS. Areas where monitored outdoor air concentrations are within an applicable NAAQS are considered in attainment of that NAAQS. If sufficient ambient air monitoring data are not available to make a determination, the area is instead deemed as attainment/unclassifiable. Areas where monitored outdoor air concentrations exceed the NAAQS are classified by the USEPA as nonattainment. Nonattainment designations for some pollutants (e.g., O_3) can be further classified based on the severity of the NAAQS exceedances. Lastly, areas that have historically exceeded the NAAQS but have since instituted controls and programs that have successfully remedied these exceedances are known as maintenance areas.

The General Conformity Rule of the federal CAA mandates that the federal government work with state agencies to ensure federal actions abide by approved State Implementation Plans (SIP). Air Force Manual (AFMAN) 32-7002, Environmental Compliance and Pollution Prevention, explains responsibilities and specific details on how to comply with the CAA and other federal, state, and local air quality regulations. This provides further and more specific instructions on the requirements of the DAF's Environmental Impact Analysis Process (EIAP) for air quality promulgated at 32 CFR 989.30, which mandates that EIAP documents address General Conformity.

3.1.1.2 *Other Air Quality Considerations*

In addition to the criteria pollutants discussed above, Hazardous Air Pollutants (HAPs) also are regulated under the CAA. The USEPA has identified 188 HAPs that are known or suspected to cause health effects in small concentrations. HAPs are emitted by a wide range of anthropogenic and naturally occurring sources, including combustion mobile and stationary sources. Unlike the NAAQS for criteria pollutants, federal ambient air quality standards do not exist for non-criteria pollutants. Therefore, HAPs are regulated through specific air emission permit provisions for stationary sources and HAP emission limits for mobile sources.

3.1.1.3 *Greenhouse Gas Emissions*

Greenhouse gas (GHG) emissions released into the atmosphere from human-induced fossil fuel combustion are widely believed to be contributing to changes in global climate. GHGs, which include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), water vapor, and several trace gases, trap radiant heat reflected from Earth in the atmosphere, causing Earth's average surface temperature to rise. The predominant GHGs are CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. In the U.S., anthropogenic (human-related) GHG emissions are emitted primarily from burning fossil fuels. Although GHG levels have varied for millennia (along with corresponding variations in climate conditions), increases driven by human activity have contributed significantly to recent climatic changes.

Stationary sources and GHG-emitting equipment would be operated in accordance with all applicable requirements. These may vary by state. For example, in Colorado, the recent Regulation 22 change established mandatory GHG monitoring, recordkeeping, and reporting requirements for owners and operators of certain GHG-emitting facilities to reduce hydrofluorocarbon emissions in the state. In addition, all new boilers would be classified as Ultra Low NOx.

3.1.2 Affected Environment

3.1.2.1 *Criteria Pollutants*

Buckley SFB is under the regulatory authority of USEPA Region 8 and the Colorado Department of Public Health and Environment. The USEPA designates an Air Quality Control Region (AQCR) that is over the levels of the NAAQS as in nonattainment. AQCRs below the NAAQs are in attainment. If an AQCR was previously designated as in nonattainment but is currently below the NAAQs it is considered a maintenance area. Buckley SFB is within the Metropolitan Denver Intrastate AQCR. Buckley SFB is located within an area designated by USEPA as a CO maintenance area and an 8-hour O_3 nonattainment area (USEPA, 2023b). Due to Buckley SFB's location in a nonattainment area, all federal employees are required to self-certify vehicle emissions through the Employee-vehicle Certification and Reporting System (ECARS).

3.1.2.2 *Greenhouse Gases and Climate Change*

Climate Description

Buckley SFB has the Köppen climate classification of humid subtropical with an average annual precipitation of 16.3 inches. The annual mean temperature is 49 degrees Fahrenheit (°F). The highest average monthly precipitation is 2.6 inches in May, and the lowest average monthly precipitation is 0.6 inch in January. The warmest month is July at an average temperature of 74.3°F, and the coolest month is December at an average temperature of 26.6°F (Climate Data, 2023).

Arapahoe County's GHG emissions were 2,680,349.7 tons carbon dioxide equivalent (CO_2e) in 2020 (USEPA, 2020).

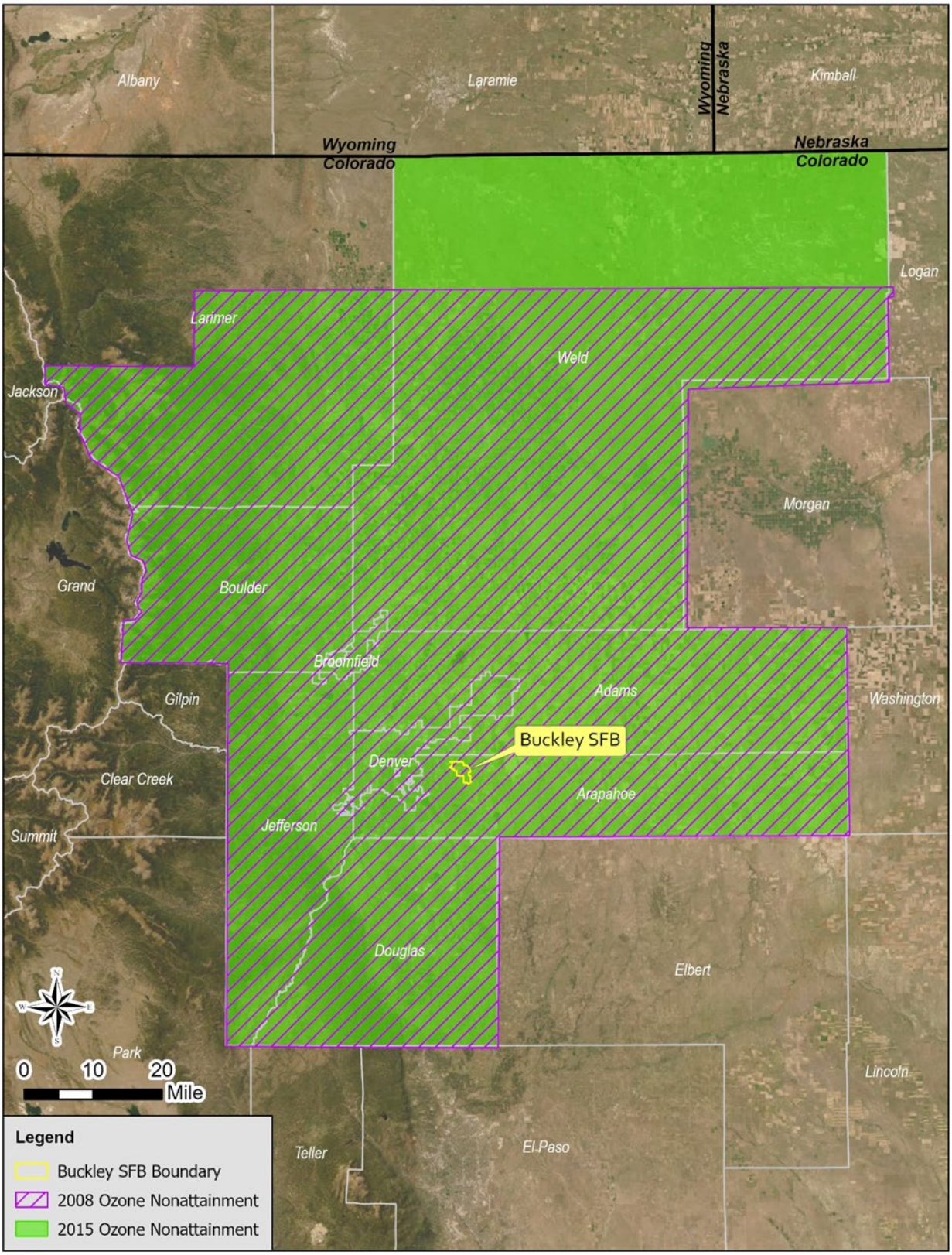
Climate Hazard Analysis

The Fourth National Climate Assessment details the regional historical effects and projected impact of climate change. The assessment breaks down the U.S. into regions, and Buckley SFB is located within the Southwest region (Reidmiller et al., 2018).

The Southwest region faces extreme weather events and rising temperatures. Exposure to hotter temperatures and heat waves already leads to heat-associated deaths in Arizona and California. Mortality risk during a heat wave is exacerbated on days with elevated levels of ground-level ozone or particulate air pollution. In parts of the region, hotter temperatures contribute to reductions of seasonal maximum snowpack and its water content. The increase in heat and reduction of snow under climate change have

amplified recent hydrological droughts in the Colorado River Basin and Rio Grande. Snow droughts can arise from a lack of precipitation, temperatures that are too warm for snow, or a combination.

Figure 3.1-1 Location of Buckley SFB within 8-hour Ozone Non-attainment Area



3.1.3 Environmental Consequences

The Proposed Action would be expected to have a significant adverse impact on air quality if it would: (1) produce emissions that exceed the general conformity rule *de minimis* (of minimal importance) threshold values; or (2) contribute to a violation of any federal, state, or local air regulation.

Air quality impact analysis follows EIAP Air Quality Guidelines for criteria pollutants and GHG emissions (USAF, 2019). This EA uses the Air Conformity Applicability Model (ACAM) to analyze potential air quality impacts associated with the Proposed Action, in accordance with AFMAN 32-7002, the EIAP, and the General Conformity Rule (40 CFR 63 Subpart B).

For non-attainment or maintenance areas, the General Conformity Rule defines *de minimis* levels used as insignificance indicators. However, *de minimis* levels have not been established for attainment criteria pollutant emissions. The DAF considers an area in attainment when all criteria pollutant concentrations are currently less than 95 percent of applicable NAAQS. The insignificance indicators are 250 tons per year, except for Pb which is 25 tons per year. In areas where criteria pollutant concentrations are currently within 5 percent of applicable NAAQS., the insignificance indicators are the general conformity maintenance area de minimis levels for these pollutants and PSD threshold for all other pollutants. However, Pb remains 25 tons per year.

Construction emissions resulting from implementing the ADPs were calculated using ACAM. Such emissions are presented annually. For air quality analysis purposes, a "worst-case" emissions scenario was assumed, in which construction of all proposed projects included in the five ADPs would occur concurrently for the next 5 years. The actual construction of projects would be staggered as funding, design, and implementation allow; however, the exact timing of construction remains unknown at this time. As such, this "worst-case" scenario represents an upper bound of emissions, and actual emissions would likely be lower. Operations of all proposed projects are assumed to begin after the 5-year construction phase for ACAM purposes. In actuality, there would likely be an overlap period where some projects are being constructed and others have entered the operations phase. The steady state emissions calculated during operations represent the long-term emissions after all proposed projects are operations.

Current DAF guidance presented methodology for an Air Quality EIAP Level II, Quantitative Assessment, which assesses whether an action is expected to have insignificant impact on air quality (Solutio Environmental, 2023). An action is considered to have an insignificant impact on air quality if it does not cause or contribute to exceedance of one or more of the NAAQS. The DAF defines "insignificance indicators" for each criteria pollutant according to current air quality conditions.

Change in climate conditions caused by GHGs is a global effect. The Proposed Action would contribute incrementally to global and regional GHG emissions for the proposed location, as calculated by ACAM. This EA analyzes the potential GHG emissions for all ADPs. The construction duration was assumed to be 60 months for all projects. Both 2024 and 2029 do not represent a full year of construction as the assumed start date for construction was March 2024, with construction assumed to end in March 2029.

3.1.3.1 *Construction*

The ADPs include demolition, construction, and paving activities that would cause short-term insignificant impacts on air quality. Fugitive dust would be generated by demolition and construction operations. Criteria pollutants emissions would result from use of diesel- and gas-powered demolition and construction equipment as well as construction workers commuting to and from the sites. The estimated emissions of criteria pollutants associated with construction of the Proposed Action all fall below the threshold values established at 40 CFR 93.153 (b) and the General Conformity Rule does not apply.

Construction activities at all sites would result in short-term GHG emissions from the use of diesel- and gasoline-powered equipment (see Table 3.1-2). Emissions associated with construction would be temporary, but the resulting impacts would be longer term as most GHGs have atmospheric residence times ranging from decades to centuries.

Table 3.1-2 Air Quality and GHG Impacts Summary for Construction and Operations (All ADPs)

Pollutant	Construction Emissions (tons/yr)						Threshold (tons/yr)	Exceedance (Yes/No)
	2024	2025	2026	2027	2028	2029		
VOC	1.846	2.215	2.215	2.215	2.215	0.414	25	No
NO_x	8.697	10.437	10.437	10.437	10.437	2.085	25	No
CO	8.942	10.731	10.731	10.731	10.731	2.055	100	No
SO_x	0.014	0.017	0.017	0.017	0.017	0.032	250	No
PM_{10}	1.520	1.825	1.825	1.825	1.825	0.350	100	No
$PM_{2.5}$	0.339	0.407	0.407	0.407	0.407	0.113	250	No
Pb	0	0	0	0	0	0	25	No
NH_3	0.012	0.014	0.014	0.014	0.014	0.002	250	No
CO_2e	1,519	1,823	1,823	1,823	1,823	547	68,039	No

Source: Solutio Environmental, 2023

Notes: CO = carbon monoxide; CO_2e=carbon dioxide equivalent; NH_3=ammonia; NOx = nitrogen oxides;; Pb = lead; $PM_{2.5}$ = particulate matter of diameter 2.5 microns or less; PM_{10} = particulate matter of diameter 10 microns or less; SOx = sulfur oxides; ton/yr=tons per year; VOC=volatile organic compound

Please refer to Section 3.8, Noise, for a discussion of sensitive receptors located within and near the boundary of Buckley SFB that could be affected by implementation of the ADPs. These sensitive receptors may experience negligible to minor air quality impacts, which would be further reduced through implementation of the noise BMPs and impact reduction methods summarized in Section 3.8.

The DAF would consider options to have construction contractors implement standard construction BMPs to minimize emissions, such as:

- Reducing diesel emissions through use of cleaner fuels and not idling engines,
- Reducing fugitive dust emissions by using appropriate dust suppression methods (e.g., application of water), and
- Reducing fugitive dust emissions by promptly removing spilled or tracked dirt.

3.1.3.2 *Operations*

Operations of the proposed facilities would result in "steady state" emissions. Emissions from these activities are expected to be minor and would not represent a significant increase from the current conditions. An increase in personnel is uncertain but possible. In the event there is an increase in personnel, any increase in criteria pollutant emissions would be negligible. New stationary sources (e.g., emergency generators) would be permitted, and either existing air emissions permits would be updated accordingly, or the DAF would obtain a new permit. Refer to Table 3.1-3 for a summary of operational emissions. The estimated emissions of criteria pollutants associated with operation of the Proposed Action all fall below the threshold values established at 40 CFR 93.153 (b), and the General Conformity Rule does not apply.

Table 3.1-3 Steady State Emissions

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
VOC	0.053	25	No
NOx	0.415	25	No
CO	0.320	100	No
SOx	0.035	250	No
PM_{10}	0.055	100	No
$PM_{2.5}$	0.055	250	No
Pb	0.000	25	No
NH_3	0.000	250	No
CO_2e	289	68,039	No

Source: Solutio Environmental, 2023

Notes: CO = carbon monoxide; CO_2e=carbon dioxide equivalent; NH_3=ammonia; NOx = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter of diameter 2.5 microns or less; PM_{10} = particulate matter of diameter 10 microns or less; SOx = sulfur oxides; ton/yr=tons per year; VOC=volatile organic compound

3.1.3.3 *No-Action Alternative*

Under the No-Action Alternative, Buckley SFB would not implement any of the five ADPs, and none of the proposed construction activities would occur. Therefore, there would be no changes to criteria pollutant or GHG emissions from baseline conditions.

3.1.4 Climate Change Hazard Assessment

The potential future impacts of climate change to proposed facilities are included in potential impact assessments as part of long-range planning, project design, and permitting activities. Relevant long- term climate areas of concern for the site are discussed in Section 3.1.2.2. These areas of concern would have little impact on the new facilities and related operations included in the ADPs.

The proposed facilities would be designed to have enhanced resiliency to long-term climate impacts. The DAF uses resiliency measures, updated standards, and best practices captured in routine UFC updates, which serve as design/building codes for DoD facilities. Local building codes also inform design/construction standards, as they are more reflective of regional conditions. Lastly, DAF policy can drive higher standards. The DAF would participate in or lead, as appropriate, master planning and project development activities at the selected location to ensure that climate impacts to the facility are minimized to the extent practicable and consistent with installation, local, or regional climate plans. Examples of resiliency measures could include, but would not be limited to, redundant and hardened electrical and water systems to withstand storm damage and higher demand on hot days, storm shelters and appropriate structural construction measures to withstand extreme weather events, and adequate setbacks from potential fuel sources to mitigate the risk from wildfires.

3.2 BIOLOGICAL RESOURCES

3.2.1 Definition of the Resource

Biological resources are defined as the resources consisting of native vegetation and wildlife species. Habitat in which vegetative and wildlife species rely on in order to occupy or potentially occupy the analysis area of the Proposed Action are also included in the definition. Specific species defined under biological resources, for the purposes of this EA, will be focused on listed species. Listed species are those species

that are listed as threatened, endangered, candidate, or species of concern under the Endangered Species Act (ESA) by the U.S. Fish and Wildlife Service (USFWS) and species listed under state designations.

3.2.2 Affected Environment

The affected environment section concisely describes the existing biological resources of the action area that would be affected if the Proposed Action was implemented. This section describes only those biological resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those resources that would affect or that would be affected by the actions if they were implemented. This section, in conjunction with the description of the No Action Alternative, forms the existing conditions for determining the biological resource impacts of the Proposed Action.

The regional setting of Buckley SFB is influenced by the broader geographical context of the Colorado High plains region. Natural community types the region is known for include:

- Shortgrass Prairies: A variety of grasses and shrubs that inhabit arid soils make up this Ecosystem (USAF, 2021a).

- Bottomland Meadows: Wider flatter areas that demonstrate wetland characteristics such as saturated soils and hydric vegetation. A dominant species of plant in these areas is fringed brome (USAF, 2021a). These areas provide flood control for surrounding land.

3.2.2.1 *Wildlife*

The installation's wildlife habitat encompasses various environments such as urban landscapes, grasslands, short-grass prairies, ornamental tree stands, and weedy disturbed areas. Table 3.2-1 provides a comprehensive list of wildlife species that are commonly found or have the potential to exist on or near Buckley SFB.

Table 3.2-1 Wildlife Species Potentially Occurring on Buckley SFB

Common Name	Scientific Name
Birds	
Short-eared owl	*Asio flammeus*
Golden eagle	*Aquila chrysaetos*
Ferruginous hawk	*Buteo regalis*
Bald eagle	*Haliaeetus leucocephalus*
Prairie falcon	*Falco mexicanus*
Loggerhead shrike	*Lanius ludovicianus*
Western burrowing owl	*Athene cunicularia*
Swainson's hawk	*Buteo swainsoni*
American bittern	*Botaurus lentiginosus*
Lark bunting	*Calamospiza melanocorys*
Western snowy plover	*Charadrius alexandrines*
Mountain plover	*C. montanus*
Red-headed woodpecker	*Melanerpes erythrocephalus*
Lewis's woodpecker	*M. lewis*

Common Name	Scientific Name
Long-billed curlew	*Numenius americanus*
Williamson's sapsucker	*Sphyrapicus thyroideus*
Dickcissel	*Spiza americana*
Brewer's sparrow	*Spizella breweri*
Mammals	
Pronghorn	*Antilocapra americana*
Mule deer	*Odocoileus hemionus*
Coyote	*Canis latrans*
Red fox	*Vulpes vulpes*
Black-tailed prairie dog	*Cynomys ludovicianus*
Eastern cottontail	*Sylvilagus floridanus*
Plains pocket gopher	*Geomys bursarius*
Ord's kangaroo rat	*Dipodomys ordi*
Prairie vole	*Microtus ochrogaster*
Meadow vole	*M. pennsylvanicus*
Deer mice	*Peromyscus spp*
Reptiles	
Western rattlesnake	*Crotalus viridis*
Lesser earless lizard	*Holbrookia maculata*
Western terrestrial garter snake	*Thamnophis elegans*
Bull snake	*Pituophis melanoleucus*

3.2.2.2 *Special Status Wildlife Species*

Buckley SFB has not recorded any federally listed threatened or endangered wildlife species, according to Sovell and Doyle (as cited in USAF, 2019). However, there is one species listed at the state level and two state species of concern that could potentially be found at BSFB. Table 3.2-2 includes the species list generated through a query of USFWS Information for Planning and Consultation (IPaC) system.

Table 3.2-2 Federal Special Status Wildlife Species Potentially Occurring at Buckley SFB

Species	Federal Status	Habitat	Potential to Occur within Action Alternative Area
Mammals			
Gray wolf (*Canis lupus*)	Endangered	No particular habitat preference. Young are born in underground burrows. A minimum of 10,000-13,000 square kilometers with low road density might be needed to support a viable population.	No potential. Human activity would deter this species from the area surrounding installation.

Species	Federal Status	Habitat	Potential to Occur within Action Alternative Area
Black-footed Ferret (*Mustela nigripes*)	Endangered	Require expansive prairie habitats with a mix of grasses, forbs, and low shrubs.	No potential. USFWS has designated the Buckley SFB as being within a "block clearance zone" that does not support and is not likely to have black-footed ferret (USAF, 2016)
Birds			
Whooping crane (*Grus americana)*	Endangered	Found among dense vegetation near water. Suitable habitats may be saline, brackish, or freshwater.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist.
Piping plover (*Charadrius melodus*)	Threatened	Usually occur on ocean beaches or on sand or algal flats in protected bays. Winters in the southern U.S. and migrates north to breed.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist
Insects			
Monarch butterfly (*Danaus plexippus*)	Candidate	Require milkweed plants (*Asclepias spp*.) as their exclusive host plants for egg-laying and larval development. Suitable habitat should include diverse milkweed species, such as common milkweed, swamp milkweed, and butterfly weed	Commonly Occuring.
Fish			
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	Occupies large, turbid, free-flowing riverine habitats and is often found in strong current over firm gravel or sandy substrate.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist
Plants			
Ute Ladies'-tresses (*Spiranthes diluvialis*)	Threatened	Occurs in moist or wet habitats with low levels of competition for resources due to periodic or recent disturbance. More than half of documented populations occur in sites where natural hydrology has been affected by dams, reservoirs, or irrigation.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist. Ute ladies'-tresses were not encountered in the Sensitive Species Survey on Buckley SFB (CNHP-CSU, 2018, as cited in USAF, 2016).

Source: USAF, 2016; USFWS, 2021

Table 3.2-3 summarizes the additional state-listed threatened and endangered species potentially occurring on Buckley SFB.

Table 3.2-3 State Special Status Species with Potential to Occur on Buckley SFB

Species	State Status	Habitat	Potential to Occur within Action Area
Mammals			
Black-footed Ferret (*Mustela nigripes*)	Endangered	Require expansive prairie habitats with a mix of grasses, forbs, and low shrubs.	No potential. USFWS has designated the Buckley SFB as being within a "block clearance zone" that does not support and is not likely to have black-footed ferret (USAF, 2016)
Birds			
Burrowing owl (*Athene cunicularia*)	Threatened	Commonly found in open grasslands, prairies, and desert habitats. Rely on burrows for nesting and shelter, however, they do not dig their own burrows; instead, they often utilize abandoned burrows dug by other animals such as prairie dogs or ground squirrels.	Potentially occurring, This species utilizes disturbed habitats, such as those found across the installation.
Whooping crane (*Grus americana)*	Endangered	Found among dense vegetation near water. Suitable habitats may be saline, brackish, or freshwater.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist
Piping plover (*Charadrius melodus*)	Threatened	Usually occurs on ocean beaches or on sand or algal flats in protected bays. Winters in the southern U.S. and migrates north to breed.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist

Source: USAF, 2019

3.2.2.3 *Migratory Birds*

According to the results obtained from the USFWS IPaC, there are four migratory bird species that are of conservation concern and could potentially be present within Buckley SFB.

While the bald eagle and golden eagle can also be found in the BSFB, they do not fall under the category of birds of conservation concern in this particular area. Instead, these species require special attention under the Bald and Golden Eagle Protection Act (BGEPA).

Table 3.2-4 provides information about migratory birds of conservation concern identified by IPaC for the Buckley SFB.

During migration, some birds may occasionally stop to rest or search for food near the project area. However, due to the minimal vegetation, predominance of mowed or maintained grassland, and high levels of human disturbance in the area, it is unlikely to be a significant migratory stopover compared to other areas within the flyway.

Table 3.2-4 Migratory Bird Species with Potential to Occur on Buckley SFB

Species	Breeding Season in Area	Breeding Habitat	Potential to Occur within Action Area
Bald eagle (*Haliaeetus leucocephalus*)	December 1 – August 31	Breeding habitat includes areas close to coastal areas, bays river, lakes, reservoirs, or other bodies of water. Nests in tall trees, on pinnacles, or on cliffs near water.	Commonly occurring. Breeding /Nesting unlikely.
Ferruginous hawk (*Buteo regalis*)	March 15 – August 15	Nesting sites depend on available substrates and surrounding land use. If nesting on the ground, locations are generally located far from human activities and on elevated landforms in large grasslands. If nesting in trees, lone or peripheral trees are preferred over densely wooded areas.	Commonly Occurring. Breeding/nesting unlikely.
Golden eagle (*Aquila chrysaetos*)	December 1 – August 31	Habitat includes open and semi-open country, especially in hilly or mountainous terrain. Nests are often located on rock ledges of cliffs, but sometimes in large trees, on steep hillsides, or on the ground.	No potential, suitable nesting habitat is not expected to be found within the project area due to lack of trees or rocky cliffs or ledges.
Long-billed curlew (*Numenius americanus*)	April 1 – July 31	Breeding habitat includes prairies and grassy meadows, generally wear water. Nests are located on the ground, usually in a flat area with short grass and often near rock.	No potential, no substantial surface water features occur within the installation, some ephemeral features exist
Mountain plover (*Charadrius montanus*)	April 15 – August 15	Nesting habitat includes high plains, shortgrass prairies, and desert tablelands. Nesting areas are characterized by very short vegetation, significant areas of bare ground, and flat or gentle slopes.	Potentially occurring. Suitable nesting habitat may occur within or adjacent to the area.
Red-headed woodpecker (*Melanerpes erythrocephalus*)	May 10 – September 10	Habitat includes open woodlands (especially with beech or oak), open situations with scattered trees, parks, cultivated areas, and gardens. Nests in a hole excavated in a live tree, dead stub, utility pole, or fencepost.	No potential. Due to lack of trees and vegetation, no suitable habitat for this species is expected within and adjacent to the area.

Source: USFWS, 2021

3.2.3 Environmental Consequences

For biological resources, NEPA evaluates the potential consequences to plant and animal communities, habitat quality and availability, rare or threatened species, biodiversity, and ecosystem function. The assessment may consider factors such as habitat loss, degradation, or fragmentation, changes in species

populations or distributions, disturbance to nesting or breeding grounds, or alteration of ecological processes.

Significant impacts to biological resources would occur if the Proposed Action resulted in the long-term degradation, loss, or reduction of diversity in distinctive or high-quality plant communities. It would also include the unauthorized harm to federally listed species, the local disappearance of rare or sensitive species not currently protected under the ESA, the unacceptable destruction of critical habitat according to the USFWS, or a violation of the MBTA or BGEPA.

3.2.3.1 *Vegetation*

It is expected that all vegetation on the Buckley SFB project sites would be removed during the construction of the Proposed Action. However, the removal and/or replacement of vegetation would be carried out in accordance with the Installation Natural Resources Management Plan (INRMP) or local regulations applicable to the site. Additionally, time-of-year restrictions would be followed to minimize or prevent any adverse impacts on wildlife and their habitats.

During the construction process, there is a possibility of native vegetation communities and wildlife habitats being affected by the introduction or encroachment of noxious weeds or invasive species. Nevertheless, the contractors would take measures to minimize the introduction or spread of invasive species by following the guidelines outlined in the INRMP and/or local regulations. Once the construction is finished, the site would be revegetated with native species as per the landscape plan to restore the natural ecosystem.

The presence of marginal quality vegetative communities on the sites is a result of existing disturbance and active grounds maintenance, Therefore, the removal of vegetation in these areas would have insignificant adverse impacts and would be managed effectively by adhering to relevant plans and policies.

3.2.3.2 *Wildlife*

The implementation of the Proposed Action would lead to the permanent removal of all existing habitat (mainly vegetation) from the chosen site. However, this impact is considered minor since the on-site habitat at the ADP project sites are generally small and of low quality. Moreover, similar habitats are abundant near the proposed surrounding the installation. The construction process would physically displace common wildlife species present on each project site, and the noise and increased human activity during construction may disturb wildlife as well.

Wildlife species that are precocial, such as birds and mammals, are likely to relocate to areas with similar habitats near the sites. However, less-mobile species, like certain reptiles and amphibians, could be inadvertently harmed during construction. Although there would be adverse impacts, they would affect individual animals rather than entire populations or species. Hence, the continued propagation of common wildlife populations and species near each site would not be significantly impacted. Further, the species that would be impacted by the proposed actions are not listed as federally threatened or endangered.

Regarding the operation phase, increased human presence and noise associated with the Proposed Action would cause minor disturbances to wildlife around the site. Over time, many wildlife species have and would adapt to these new conditions or relocate to other areas, resulting in a long-term, insignificant adverse impact on wildlife.

In summary (Table 3.2-5), the construction of the Proposed Action would lead to short-term and long-term, insignificant adverse impacts to wildlife due to habitat removal and individual displacements. Similarly, the operation of the Proposed Action would have a minor and long-term adverse impact on wildlife due to increased human presence and noise.

Western Burrowing Owl

The Proposed Action is not expected to adversely affect this species. Per the installations INRMP, the Western burrowing owl presence has declined in recent years and nesting Western burrowing owls have not been documented since 2017 (Casady and Colburn 2020, as cited in USAF, 2021). While this species has been documented on Buckley SFB and may occur in the vicinity of the Proposed Action projects, proposed construction activities would occur within a developed military installation. As such, construction would not reduce the overall amount of available habitat. Potential impacts would be further reduced through implementation of appropriate protection measures.

Colorado Parks and Wildlife, Department of Natural Resources has released "Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls" (CPW, 2021). As burrowing owls are associated with prairie dog burrows in Colorado, this protocol outlines methods to survey prairie dog burrows for the potential presence of nesting burrowing owls. These measures include, among others:

- Conducting surveys when burrowing owls may be present on prairie dog towns (i.e., between March 15 and October 31);
- Conducting surveys in early morning or late evening; and
- Conducting at least three surveys (occurring approximately 1 week apart) at each survey point.

If Western burrowing owls are confirmed to be nesting within the project sites, the installation would proceed with construction in accordance with the recommended timing and monitoring measures set by the state (CPW, 2021).

With implementation of avoidance measures, implementation of ADP projects are not expected to adversely affect Western burrowing owls.

Table 3.2-5 Summary of Biological Resources Impacts

ADP District	Representative Vegetation Setting Present Source?	Vegetation	Wildlife
Aspen Corridor	Weedy Forb, Midgrass Prairie, Crested Wheatgrass, Bottomland Meadow	No significant impacts	No Significant impact
Aviation Ridge	Crested Wheatgrass, Midgrass Prairie, Bottomland Meadow	No significant impacts	No significant impact; Western burrowing owl historically present
North Corner	Crested Wheatgrass, Midgrass Prairie, Bottomland Meadow	No significant impacts	No significant impact
Restricted Area	Developed	No significant impacts	No significant impact
West End	Crested Wheatgrass, Midgrass Prairie, Ornamental Trees	No significant impacts	No significant impact

3.3 CULTURAL RESOURCES

3.3.1 Definition of the Resource

Cultural resources are defined as any prehistoric or historic place, site, building, structure, object, or collection of these elements that was built or used by people. Some cultural resources, such as Traditional Cultural Places and Sacred Sites, may be places without any visible evidence of human use or modification. A restricted class of cultural resources are those that are designated as historic properties, which are defined at 36 CFR 800.16(l)(1) as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP)."

This section identifies cultural resources investigations and known cultural resources in and adjacent to the proposed interim and permanent site alternatives. Most of the areas encompassed in the five installations included have been surveyed for cultural resources. Although it is likely that most of the surficial archaeological resources have been discovered at the five ADPs, the potential for buried cultural resources remains. Therefore, it is important that all ground-disturbing activities – including grading, excavating, digging, trenching, or ripping – that have the potential for impacts on subsurface archaeological materials be reviewed for effects on extant but previously unidentified cultural resources. The likelihood of encountering previously undocumented cultural resources is assessed for each installation and is based on such factors as the extent of previous surveys and previous disturbances.

To identify potential effects to historic properties, the Area of Potential Effect (APE) is defined to address both direct and indirect effects. The APE for direct and indirect effects encompasses those areas that might be affected by construction activities within the building site of each alternative, plus a reasonable buffer for the passage and usage of equipment, utilities, and the like. The APE for indirect effects coincides with the direct APE, and takes into consideration the viewshed; that is, the likelihood that visual intrusions may compromise the integrity of nearby historic properties. For this review of the undertaking the indirect APE is the entire military landscape of Buckley SFB.

In addition to these conventional cultural resources investigations, the Air Force is also conducting ongoing government-to-government consultation with several Native American tribes that claim cultural affiliation to lands encompassed by the installations. Conducted in compliance with AFI 90-2002, Air Force Interactions with Federally Recognized Tribes, these consultations are intended to build relationships and address potential impacts on Protected Tribal Resources, as defined by DoDI 4710.02, DoD Interactions with Federally Recognized Tribes.

3.3.2 Affected Environment

Installation development is ongoing at Buckley SFB. Every year, structures are demolished, new facilities are constructed, and infrastructure is upgraded and improved. The Proposed Actions are needed to support current and future mission requirements by maintaining and providing needed infrastructure in a manner that meets current Air Force requirements and meets applicable Department of Defense criteria.

Buckley SFB occupies approximately 3,311 acres, or five square miles, of federally owned land surrounded by the city of Aurora in Arapahoe County, Colorado. Situated in an urban/industrial/agricultural environment, the base is approximately three miles east of Interstate 225 and ten miles southwest of Denver International Airport. The proposed Actions are all located on Buckley SFB within Sections 9, 10, 11, 14, 15, and 16 of Township 4 South, Range 66 West of the Fitzsimons and Coal Creek U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles. The direct APE is defined as the discontinuous set of discrete disturbance footprints of each construction or demolition project and any associated staging areas defined in the Proposed Actions. Work within development areas would include demolition, new construction, grading, and trenching. The indirect APE is defined as the entire military landscape of Buckley SFB.

By 2022, with the exception of three acres within the PL-1 Restricted Area, most of Buckley SFB has been surveyed for cultural resources. 61 archaeological sites and 31 isolated finds exist. None of the sites have been recommended eligible for listing in the NRHP. The Colorado SHPO has officially concurred with these eligibility recommendations. One historic archaeological resource is identified to fall within the proposed project areas.

Similarly, all historic buildings, structures, and landscapes within the installation have been evaluated. In 2004, Geo-Marine, Inc. conducted a base-wide historic landscape and viewshed evaluation and concluded that no historic or cultural landscapes exist on the base. This study also included the inventory and evaluation of buildings, structures, objects, and other real property features at Buckley SFB. Potential Cold War significance was taken into account for the facilities built between 1946 and 1989. Geo-Marine's report recommended two aircraft hangars, Building 801 and Building 909, as eligible for listing in the NRHP. The exteriors of four Satellite Communications Ground Terminals (Buildings 402, 403, 404, and 405) were also determined to be eligible for listing in the NRHP by the Colorado SHPO during the report review process. In 2018, Historical Research Associates, Inc. conducted a buildings inventory to re-evaluate the eligibility status of buildings on Buckley. Results of the inventory determined six additional buildings at Buckley, Radomes 432 and 434, and buildings 431, 433, 630, and 814 are NRHP-eligible per the COSHPO concurrence letter (HC#75988).

Buckley SFB is unaware of any historic properties of religious or tribal significance within the APE. Consultation and contact with Native American Tribes with cultural affiliation the Buckley SFB area and vicinity did not identify any Native American Tribal, religious, or cultural resources, also known as Traditional Cultural Properties (TCPs), sacred sites, or burial sites on Buckley SFB. However, the results of a Texas State University (TSU) archaeological survey of the installation in 2018 and concurrence with COSHPO, researchers recommended further Tribal consultation for three sites holding potentially significant plants, requiring consultation with Tribes. No TCPs or sacred sites have been identified within the proposed development locations on Buckley SFB.

3.3.3 Environmental Consequences

There are seven (7) historic properties determined eligible for inclusion on the NRHP that are located within the Indirect APE of several of the proposed project areas within the Restricted Area (APE 5) (Figure 3.3-1 and Figure 3.3-2). Each of the properties have the potential to be adversely affected by the Proposed Actions. Detailed information providing the basis for a determination of effect is presented in this section.

Figure 3.3-1 Locations of APEs

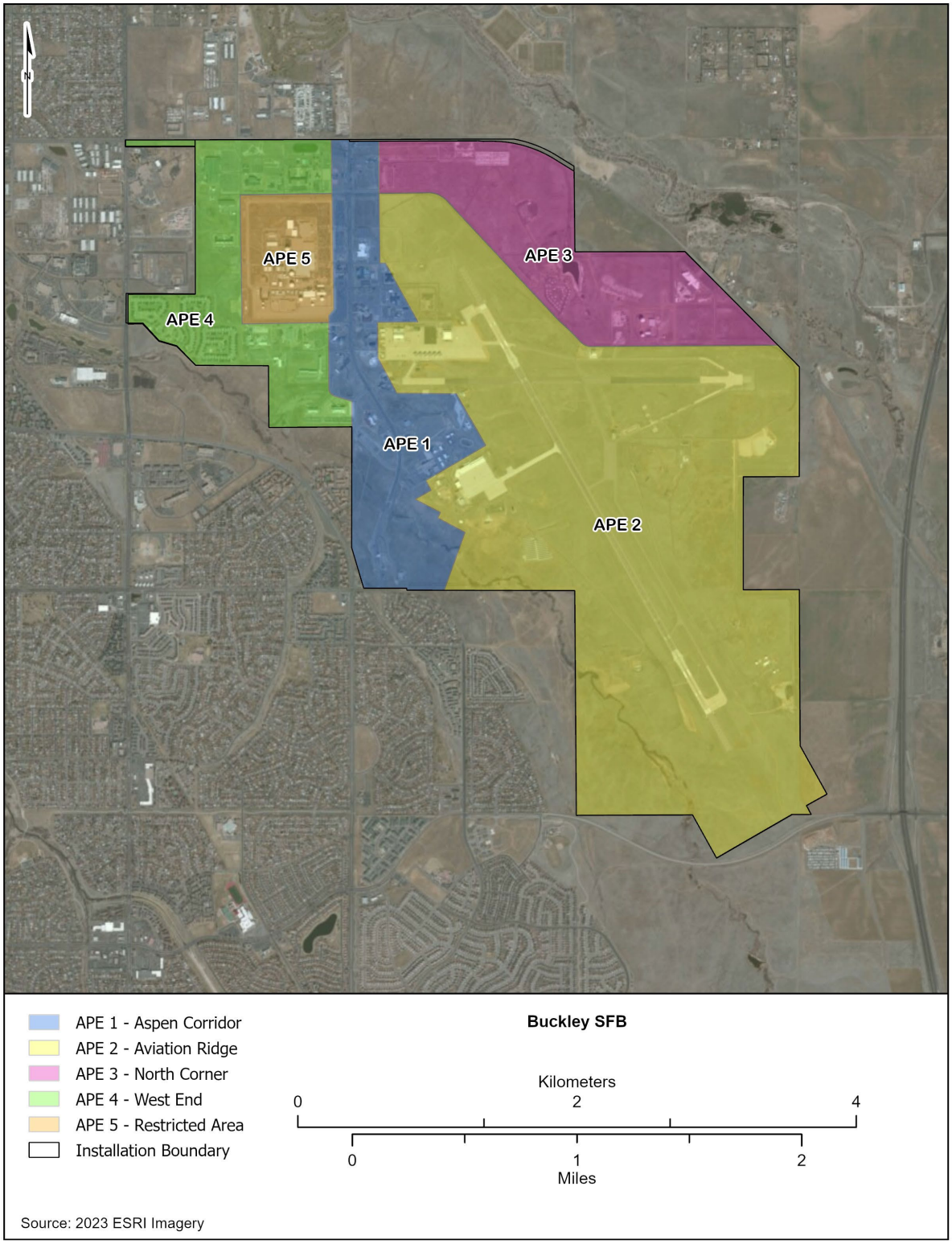


Figure 3.3-2 Buckley SFB Historical Buildings Eligible for NRHP

The standing structures at Buckley SFB have been evaluated for eligibility to the NRHP. In all, twelve structures are determined as eligible for listing, each receiving official concurrence from the Colorado SHPO. One (1) building of the twelve is within the area of direct effect of a proposed APE. Building 433, an Electrical Power Station Building, is proposed to be demolished, creating a direct adverse effect. The other six (6) buildings of the twelve eligible for listing are within 1000 feet, of several of the proposed APEs. Buildings 402, 403, 404, 405, 432, and 434 (Satellite Communications Ground Terminals) are located within the Indirect APE of six of the Proposed Actions. Descriptions of the Proposed Actions, determinations of effect, and mitigation measures follow and are summarized in Table 3.3-1.

3.3.3.1 *Restricted Area ADP*

Construction Projects

Project 8, Central Uninterrupted Power Supply, is new construction of a 27,000-square foot building, 14,346 square feet of pavement, and 1,724 square feet of curb and gutter. 50,291 square feet of open space would be created. Demolition of 14,552 square feet of pavement would also occur.

- Three (3) of the twelve buildings determined as eligible for listing in the NRHP are within 1000 feet of Project 8. While the Proposed Action may have the potential to cause an indirect adverse visual effect to buildings 402, 403, and 404, the proposed development is in keeping with the general design and use of the area as a military installation and is unlikely to negatively affect the feelings or associations related to the integrity of the historic properties. Based on this understanding there is likely to be no adverse effect on buildings 402, 403, and 404.

Project J, Covered Walkway between East Parking and Mission Facilities, is new construction of a covered walkway between the east parking lot to the Space Delta 4 mission buildings. Construction of 14,060 square feet of covered walkway and 300 square feet of sidewalk is planned. The project will create approximately 15, 83 square feet of open space.

- Five (5) of the twelve buildings determined as eligible for listing in the NRHP are within 1000 feet of Project J. While the Proposed Action may have the potential to cause an indirect adverse visual effect to buildings 404, 405, 432, 433, and 434, the proposed development is in keeping with the general design and use of the area as a military installation and is unlikely to negatively affect the feelings or associations related to the integrity of the historic properties. Based on this understanding there is likely to be no adverse effect on buildings 404, 405, 432, 433, and 434.

Project M, E-Forge/NextGen parking Garage (Parking Garage North), is new construction of a 2-story parking garage encompassing a total of approximately 140,000 square feet. An additional 7,514 square feet of sidewalk would be constructed, and 15,811 square feet of open space would be created. The project also includes the demolition of approximately 48,275 square feet of pavement.

- Three (3) of the twelve buildings determined as eligible for listing in the NRHP are within 1000 feet of Project M. While the Proposed Action may have the potential to cause an indirect adverse visual effect to buildings 432, 433, and 434, the proposed development is in keeping with the general design and use of the area as a military installation and is unlikely to negatively affect the feelings or associations related to the integrity of the historic properties. Based on this understanding there is likely to be no adverse effect on buildings 432, 433, and 434.

Renovation Project

Project B, Repair Replacement Generator B416 PL-1 Security Lighting (Space Delta 4 Node), replaces PL-1 exterior security lighting with energy-efficient LED lights. It also replaces the security lighting backup generator in B416 with a new generator right-sized for new lighting. The project will construct 1,414 square feet of security lighting.

- Seven (7) of the twelve buildings determined as eligible for listing in the NRHP are within 1000 feet of Project B. While the Proposed Action may have the potential to cause an indirect adverse visual effect to buildings 402, 403, 404, 405, 432, 433, and 434, the proposed development is in keeping with the general design and use of the area as a military installation and is unlikely to negatively affect the feelings or associations related to the integrity of the historic properties. Based on this understanding there is likely to be no adverse effect on buildings 402, 403, 404, 405, 432, 433, and 434.

Demolition Projects

Project F, building 448, plans to demolish 1,470 square feet of building space and 2,271 square feet of pavement upon completion of the Space Based Infrared System Special Operation Facility.

- Five (5) of the twelve buildings determined as eligible for listing in the NRHP are within 1000 feet of Project F. While the Proposed Action may have the potential to cause an indirect adverse visual effect to buildings 404, 405, 432, 433, and 434, the proposed development is in keeping with the general use of the area as a military installation. Demolition activities of building 448 are not directly adjacent to any historic properties and thus are unlikely to negatively affect structures or impact the feelings or associations related to the integrity of the historic properties. Based on this understanding there is likely to be no adverse effect on buildings 404, 405, 432, 433, and 434.

Project L, buildings 430 and 433, plans to demolish 47,383 square feet of building space and 4,319 square feet of pavement after completion and operation of E-Force/NextGen. The operations in these buildings will be moved into the E-Forge/NextGen facility and these buildings can be demolished.

- Six (6) of the twelve buildings determined as eligible for listing in the NRHP are within 1000 feet of Project B. While the Proposed Action may have the potential to cause an indirect adverse visual effect to buildings 402, 403, 404, 405, 432, and 434, the proposed development is in keeping with the general use of the area as a military installation. Demolition activities of buildings 430 and 433 are not directly adjacent to any historic properties and thus are unlikely to negatively affect structures or impact the feelings or associations related to the integrity of the historic properties. Based on this understanding there is likely to be no adverse effect on buildings 402, 403, 404, 405, 432, and 434.
- Building 433 is one of the twelve buildings located on Buckley SFB determined eligible for listing in the NRHP. The Proposed Action of Project L will have a direct effect on building 433 as a result of the action will physically destroy the historic property. If this effect cannot be avoided due to the mission of Buckley SFB and the Proposed Actions, these impacts can be minimized by the following mitigation measures:
    - Standard mitigation: Documentation of building 433 in detailed plans and photographs. Example: HABS/HAER level documentation.
    - Creative mitigation: Develop actions to recognize the special place the building has in the history and culture of Buckley SFB. Example: Development of a historical context for the Cold War Period at Buckley SFB and the development of associated structures.

Table 3.3-1 Cultural Resource Impacts Summary

Buckley ADP APE/Type/Name	Impact Indicators			
	Number of Cultural Resources Directly Affected	Number of Cultural Resources Indirectly Affected	Number of Historic Properties Affected	Potential for Previously Undocumented Cultural Resources
Aspen Corridor ADP APE 1 ***Construction Projects***				
Outdoor Rec Warehouse and Parking Lot Improvements – 4	0	0	0	Low
LDC Sidewalk Network Improvements – 5	0	0	0	Low
ADF-C Parking Garage Phase 1 and Steamboat Ave Roundabout - 11	NA	NA	NA	Low
ADF-C Parking Garage Phase 2 and Keystone Ave Roundabout – 12	NA	NA	NA	Low
Aspen Corridor ADP APE 1 ***Renovation Projects***				
Brand Name Food Options – Building 630 - 2	1	0	0	Low
Space Delta 4 HQ – Building 620 – 3	0	0	0	Low
Aviation Ridge ADP APE 2 ***Construction Projects***				
Fire Protection Water Storage Tank - 54	0	0	0	Low
Helo Slide – 2	0	0	0	Low
140th ANG Aircraft Ground Equipment – 5	0	0	0	Low
ARNG Motorpool Expansion – 23	0	0	0	Low
East Taxiway – 36	0	0	0	Low
Small East Ramp – 44	0	0	0	Low
Wastewater Projects – 52	0	0	0	Low
Munitions Complex - NA	0	0	0	Low
140th ANG Snow Barn - 8	0	0	0	Low
Water Supply Repair - 50	0	0	0	Low
Gas Service Repairs - 51	0	0	0	Low

Buckley ADP APE/Type/Name	Impact Indicators			
	Number of Cultural Resources Directly Affected	Number of Cultural Resources Indirectly Affected	Number of Historic Properties Affected	Potential for Previously Undocumented Cultural Resources
Aviation Ridge ADP APE 2 ***Renovation Projects***				
Relocate/Repair Sunlight Way – 4	0	0	0	Low
North Corner APE 3 ***Construction Projects***				
NRO Expansion – 1	0	0	0	Low
Realign Steamboat Ave Out of Graded Clear Zone – 3	0	0	0	Low
RV Storage Yard Fix – 6	0	0	0	Low
FamCamp Expansion – 12	0	0	0	Low
North Corner APE 3 ***Demolition Projects***				
Close NOSC Gate – 4	0	0	0	Low
Restricted Area APE 4 ***Construction Projects***				
Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot – 4	0	0	0	Low
Central Uninterrupted Power Supply – 8	0	3	0	Low
Expand Northwest Parking and Relocate Fence – 9	0	0	0	Low
Chiller Plant Expansion – 15	NA	NA	NA	Low
South Fueling Station - I	0	0	0	Low
Covered Walkway between East Parking and Mission Facilities - J	0	5	0	Low
E-Forge/NextGen Parking Garage (Parking Garage North) – M	0	3	0	Low
Restricted Area APE 4 ***Renovation Projects***				
Renovated/Upgraded Existing Fueling Station – 2	0	0	0	Low

Buckley ADP APE/Type/Name	Impact Indicators			
	Number of Cultural Resources Directly Affected	Number of Cultural Resources Indirectly Affected	Number of Historic Properties Affected	Potential for Previously Undocumented Cultural Resources
Repair Replacement Generator B416 PL-1 Security Lighting - B	0	7	0	Low
Restricted Area APE 4 ***Demolition Projects***				
Demolish Building 448 – F	0	5	0	Low
Demolish Buildings 430, 433 - L	1	5	0	Low
Demolish Space Delta 4 Shops & Warehouses – P	NA	NA	NA	Low
West End APE 4 ***Construction Projects***				
Youth Ballfields - 2	0	0	0	Low
Steamboat Ave Roundabout – 4	0	0	0	Low
Education Center Expansion – 5	0	0	0	Low
Skate Park – 6	0	0	0	Low
Pave Contractor Parking – 7	0	0	0	Low
Chapel Expansion - 8	0	0	0	Low
Youth Center Expansion – 9	0	0	0	Low
Fitness Center Expansion – 11	0	0	0	Low
ACFT Paring Lot - 15	0	0	0	Low

3.4 ENVIRONMENTAL JUSTICE/SOCIOECONOMICS

3.4.1 Definition of the Resource

The USEPA defines environmental justice as the equitable treatment and meaningful engagement of all individuals, regardless of race, color, national origin, or income, concerning the development, implementation, and enforcement of environmental laws, regulations, and policies. This principle is mandated by two EOs, specifically EO 12898, which requires federal actions to address environmental justice in minority populations and low-income populations, and EO 13045, which prioritizes the protection of children from environmental health risks and safety risks. These orders instruct federal agencies to consider the potential adverse effects of their actions on environmental justice communities and children and to take necessary steps to address any disproportionate impacts that could affect these communities.

CEQ has established specific criteria to determine environmental justice communities based on race and income. According to these criteria, minority populations are considered to be present when they make up

more than 50 percent of the population or significantly exceed the proportion in the surrounding area. Similarly, low-income populations are identified when there is a noticeable disparity in income and poverty levels between a community and its neighboring communities (CEQ, 1998). Adhering to these guidelines, this EA assesses the presence of environmental justice communities using key indicators such as the percentage of minority population, median household income, and the percentage of individuals living below the poverty level. Additionally, the EA examines the percentage of the population under 18 years of age to identify any significant concentrations of children within the study area.

The ROI encompasses the nearest surrounding community to the Proposed Action. The focus on nearby communities is based on the understanding that they are most likely to be directly affected by the Proposed Action, leading to potential changes in socioeconomic conditions and the possibility of disproportionate impacts.

The definitions of minority, low-income, and minority or low-income populations are presented below:

- Minority – Individual(s) who are members of the following population groups as designated in the U.S. Census: Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, as well as Hispanic or Latino of any race.

- Low-income – The U.S. Census Bureau uses a set of income thresholds that vary by family size and composition to determine who is in poverty (i.e., classified as 'low-income'). If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically but are updated for inflation using the Consumer Price Index. The official poverty definition uses income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps) (USCB, 2023).

- Minority or low-income population – Populations where either: (a) the total number of minority or low-income individuals of the affected area exceeds 50 percent of the overall population in the same area, or (b) the total number of minority or low-income individuals within the affected area is meaningfully greater (e.g., 120 percent greater) than the minority or low-income population percentage in an appropriate comparison unit of geographic analysis (CEQ, 1998).

- Meaningfully Greater – A meaningfully greater minority or low-income population within a geographic unit affected by a federal action is determined by comparing the minority or low-income composition of the geographic unit to the minority or low-income composition of the general population. As with selecting the appropriate unit of geographic analysis, a comparison population should be selected so as not to artificially dilute or inflate the affected minority populations. For this analysis, the comparison population is the total population of the respective county of Arapahoe County.

The analysis incorporates information from the USEPA's EJSCREEN model, which is utilized as an initial tool to identify regions that could be more vulnerable to environmental justice impacts based on their demographic makeup and existing exposure to pollutants or proximity to pollution-generating facilities. The model employs various environmental indicators, such as data on the proximity to air and water pollution, traffic, and sites potentially contaminated from historical use of lead paint, leaks, or facilities handling hazardous materials and waste.

In determining areas of potential environmental justice concern, USEPA typically considers a project to fall into this category if the EJSCREEN analysis for the affected area indicates that one or more of the 12 indices are at or above the 80th percentile in the nation and/or state. Consequently, this analysis includes EJSCREEN information for the ROIs that meet or exceed the 80th percentile in the nation.

3.4.2 Affected Environment

Table 3.4-1 summarizes the percentage of minority and low-income populations within 1 mile of the project area, Arapahoe County, Colorado, and the United States for comparison purposes.

Table 3.4-1 Minority and Low-Income Populations within Buckley SFB ROI

Geographic Area	Total Population	Minority (%)	Low Income (%)
ROI (Census Tract 71.04)	1,471	34.7	24
Arapahoe County, Colorado	654,900	37.7	8.7
Meaningfully Greater Criterion	-	*41.0*	*11.5*
Colorado	5,773,714	34.9	9.6
United States	331,449,281	42.2	12.6

Sources: USCB, 2019; USCB, 2018

The average minority population percentage of Arapahoe County is 37.7 percent. If the ROIs percentage of minority individuals meets the 50 percent criterion or exceeds 120 percent (meaningfully greater content) of the total minority population within Arapahoe County (i.e., 41.0 percent), the area is considered to have a minority population. Because the minority population percentage relative to the general population of Arapahoe County would not exceed the 50 percent threshold defined by CEQ, the secondary threshold of 41.0 percent is used to identify areas with meaningfully greater minority populations within 1 mile of the project area. The total minority population residing within 1 mile of the project area is approximately 34.7 percent of the entire population. Therefore, the overall composition of the ROI is predominantly nonminority.

Low-income populations were evaluated using a similar method. The total low-income population residing within 1 mile of the project area is approximately 24 percent of the entire population which exceeds criteria identifying environmental justice low-income populations.

Table 3.4-2 shows the population of children under age 5 and ages 1 to 18 and elderly populations within 1 mile of the project area.

Table 3.4-2 Children and Elderly Population within Buckley SFB ROI

Location	Children under Age 5 (%)	Children 1 to 18 Years (%)	Individuals Greater than 65 Years (%)
ROI	7.0	27.0	6.0
Arapahoe County	6.5	20.4	12.9
Colorado	5.7	19.0	14.3
United States	5.9	19.3	16.0

Source: USCB, 2018a

Table 3.4-3 represents the socioeconomic data for Aurora and Arapahoe County, Colorado, as well as the ROI for this resource area. For both the City of Aurora and Arapahoe County, approximately 4 percent of housing units were vacant in 2020. The city of Aurora represents 58 percent of Arapahoe county population. Civilians accounted for over 99 percent of the total labor force in 2020 in both Aurora and Arapahoe County.

Table 3.4-3 Socioeconomic Data for Buckley SFB ROI

Demographic Indicator	City of Aurora	Arapahoe County
Total Population	357,323	626,612
Total Housing Units	157,168	262,493
Vacant Housing Units	7,101	12,287
Total Labor Force	217,757	371,046
Civilian Labor Force	216,194	368,345

Source: USCB, 2022; USCB, 2018b

3.4.3 Environmental Consequences

This section presents an assessment of the potential effects of the Proposed Action on socioeconomics and environmental justice within the ROI. The evaluation of socioeconomic and environmental justice impacts was conducted in two distinct ways: (1) short-term impacts resulting from the construction of the Proposed Action, and (2) long-term impacts arising from the continued staffing and operations of the Proposed Action once it is constructed. Adverse impacts could encompass human health or environmental consequences such as air, noise, or water pollution, along with interconnected socioeconomic effects such as employment, displacement of individuals or businesses, and public service provision.

Socioeconomic impacts from the Proposed Action would be deemed significant if:

- The location and distribution of the local population was substantially altered;
- The population would exceed historic growth rates;
- The number of jobs decreased resulting in a substantial rise in regional unemployment rates, or reduced income generation; and/or
- Local housing markets or vacancy rates were substantially affected, or if the need for new social services and support facilities substantially increased.

Environmental justice impacts would be considered significant if the Proposed Action disproportionately impacts a low-income, minority, and/or youth population.

3.4.3.1 *Short Term*

Implementation of the Proposed Action would be expected to have a short-term positive socioeconomic impact. The adjacent jurisdictions would secure a positive socioeconomic impact if local contractors are hired to construct projects associated with the Proposed Action. If workers from outside the region are used to implement the Proposed Action, positive socioeconomic impacts also would be expected, with direct benefits to accommodation, food, retail, and other industries, in addition to local fiscal benefits from associated sales tax revenues.

Implementation of the Proposed Action would not result in significant adverse short-term environmental justice impacts. Potential environmental justice impacts evaluated in this EA would occur primarily on site (air quality impacts are regional); off-base minority, low-income, and youth populations would not be affected. A summary can be found in Table 3.4-4

This EA identifies the following impacts that could occur during construction and that may disproportionately affect environmental justice populations, or disproportionately affect children or elderly populations surrounding the project area.

- Air Quality Impacts –Because construction emissions would occur at ground level, they would likely cause short-term increases in air pollutant emissions in the immediate vicinity of the project area, but would not likely be transported more than 1 mile except on windy days. Emissions would be reduced through the use of BMPs such as watering of soils.

- Noise Disturbance – Short-term, negligible to minor adverse impacts from noise would be expected as a result of operation of equipment and construction activities, as described in Section 3.8, Noise.

- Traffic Congestion – Short-term, negligible to minor, adverse transportation and traffic impacts would be expected during construction locally from increased congestion as described in Section 3.9, Transportation. These impacts would occur primarily on main roads primarily traveling in and out of the installations.

- Job Opportunities – Short-term, minor beneficial impacts on employment locally would result from the creation of jobs during construction and spending locally.

Table 3.4-4 Environmental Justice Impacts for ADPs

ADP District	Environmental Justice	Socioeconomics
Aspen Corridor	No significant impacts, low income population present in local setting	Beneficial socioeconomic impact
Aviation Ridge	No significant impacts, low income population present in local setting	Beneficial socioeconomic impact
North Corner	No significant impacts, low income population present in local setting	Beneficial socioeconomic impact
Restricted Area	No significant impacts, low income population present in local setting	Beneficial socioeconomic impact
West End	No significant impacts, low income population present in local setting	Beneficial socioeconomic impact

3.4.3.2 *Long Term*

Implementation of the Proposed Action would not result in significant long-term socioeconomic impacts for any of the proposed project sites. The local region has an existing supply of housing, schools, and other public and private services to meet the needs of the construction workforce. Further, no environmental justice populations have been identified off Base that would be affected by the Proposed Action.

While minority and low-income individuals are located within the ROI, impacts would be minor to moderate as described in Section 3.4.2.

3.4.3.3 *Protection of Children's Health and Safety and Elderly Populations*

There could be overall minor adverse impacts to children or elderly populations surrounding the project area during construction. Based on the distance of the project area from sensitive receptors, the physical separation of the project area by other structures, the nature of anticipated impacts, and implementation of BMPs, impacts to children or elderly populations are not anticipated to be disproportionate or significant. Although the Proposed Action would result in adverse noise impacts, impacts on children or the elderly would be minor and would not be an environmental health or safety risk. Air quality impacts would be minimized through BMPs as described in Section 3.1, Air Quality and Greenhouse Gas/Climate Change. Standard construction site safety precautions (e.g., fencing and other security measures) would reduce potential risks to children to minimal levels.

Potentially significant and/or disproportionately adverse effects on low-income and environmental justice communities from the Proposed Action would have no interrelated physical environmental effects. Therefore, these significant and/or disproportionately adverse effects would not, in and of themselves, require the preparation of an Environmental Impact Statement as stated in the CEQ regulations at 40 CFR 1508.14.

3.4.3.4 *No Action Alternative*

Under the No Action Alternative, the construction/renovation/demolition projects under the Proposed Action would not occur. Therefore, there would be no socioeconomic impacts or disproportionate impacts to environmental justice communities at these project sites.

3.5 GEOLOGY AND SOILS

3.5.1 Definition of the Resource

Earth resources include the soil, underlying geology, and potential for geologic hazards and erosion within the ROI of the Proposed Action. The ROI for soil and geological resources includes the boundaries of Buckley SFB, with a focus on the project site boundaries included in the five ADPs analyzed in this EA.

Geological resources consist of surface and subsurface materials and their properties. Principal geologic factors influencing the ability to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), soil stability, and topography. The term "soil" refers to unconsolidated materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the capacity of the ground to support man-made structures and facilities, provide a landscaped environment, and control the transport of eroded soils into nearby drains and surface waters.

The USEPA assigns all counties a Radon Zone between 1 and 3, with Zone 1 indicating average indoor radon levels greater than 4 picocuries per liter (pCi/L), Zone 2 indicating average levels between 2 and 4 pCi/L, and Zone 3 indicating average levels less than 2 pCi/L (USEPA 2021). The USEPA recommends mitigation (i.e., site-specific design measures) if indoor radon levels are at or above 4 pCi/L (USEPA, 2016). Arapahoe County, in which Buckley SFB is located, is in USEPA Radon Zone 1 (USEPA 2021).

The Farmland Protection Policy Act (FPPA) (7 U.S.C. 4201 et seq.) of 1981 states that federal agencies must "minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses." Prime and unique farmland, which is categorized by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) based on underlying soil characteristics, is protected by the FPPA. The FPPA does not apply to areas classified as "urban" by the Census Bureau (USCB 2023a; USDA 2020). The final criteria used to designate areas as urban are described in the Federal Register (87 FR 16706) but include areas with a high degree of imperiousness, at

least 2,000 housing units, a population of at least 5,000, and airports that meet certain conditions within 0.5 mile of an urban area.

Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding, for a sufficient duration during the growing season to develop anaerobic conditions in the upper part. Under natural conditions, hydric soils are capable of supporting the growth and reproduction of hydrophytic vegetation.

Stormwater discharges in the U.S. are regulated by the Clean Water Act (CWA) NPDES stormwater program, which requires a permit for the discharge of any pollutant to Waters of the U.S. from point and non-point sources. Non-point sources include stormwater runoff from industrial, municipal, and construction sites. Additionally, Section 438 of the Energy Independence and Security Act of 2007 requires federal agencies to reduce stormwater runoff from federal development and redevelopment projects.

3.5.2 Affected Environment

3.5.2.1 *Geology*

Buckley SFB is located within the Colorado Piedmont region of the Great Plains physiographic province (NPS, 2017; USAF, 2016). The Great Plains physiographic province is primarily flat with some isolated mountains and lowlands (NPS, 2017). Elevations on Base range from 5,500 feet above mean sea level (amsl) to 5,650 feet amsl. Characteristic landforms within the Colorado Piedmont are flat to rolling plains consisting of both uplands and lowlands. The South Platte River accounts for a significant portion of the lowlands in the Colorado Piedmont, but these lowlands are less prominent in the river's upstream reaches near Denver. Buckley SFB is located in an upland area within an urban setting (USAF, 2016).

Buckley SFB is located in the Denver Basin, a structural depression formed approximately 67 million years ago. Surficial deposits in this area consist of unconsolidated, eolian (windblown) and alluvial (deposited by water) sediments that may reach a thickness of 30 feet. These deposits were initially deposited during the Pleistocene epochs and continue to be deposited today. Geologic layers within the basin are greater than 13,000 feet thick and range in age from Late Pennsylvanian through Quaternary. Seven principal sedimentary formations comprise the Denver Basin, listed in descending order: the Castle Rock Conglomerate; the Dawson Arkose; the Denver, Arapahoe, and Laramie formations; the Fox Hill Sandstone; and an 8,000-foot-thick, relatively impermeable shale formation known as the Pierre Shale (USAF, 2021).

Coal reserves are present beneath the surface of Buckley SFB; however, these reserves are economically non-recoverable due to their low quality and depth beneath the surface. Although mineral reserves (i.e., sand and gravel) are present in the area, economically desirable reserves do not exist on Base. No other significant mineral resources are present (USAF, 2021).

The USGS 2018 Seismic Hazard Map shows that Buckley SFB is at low risk of seismic hazard (hazard level 2 to 3 out of 7) (USGS, 2018). No active faults occur on Base, and the nearest active fault line is the inferred location of the Golden fault (Class B – various age), located approximately 20 miles southwest. The Rampart Range fault and the Ute Pass fault zone (both of middle and late Quaternary age) occur approximately 30 miles to the south (USGS, 2023).

3.5.2.2 *Soils*

USDA NRCS identifies 16 soil types at Buckley SFB, most of which are classified as moderately to highly erodible. Table 3.5-1 presents all soil types underlying Buckley SFB, and Figure 3.5-1 presents the locations and boundaries of each type.

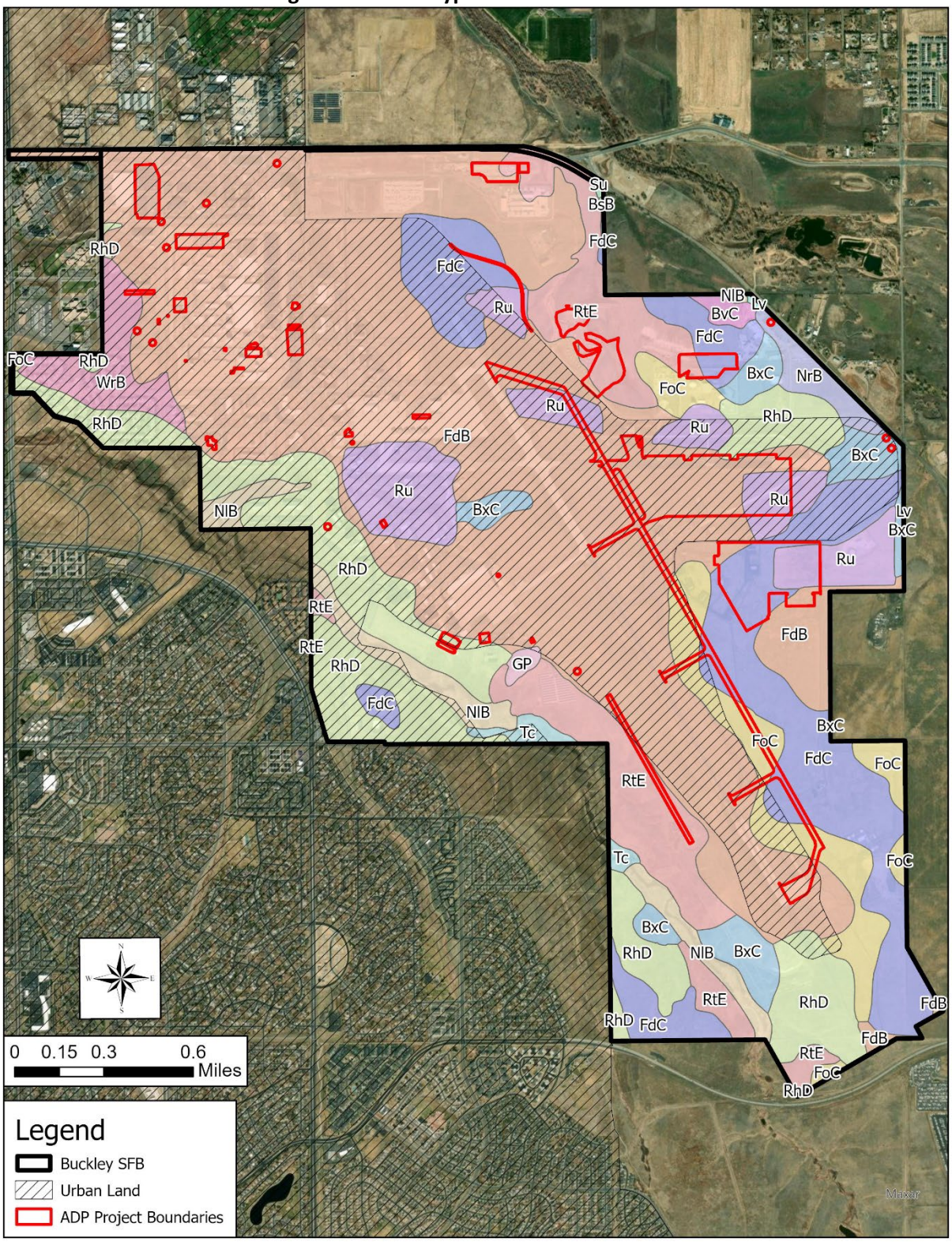
Table 3.5-1 Soil Types Present within the ROI

Map Unit Symbol	Map Unit Name	Percent Hydric	Description	Farmland Classification
BsB	Bresser sandy loam, terrace, 0 to 3 percent slopes	0	Occurs along major drainageways. Runoff is slow.	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60.
BvC	Bresser-Truckton sandy loams, 3 to 5 percent slopes	0	Occurs on slopes and ridge tops in native grass and is susceptible to soil blowing.	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60.
BxC	Buick loam, 3 to 5 percent slopes	0	Occurs in small, scattered areas on uplands in native grass and is susceptible to soil blowing.	Prime farmland if irrigated.
FdB	Fondis silt loam, 1 to 3 percent slopes	0	Occurs on uplands, runoff is moderate, and is slightly to moderately susceptible to soil blowing and water erosion.	Prime farmland if irrigated.
FdC	Fondis silt loam, 3 to 5 percent slopes	0	Occurs on uplands, is suited to cultivated crops, and is susceptible to soil blowing.	Prime farmland if irrigated.
FoC	Fondis-Colby silt loam, 3 to 5 percent slopes	0	Occurs along ridge tops, runoff is moderate, and water holding capacity is high.	Prime farmland if irrigated.
GP	Gravel Pits	0	Occurs in an isolated area towards the center of the installation, west of the airfield.	Not prime farmland.
Lv	Loamy alluvial land	0	Occurs in isolated areas along the easternmost boundary of the installation.	Not prime farmland.
NIB	Nunn loam, 1 to 3 percent slopes	0	Occurs on terraces, runoff is slow, erosion is slight, and water holding capacity is high.	Prime farmland if irrigated.
NrB	Nunn-Bresser-Ascalon complex, 0 to 3 percent slopes	5	Occurs on lower parts of slopes, is well suited to cultivated crops, water holding capacity is moderate to high, and erosion is slight to moderate.	Prime farmland if irrigated.
RhD	Renohill-Buick loams, 3 to 9 percent slopes	0	Occurs on uplands, is not suited to cultivated crops, and erosion is severe.	Not prime farmland.
RtE	Renohill-Litle-Thedalund complex, 9 to 30 percent slopes	0	Occurs on grassy hillsides, runoff is moderate to rapid, and is not suited to cultivated crops.	Not prime farmland.
Ru	Rock outcrop	0	Occurs near where soils have been stripped so that interbedded shale and sandstone are exposed at the surface.	Not prime farmland.

Map Unit Symbol	Map Unit Name	Percent Hydric	Description	Farmland Classification
			Highly susceptible to soil blowing and erosion.	
Su	Sandy alluvial land	0	Occurs as narrow areas along major drainageways next to stream channels and is subject to yearly flooding.	Not prime farmland.
Tc	Terrace escarpments	0	Occurs next to streams and drainageways, soil slipping and sloughing are common, and water erosion is severe.	Not prime farmland.
WrB	Weld-Deertrail silt loams, 0 to 3 percent slopes	0	Occurs on uplands, runoff is slight, moderately susceptible to soil blowing.	Not prime farmland.

Source: USDA, 2022; USAF, 2016

Figure 3.5-2 Soil Types Present within the ROI



Stormwater at Buckley SFB is managed by an individual Municipal Separate Storm Sewer System (MS4) NPDES permit. The MS4 NPDES permit mandates the development of a Stormwater Management Program

(SWMP), which manages the quality of stormwater discharges through implementation of BMPs (Buckley SFB, 2022). Stormwater discharges from air transportation industrial activities are managed by a NPDES Multi-Sector General Permit (MSGP), which identifies and limits stormwater discharges from sources associated with airfield operations. The MSGP requires the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) specifically for air transportation activities (USAF, 2021).

3.5.3 Environmental Consequences

Impacts to soils or geological resources would be considered significant if such impacts would expose people or structures to major geological hazards, substantially increase the potential occurrence of erosion or sedimentation, or constitute a violation of the FPPA.

3.5.3.1 *Construction*

Geology

Construction of the Proposed Action could affect geology if the construction of deep foundations is required. Geotechnical studies would be conducted to determine the extent of foundation support required. Even if a deep foundation is required, foundation elements would not be expected to penetrate unique or noteworthy geologic strata, as none are present in this area.

Buckley SFB is at a low risk for seismic hazards, as the area receives a classification of level 2 to 3 out of 7 on the USGS 2018 Seismic Hazard Map (USGS, 2018). However, due to the presence of unconsolidated native and fill materials immediately underlying the installation, along with the presence of perched groundwater, the potential exists for liquefaction to occur in the event of a strong earthquake (USAF, 2016). All proposed facilities would be designed in accordance with federal and regional requirements to ensure resiliency to seismic events. It is not expected that seismic events would interfere with construction, nor that construction would exacerbate the local risk of a seismic event occurring. Likewise, proposed facilities would be designed in accordance with regional standards to minimize the potential for indoor buildup of radon to unacceptable levels. Overall, the implementation of the Proposed Action would have no or negligible adverse impacts on geology.

Soils

Ground disturbance associated with construction would result in short-term, minor, adverse impacts to soils. Ground-disturbing activities associated with construction, renovation, and demolition include vegetation clearing, soil excavation, grading, leveling, and possible trenching or boring to install or extend utilities, as required by the projects included in the Proposed Action. Ground disturbance exposes soils to wind, rain, and stormwater runoff, potentially resulting in short-term increases in erosion and sedimentation. However, the proposed projects included in each of the ADPs remain conceptual and have not undergone a formal design process. As such, it remains unknown how much ground would be disturbed during construction of the proposed projects.

To minimize impacts to soils, BMPs (silt fencing, detention basins, etc.) would be implemented to prevent and reduce the potential for erosion and sedimentation during construction, renovation, and demolition. Should ground disturbance exceed 1 acre, a National Pollutant Discharge Elimination System (NPDES) construction general permit (CGP) would be required and a SWPPP would be developed. A general Base wide SWPPP is in place at Buckley SFB that provides a detailed list of potential stormwater controls that could be applied to a project. The Base wide SWPPP would be supplemented by project specific SWPPPs that would be developed under the Proposed Action if disturbance exceeds 1 acre (460 CES/CEIE, 2022).

Soils underlying portions of Buckley SFB are classified as prime farmland soil if they meet certain conditions presented in Table 3.4-1. Fondis silt loam, 1 to 3 percent slopes and 3 to 5 percent slopes (Map

Unit Symbols FdB and FdC, respectively) and Fondis-Colby silt loam, 3 to 5 percent slopes (Map Unit Symbol FoC) occur beneath areas slated for construction, renovation, or demolition, as presented in Figure 3.4-1 (USDA, 2022). The majority of these projects are also located within urban land (see also Figure 3.4-1), as defined by the Census Bureau, and therefore exempt from the requirements of the FPPA (USCB, 2023; USDA, 2020). Seven projects included in the ADPs under analysis in this EA are located on prime farmland soils outside United States Census Bureau-defined urban land. Justification for their exclusion from FPPA requirements are presented in Table 3.5-3. Implementation of the Proposed Action would have no effect on FPPA-protected farmland.

Table 3.5-3 On-Site Prime Farmland Soil Exemptions from FPPA

Project	Prime Farmland Soils Present	Justification for FPPA Exemption
RV Storage Yard Fix	FdB	Project is proposed primarily within the footprint of an existing parking lot and within a larger developed area. Land has been previously, irreversibly converted from potential farmland. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.
Realign Steamboat Ave Out of Graded Clear Zone	FdB FdC	Although the proposed realignment of Steamboat Ave is located in an open area of the Base, the project occurs within a larger developed area. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.
FamCamp Expansion	FdB	Although the proposed project is located in a minimally disturbed area, it occurs within a larger developed area, and the land has already been irreversibly converted from potential farmland. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.
NRO Expansion	FdC FoC	Although part of the area within the proposed boundary of this project is undeveloped, the project occurs within a larger developed area and land has been previously, irreversibly converted from potential farmland. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.
Munitions Complex	FdB FdC	Although the proposed Munitions Complex is located in a mostly open area on Base, the project occurs within a larger developed area. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.
East Taxiway	FdB FdC FoC	Although the proposed project is located in a mostly open area on Base, it occurs within a larger developed area. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.
Helo Slide	FdB	Although the proposed project is located in a mostly open area on Base, it occurs within a larger developed area. Additionally, soils are considered to be prime farmland only if irrigated, and no irrigation occurs in this location.

Source: USDA, 2020
Notes: NRO=National Reconnaissance Office

Due to the implementation of BMPs and compliance with all necessary permits, it is anticipated that construction of the Proposed Action would result in short-term, minor, adverse impacts to soils.

3.5.3.2 *Operations*

Geology

Once constructed, operation of the proposed facilities would not involve ongoing disturbance to geological resources. Implementation of the Proposed Action would have no or negligible adverse impacts on geology.

Soils

Once constructed, operation of the proposed facilities would not involve ongoing disturbance to soils. All areas disturbed during construction would be revegetated or otherwise stabilized. Conversion of previously vegetated, permeable land to impervious surfaces such as parking lots and buildings during construction may result in long-term, insignificant adverse impacts to soils. Compaction of soils and increased impervious surfaces may increase the volume and velocity of stormwater on-site, potentially causing erosion and sedimentation.

The existing stormwater drainage system on-site, which is composed of ditches, curbs, gutters, culverts, pipelines, and detention ponds, would be modified to accommodate new drainage patterns in the vicinity of new facilities. Ongoing compliance with the Base's MS4 permit and MSGP would additionally manage increases in stormwater that may result from the Proposed Action, preventing or minimizing erosion and sedimentation.

Due to the implementation of BMPs and compliance with all necessary permits, it is anticipated that operational impacts to soils resulting from the Proposed Action would be insignificant.

3.5.3.3 *No Action Alternative*

Under the No-Action Alternative, none of the proposed construction or renovation activities would occur; therefore, there would be no change to soils or geological resources within the ROI. Ongoing operational activities would not affect underlying geology and would not include any new ground disturbance without being assessed.

3.6 HAZARDOUS MATERIALS AND WASTE

3.6.1 Hazardous Materials

3.6.1.1 *Definition of the Resource*

Hazardous materials and hazardous waste are those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. 9601-9675), the Toxic Substances Control Act (15 U.S.C. 2601-2671), and the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (42 U.S.C. 6901-6992). In addition, hazardous materials are regulated by the Emergency Planning and Community Right-to-Know Act (42 U.S.C. 11001-11050). Hazardous materials are further defined in AFMAN 32-7002, Environmental Compliance and Pollution Prevention, to include all items covered under the Emergency Planning and Community Right-to Know Act or other applicable host nation, federal, state, or local tracking or reporting requirements.

The presence of asbestos-containing materials (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs) in building materials and equipment can be found on the installation. These hazardous materials were commonly used in construction and manufacturing in the past. Many buildings and equipment on Air Force installations were constructed or manufactured during a time when the use of these substances was prevalent. Asbestos was widely used for its fire-resistant and insulating properties, while lead-based paint was commonly used for its durability and weather resistance. PCBs were utilized in electrical equipment and insulation due to their insulating properties and chemical stability.

The DoD Environmental Restoration Program (ERP) was created to facilitate the remediation of environmental contamination at DoD installations. ERP sites encompass areas affected by previous defense activities that necessitate cleanup under the CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA). Additionally, certain corrective actions mandated by the Resource Conservation and Recovery Act (RCRA) are also included. Sites not covered by the ERP are addressed through the Compliance-Related Cleanup Program (CRP).

3.6.1.2 *Affected Environment*

Buckley SFB has been classified as a small quantity generator by the EPA due to its production of hazardous waste. The primary sources of hazardous waste at Buckley SFB are aircraft, ground vehicles, and general maintenance activities. This waste consists of flammable solvents, fuel, lubricants, paint, filters, and batteries. To comply with EPA regulations, Buckley SFB has implemented a Spill Prevention, Control, and Countermeasures (SPCC) Plan. This plan outlines the responsibilities, prevention measures, and contingency plans to be followed in the event of a hazardous materials release.

In addition to hazardous waste, the Installation also generates non-hazardous solid waste. This includes municipal solid waste such as discarded paper, cardboard, and packaging materials, as well as industrial waste and construction and demolition debris. Proper management and disposal methods are employed to handle these types of waste in accordance with applicable regulations.

3.6.1.3 *Environmental Consequences*

This section examines the effects of hazardous materials, hazardous waste, and non-hazardous solid waste associated with both the Proposed Action and the No Action Alternative. Significant impacts on hazardous materials and hazardous waste would be considered if:

- The Proposed Action led to an increase in hazardous materials or hazardous waste used, stored, or requiring disposal, surpassing the installation's capacity to manage, store, or dispose of them. This includes exceeding the thresholds set by the EPA for the installation's generator designation or surpassing the capacity of receiving landfills or recycling facilities.

- The Proposed Action heightened the risk of soil or groundwater contamination by hazardous materials. This includes situations where ongoing cleanup efforts were interrupted, delayed, or impeded, or if new and significant risks to human or environmental health were created.

The considerations mentioned above help determine if there would be substantial consequences in terms of capacity, contamination risk, and health risks associated with hazardous materials and waste.

Short Term for all ADP Districts

During project construction, renovation, or demolition, there would be handling, usage, and storage of hazardous materials, as well as the generation of corresponding amounts of hazardous and non-hazardous solid waste. The hazardous materials expected to be used during construction and renovation projects would include paints, thinners, solvents, and petroleum-based products like fuels and lubricants for construction vehicles and equipment. However, the quantities of hazardous materials used during the construction phases of the facilities would be relatively small compared to the overall quantities currently used and stored at the installation.

Authorized personnel would handle and use the construction-related hazardous materials in accordance with the instructions provided on the labels. When not in use, these materials would be securely stored in appropriate cabinets or lockers. Safety data sheets for all hazardous materials in use would be maintained on the construction sites throughout the construction phases of the alternatives.

For on-site refueling of construction vehicles and equipment, temporary or portable petroleum storage tanks would be utilized. These tanks would be equipped with necessary secondary containment measures. The operation and maintenance of these tanks would follow the policies, regulations, and procedures applicable at the installation.

During the construction of the Proposed Action, the utilization of hazardous materials would result in the generation of corresponding amounts of hazardous waste. These wastes may consist of discarded packaging, soiled rags, batteries, light bulbs, and used oil or other chemicals. To properly manage these wastes, they would be separated from the non-hazardous solid waste stream and stored on-site in secure containers, following the guidelines set forth in the installation's Hazardous Waste Management Plan (HWMP).

Once the on-site storage limits are reached, the hazardous wastes generated during construction would be transported by licensed contractors to authorized facilities located outside the installation for proper disposal. These facilities would hold the necessary permits to handle and manage hazardous waste in accordance with applicable regulations.

The segregation, storage, and transportation processes aim to ensure the safe and compliant management of construction-related hazardous wastes, mitigating potential risks to human health and the environment.

The use and storage of construction-related hazardous materials associated with the Proposed Action is not expected to surpass the capacity of the installation’s ability to manage them effectively.

3.6.1.4 *Long Term for All Alternatives*

The regular operation and periodic maintenance of the proposed constructed facilities would entail the utilization of hazardous materials and result in the generation of corresponding quantities of hazardous and non-hazardous solid wastes. The hazardous materials involved in the operation and maintenance of the facilities may include solvents, paints, thinners, cleaning products, pesticides/herbicides, as well as petroleum-based products like fuels and lubricants.

To ensure proper management, these hazardous materials would be stored in secure lockers or cabinets when not in use. Authorized personnel would handle and utilize these materials in accordance with the instructions provided on the labels. Safety data sheets for all hazardous materials stored and used at the proposed facilities would be maintained in a centralized and easily accessible location.

By adhering to these practices, the proposed facilities would maintain the safe and compliant use of hazardous materials, minimizing risks to both personnel and the environment.

In general, the quantities of hazardous materials used and the amounts of hazardous and non-hazardous solid wastes generated at the proposed facilities would be comparable and proportionate to other facilities of similar function and size within the installation. These quantities would also remain relatively small when compared to the overall amounts of materials and wastes used, generated, and disposed of at the installation.

The utilization and generation of hazardous materials and wastes at the proposed facilities would not surpass the capacity of the installation’s ability to handle, manage, store, or dispose of them. They would not cause the installation to exceed the thresholds established by its EPA generator designation or surpass the capacities of off-site landfills or recycling facilities.

3.6.2 Environmental Restoration Program Sites

The ROI regarding potential impacts to and from Environmental Restoration Program (ERP) sites is confined to the immediate areas designated for demolition or construction, which are linked to the Proposed Action sites.

The ERP was established with the purpose of recognizing, characterizing, and addressing contamination associated with CERCLA at Air Force installations. The framework of the program is designed to assess historical disposal locations, manage the movement of pollutants, and mitigate potential risks to both human health and the environment. At Buckley SFB, the ERP functions as the key vehicle for executing the CERCLA process (as outlined in 42 U.S.C. Section 9601), while simultaneously integrating relevant RCRA and State regulations.

Land use controls (LUC) are mechanisms placed on ERP sites which restrict the use of, or limits access to real property to prevent exposure to contaminants above permissible levels. The intent of these controls is to protect human health, the environment, and the integrity of engineering remedies by limiting the activities that may occur at a site (Buckley SFB, 2021). The following in this section will discuss only the LUCs within proposed project footprints for each ADP district.

3.6.2.1 *Aspen Corridor*

LUC Site 3

Some projects associated with the Aspen Corridor ADP necessitate the implementation of LUCs for Site 3 – Base Dump. Particularly, the ANRG POV Parking Expansion project falls within the LUC site while the ARNG Motorpool Expansion project is located adjacent to the site.

It has been determined from past investigations of LUC Site 3 that municipal waste comprised of household and commercial wastes are present. No industrial waste has been discovered. Chlorinated solvents, detected from the monitoring wells at Site 3, are the COC and are comprised of perchlorate, tetrachloroethene (PCE), TCE and cis-1,2-dichlolonethe. TCE is the only COC that exceeds Colorado Basic Standards for Groundwater (CBSG) (Buckley SFB, 2021).

Per the installations Land Use Control Implementation Plan (LUCIP), a Restrictive Notice was signed between Buckley SFB and CDPHE in March of 2014 to establish requirements which include that the Air Force and any subsequent federal owner to notify CDPHE within 30 days of any proposed construction or other ground-disturbing activity at the site and that any subsequent non-federal owner shall notify CDPHE simultaneously when submitting any application to a local government for a building permit or change in land use.

Additional land use controls prohibit new construction within Site 3. The Buckley SFB excavation and digging permit system would maintain an access restriction that would prevent excavations within the LUC boundaries. The Buckley SFB construction review process would also maintain data that will ensure no new construction will take place within the LUC boundaries.

By following the processes specified in the LUCIP, the potential impacts of hazardous materials, hazardous wastes, and non-hazardous solid wastes in the short and long term would be minimal or insignificant.

3.6.2.2 *Aviation Ridge*

LUC Site TU581

TU581 consists of historic Ordnance Storage Areas. The only known remaining environmental concerns for the Ordnance Storage Area site that warrants remedial action are three groundwater plumes that are the subjects of a ROD which was finalized in 2017: the northeast solvent plume, the east perchlorate/solvent plume, and the west perchlorate plume (Buckley SFB, 2021). COCs include TCE; 1,1-dichlorethene (DCE); 1,4-Dioxane; and Perchlorate.

The Small East Ramp and Munitions Complex project boundaries falls within the LUC site.
Per the installations LUCIP, all proposed construction over any part of the northeast solvent plume would be reviewed by the 460th CES for potential hazards or risks posed by contaminated groundwater. The Buckley SFB construction review process, triggered by submittal of a Base Civil Engineer Work Request form, and the Buckley SFB digging permit system would prevent construction before review. The 460th CES would require additional investigation (e.g., updated groundwater or soil vapor data) or analysis of hazard and risk for the northeast solvent plume to determine if there is an unacceptable risk to human health or the environment. If unacceptable risk is identified, the 460th CES would require new construction to include engineering controls to protect human health and the environment (Buckley SFB, 2021).

By following the processes specified in the LUCIP, the potential impacts of hazardous materials or hazardous wastes in the short and long term would be minimal or insignificant.

LUC Site MB106

MB106 was used as an underground furnace for small arms disposal. During a site investigation, results indicated lead concentrations high enough to pose a risk to human health. Additional sampling during the investigation identified explosives at concentrations that also posed a risk to human health. Remediation was completed in 2013 and current concentrations of lead and explosives are confirmed to be below regulatory action levels (Buckley SFB, 2021). However, LUCs remain in place.

The Small East Ramp and Munitions Complex project boundaries fall within this LUC site. Per the installations LUCIP, the following would be required prior to and during any construction:

- All proposed digging activities and/or construction in these areas would be reviewed by 460 CES/CEIE for potential hazards/risks posed by contaminated soil and/or groundwater.
- All access would require approval by the Installation Commander.
- All work in this site would be done in accordance with DoD Explosives Safety Regulation (DESR) 6055.09_Air Force Manual (AFMAN) 91-201(May 2020).
- Restricted Open Space designation would restrict and limit access to the Security Forces and Base Environmental personnel.
- A risk assessment with a list of risk mitigation measures would be developed for each soil disturbing activity to minimize identified risks. Each risk assessment would include the requirement for UXO awareness training to be performed by the 140th WG EOD office to personnel prior to the start of any work. The risk assessment would be signed by the Installation Commander before any soil disturbing activities could commence and would be coordinated by B GAR/SE as well as Space Operations Command (SPoC) Weapons Safety Office prior to the submission to the Installation Commander for approval and signature.

By following the processes specified in the LUCIP, the potential impacts of hazardous materials or hazardous wastes in the short and long term would be minimal or insignificant.

3.6.2.3 *North Corner District, Restricted Area District, and West End District*

No ERP sites fall within proposed project boundaries for these ADP districts.

3.6.3 Asbestos Containing Material

3.6.3.1 *Definition of the Resource*

Asbestos Containing Material (ACM) and its abatement are subject to regulation by both the USEPA and Occupational Safety and Health Act (OSHA). As for the release of asbestos fibers into the surrounding air, its control is governed by Section 112 of the Clean Air Act (CAA), which established the National Emissions Standards for Hazardous Air Pollutants (NESHAP). In compliance with NESHAP, the owner of a building containing ACM is required to notify CDPHE empowered by the Clean Air Act (either the U.S. EPA or the corresponding state agency) and obtain a demolition permit before embarking on demolition or renovation activities. These regulations, encompassed in 40 CFR Part 61, Subpart M, specifically address the handling of ACM during building demolition or renovation.

3.6.3.2 *Affected Environment*

The process of renovating or demolishing buildings containing ACM carries the inherent risk of releasing asbestos fibers into the atmosphere. This release can occur when there is a disturbance or harm to various building components, including but not limited to pipe insulation, acoustical ceilings, sprayed-on fireproofing, and other materials employed for insulation or soundproofing purposes. The prevailing protocol within the Air Force involves the careful handling or elimination of ACM within operational structures, and the abatement of any ACM that poses a threat to human well-being. This is conducted in strict accordance with regulatory stipulations, particularly in anticipation of facility demolition or renovation. ACM removal is executed when the potential for asbestos fiber emission jeopardizes human health or the surrounding environment.

3.6.3.3 *Environmental Consequences*

As part of the Proposed Action, demolition and renovation projects (Table 3.6-1) have the potential of coming into contact and/or disrupting ACM. As such, these operations would be conducted in adherence to relevant federal, state, and local regulations, aiming to mitigate any possible hazards to human health and the environment. The ACM waste produced during the demolition process would be handled in accordance with the appropriate regulations, transported to an off-site landfill with the necessary permits to accept this specific type of material, and tracked through the use of manifests. Inspections for lead and asbestos will need to be conducted by a certified inspector prior to demolition.

Table 3.6-1 Proposed Projects Associated with ACM

ADP Project	Project Type	Description of Impact
Aspen Corridor		
Renovate Brand Name Food Options – Building 630	Renovation	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Renovate Space Delta 4 HQ – Building 620	Renovation	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Aviation Ridge		

ADP Project	Project Type	Description of Impact
Relocate/Repair Sunlight Way	Renovation	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
North Corner		
Close NOSC Gate	Demolition	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Restricted Area		
Renovate/Upgrade Existing Fueling Station	Renovation	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Repair Replacement Generator B416 PL-1 Security Lighting	Renovation	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Demolish Building 448	Demolition	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Demolish Buildings 430, 433	Demolition	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.
Demolish Space Delta 4 Shops and Warehouses	Demolition	Potential for disturbance of existing ACM in building materials. ACM would be disposed of in an approved off-site landfill. Management of ACM would minimize exposure to contractors and an public. No significant impacts.

3.6.4 Lead Based Paint

3.6.4.1 *Definition of the Resource*

Agencies such as OSHA and the U.S. EPA have concluded that human exposure to lead carries significant health risks. Although the Department of Defense (DOD) prohibited the use of lead-based paint (LBP) in 1978, it's plausible that facilities constructed prior to or during 1978 might still contain LBP. The Air Force doesn't proactively seek the removal of LBP; rather, it is maintained in its current location and is removed by the Installation when deemed necessary.

3.6.4.2 *Affected Environment*

Considering the construction dates of Buckley SFB's facilities, it is inferred that LBP is likely present within installation buildings given their construction predating 1978. The demolition or renovation of buildings with LBP hold the potential for releasing lead into the surrounding environment.

3.6.4.3 *Environmental Consequences*

Through implementation of the Proposed Action, as part of the demolition and renovation projects proposed, it is probable that LBP would be encountered. The Base would duly inform the demolition contractor of the potential presence of LBP in the facilities marked for demolition. These demolition and renovation operations would strictly adhere to relevant federal, state, and local regulations, aiming to mitigate potential hazards to human health and the environment. While LBP itself may not be classified as hazardous waste, the materials containing LBP would necessitate disposal at a facility equipped to handle solid waste containing LBP. Waste is deemed hazardous under the guidelines outlined in 40 CFR Part 261 if it surpasses a maximum lead concentration of 5.0 milligrams per liter. The required management of both LBP and waste containing LBP, in accordance with the applicable regulations, would effectively prevent any substantial impacts.

3.6.5 No-Action Alternative

Under the No Action Alternative, implementation of ADP projects would not occur. The installation would continue to use existing facilities. Any ACM or LBP would remain undisturbed. Therefore, there would be no impacts to Hazardous Materials and Waste at these sites.

3.7 LAND USE

3.7.1 Definition of the Resource

This section describes the baseline conditions for land use and visual resources surrounding the project area, and assesses the potential for existing land use patterns and development trends within the project area to affect, or be affected by, implementing the Proposed Action and the No Action Alternative as discussed in Chapter 2. Land use is described by land activities, ownership, and the governing entities' management plans. Local zoning defines land use types and regulates development patterns. This section also describes the visual landscape within the project ROI. Visual resources consist of all visible features (natural and man-made, moving, and stationary) that give a particular environment its aesthetic characteristics and can influence the visual appeal of that landscape for a viewer.

The ROI for land use and visual resources focuses Buckley SFB. The ROI also includes adjacent properties, and primary roadways leading up to the project area.

3.7.2 Affected Environment

3.7.2.1 *Land Use*

Land uses over time evolved as the mission at Buckley SFB has changed. Since the Base's inception, more and more of the property has been developed. In addition, significant amounts of facility demolition and construction have occurred to support new missions. As a result, land uses have changed considerably over time. Current land uses at Buckley SFB consist of open space and restricted safety/environmental zones, airfield, command support, industrial, recreational, residential, and other operations. Land use in the general vicinity of Buckley SFB is within the planning area of the City of Aurora. Land uses surrounding Buckley SFB include open space, recreation, light industrial, and agriculture to the north, open space, agriculture, and residential to the east; open space, agriculture, commercial, and residential to the south; and residential, educational, and light industrial to the west.

- Restricted Safety/Environmental Zones include the airfield primary surface, taxiway clearances, clear zones, and munitions explosive zones.
- Airfield Pavements include the runway, taxiways, paved overruns, aprons, arm/disarm pads, and power check pads.

- Aircraft Maintenance includes facilities such as avionics, hangars, and maintenance shops, which are concentrated north of the airfield apron.
- Aircraft Operations include facilities such as squadron operations, flight simulation facilities, the fire station, and crash rescue stations, most of which are west and north of the airfield apron.
- Industrial includes the fuel storage area, petroleum, oils, and lubricants operations, communication facilities, vehicle maintenance, storage areas, and base supply.
- Command and Support includes the Headquarters Building, gate houses, the medical clinic, the Civil Engineering building, dining halls, and the Navy/Marines Reserve Center.
- Special Categories include the small arms range, munitions storage areas, and hazardous waste storage areas.
- Open Space and Recreation includes undeveloped land on Buckley SFB, including areas set aside for recreational purposes.
- Other Operations include the active duty area, the ADF-C west of Aspen Street, and the Marine Corps' radar facility on the east side of the runway.

Zoning provides for the division of the jurisdiction, in conformity with the general plan, into districts within which the height, open space, building coverage, density, and type of future land uses are set forth. Zoning is designed to achieve various community development goals.

The City of Aurora has designated the Buckley SFB property as Open Space. An Open Space District is intended to preserve natural spaces for city park uses, preserving habitat, protecting the quality and quantity of water resources, providing an alternative means to manage stormwater runoff, promoting good air quality, and creating opportunities for recreation and education.

3.7.2.2 *Aesthetics*

Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. Criteria used in the analysis of these resources include visual sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes in its quality. Visual sensitivity is characterized in terms of high, medium, and low levels.

High visual sensitivity exists in areas where views are rare, unique, or in other ways special, such as in a remote pristine environment. High-sensitivity views would include landscapes that have landforms, vegetative patterns, water bodies, or rock formations of unusual or outstanding quality. Medium visual sensitivity is characteristic of areas where human influence and modern civilization are evident and the presence of motorized vehicles is commonplace. These landscapes generally have features containing varieties in form, line, color, and texture, but tend to be more common than high visual sensitivity areas.

Low visual sensitivity areas tend to have minimal landscape features with little change in form, line, color, and texture.

The visual environment of Buckley SFB and surrounding areas is characteristic of an urban environment. The developed areas of the Base consist mostly of roads, vehicle parking lots, buildings, and airfield facilities. The present appearance of Buckley SFB includes one-story to multistory buildings constructed from a variety of materials. Based on the developed nature of Buckley SFB and surrounding areas, the ROI is considered to have a medium visual sensitivity.

3.7.3 Environmental Consequences

3.7.3.1 *Construction*

The ADP development process is inherently a land use planning process undertaken by the installation. As such, existing land use, ongoing and future mission needs, and installation standards related to architecture and landscaping were considered and described within each of the five ADPs that together encompass the entire Buckley SFB.

Each of Buckley SFB's ADPs contains an appendix that describes the Base's planning patterns. These patterns are based on the idea that a common language is needed for design and are categorized by district (i.e., area), buildings, streets, parking, and open spaces. These patterns guide the design and construction of all proposed projects included in each ADP to ensure cohesive, aesthetically pleasing development within each area and across the Base. In addition, each ADP also includes an appendix of planning standards that outline the building, street, and landscaping standards in place at Buckley SFB. Please refer to each ADP for the principles and guidelines that will shape the proposed projects for that area.

The proposed implementation of Buckley SFB's ADPs would include construction of the proposed projects in accordance with all applicable design standards and land use needs and constraints. As such, no negligible adverse impacts to land use or aesthetics would be expected during construction of the short-term projects described in each of the Base's five ADPs.

3.7.3.2 *Operations*

Once constructed, operation of the proposed facilities would not involve ongoing changes to land use or the visual landscape. Implementation of the Proposed Action would have no or negligible adverse impacts on land use and aesthetics. Beneficial impacts may result from the consolidation of related functions within associated areas of the Base or the expansion of recreational opportunities (i.e., from the proposed FamCamp Expansion in the North Corner district).

3.7.3.3 *No-Action Alternative*

Under the No Action Alternative, the construction/renovation/demolition projects under the Proposed Action would not occur; therefore, no impacts would occur to land use or aesthetics within Buckley SFB.

3.8 NOISE

3.8.1 Definition of the Resource

Noise is generally defined as unwanted sound. Excessive noise can lead to annoyance and disrupt simple day-to-day activities, especially in areas where occupants are more susceptible to the adverse effects of noise pollution. These areas are referred to as noise-sensitive receptors and include, but are not limited to, residences, schools, daycare facilities, libraries, hospitals, elderly housing, and outdoor recreational areas.

Noise levels are measured in terms of decibels (dB) and are typically adjusted to the "A-weighted" scale (i.e., dBA) to account for the varying sensitivity of the human ear to different frequencies of sound. Human response to noise can vary depending on the type and characteristic of the noise source, the distance between the noise source and the receptor, the sensitivity of the receptor, and the time of day. Table 3.8-1 presents typical sound levels and the corresponding human response. In general, sounds at or below 70 dBA are generally considered safe. The USEPA and the World Health Organization recommend maintaining environmental noises below 70 dBA over 24 hours (75 dBA over 8 hours) to prevent noise-induced hearing loss. Over 2 hours of continuous noise levels between 80 dBA to 85 dBA can lead to damage of hearing (CDC, 2022).

Table 3.8-1 Sound Levels and Human Response

Sound Level (dBA)	Effect	Outdoor	Indoor
30	Very quiet	Rustling leaves	Soft whisper (15 feet)
40	Quiet	Quiet residential area	Library
55	Ambient	Rainfall or light auto traffic (100 feet)	Refrigerator
60	Intrusive	Normal Conversation	Air conditioning unit (20 feet)
70	Telephone use difficult	Freeway traffic	Noisy restaurant or TV audio
80	Annoying	Downtown (large city)	Alarm clock (2 feet) or ringing telephone
90	Very annoying; hearing damage (8 hours)	Tractor, bulldozer, excavator	Garbage disposal
100	Very annoying	Garbage truck, motorcycle	Subway train
110	Strained vocal effort	Pile drivers	Power saw at 3 feet
120	Maximum vocal effort	Jet takeoff (200 feet) or auto horn (3 feet)	Rock concert
140	Painfully loud	Carrier deck jet operation	--

Source: USEPA, 1981
dBA = A-weighted decibel

The standard reduction for point source noise is 6 dB per doubling of distance from the source. Barriers, both manmade (e.g., sound walls) and natural (e.g., forested areas, hills, etc.), as well as other natural factors, such as temperature and climate, may reduce noise levels. Standard buildings typically provide approximately 15 dB of noise reduction between exterior and interior noise levels (USEPA, 1978).

The day-night average sound level (DNL) is another common metric that was developed by the USEPA to define the level of noise exposure on a community. The DNL presents the average sound energy at a given location over a 24-hour period (i.e., the DNL does not represent the sound level for a specific event but instead describes the average noise level over a 24-hour period). The DNL also adds an additional 10 dB to events occurring between 10:00 p.m. and 7:00 a.m. This 10-dB "night-time adjustment" represents the added intrusiveness of sounds due to the increased sensitivity to noise when ambient sound levels are low. The DNL has become the standard metric used by many government agencies and organizations, including the USEPA and the Federal Aviation Administration for addressing aircraft noise.

The Noise Control Act of 1972 (42 USC 4901) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1982, the USEPA transferred the primary responsibility of regulating noise to state and local governments. Additionally, under the Noise Control Act, the OSHA noise standard (29 CFR 1910.95) establishes 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 is 115 dBA; 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 reduces sound levels to acceptable limits (OSHA, 2008).

Because military noise is a by-product of weapons used to train for national defense, Congress exempted military weapons being regulated as a product as defined by the Noise Control Act. Despite the exemption, in practice, all services have had a long-standing policy to work to minimize the public's exposure to high noise levels (AFCEC, 2023). As such, the DoD established the Air Installation Compatible Use Zone

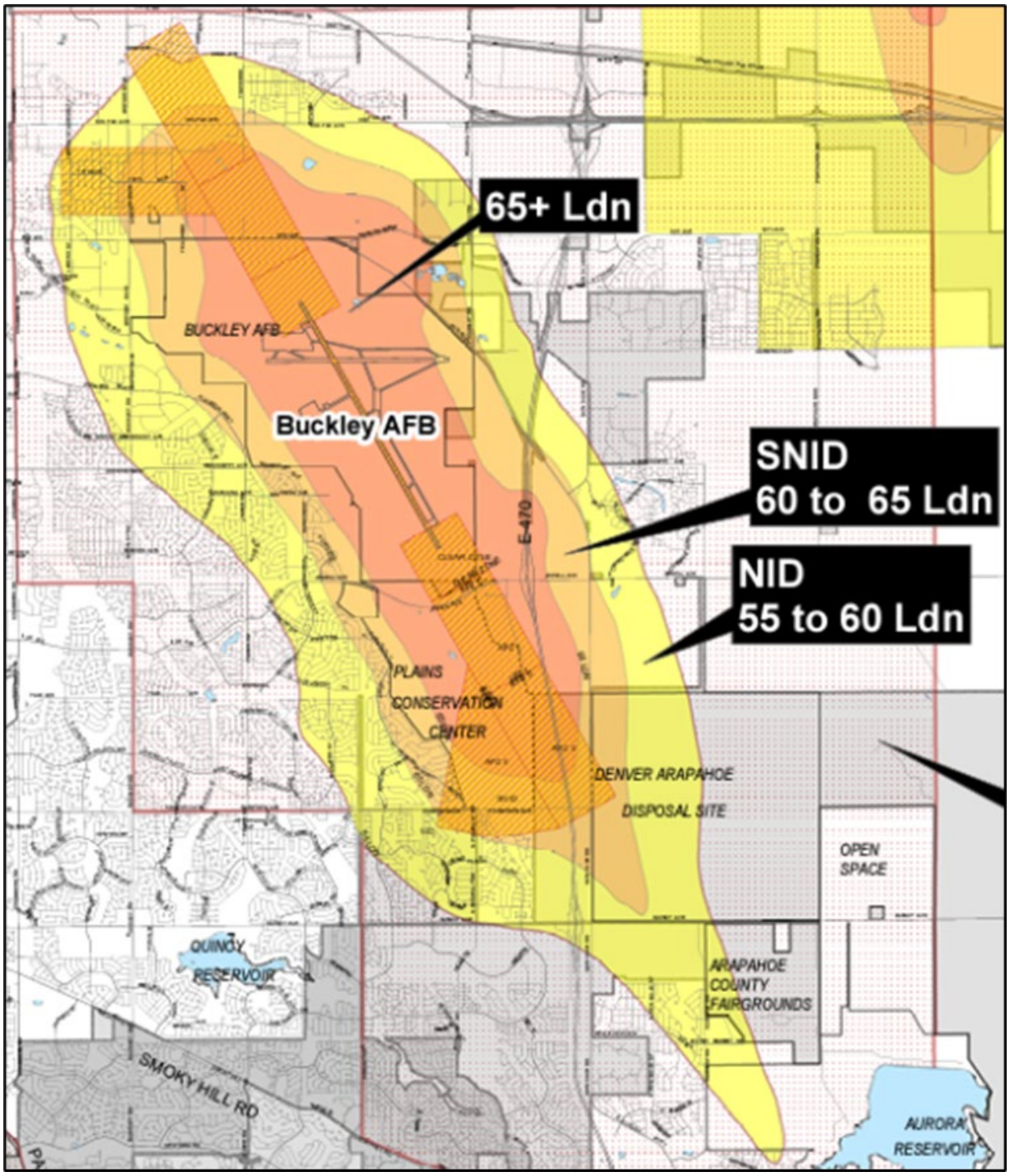
(AICUZ) program as a planning tool to help avoid incompatible urban development and land use conflicts around military airfields. Studies under this program are used in coordination efforts with local, state, and federal governments for their consideration in land use planning. Under the AICUZ program, aircraft operational data from an installation is collected and is used to develop noise contour maps indicating ground dB-level averages and noise exposure from aircraft operations. These noise contours are plotted in increments of 5 dB, ranging from a DNL of 65 dB up to 80+ dB. For land use planning purposes, an area with a 65-dB or less DNL is considered an area of low or no impact (DAF 2020). The USAF sites new construction on installations in compatible land use areas to the maximum extent possible. In circumstances when it is not feasible, USAF incorporates appropriate sound attenuation in the design and construction for structures in the high noise zone per AICUZ guidelines (AFCEC 2023).

3.8.2 Affected Environment

In addition to Buckley SFB's airfield, three other airfields operate within 15 miles of the base. Several major roadways surround the installation, including Interstate 70 (I-70), Interstate (I-225), State Highway 30 (SH-30), and State Highway E470 (SH-E470). As such, aircraft operations and vehicular traffic are the dominant noise sources that contribute to the overall ambient noise environment in the region.

Buckley SFB's airfield generally occupies the southern half of the base and supports numerous aircraft, including fighter jets, cargo and personnel aircraft, and helicopters. Therefore, aircraft operations have the highest potential for noise impacts within the installation. Noise contours from the airfield extend along the alignment of the runway in a northwest-to-southeast manner. Based on past AICUZ studies conducted for Buckley SFB, the 65+ dBA DNL contour extends approximately 1 mile southeast and 1 mile northwest beyond the Buckley SFB boundary, into the City of Aurora (DAF 2011; City of Aurora 2020). As shown in Figure 3.8-1, practically the entire base is located within the 65+ dBA DNL contour or the 60 dBA to 65 dBA DNL contour.

Figure 3.8-1 Noise Exposure Contours at Buckley SFB

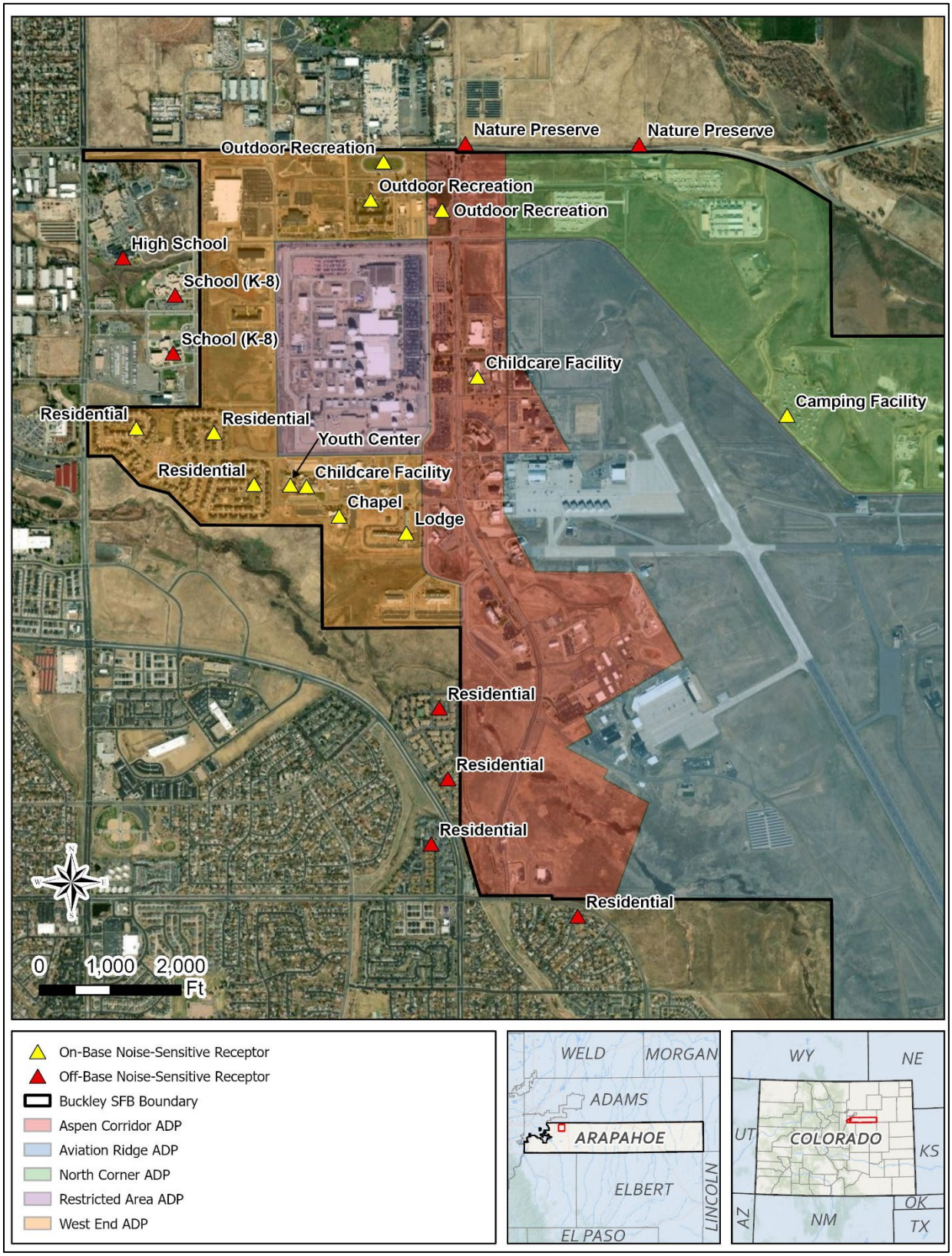


Source: City of Aurora, 2020
Notes: Ldn = day-night average sound level; NID = Noise Impact District; SNID = Special Noise Impact District

Regarding noise-sensitive receptors, the ROI includes areas within and adjacent to the base. Figure 3.8-2 illustrates the location of noise-sensitive receptors at the Buckley SFB and focuses on the northern half of the base as none of the proposed projects would potentially impact receptors located near the southern half of the base. The majority of noise-sensitive receptors within the installation are concentrated in the

northwest corner of the installation as these areas are comprised of facilities that provide living and recreational activities and services for military personnel and their families. Off-base, the closest noise-sensitive receptors include residential areas and schools that border the western boundary of the base. Additional discussions regarding the noise environment for each of the five areas comprising Buckley SFB are provided in the following subsections.

Figure 3.8-2 Noise-Sensitive Receptors at Buckley SFB



3.8.2.1 *Aspen Corridor ADP*

The majority of the Aspen Corridor area is located within the 65+ dBA DNL noise contour. This area includes one noise-sensitive receptor – a childcare facility – located in the northern half of this area, just east of Aspen Street. Off-base receptors near Aspen Corridor include residential areas that are adjacent to the southern half of the corridor, along the western and southern boundaries of the area/installation.

3.8.2.2 *Aviation Ridge ADP*

The majority of the Aviation Ridge area is located within the 65+ dBA DNL noise contour. There are no noise-sensitive receptors located within this area. The off-base receptors closest to this area include residential areas that are located within approximately 600 feet to 2,000 feet from the southwest boundary of the installation.

3.8.2.3 *North Corner ADP*

The majority of the North Corner area is located within the 65+ dBA DNL noise contour. Noise-sensitive receptors within this area include a campground facility located on the eastern side of the base. Off-base receptors include a nature preserve located on SR-30, along the northern border of the installation and a residential property located on SR-30 on the eastern border of the installation. The entirety of the campground facility and the majority of the nature preserve are located within the 65+ dBA DNL; these areas also experience increases in noise levels from the vehicles on nearby SR-30.

3.8.2.4 *Restricted Area ADP*

The Restricted Area is located within the 65+ dBA DNL and the 60 to 65 dBA DNL noise contours. There are no noise-sensitive receptors located within this area. Nearby noise-sensitive receptors are located to the north, west, and south of this area, within the West End area.

3.8.2.5 *West End ADP*

The majority of the West End area is located within the 60 dBA to 65 dBA DNL noise contours. Noise-sensitive receptors within this area include a mix of indoor and outdoor receptors. On-base housing is located in the southwest corner of this area; other receptors in this area include a youth center, a childcare facility, a chapel, and a lodge. Outdoor recreational facilities, including baseball and soccer fields, are located in the northern portion this area; these fields are located within the 65+ dBA DNL noise contour. Off-base receptors include schools adjacent the western boundary of this area.

3.8.3 Environmental Consequences

A noise impact would be significant if it would cause harm or injury to receptors, including on-site workers and nearby communities, or substantially affect normal operations of noise-sensitive receptors during construction or operation of the Proposed Action.

3.8.3.1 *Construction*

Table 3.2-2 presents typical construction equipment and corresponding noise levels at different distances. Concurrent operation of some of the equipment listed in the table could result in a 90-dBA sound level at 50 feet. At 500 feet, this combined construction noise level attenuates to approximately 55 dBA indoors; at 1,500 feet, it attenuates to approximately 60 dBA outdoors. As such, for purposes of this EA, noise-sensitive receptors located at or within 500 feet (for indoor receptors) and 1,500 feet (for outdoor receptors) from a proposed project site were identified since any receptor within these areas could experience noise levels resulting in disturbance or annoyance (see Table 3.8-2).

Table 3.8-2 Estimated Noise Levels from Construction Activities

Equipment	Typical Noise Level at 50 feet (dBA)	Typical Noise Level at 500 feet (dBA)	Typical Noise Level at 1,000 feet (dBA)	Typical Noise Level at 1,500 feet (dBA)
Front Loader	80	60	54	50
Backhoe, excavator	80	60	54	50
Roller	85	65	59	55
Grader	85	65	59	55
Scraper	85	65	59	55
Truck	84	64	58	54
Concrete mixer	85	65	59	55

Source: FTA, 2018
Notes: dBA = A-weighted decibel

Construction and demolition activities would include, but are not limited to, land clearing, excavating, grading, material handling, and demolishing structures. These noise-generating activities would involve the use of heavy construction equipment similar to those occurring under standard building construction activities as listed in Table 3.8-2. Vehicles from commuting construction workers and truck transport of materials, equipment, and wastes would also intermittently increase ambient noise levels at the project sites and along major transportation routes. As such, projects under the Proposed Action would result in intermittent increases in noise levels in the vicinity of the proposed projects on a temporary basis.

The magnitude and intensity of adverse noise impacts would depend on the type of project. For example, construction and demolition projects would generate louder sounds compared to renovation projects. A project's proximity to noise-sensitive receptors would be a major factor on the level of impact as noise attenuates with distance. Additionally, simultaneous construction of multiple projects near a receptor could also result in higher levels of noise impact.

Although noise levels would be loud in the immediate vicinity of a construction site, the intermittent nature of peak construction noise levels would not be expected to result in unsafe noise conditions. Adverse noise impacts would be minimized to the extent possible by standard noise control measures, such as project scheduling (e.g., limiting loud construction activities to standard working hours and within a typical 8-hour workday). OSHA regulations (e.g., wearing hearing protection and limiting exposure) would be followed to reduce the impact of noise on construction workers. The increases in noise levels would be intermittent and short-term, occurring only during the length of the construction phase and during typical working hours.

The majority of proposed project sites would not be located near noise-sensitive receptors such that increases in noise levels would be detected or be considered a nuisance. Because noise levels rapidly attenuate with distance, any potential receptors beyond 500 feet (for indoor receptors) and 1,500 feet (for outdoor receptors) would experience negligible adverse noise impacts. For most of these receptors, increased noise levels would be less than, or would not be substantially different from, noise levels resulting from aircraft operations.

For noise-sensitive receptors located within 500 feet (for indoor receptors) and 1,500 feet (for outdoor receptors), overall noise impacts resulting from construction of the Proposed Action would be short-term

and range from minor to moderate. Noise impacts are discussed in greater detail for each of the ADP districts in the following subsections. As most of Buckley SFB is located within the 65+ dBA DNL contour or the 60 dBA to 65 dBA DNL contour most sensitive receptors located 500 feet or beyond construction activities would not experience a change in ambient noise levels. At this distance noise levels from construction equipment would attenuate to 60 dBA to 65 dBA DNL (see Table 3.8-2).

Aspen Corridor ADP

Projects #11 (ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout) and #12 (ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout) are adjacent to existing baseball fields and near other outdoor recreational facilities. Construction noise could cause disturbance to users at these facilities. Project #12 is located approximately 500 feet from a childcare facility, which would detect construction noise outdoors; however, the facility is located within the 65+ dBA DNL contour and any detectable increase in noise level outdoors would be similar to ambient noise conditions. Construction noise would be reduced to acceptable levels indoors for the childcare facility. Construction noise would be temporary, intermittent, and limited to working hours and would result in short-term minor adverse impacts at these locations.

A childcare facility is located approximately 300 feet and 200 feet from project #2 (Renovate Brand Name Food Options - Building 630) and project #3 (Renovate Space Delta 4 HQ - Building 620), respectively, as identified in Table 2.2-2. As both of these projects involve renovation projects, the majority of adverse noise impacts would be related to the truck traffic accessing the project sites. To avoid driving directly in front of the childcare facility on Aspen Street, trucks could be rerouted onto Devils Thumb Avenue to minimize impacts from the truck traffic, thereby reducing noise impacts to short-term and minor.

Aviation Ridge ADP

There are no indoor or outdoor noise-sensitive receptors that would be impacted from any proposed construction or renovation projects within the Aviation Ridge area as identified in Section 2.2.4.

North Corner ADP

Table 3.8-3 summarizes the noise-sensitive receptors that could be impacted from proposed projects within the North Corner area as identified in Section 2.2.5. These receptors are considered outdoor receptors and would detect construction noise with the potential to experience annoyance or disturbance due to its proximity to a construction site.

Table 3.8-3 Noise Sensitive Receptors Near Project Sites in North Corner ADP

Project # and Name	Receptor	Distance From Proposed Project	Receptor Location
#3: Realign Steamboat Ave Out of Graded Clear Zone	Camping facility	600 feet east	On-base
#6: RV Storage Yard Fix	Nature preserve	400 feet northwest	Off-base
#12: FamCamp Expansion	Camping facility	Adjacent to project	On-base

Both of these receptors are located within the 65+ dBA noise contour, and construction noise from projects #3 and #6 would be comparable to the noise levels occurring in these areas from aircraft operations. Noise impacts would be considered short-term and minor for these receptors.

Project #12 could result in major disturbances to the users at the camping facility. To minimize noise disturbances, DAF could consider notifying potential campground users of the project schedule and

conducting major construction activities during times of reduced campground usage (e.g., limiting peak construction activities to daylight hours). Additional measures could include requiring contractors to utilize equipment installed with sound-reducing features, such as shrouds, covers, and mufflers, and installing temporary barriers to aid in attenuating construction noise. With BMPs in place and considering the temporary nature of the construction, adverse noise impacts would be considered short-term and moderate for these receptors.

Restricted Area ADP

Table 3.8-4 summarizes the noise-sensitive receptors that could be impacted from proposed projects within the Restricted Area as identified in Section 2.2.6. These receptors would detect construction noise and may experience annoyance or disturbance due to proximity to a construction site.

Table 3.8-4 Noise-Sensitive Receptors Near Project Sites in the Restricted Area ADP

Project # / Letter and Name	Receptor	Distance	Receptor Location
#9: Expand Northwest Parking and Relocate Fence	Outdoor recreational facilities	700 feet northeast	On-base
I: South Fueling Station	Housing units	500 feet southwest	On-base

The resulting construction noise levels from projects #9 and I would be comparable to noise levels occurring in these areas from aircraft operations. Because of the distance between the receptors and proposed projects, the adverse noise impact would be expected to be short-term and minor for these receptors.

West End ADP

Table 3.8-5 summarizes the noise-sensitive receptors that could be impacted from proposed projects within the West End area as identified in Section 2.2.7. These receptors would detect construction noise and may experience annoyance or disturbance due to proximity to a construction site.

Table 3.8-5 Noise-Sensitive Receptors Near Project Sites in the West End ADP

Project # and Name	Receptor	Distance	Receptor Location
#2: Youth Ballfields	Residential	500 feet southwest	On-base
#6: Skate Park	Residential	500 feet southwest	On-base
#8: Chapel Expansion	Chapel Lodge Childcare facility Youth center	Adjacent to project 400 feet east 300 feet northwest 500 feet northwest	On-base
#11: Fitness Center Expansion	Outdoor recreational facilities	600 feet east	On-base
#15: ACFT Parking Lot	Outdoor recreational facilities Nature preserve	Adjacent to project 300 feet northeast	On-base Off-base

The construction noise from projects #2 and #6 may be detected at some housing units; however, due to their distance from the project sites, the adverse noise impacts are expected to be short-term and minor for these receptors.

The construction noise from project #8 may be detected at a lodge and childcare facility; however, due to their distance from the project site, the adverse noise impact is expected to be short-term and minor for these receptors. Users of the chapel could experience noise levels considered loud and intrusive due to their proximity to construction activities. To minimize noise disturbances at this location, DAF could consider the following measures:

- notify users of ongoing construction activities;
- coordinate a construction schedule with the chapel's services to limit peak construction activities to specific times; or
- temporarily close the chapel's services during peak construction times.

With these BMPs in place and considering the temporary nature of the construction, adverse noise impacts would be considered short-term and minor for these receptors.

The construction noise from projects #11 and #15 may be detected by the outdoor recreational facilities located near the fitness center. Project #15 may also result in noise impacts to the nature preserve. As these receptors are located within the 65+ dBA noise contour, any detectable construction noise at these receptors would be comparable to the noise levels occurring from the aircraft operations. Noise impacts would be considered short-term and minor for these receptors.

3.8.3.2 *Operations*

The majority of projects under the Proposed Action are construction of new facilities that would not be expected to generate any substantial increase in noise levels during operations. Some increase in noise levels would occur in the West End area from the new ballfields (project #2) and skate park (project #6), which may be detected by the housing units located 500 feet west of these new facilities; however, due to the nature of the new activities, new noise levels would be comparable to or less than levels from the aircraft activities. As such, adverse noise impacts would be considered intermittent, long-term, and minor during operations.

3.8.4 No Action Alternative

Under the No Action Alternative, the construction, renovation, and demolition projects under the Proposed Action would not occur; therefore, no impacts to the ambient noise conditions would occur.

3.9 TRANSPORTATION

3.9.1 Definition of the Resource

This section describes the transportation systems for Buckley SFB and surrounding areas. The ROI for transportation consists of the principal public roadways providing access to the installation and the main roadways within the installation.

The Colorado Department of Transportation (CDOT), Arapahoe County, and the City of Aurora are responsible for planning, designing, constructing, operating, and maintaining the public roadways surrounding Buckley SFB.

3.9.2 Affected Environment

Buckley SFB is located in the City of Aurora, Colorado, which is a suburb outside of Denver, Colorado, itself a major metropolitan area. As such, the area surrounding Buckley SFB is relatively developed and consists of many busy transportation corridors that serve the base. Major east-west transportation corridors surrounding the base include: I-70; SH-30/6th Avenue; Stephen D. Hogan Parkway; Mississippi Avenue;

and Jewell Avenue/Iliff Avenue. Major north-south transportation corridors include: I-225; Buckley Road/Airport Boulevard; SH-E470; and SH-30/Gun Club Road/Aurora Parkway. 6th Avenue and Mississippi Avenue serve as the main routes into the Buckley SFB as the installation's entry control points are located on these roadways. Additionally, SH-E470 provides an alternative beltway route around the eastern portion of Denver's metropolitan area to the east side of Buckley SFB.

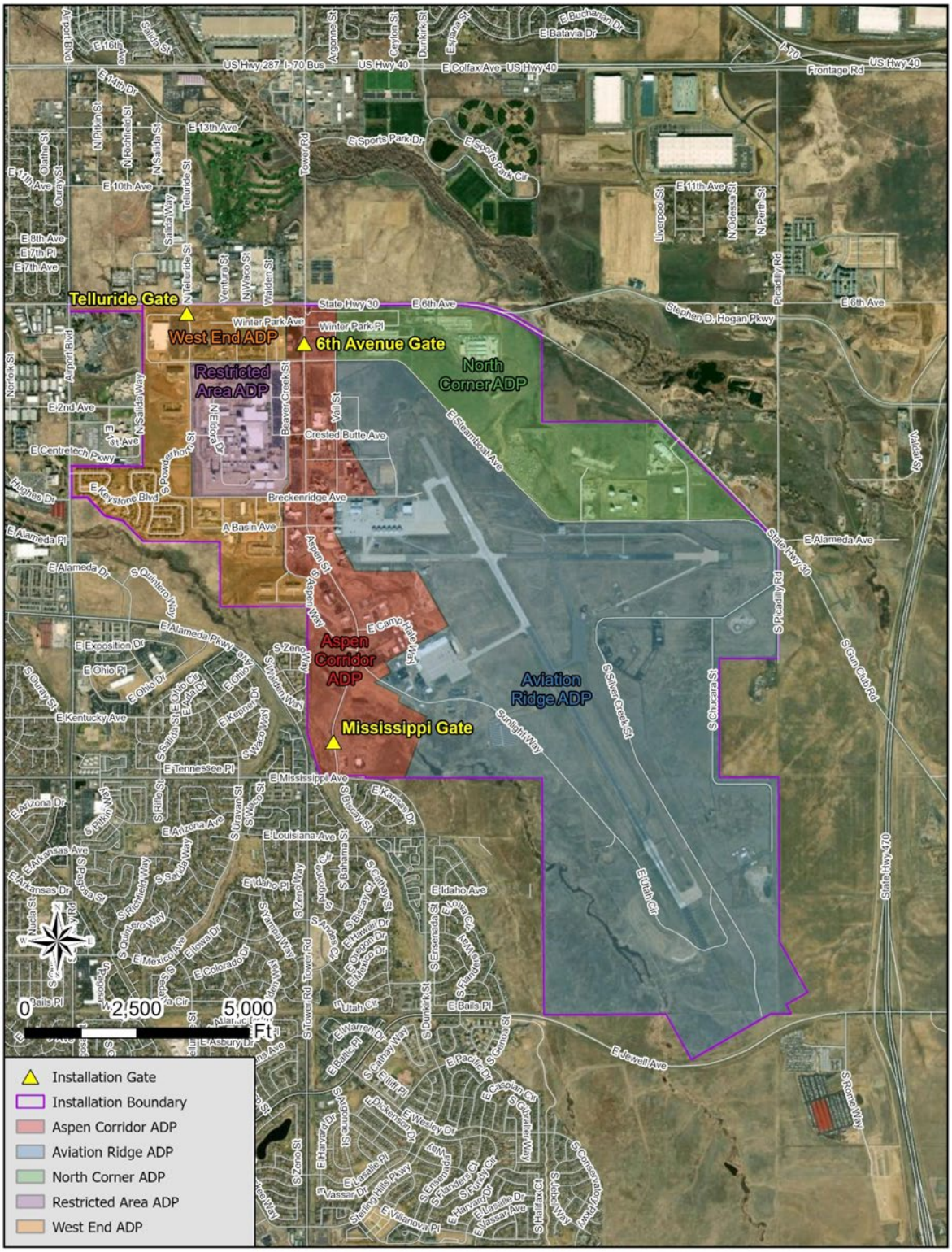
Buckley SFB has three entry control points: Mississippi Gate, 6th Avenue Gate, and the Telluride Gate. The Mississippi Gate is the main entrance and is located on the western central border of the base, near the intersection of Mississippi Avenue and Alameda Parkway. It is open 24 hours per day, 7 days per week. The 6th Avenue Gate and Telluride Gate are both located on SH-30, along the northern boundary of the base. Trucks and vans are required to use the 6th Avenue Gate as there is an inspection point at this entrance. This gate is open weekdays from 5 a.m. to 6 p.m. and weekends/holidays from 5 a.m. to 5 p.m. Currently, the Telluride Gate is closed until further notice (USSF, 2023).

Arapahoe County has identified a couple of traffic intersections near the Buckley SFB that exhibit high levels of congestion, delay and/or crash history: 1) Mississippi Avenue with Buckley Road and 2) Tower Road with Powerline Trail/Evans Avenue (Arapahoe County 2021). Additionally, the county has identified the following corridors near the installation as being highly congested: 6th Avenue/Stephen D. Hogan Parkway; Buckley Road; Gun Club Road/Aurora Parkway; and I-225.

Based on forecasted traffic volumes and future development plans, the City of Aurora and Arapahoe County are working together to plan transportation improvement projects, including a few roadways near Buckley SFB: Buckley Avenue (south of Mississippi Avenue); SH-E470; SH-30/Gun Club Road/Aurora Parkway; I-225; Jewell Avenue; and Mississippi Avenue (Arapahoe County, 2021).

On-base, the main roadways that interconnect the different areas include Aspen Street, Steamboat Avenue, Salida Way, and Breckenridge Avenue. Aspen Street traverses from the northern portion of the base, beginning at the 6th Avenue Gate, to the southern portion at the Mississippi Gate. Aspen Street is the installation's main travel corridor as it provides access to the housing facilities, commercial services, administrative, and operational activities and generally provides access to the other connector roads throughout the base. Figure 3.9-1 depicts the transportation network within and around Buckley SFB.

Figure 3.9-1 Transportation Network of Buckley SFB



3.9.3 Environmental Consequences

An impact on transportation resources would be significant if it would: 1) increase traffic volumes that would exceed the capacity of local roadways and intersections; 2) increase traffic volumes resulting in deficient operations at the installation; or 3) increase traffic volumes resulting in substantial traffic hazards to workers and users at the installation.

3.9.3.1 *Construction*

The construction of new facilities and the renovation and demolition of existing facilities would result in temporary increases in traffic volumes from commuting workers and from the truck transport of materials, equipment, supplies, and waste. The number of workers and volume of trucks required is unknown at this time. It is expected that smaller-sized projects (e.g., new sidewalk) would generally require lower numbers of workers and trucks and require a shorter timeframe (e.g., a few weeks to a few months). Renovation projects would generally require fewer workers and trucks compared to construction projects. Demolition projects could require fewer workers than construction projects but may require higher volumes of trucks over a shorter timeframe to haul debris and wastes offsite, which could be limited to a schedule that avoids peak commute hours.

The additional traffic volumes during construction could temporarily result in increased congestion, delays, and road safety hazards on the major public roadways leading up to the Buckley SFB, especially on the two roadways that provide entrance points to the Buckley SFB – Mississippi Avenue and 6th Avenue/SH-30. Contractor vehicles would be required to access the installation via the 6th Avenue Gate as truck inspection occurs at this entrance. Mississippi Avenue has been identified as having operational issues at its intersection with Buckley Road (approximately 1 mile west of the Mississippi Gate) and 6th Avenue has congestion issues along a 5-mile stretch that includes the 6th Avenue Gate. In addition to these roadways, Buckley Road, Gun Club Road/Aurora Parkway, and I-225 could incur increased traffic under the Proposed Action, which could further exacerbate existing congestion issues.

Increased congestion, delays, and traffic hazards could also result on base, especially on Aspen Street, which is the main transportation corridor at the installation. Additionally, increased commuter vehicles could cause delays at the installation's entrance gates, though this would likely be limited to peak commute hours into and out of the base. Some of the projects may require temporary road closures or require flaggers to manage traffic, thus causing localized delays and congestion. The magnitude and intensity of impacts on the roadways off-base and o-base would depend on the size and nature of a project and the total number of projects within the installation that could be occurring at any given time. Adverse traffic impacts would be temporary in nature, occurring over the period of construction/renovation/demolition.

It is expected that most construction activities would occur during a standard working schedule, Monday through Friday, between 7 a.m. and 5 p.m., which would also limit traffic-related noise impacts, especially to noise-sensitive receptors such as the childcare and campground facilities. To manage construction-related traffic, contractors would implement and adhere to a project-specific transportation management plan (TMP) that would specify appropriate routes for construction-related vehicles to follow to and from the installation. Routes in a TMP would follow major highways and roads, and would avoid local, residential, and neighborhood roads, to the extent practicable. High volumes of anticipated construction truck traffic would be scheduled outside of peak commuting hours to minimize disruption to local traffic on and outside the installation. The TMP would also identify appropriate parking and staging areas for construction vehicles and equipment on-site.

Overall, adverse traffic impacts are expected to be short-term and range from negligible to moderate. It is expected that the individual projects would be distributed over the 5-year timeframe and would not occur simultaneously, which would minimize the volume of construction traffic that could be generated at any

given time. Additionally, with adherence to a TMP and proper and early coordination including, but not limited to, notifications, signage, and temporary reroutes/lane closures, adverse traffic impacts would be reduced under the Proposed Action.

Aspen Corridor ADP

Projects included in the Aspen Corridor ADP would primarily impact Aspen Street and the smaller roads on which each project would be located. As Aspen Street is a major route for the installation, the projects could cause noticeable delays on this roadway. Of the construction projects listed in Table 2.2-1 and Table 2.2-2, projects #4 (Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022), #11 (ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout), and #12 (ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout) would generate moderate levels of construction traffic. Projects #11 and #12 would have additional adverse impacts on local traffic as they involve construction activities directly on roadways and would likely require temporary road closures and/or road detours on Steamboat Avenue and Keystone Avenue as these projects involve construction activities directly on these roadways.

Aviation Ridge ADP

Projects included in the Aviation Ridge ADP would primarily impact Aspen Street and the smaller roads on which each project would be located as most of the projects are located on the western border of the airfield. Projects located on the east side of this area would primarily impact Steamboat Avenue; however, this roadway experiences lower traffic volumes than the other main roadways on base. Most of the construction projects listed in Table 2.2-3 and Table 2.2-4 are infrastructure improvement projects and would generate relatively small volumes of additional traffic.

North Ridge ADP

Projects included in the North Corner ADP would primarily impact Steamboat Avenue and the smaller roads on which each project would be located. Of the projects listed in Table 2.2-5 and Table 2.2-6, projects #1 (NRO Expansion) and #12 (FamCamp Expansion) would generate moderate levels of construction traffic. Additional traffic from projects in the North Corner ADP are not expected to adversely affect the majority of the installation's roadways as this area is located in a relatively remote area of the base.

Restricted Area ADP

Projects included in the Restricted Area ADP would primarily impact Aspen Street as this area is fenced off and access is generally limited to entrances on this roadway. Of the projects listed in Table 2.2-7 and Table 2.2-8, projects #4 (Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot), #8 (Central Uninterrupted Power Supply), #15 (Chiller Plant Expansion) and M (E-Forge/NextGen Parking Garage) would generate moderate levels of construction traffic. The projects listed in Table 2.2-9 involve the demolition of existing facilities and could generate moderate to high volumes of truck traffic. The truck traffic would be required to adhere to TMP to minimize adverse traffic impacts.

West End ADP

Projects included in the West End ADP would primarily impact Steamboat Avenue, Powder Horn Street, Breckenridge Avenue, Aspen Street, and the smaller roads on which each project would be located. Of the construction projects listed in Table 2.2-10, projects #8 (Chapel Expansion) and #11 (Fitness Center Expansion) would generate moderate levels of construction traffic. Project #4 (Steamboat Ave Roundabout) would have additional adverse impacts on local traffic as this project involves construction activities directly on the roadway and would likely require temporary road closures and/or road detours on Steamboat Avenue.

3.9.3.2 *Operations*

Because personnel are not anticipated to increase substantially as a result of the proposed projects, additional traffic from commuting workers would not result in significant adverse traffic impacts to the transportation resources on and off base.

Proposed projects involving additional parking and roadway improvements would result in long-term beneficial impacts to on-base traffic/vehicle parking and include the following:

- Aspen Corridor ADP
    - Project #4: Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022
    - Project #11: ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout
    - Project #12: ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout
- Aviation Ridge ADP
    - Project #5: ARNG Motorpool Expansion
    - Project #24: Lighting Vault Driveway
    - Project #25: ARNG POV Parking Expansion
    - Project #24: Relocate/Repair Sunlight Way
- North Corner ADP
    - Project #3: Realign Steamboat Ave Out of Graded Clear Zone
    - Project #6: RV Storage Yard Fix
- Restricted Area ADP
    - Project #9: Expand Northwest Parking and Relocate Fence
    - Project M: E-Forge/NextGen Parking Garage (Parking Garage North)
- West End ADP
    - Project #4: Steamboat Ave Roundabout
    - Project #7: Pave Contractor Parking
    - Project #15: ACFT Parking Lot

3.9.4 No Action Alternative

Under the No Action Alternative, the construction/renovation/demolition projects under the Proposed Action would not occur; therefore, no impacts would occur to transportation resources, on-base or off-base.

3.10 UTILITIES

3.10.1 Definition of the Resource

This section outlines the utility systems pertaining to Buckley SFB. In the context of this assessment, the scope of utility consideration encompasses the service coverage of each provider to Buckley SFB.

3.10.2 Affected Environment

3.10.2.1 *Electricity*

The electrical power provider for the Base is Xcel Energy. A 13.2/7.60kv y feeder system north of the Base provides the majority of power for Buckley SFB (Buckley AFB, 2016). The capacity of the electrical utility system on Buckley SFB is 47.8 megaVolt amperes (MVA), and current usage is approximately 23.5 MVA (Buckley AFB, 2016).

3.10.2.2 *Natural Gas*

Buckley SFB receives natural gas services from PSCo. The existing natural gas distribution system is relatively new and in good condition (Buckley AFB, 2016).

3.10.2.3 *Water*

Buckley SFB receives potable water from the City of Aurora through a master meter and a secondary meter. The existing water distribution system has a capacity of 960,000 gallons per day (gpd); current water usage is approximately 480,000 gpd (Buckley AFB, 2016).

3.10.2.4 *Wastewater*

Wastewater at Buckley SFB is discharged to a municipal sewer line at the northwestern corner of the base that flows to the Metro Water Recovery Wastewater Treatment Plant. The current capacity of the wastewater system is 180 million gpd; Buckley SFB discharges approximately 110,000 gpd (Buckley AFB, 2016).

3.10.3 Environmental Consequences

3.10.3.1 *Electricity*

The construction and operation of new buildings would lead to a minimal rise in the requirement for electricity. When taking into account demolition of 83,598 square foot (sq ft) of building space and construction of 30,604 sq ft of building space, the proposed action consists of a net loss of approximately 53,000 sq ft of building space. Using an annual rate of electrical consumption of 12.8 kWh per sq ft (USEIA, 2023), consumption from buildings would expect to decrease by approximately 678,400 kWh. Regardless, a construction approach focusing on energy efficiency, aligning with EO 13693 - Planning for Federal Sustainability in the Next Decade, would be executed to curtail energy usage. As a result, any overall shifts in long-term electricity demand are projected to have an insignificant impact.

3.10.3.2 *Natural Gas*

Natural gas use under the Proposed Action would decrease slightly from current conditions because of the decreased square footage of buildings on the property (net loss of 53,000 sf). The decrease in natural gas usage would not affect PSCo's ability to provide natural gas service and therefore, have an insignificant impact.

3.10.3.3 *Water*

Potable water would continue to be supplied to the property by the City of Aurora. Potable water use under the Proposed Action is expected to increase slightly because of the increased square footage infrastructure and landscaped areas on the property. No significant impacts to the water supply system are anticipated.

3.10.3.4 *Wastewater*

Wastewater generation under the Proposed Action is expected to decrease slightly because of the decrease in square footage of buildings (net loss of 53,000 sf). The decrease in wastewater generation would not affect the Metro Water Recovery's ability to provide service. No significant impacts to wastewater are anticipated.

3.10.4 No Action Alternative

Under the No Action Alternative, the construction/renovation/demolition projects under the Proposed Action would not occur; therefore, no impacts would occur to Utilities, on-base or off-base.

3.11 WATER RESOURCES

3.11.1 Definition of the Resource

Water resources encompass both groundwater and surface water. Groundwater refers to subsurface water sources and is characterized by factors such as the depth of the aquifer or water table, the quality of the water, and the geological composition of the surrounding area. Stormwater flows, which are the result of precipitation runoff, can be amplified by impermeable surfaces and have the potential to introduce sediments and other pollutants into the water resource environment. The evaluation of these resources in the EA aligns with the project boundaries associated with the Proposed Action, which involve construction and demolition activities.

3.11.2 Affected Environment

3.11.2.1 *Surface Water*

Buckley SFB is located within the South Platte Basin (USGS hydrologic unit catalog [HUC] #101900) and the Sand Creek Watershed (HUC #1019000302). The predominant surface water drainage system in the vicinity is the South Platte River, situated approximately 15 miles northwest of Buckley SFB. On the eastern side of the base, the drainage is directed towards Sand and Murphy creeks, which eventually flow into the South Platte River. These creeks are located to the east of the installation. The western portion of the installation drains into East Toll Gate Creek. This creek generally follows along the southwest boundary of the installation until it reaches Toll Gate Creek (USAF, 2019).

The sole permanent surface water feature on the installation was Williams Lake, which, as explained below, was mostly emptied in 2011 to mitigate in-flight avian hazards. As a result, all surface water drainage within the installation is ephemeral and occurs as a result of stormwater runoff. To manage this runoff, a constructed stormwater drainage system has been put in place, consisting of ditches, curbs, gutters, culverts, pipelines, and detention ponds. This system directs the runoff to designated discharge points located at specific locations along the installation's perimeter (USAF, 2021).

Stormwater at Buckley SFB is managed by an individual MS4 NPDES permit. The MS4 NPDES permit mandates the development of a Storm Water Management Plan (SWMP), which manages the quality of stormwater discharges through implementation of BMPs (Buckley SFB, 2022).

3.11.2.2 *Groundwater*

Buckley SFB is situated within the Denver Basin aquifer system, which consists of four primary aquifer systems. These aquifer systems, listed in order from the most recent (closest to the surface) to the oldest (deepest), are as follows: Dawson, Denver, Arapahoe, and the Laramie-Fox Hills aquifer. The Denver Basin aquifer system is composed of Late Cretaceous to Tertiary-age sandstone bedrock aquifers and intervening claystone confining units that occur in the uppermost layers of the structural Denver Basin above the Cretaceous Pierre Shale confining layer (USGS, 2023).

The surficial aquifers found at Buckley SFB are connected to both current and ancient stream and river valleys. These aquifer systems, ranging from 20 to 100 feet in thickness, formed as a result of the accumulation of sediment from the erosion of bedrock areas in higher elevations. The alluvial aquifer present at BSFB is specifically linked to Toll Gate and Sand Creek and primarily comprises coarse-grained materials (USAF, 2021).

3.11.2.3 *Floodplain and Wetland*

The southeastern and northwestern portions of Buckley SFB contain the Federal Emergency Management Agency (FEMA) 100-year floodplain associated with the East Toll Gate and Sand creeks, respectively (USAF, 2019).

According to a 2014 Wetlands Study conducted throughout BSFB, all identified wetland areas are associated with an unnamed tributary to Sand Creek, Williams Lake and East Gate Creek. Results of the study indicated that potential wetland areas along the unnamed tributary to Sand Creek downstream of Williams Lake Dam include potential wet meadow, marsh, scrub-shrub, and forested wetland areas confined near the toe of Williams Lake Dam (NRC, 2014).

Potential wetland areas along the unnamed tributary to Sand Creek upstream of Williams Lake Dam are all characterized by herbaceous vegetation (NRC, 2014).

The potential wetland areas along the upstream reaches of East Gate Creek within Buckley SFB are dominated by scrub-shrub wetland. In contrast, the downstream wetlands are dominated by marsh, open water, and aquatic vegetation (NRC, 2014).

Further, according to the USFWS National Wetlands Inventory database and a 2014 installation wide wetland assessment conducted by Natural Resources Consulting (NRC, 2014), no wetlands or surface waters exist within the Proposed Action project footprints.

3.11.3 Environmental Consequences

The impact on water resources would be considered significant if it meets any of the following criteria: 1) significantly reducing water availability or disrupting the water supply for current users, 2) contributing to the depletion of groundwater basins or surpassing the permitted annual water yield from water sources, 3) causing substantial harm to the quality of surface or groundwater, 4) degrading distinctive hydrological features, or 5) violating established laws or regulations regarding water resources.

3.11.3.1 *Surface Water*

All projects under the Proposed Action do not involve any construction or demolition in or over any surface water. All projects are sited to avoid wetlands and other surface waters as well as FEMA 100-year floodplains. Therefore, significant impacts on surface water are not anticipated. As noted in Section 3.4.2.1, projects involving ground-disturbing activities would be subject to applicable requirements of a Construction Site Storm Water NPDES permit and SWPPP. The SWPPP specifies BMPs to be used to minimize soil erosion, resulting in minimal pollution and sedimentation of downstream watercourses. Thus,

the Proposed Action is anticipated to have only negligible erosion-related short-term impacts on surface water on or in the vicinity of Buckley SFB.

Stormwater

Buckley SFB is a small municipal separate storm sewer system facility requiring coverage under the NPDES for stormwater discharges. As such a SWMP is required to be implemented. As part of the Buckley SFB SWMP, construction site stormwater runoff controls would be put into place before ground disturbance occurs. The controls would include BMPs to be used to minimize soil erosion, resulting in minimal pollution and sedimentation of downstream watercourses.

The Proposed Action includes an increase of impermeable surfaces. These increases are listed in Table 3.11-1 by ADP district. Substantial increase in impermeable surfaces has the potential to reduce areas where stormwater infiltration to groundwater can occur. As such the SWMP also includes controls to be implemented addressing post-construction stormwater management in new developments. The Post-Construction Stormwater Management BMPs focuses on site and design considerations as they relate to stormwater quality, which are addressed in the planning and design stages of project development (Buckley SFB, 2022). These BMPs would be developed and based on their ability to maintain on-site pre-development runoff conditions (Buckley SFB, 2022).

Table 3.11-1 Change in impervious surface per ADP District

ADP District	Increase in Impermeable Surface (sf)	Decrease in Impermeable Surface (sf)	Net Change in Impermeable Surface (sf)
Aspen Corridor	18,096	2,780	+15316
Aviation Ridge	5,180,497	195,091	+4985406
North Corner	356,289	109,173	+247116
Restricted Area	711,747	347,177	+364570
West End	1,019,728	495,701	+524027

Notes: + = increase

Projects involving ground-disturbing activities would be subject to applicable requirements of a Construction Site Storm Water NPDES permit and SWPPP. To minimize or prevent soil erosion at the project sites, construction contractors would develop and adhere to site-specific Erosion and Sediment Control (E&SC) plans. These plans would be designed in accordance with relevant federal, state, and local regulations, including the specific requirements outlined in the NPDES permits of each project involved.

The installation would be the permittee with issued coverage by the USEPA NPDES MS4 permit and would manage the SWMP. Construction project contractors that require a SWPPP would be responsible for developing their SWPPP, and applying for, and receiving stormwater permit coverage under a USEPA construction general permit (CGP).

The Proposed Action is anticipated to have only negligible stormwater runoff-related impacts on or in the vicinity of Buckley SFB.

3.11.3.2 *Groundwater*

Although the predicted overall rise in impervious surfaces resulting from the execution of the proposed projects could potentially influence groundwater recharge near Buckley AFB, it's important to recognize the broader context of the stormwater management system in that the increased runoff caused by an increase in impermeability would be controlled largely by a man-made stormwater drainage system composed of ditches, curbs, gutters, culverts, pipelines, and detention ponds. The system discharges runoff into natural drainage channels or other man-made drainage features at specific points, which are termed outfalls, located on the installation boundary. This drainage system is and would continue to be operated under the USEPA MS4 permit (USAF, 2021).

The proposed projects would not necessitate the installation of new wells or lead to heightened groundwater withdrawals from existing wells. Monitoring wells associated with the ongoing remediation of ERP sites would be meticulously avoided. As a result, there would be no detrimental effects on groundwater due to the Proposed Action.

3.11.3.3 *Floodplain and Wetland*

EO 11988, Floodplain Management, 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. No wetlands are located in or adjacent to the Proposed Action project sites (USFWS, 2014). Additionally, no 100- or 500-year floodplains occur at the proposed site (FEMA Flood Insurance Rate Map [FIRM] panel 08005C0182K, 08005C02011, 08005C0184L, 08005C0203L, and 08005C0211L) (FEMA, 2023). Thus, the Proposed Action is not anticipated to have significant impacts on floodplains or wetlands on Buckley SFB.

CHAPTER 4 CUMULATIVE IMPACTS

4.1 INTRODUCTION

According to the 2022 updates to the NEPA, cumulative impacts are defined in 40 CFR section 1508.1(g)(3) as the environmental effects that arise from the combined impacts of a Proposed Action when considered in conjunction with the impacts of past, present, and reasonably foreseeable actions. These cumulative effects can result from the accumulation of individually minor actions that, when taken together over a period of time, can have a significant impact on the environment.

In addition, CEQ and USEPA have published guidance addressing implementation of cumulative impact analyses—Guidance on the Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005) and Consideration of Cumulative Impacts in EPA Review of NEPA Documents (USEPA, 1999). CEQ guidance entitled Considering Cumulative Impacts Under NEPA (1997) states that cumulative impact analyses should:

"…determine the magnitude and significance of the environmental consequences of the Proposed Action in the context of the cumulative impacts of other past, present, and future actions...identify significant cumulative impacts…[and]…focus on truly meaningful impacts."

Cumulative impacts are most likely to arise when a relationship or synergism exists between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in close proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated. Similarly, relatively concurrent actions would tend to offer a higher potential for cumulative impacts. To identify cumulative impacts, the analysis needs to address the following three fundamental questions.

- Does a relationship exist such that affected resource areas of the Proposed Action might interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If one or more of the affected resource areas of the Proposed Action and another action could be expected to interact, would the Proposed Action affect or be affected by impacts of the other action?
- If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the Proposed Action is considered alone?

4.2 PAST, PRESENT, AND REASONABLY FORESEEABLE ACTIONS

This section focuses on past, present, and reasonably foreseeable future projects at and near the Proposed Action locale. Reasonably foreseeable projects are defined as future actions that are likely to occur based on current trends, plans, or other relevant factors. For this analysis a period of 20 years was utilized for consideration of future projects. This timeframe coincides with planning efforts for long-term projects within the current ADPs.

In determining which projects to include in the cumulative impacts analysis, a preliminary determination was made regarding the past, present, or reasonably foreseeable action. Specifically, using the first fundamental question included in Section 4.1, it was determined if a relationship exists such that the affected resource areas of the Proposed Action (included in this EA) might interact with the affected resource area of a past, present, or reasonably foreseeable action. If no such potential relationship exists, the project was not carried forward into the cumulative impacts analysis. In accordance with CEQ guidance (CEQ, 2005), these actions considered but excluded from further cumulative effects analysis are not catalogued here as

the intent is to focus the analysis on the meaningful actions relevant to informed decision-making. Table 4.2-1 lists the past, present, and reasonably foreseeable future projects.

Table 4.2-1 Past, Present, and Reasonably Foreseeable Future Projects

Action	ADP District	Project Summary	Relevance to Proposed Action	Timeframe
Aerospace Data Facility Colorado Implementation of the Electrical Infrastructure Master Plan	All Districts	Provide a 13.2-kilovolt backup power generation plant and associated power distribution infrastructure at the NRO/ADF-C.	Utilities	Past
Aspen Street (North) Utility Corridor	Aspen Corridor	Center median and street trees planted 30 feet on center on Aspen Street irrigated with reclaimed water, new roundabout at Restricted Area entry, and new 550 space car park	Transportation	Future
Aspen Street Upgrade (South) and Utility Cooridor	Aspen Corridor	Center median, street trees and waterwise landscaping on the south portion of Aspen Street, irrigated with reclaimed water from the city. A new roundabout at Aspen Way improves traffic flow.	Construction	Future
Reclaimed Water Pipe and Retention Tank by City of Aurora and Land Exchange	Aspen Corridor	Improvements to 6th Avenue address congestion at the 6th Avenue gate by adding turn lanes. A multi-use path would be added to the north side of 6th Avenue.	Transportation	Future
Consolidated Mission HQ, Town Square, and Parking Garage	Aspen Corridor	The street would operate like a large roundabout with two lanes of relatively slow-moving traffic in one direction. On-street parking would be located on the outside of the square.	Transportation	Future
Coffee Shop	Aspen Corridor	A standalone drive-through and dine-in coffee shop	Facilities	Future
Crested Butte CDC Annex – Building 725	Aspen Corridor	A notional annex to the Crested Butte CDC along Aspen Street will accommodate future growth of the base population.	Construction	Future
LDC Auditorium Addition and Amphitheatre – Building 1032	Aspen Corridor	An addition to the Leadership Development Center to add an auditorium with enough capacity to accommodate all hands events and large audiences.	Construction	Future
Communication Building Expansion – Building 730	Aspen Corridor	Expands the communication building to the west should additional capacity be needed.	Communications Infrastructure	Future
Fire Station Fire House	Aspen Corridor	An expansion to the fire station, should it be needed to meet mission demands. The	Facilities	Future

Action	ADP District	Project Summary	Relevance to Proposed Action	Timeframe
Expansion – Building 806		expansion shows additional fire engine bays, administrative space, and crew quarters.		
Shopette and Gas Station	Aspen Corridor	Retail convenience store and gas station near town square.	Construction	Future
Water Zone Loops	Aviation Ridge	Provides potable water service resilience	Water Infrastructure	Future - Long
Communications Line for Capacity Planning	Aviation Ridge	Provides communications resiliency	Communications Infrastructure	Future
Gas Service South Capacity Planning	Aviation Ridge	Provides gas service resiliency	Energy Infrastructure	Future
Potable Water Resiliency Storage Tank	Aviation Ridge	Additional capacity to provide potable water.	Utilities - Water	Future
Munitions Admin Building, storage, loading dock inspection and receiving	Aviation Ridge	To allow more efficient development, the design prioritized consolidates the munitions facilities to reduce the Q-D arcs.	Construction	Present
ARNG Vehicle Maintenance Building	North Corner	Vehicle maintenance building serving all of ARNG	Facilities	Future
ARNG USPFO Warehouse	North Corner	House USPFO personnel from Building 1005 if that building converts to a new mission Headquarters building	Facilities	Future
Trail Network Expansion	North Corner	Extension of the installation multi-use trail network	Recreation	Future
Training Area Expansion	North Corner	Expand consolidated training area	Construction	Future
Security Entry Control Facility and Covered Walkway	Restricted Area	Replace the existing POV entry with a new Security Entry Control Facility and main pedestrian entrance to the campus including a visitor badging desk, interview rooms, bathrooms, and hand carried bag scanning.	Transportation	Future
South Traffic Check House/Pedestrian Gate	Restricted Area	A new vehicle and pedestrian gate would be located in the center of the campus and would serve the GOV and very limited number of POVs allowed within the RA for VIPs and Accessibility. A chicane access road, vehicle inspection lane, inspection pit, and K9 unit may be located here.	Transportation	Future

Action	ADP District	Project Summary	Relevance to Proposed Action	Timeframe
Radome Terminal	Restricted Area	A radome terminal to meet notional mission demand. The siting was determined based upon the distance between existing radome terminals and may require additional analysis.	Construction	Future
Consolidated Space Delta 4 Mission Support Facility	Restricted Area	Construct ADF C Mission Logistics Center to consolidate Facilities Offices, Shipping & Receiving, and Warehousing with core/shell space as required for notional facilities needs in the future.	Construction	Future
RA Support Center/Fitness Center	Restricted Area	Construct the RA Support Center/Fitness Center as a satellite dining, health & wellness, and collaboration center for the ADF C and Space Delta 4.	Facilities	Future
Water Storage Tank	Restricted Area	Build a water storage tank with a capacity of 902,000 gallons.	Utilities - Waer	Future
Space Delta 4 Northern Hemisphere Consolidated Remote Radar Operations	Restricted Area	Construct notional facility for future mission demands. The building should have narrow wings and address the core of the campus area.	Construction	Future
Power Plant Expansion 2	Restricted Area	To meet notional future demand, an expansion to the Power Plant would provide backup power as needed to supplement the grid.	Utilities - Energy	Future
MDA Operations Space	Restricted Area	Construct notional facility for future mission demands. The building should have narrow wings and address the core of the campus area.	Construction	Future
CDC Expansion	West End	Provides future capacity for the Child Development Center; includes traffic circle at the intersection of Telluride Street and A-Basin Avenue, on-street parking surrounding the block, and public park establishing A Basin edge.	Facilities	Future
Quad Steamboat Avenue Improvements with Medians and Bus Stops	West End	North-south quads formally establish greenspace network in the Northwest node; bus-stop supports public transportation network for installation. Includes upgrade of Steamboat Avenue, including medians with left-turn lanes.	Transportation	Future
Consolidated Medical Clinic, A Basin Ave East Enhancement, and Partial Breckenridge	West End	This plan combines five facilities into one facility diagonally across existing medical center in Aspen Corridor. The building establishes structure for the intersection of A Basin Avenue and Aspen Street.	Facilities	Future

Action	ADP District	Project Summary	Relevance to Proposed Action	Timeframe
Ave Improvements with Median				
LRS and Gov Fuels Relocation and Conversion to Auto Hobby/Wood Shop and Retail	West End	The LRS Vehicle Maintenance Facility moves to a Consolidated Vehicle Maintenance facility in North Corner, and the Military Fuels Station to a site in Aspen Corridor more appropriate for industrial function. The fuels station will be demolished, and Vehicle Maintenance Facility renovated to provide an Auto Hobby Shop/Wood Shop with retail space.	Facilities	Future
Outdoor Rec Relocation	West End	Moves Outdoor Recreation from main street in Aspen Corridor installation corridor, providing ability to create larger facility to support more activities;	Recreation	Future
Movie Theater and Bowling Alley with Housing Above	West End	Bowling alley and theater with housing above; begins developing support function of downtown.	Recreation	Future
DFAC, Mountain View Café with Housing Above, and Retail Shop	West End	New DFAC with housing above; provides more central DFAC location for workers in the Restricted Area, and helps enliven Downtown node.	Housing	Future
Lodge/TLF Expansion, Park Blocks	West End	Expansion to current Lodge and TLF to support future mission requirements; includes courtyard with park.	Recreation	Future
Family Housing Neighborhood	West End	New family housing neighborhood to meet future requirements; includes park lined with up to 72 units of townhomes, and single family Senior Officer Quarters	Housing	Future
Family Housing Neighborhood and Telluride Street Improvements	West End	New family housing neighborhood, up to 68 units of duplexes and townhomes lining a park.	Housing	Future

4.3 CUMULATIVE IMPACTS ANALYSIS

4.3.1 Air Quality and Greenhouse Gas/Climate Change

Projects identified in Table 4.2-1 would likely contribute to criteria pollutant and GHG emissions. Some of these would be temporary in duration and restricted to construction, while others would generate long-term steady state emissions through facility/building operations. Overall, cumulative effects are anticipated to be less than significant as new facilities would adhere to applicable DoD UFC. Emissions stemming from

on-base construction projects would be effectively curtailed through the management of fugitive dust. Other DAF goals such as conversion of government-owned vehicle fleets to electric vehicles would help further offset emissions.

4.3.2 Biological Resources

The Proposed Action at Buckley SFB is expected to have negligible or minor cumulative impacts on wildlife habitat or vegetation due to clearing and disturbance required for accommodating new construction. It is important to note that most of the disturbance will take place in previously disturbed areas, these areas typically do not offer diverse or high-quality habitat for vegetation, which means the potential impacts on plant life would be minimal.

The assessment suggests that the overall effect on vegetation will be limited because the disturbance is concentrated in areas where the habitat quality is already compromised. In such areas, the ecological value of the vegetation is likely to be lower, and the impact on important plant species would be less significant compared to undisturbed or high-quality habitat areas.

It is worth mentioning that while the short-term impacts may be minor or negligible, the long-term consequences of habitat disturbance should still be monitored and managed to ensure the preservation of any valuable ecological resources in the vicinity. Regular evaluations and mitigation measures would be considered to minimize potential negative effects on the environment, particularly on vegetation and other wildlife.

Overall, this assessment suggests that the proposed construction activities are not expected to cause significant harm to the vegetation, and the impacts should be manageable given the context of the development occurring in areas with already compromised habitat quality.

4.3.3 Cultural Resources

On-base demolition and construction projects would be reviewed early in the planning process by Buckley SFB environmental staff, and standard procedures would be applied to ensure that potential impacts to cultural and historic resources are avoided or minimized. Therefore, implementation of the other projects in combination with the Proposed Action would not have significant cumulative impacts to cultural resources.

4.3.4 Environmental Justice/Socioeconomics

Implementation of the Proposed Action would result in primarily negligible to minor short-term impacts from construction. There could be long-term beneficial impacts to low-income populations from increased spending and job opportunities locally during construction. In addition, cumulative projects include housing developments, these projects should benefit socioeconomics in the region by adding to housing availability for installation personnel and decreasing off-base housing needs.

4.3.5 Geology and Soils

The Proposed Action would have negligible impacts to geological resources; therefore, no cumulative effects would be anticipated. The Proposed Action would result in minor impacts to soil, however, none of these soils are recognized as unique or prime farmland soils; therefore, no cumulative effects to special-designation soils are anticipated. Projects identified in Table 4.2-1 would likely cause the potential for adverse impacts to soils from construction due to soil disturbance and loss of soils, and potential for compaction and erosion. Overall, cumulative effects are anticipated to be less than significant as the projects would be required to adhere to NPDES permitting, SWPPPs and employ BMPs to protect soil resources.

4.3.6 Hazardous Materials and Waste

The Proposed Action, along with other concurrent projects on the installation, may lead to a short term rise in the usage of hazardous materials required to support demolition and construction-related tasks. However,

standard practices for handling and ensuring safety in dealing with hazardous materials would be diligently followed for on-base demolition and construction projects.

4.3.7 Land Use

The implementation of the Proposed Action would not lead to significant cumulative impacts on land use at Buckley SFB. The adaptation of the installation to accommodate evolving mission requirements may lead to minor adjustments in on-base land use patterns over time. The review procedures for land use at the Installation would ensure that these slight alterations are executed in a manner that upholds land use compatibility.

4.3.8 Noise

The noise generated from the Proposed Action would be expected to be within insignificant levels, primarily due to construction (short-term and negligible) and increased traffic (intermittent and minor). Due to the temporary nature of construction noise generated from construction demolition and renovations, no significant cumulative effects are anticipated from implementation of other projects listed in Table 4.2-1.

4.3.9 Transportation

The implementation of the Proposed Action would contribute short-term, insignificant impacts to traffic during construction. Projects identified in Table 4.2-1 would likely contribute to impacts to traffic. Construction projects would cause short-term impacts due to construction traffic and potential temporary road closures. Further, infrastructure and transportation projects included as part of the Buckley ADP, both Proposed Action and cumulative projects, are expected to have a beneficial effect throughout the installation. Overall, cumulative effects are anticipated to be beneficial when taking into account transportation projects proposed for Aspen Corridor district, Restricted Area district and Weast End district at Buckley SFB.

4.3.10 Utilities

The implementation of the Proposed Action alongside the cumulative projects has the potential to bring about slight adjustments in the supply and/or demand for utilities and services at Buckley SFB. If the construction operations related to cumulative projects were to unfold simultaneously, a momentary surge in utility and public service demand could arise due to the presence of temporary construction personnel in the area. This is not expected as the Proposed Action projects are expected to be phased over a 5-year period and the cumulative projects are expected to be phased over a 10 year period.

4.3.11 Water Resources

The Proposed Action and other projects are anticipated to result in an increase in impervious surface area within the ROI. While this combined expansion of impervious surfaces may have a cumulative impact on stormwater runoff, it is not expected to significantly alter the hydrology, particularly within a setting that contains existing storm water management systems which effectively treat and reduce the speed of stormwater runoff before releasing it to outfalls within the installation. Individual projects would be required to adhere to an installation wide SWPPP and comply with Section 438 of the Energy Independence and Security Act of 2007 which requires projects greater than 5,000 square feet to maintain pre-development hydrology. With these measures in place, the Proposed Action's cumulative adverse effect on water quality remains minor.

CHAPTER 5 LIST OF PREPARERS

Shawna Yazzie, The NDN Companies, Environmental Science, 22 years' experience, Project Director

Brandon Faustini, The NDN Companies, Biology, 12 years' experience, Project Manager – NEPA Planner

Mason Schilling, The NDN Companies, 3 years' experience, Scientist

Jeff Moates, The NDN Companies, Chemistry and Anthropology, 26 years' experience, Senior Archaeologist

Rob Naumann, Potomac-Hudson Engineering, Inc., B.S., Resource Ecology & Management, M.S., Environmental Management, 25 years' experience, Senior NEPA Planner

Erin Kouvousis, Potomac-Hudson Engineering, Inc., M.S., Ecology, B.S., Conservation, 13 years' experience, NEPA Planner

Samir Qadir, Potomac-Hudson Engineering, Inc., M.S., Environmental Policy, B.S., Electrical and Electronics Engineering, 19 years' experience, NEPA Planner

Cynthia Ong, Potomac-Hudson Engineering, Inc., M.S., Environmental Sciences, B.S., Civil Engineering, 12 years' experience, NEPA Planner

Virginia Boone, Potomac-Hudson Engineering, Inc., B.A., English, 11 years' experience, NEPA Planner

Katelyn Kopp, Potomac-Hudson Engineering, Inc., B.S., Environmental Science, 1 year experience, Environmental Analyst

Lukas Lightcap, Potomac-Hudson Engineering, Inc., B.S., Environmental Science, 1 year experience, Environmental Analyst

Stephen Kuch, Potomac-Hudson Engineering, Inc., B.S., Geoenvironmental Science, 10 years' experience, GIS Specialist

CHAPTER 6 REFERENCES

460 CES/CEIE. 2022. Stormwater Pollution Prevention Plan (SWPPP) For Construction Activities At: Multiple Small Projects-5. February 3, 2022.

AFCEC (Air Force Civil Engineer Center). 2023. AICUZ Program Frequently Asked Questions. Accessed 6/25/2023 at: https://www.afcec.af.mil/About-Us/Fact-Sheets/Display/Article/2388269/aicuz-program-frequently-asked-questions/

Arapahoe County. 2021. Arapahoe County Transportation Master Plan. December 2021. Accessed at: https://www.arapahoegov.com/transportationplan

Buckley SFB (Buckley Space Force Base). 2023. Space Base Delta 2. Updated January 2023. Accessed March 14, 2023 at https://www.buckley.spaceforce.mil/About-Us/Fact-Sheets/Article/322399/space-base-delta-2/

Buckley SFB. 2022. Stormwater Management Program Plan – Rev 8, for Buckley Garrison Buckley Space Force Base Colorado. March 2022.

Buckley SFB. 2021. Land Use Controls Implementation Plan (LUCIP). Buckley Space Force Base, Colorado. September, 2021

Buckley AFB (Buckley Air Force Base). 2016. Environmental Assessment Implementing/Supporting the Installation Development Plan, Buckley AFB, CO. March, 2016

CDC (Centers for Disease Control and Prevention). 2022. What Noises Cause Hearing Loss? Last reviewed November 8, 2022. Accessed at: https://www.cdc.gov/nceh/hearing_loss/what_noises_cause_hearing_loss.html

CEQ (Center for Environmental Quality). (1998). Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses. April 1998. Accessed July 19, 2023 at https://www.epa.gov/sites/default/files/2015-02/documents/ej_guidance_nepa_epa0498.pdf

City of Aurora. 2020. Aircraft Noise Exposure – All Airports. City of Aurora, Colorado. February 5, 2020. Accessed at: https://auroraco.maps.arcgis.com/home/item.html?id=38d2eb23154349bb97b00c10409bf230

Climate Data. 2023. United States of America Climate: Average Temperature in USA, Weather & USA Weather by Month Accessed July 2023 at https://en.climate-data.org/north-america/united-states-of-america-163/

CPW (Colorado Parks & Wildlife). 2021. Recommended Survey Protocol and Actions to Protect

Nesting Burrowing Owls. Revised April 6, 2021. Accessed June 28,2023 at https://cpw.state.co.us/Documents/WildlifeSpecies/LivingWithWildlife/Recommended-Survey-Protocol-Burrowing-Owls.pdf

DAF (Department of the Air Force). 2020. A Guide to the Air Installations Compatible Use Zones Program. 10/06/2020. Accessed at: https://www.afcec.af.mil/Portals/17/images/AICUZ/Guide%20to%20AICUZ_USAF%2020201006.pdf?ver=0HrhaKW0tjeLowz_PMRN7w%3D%3D

DAF. 2011. Environmental Assessment, Project Mountainview Facility, Buckley Air Force Base, Colorado. October 2011. Accessed: https://apps.dtic.mil/sti/citations/ADA603942

FEMA (Federal Emergency Management Agency). 2023. National Flood Insurance Program Flood Insurance Map: City of Aurora. Retrieved pm July 23, 2023 from: https://fema.maps.arcgis.com/apps/webappviewer/index.html?id=e7a7dc3ebd7f4ad39bb8e485bb64ce44.

FTA (Federal Transit Administration). 2018. USDOT FTA Noise and Vibration Manual. September 2018. FTA Report No. 0123. Accessed at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf

NPS (National Park Service). 2017. Physiographic Provinces. Updated March 17, 2017. Accessed on July 3, 2023, from https://www.nps.gov/subjects/geology/physiographic-provinces.htm.

NRC (Natural Resources Consulting). 2014. Wetlands Project on Buckley Air Force Base, Colorado. Prepared for U.S. Fish and Wildlife Service.

OSHA (Occupational Safety and Health Administration). 2008. Occupational Noise Exposure. Standard 1910.95. Last updated December 12, 2008. Accessed at: https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.95

Reidmiller, D., Avery, C. W., Easterling, D. R., Kunkel, K. E., Lewis, K. W., Maycock, T. K., & Stewart, B. C. (2018). Impacts, Risks, and Adaptation in the United States: The Fourth National Climate Assessment, Volume II. https://doi.org/10.7930/nca4.2018

Solutio Environmental. 2023. Air Conformity Applicability Model. Accessed September 2023 at https://aqhelp.com/AQtools.html

USAF (United States Air Force). 2021. U.S. Air Force Integrated Natural Resources Management Plan, Buckley Space Force Base, Colorado.

USAF. 2021a. Integrated Natural Resources Management Plan. Buckley Space Force Base, Colorado.

USAF. 2019. Environmental Assessment U.S. Space Command Headquarters Basing and Construction. Draft July 2019.

USAF. 2016. Environmental Assessment for Implementing/Supporting the Installation Development Plan, Buckley Air Force Base Colorado. March 2016.

USCB (United States Census Bureau). 2023. How the Census Bureau Measures Poverty. Page last revised January 30,2023. Accessed at https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html#:~:text=The%20official%20poverty%20defintion%20uses,Medicaid%2C%20and%20food%20stamps.

USCB. 2023a. 2020 TIGER/Line Shapefiles – tl_2020_us_uac20.zip. March 2, 2023. Retrieved July 5, 2023, from https://www2.census.gov/geo/tiger/TIGER2020/UAC/.USCB. 2022. Selected Economic Characteristics. American Community Survey, ACS 1-Year Estimates Data Profiles, Table DP03.USCB. 2019. Poverty Status In The Past 12 Months. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1701 Accessed July 23, 2023

USCB. 2018. Poverty Status In The Past 12 Months. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1701, Accessed July 23, 2023.

USCB. 2018a. Age and Sex. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S0101. Accessed on July 23, 2023.

USCB. 2018b. Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Accessed on July 23, 2023.

USCB. 2010. Race. Decennial Census, DEC Redistricting Data (PL 94-171), Table P1. Accessed on July 23, 2023.

https://data.census.gov/table/DECENNIALPL2010.P1?q=p1&g=1400000US08005007104_1500000US080050071041. Accessed on October 10, 2023.

USEIA (U.S. Energy Information Administration). 2023. Commercial Buildings Energy Consumption Survey, 2018 Survey Data. Retrieved on July 23, 2023 at https://www.eia.gov/consumption/commercial/data/2018/index.php?view=characteristics

USEPA (U.S. Environmental Protection Agency). 2023a. NAAQS Table. Accessed July 2023 at https://www.epa.gov/criteria-air-pollutants/naaqs-table

USEPA. 2023b. Green Book National Area and County-Level Multi-Pollutant Information. Accessed July 2023 at https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-informationUSAF 2019. Air Quality Environmental Impact Analysis Process (EIAP) Guide - Fundamentals, Volume 1 of 2 - May 2019. https://aqhelp.com/AQdocs.html

USEPA. 2020 National Emissions Inventory (NEI) Data. Accessed July 2023 at https://www.epa.gov/air-emissions-inventories/2020-national-emissions-inventory-nei-data

USEPA. 1981. Noise Effects Handbook. A Desk Reference to Health and Welfare Effects of Noise. Office of Noise Abatement and Control. October 1979, Revised July 1981. Accessed December 3, 2019 at: http://nonoise.org/epa/Roll7/roll7doc27.pdf

USEPA. 1978. Protective Noise Levels, Condensed Version of EPA Levels Document. Office of Noise Abatement and Control. EPA 550/9-79-100. November 1978.

USDA (U.S. Department of Agriculture). 2022. Arapahoe County, Colorado (CO005). September 1, 2022. Retrieved July 3, 2023, from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

USDA. 2020. Farmland Protection Policy Act (FPPA): Program Overview and NRCS Responsibilities. USDA NRCS. October 27, 2020. Accessed July 4, 2023, from https://www.nrcs.usda.gov/sites/default/files/2022-06/FPPA-webinar-10-27-2020-FINAL_v1.1_0.pdf.U.S. Energy Information Administration (EIA). 2018. Commercial Buildings Energy Consumption. https://www.eia.gov/consumption/commercial/data/2018/index.php?view=consumption#electricity (Retrieved July 18, 2023)

USEPA (United States Environmental Protection Agency). 2021. Radon Zone Map. Retrieved July 3, 2023, from https://gispub.epa.gov/radon/.

USEPA. 2016. A Citizen's Guide to Radon. Retrieved June 22, 2023, from https://www.epa.gov/sites/default/files/2016-12/documents/2016_a_citizens_guide_to_radon.pdf.

USEPA. 1981. Noise Effects Handbook. A Desk Reference to Health and Welfare Effects of Noise. Office of Noise Abatement and Control. October 1979, Revised July 1981. Accessed December 3, 2019 at: http://nonoise.org/epa/Roll7/roll7doc27.pdf

USEPA. 1978. Protective Noise Levels, Condensed Version of EPA Levels Document. Office of Noise Abatement and Control. EPA 550/9-79-100. November 1978.

USFWS (U.S. Fish and Wildlife Service). 2021. IPaC (Information for Planning and Consultation). Retrieved May 25, 2023 from https://www.fws.gov/ipac/.

USGS (United States Geological Survey). 2023. Quaternary fault and fold database for the United States. United States Geological Survey Geologic Hazards Science Center Golden, Colorado. Accessed July 3,2023, from https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf.

USGS. 2018. 2018 Long-term National Seismic Hazard Map. Retrieved July 3, 2023, from https://www.usgs.gov/media/images/2018-long-term-national-seismic-hazard-map.

USCB (United States Census Bureau). 2023. 2020 TIGER/Line Shapefiles – tl_2020_us_uac20.zip. March 2, 2023. Retrieved July 3, 2023, from https://www2.census.gov/geo/tiger/TIGER2020/UAC/.

USSF (U.S. Space Force). 2023. Buckley Space Force Base – Buckley Gate Hours Fact Sheet. Accessed July 9, 2023 at: https://www.buckley.spaceforce.mil/About-Us/Fact-Sheets/Article/731844/buckley-gate-hours/

Appendix A

Agency Coordination and Public Involvement

Intergovernmental Coordination, Public and Agency Participation

The DAF coordinated with other federal agencies with jurisdiction by law or special expertise over the Proposed Action and Alternatives, as well as state and local agencies relevant to each alternative location, to inform the range of issues to be addressed in the EA. The DAF sent an Early Notification Letter, delivered by mail or email, to each agency listed below in June 2023. A sample of these letters, as well as all responses received, is provided in this appendix.

A.1 Federal, State and Local Agencies Consultation

The DAF coordinated with federal, state, and local agencies and other entities with jurisdiction by law or special expertise over the Proposed Action and alternatives to inform the range of issues to be addressed in the EA. A sample early notification letter is presented in Exhibit 1. Section A.1.1 contains a list of stakeholders DAF sent the early notification letters and Section A.1.2 contains responses received.

A.1.1 List of Stakeholders

Federal Agencies

U.S. Army Corps of Engineers
Pueblo Regulatory Field Office
201 West 8th Street, Suite 350
Pueblo, CO 81003

U.S. Environmental Protection Agency
Region 8
1595 Wynkoop St.
Denver, CO 80202
POC: Ms. KC Becker, Regional Administrator

U.S. Fish and Wildlife Service
Colorado Ecological Services Field Office
134 Union Blvd, Suite 670
Lakewood, CO 80228
POC: Ms. Nicole Alt, Supervisor

U.S. Department of Agriculture
Natural Resources Conservation Service
Colorado State Office
PO Box 25426
Denver, CO 80225
POC: Mr. Clint Evans, State Conservationist

United States Senate
261 Russell Senate Office Building
Washington, DC 20510
POC: Honorable Michael Bennet, Senator

374 Russell Senate Office Building
Washington, DC 20510
POC: Honorable John Hickenlooper, Senator

United States House of Representatives
1323 Longworth House Office Building
Washington DC 20515-0606
POC: Honorable Jason Crow, Representative

State Agencies

Colorado Department of Agriculture
305 Interlocken Parkway
Broomfield, CO 80021
POC: Ms. Kate Greenberg, Commissioner

Colorado Department of Public Health and Environment
Environmental Health and Protection
4300 Cherry Creek Drive South
Denver, CO 80246
POC: Ms. Trisha Oeth, Director
Mr. Michael Ogletree, Director

Colorado Natural Heritage Program
1475 Campus Delivery
Fort Collins, CO 80523
POC: Mr. David Anderson, Director

History Colorado
1200 Broadway
Denver, CO 80203
POC: Ms. Dawn DiPrince, SHPO

Colorado Department of Transportation
2829 W. Howard Place
Denver, CO 80204
POC: Ms. Shoshana Lew, Executive Director

Local Agencies

Denver Regional Council of Governments
1001 17th St Ste 700
Denver, CO 80202
POC: Mr. Douglas Rex, Executive Director

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE BASE DELTA2

Example Letter

6/16/2023

Matthew C. Rodgers, DAF
Alt. Installation Tribal Liaison Officer
460 CES/CEIE
660 South Aspen Street (MS 86)
Buckley SFB, Colorado 80011-9564

U.S. Army Corps of Engineers
Pueblo Regulatory Field Office
201 West 8th Street, Suite 350
Pueblo, CO 81003

Dear Sir or Madam,

The Department of Air Force (DAF) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to evaluate potential environmental impacts associated with implementing activities outlined within the five Area Development Plans (ADPs) that together encompass the entirety of Buckley Space Force Base (SFB), CO (see Figures 1 through 3). These ADPs summarize projects that are scheduled to occur within the next 20 years or more; however, this EA assesses the potential impacts expected to result from construction and operation of the short-term projects proposed for construction within the next 5 years.

The purpose and need of the Proposed Action evaluated in the ADP EA is to support current and future mission requirements by constructing and maintaining infrastructure. The Proposed Action is needed for Buckley SFB to continue to provide essential infrastructure adequate to the needs of Space Base Delta 2, which is the Host Agency at Buckley SFB and that provides installation support functions for the resident air operations, space-based missile warning capabilities, space surveillance operations, space communications missions, and other tenant units.

The proposed projects are referred to in terms of type and generally classified as construction, renovation, and demolition. Projects are also described in terms of being "vertical" or "horizontal" and are defined as follows:

- Vertical projects are buildings that need to be completed to fulfill the plan.

- Horizontal projects include, but are not limited to: paving, pavement removal, construction of sidewalks and fences, introduction of planting

strips, installation of pervious pavers, landscaping, realignment of streets, construction of new streets, installation of bollards, and definition of access points and staging areas with concrete curbs.

The following table lists each proposed project with the associated activity and description for each ADP:

Summary of ADP Short-term Projects

Proposed Project	Activity Type	Project Description
Aspen Corridor		
Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022	Construction	A new, 6,000-square foot warehouse would be constructed on top of existing paving. Minimal sitework would be needed. Extra parking would be added to the site as needed over time. A second driveway and improvements to the parking area are also proposed. Proposed improvements would include the demolition of approximately 2,780 square feet of existing pavement and the construction of 12,799 square feet of new pavement. An additional 778 square feet of curb and gutter are also proposed.
LDC Sidewalk Network Improvements	Construction	Construct approximately 3,000 square feet of proposed sidewalk to improve the existing sidewalk network.
ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout	Construction	The first phase of ADF-C parking garages moves parking outside of the Restricted Area fence to allow for more developable land inside the fence. The garage would be two floors: a ground floor and a second floor above ground. The west wall of the garage, adjacent to the ADF-C, would align with and replace the outside fence of the Restricted Area. The wall would be constructed of solid concrete for security and snow protection and would be stamped with motifs to be attractive. The garage is set back from Aspen Street to allow for future infill development of

Proposed Project	Activity Type	Project Description
		buildings along the corridor's street edge. The garage would have an architecturally emphasized entry and stairway on the corner. The top floor would accommodate 990-kilowatt photovoltaic (solar) panels over parking stalls and would generate 1.6 million kilowatt-hours per year. The build would remove 345 existing parking spaces. The project includes installation of a roundabout at Steamboat Avenue to mitigate congestion.
ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout	Construction	The parking garage would be two floors: a ground floor and a second floor above ground. The garage is set back from Aspen Street to allow for future infill development of buildings along the corridor's street edge. The garage would have an architecturally emphasized entry and stairway on the corner. The top floor would accommodate 990-kilowatt photovoltaic (solar) panels over parking stalls and would generate 1.6 million kilowatt-hours per year. Removal of 353 existing parking spaces. The project includes installation of a roundabout near Building 620 to mitigate congestion.
Renovate Brand Name Food Options - Building 630	Renovation	The project would renovate the existing Building 630. The building footprint encompasses 5,210 square feet. A new, 436-square foot patio with outdoor dining will be located at the front of the building facing west. In addition, approximately 3,095 square feet of open space and **1,861** square feet of sidewalk are proposed.
Renovate Space Delta 4 HQ-Building 620	Renovation	The project would renovate Building 620 to support the headquarters for Space Delta 4 including modernizing interior finishes and the exterior to give building a fresh look.

Proposed Project	Activity Type	Project Description
Aviation Ridge		
Fire Protection Water Storage Tank	Construction	Installation of water to tank to increase storage capacity for the Building 1510 and Building 1500 fire suppression systems from 140,000 gallons to 200,000 gallons.
Helo Slide	Construction	Construct approximately 225,000 square feet of new apron. This project would also include approximately 9,815 square feet of vertical demolition, 11,119 square feet of road demolition, and 35,237 square feet of horizontal demolition.
140th ANG Aircraft Ground Equipment	Construction	The project would include construction of a 12,449-square foot vehicle maintenance area, a 227-square foot water tank, 281 square feet of sidewalk, and 21,672 square feet of parking lot. Approximately 2,348 square feet of sidewalk would be demolished, and an additional 6,565 square feet of horizontal demolition are proposed.
ARNG Motorpool Expansion	Construction	The project would include construction of 27,273 square feet of parking area.
East Taxiway	Construction	The project would include construction of approximately 1.57 million square feet of new apron. In addition, approximately 1.8 million square feet of horizontal demolition are proposed, and 192,557 square feet of road would be demolished.
Small East Ramp	Construction	The project would include construction of 3,035,097 square feet of apron. Approximately 176 square feet of vertical demolition and 122,212 square feet of horizontal demolition are also proposed.
Wastewater Projects	Construction	The project would include installation of a new, larger sewage lift station suitable to collect sanitary sewage for this area due to the topography and

Proposed Project	Activity Type	Project Description
		lack of service connection. The sewage lift station would discharge by force main to the existing South Piccadilly Road 24-inch sanitary sewer gravity flow collection main.
Munitions Complex	Construction	The project would include construction of a Munitions Storage and Maintenance Complex. The complex would consist of 9 small Storage Igloos (904 square feet), 4 larger Storage Igloos (2,100 square feet), 1 Administrative Facility (12,000 square feet), 1 Conventional Maintenance Facility with 2 bays (6,600 square feet), and one Missile Maintenance Facility (6,600 square feet). The complex also includes a 40,000-square foot Munitions Assembly Conveyer pad with a 12,000-square foot covered area.
140th ANG Snow Barn	Construction	Construct a 17,986-square foot vehicle maintenance project.
Water Supply Repair	Construction	Construct a new 16-inch water branch main routed to the northeastern corner of the base and a 12-inch looped water service line that ties into it.
Gas Service Repairs	Construction	Provide two 6-inch natural gas branch mains.
Relocate *I* Repair Sunlight Way	Renovation	The project would include a full-depth replacement of 15,000 square yards of existing asphalt access road altering the route and security fence to meet current airfield criteria.
North Corner		
NRO Expansion	Construction	The project would add two new radomes to the Remote Terminal Facility, construction of an administrative building, construction of 28,401 square feet of road and demolition of 13,295 square feet of road.

Proposed Project	Activity Type	Project Description
Realign Steamboat Ave Out of Graded Clear Zone	Construction/ Demolition	The project includes construction of 4,065-square foot planting strip, 56,444 square feet of road, and 5,758 square feet of sidewalk. Demolish 34,964 square feet of sidewalk and 60,914 square feet of road.
RV Storage Yard Fix	Construction/Demolition	The project would construct 263,917 square feet of parking area and 1,769 square feet of road. In addition, 1,769 square feet of horizontal demolition.
FamCamp Expansion	Construction	An additional 25 RV sites to be constructed after a complete draining of the current lake.
Close NOSC Gate	Demolition	The project includes demolition of 15,953 square feet of roadway.
Restricted Area		
Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot	Construction	The project includes construction of a 2,000-square foot proposed control center, 39,905 square feet of pavement, 6,978 square feet of sidewalk, and 2,545 square feet of curb and gutter. In addition, 54,294 square feet of open space would be created. Demolition of a 415-square foot building and 578 linear feet of fence would also occur.
Central Uninterrupted Power Supply	Construction	The project would include construction of a 27,000-square foot building, 14,346 square feet of pavement, and 1,724 square feet of curb and gutter. In addition, 50,291 square feet of open space would be created. Demolition of 14,552 square feet of pavement would also occur.
Expand Northwest Parking and Relocate Fence	Construction	Increase parking in the northwest portion of the ADF-C within the Restricted Area. Increases the parking capacity of 639 spaces. This project involves construction of 429,575 square feet of pavement and 8,010 square feet of curb and gutter. In addition, 162,419 square feet of open space would be created. This project would also require the demolition of

Proposed Project	Activity Type	Project Description
		17,989 linear feet of fencing and 194,192 square feet of pavement.
Chiller Plant Expansion	Construction	Expand the chiller plant to provide district chilled water to the facilities.
South Fueling Station	Construction	The project would include construction of approximately 9,157 square feet of pavement and 1,664 square feet of curb and gutter. This project includes addition of new fuel storage tanks and fuel transfer lines.
Covered Walkway between East Parking and Mission Facilities	Construction	Construct a covered walkway between the east parking lot to the Space Delta 4 mission buildings Construct 14,060 square feet of covered walkway and 300 square feet of sidewalk. Approximately 15,283 square feet of open space would also be created.
E-Force *I*NextGen Parking Garage (Parking Garage North)	Construction	Construct a 2-story parking garage encompassing a total of approximately 140,000 square feet. In addition, 7,514 square feet of sidewalk would be constructed, and 15,811 square feet of open space would be created. This project would also include the demolition of approximately 48,275 square feet of pavement.
Renovate Existing Fueling Station	Renovation	Construct approximately 6,080 square feet of pavement and 889 square feet of curb and gutter.
Repair Replacement Generator B416 PL-1 Security Lighting	Renovation	Replace PL-1 exterior security lighting with energy-efficient LED lights. Replace security lighting backup generator in B416 with a new generator right-sized for new lighting. Construct 1,414 square feet of security lighting.
Demolish Building 448	Demolition	Demolish 1,470 square feet of building space and 2,271 square feet of pavement.
Demolish Buildings 430, 433	Demolition	Demolish 47,383 square feet of building space and 4,319 square feet of pavement.

Proposed Project	Activity Type	Project Description
Demolish Space Delta 4 Shops and Warehouses	Demolition	Demolish Space Delta 4 legacy facilities, shops and warehouses totaling 8 buildings and 34,300 square feet.
West End		
Youth Ballfields	Construction	Construct 2,232 square feet of proposed structures, 55,788 square feet of recreation area, 17,490 square feet of parks and quads, 15,854 square feet of pavement, 15,719 square feet of sidewalk, and 15,854 square feet of curb and gutter.
Steamboat Ave Roundabout	Construction / Demolition	Construct traffic roundabout at the intersections of Steamboat and Telluride Avenues. Construct 370,361 square feet of pavement, 47,232 square feet of sidewalk, 101,541 square feet of parks and quads, 83,914 square feet of median, and 353,139 square feet of curb and gutter. Demolish 170-square foot Building 2 and 490,198 square feet of pavement.
Education Center Expansion	Construction	Construct a 2,000-square foot administrative building and demolish 1,024 linear feet of fence.
Skate Park	Construction	Construct 42,785 square feet of pavement.
Pave Contractor Parking	Construction	Construct 34,207 square feet of pavement, 19,747 square feet of open space, 4,793 square feet of sidewalk, and 34,207 square feet of curb and gutter.
Chapel Expansion	Construction / Demolition	Construct 9,000 square feet of building space, 31,425 square feet of pavement, 1,970 square feet of recreation space, 4,481 square feet of sidewalk, and 31,425 square feet of curb and gutter. Demolish 503 square feet of building space and 4,830 square feet of pavement.
Youth Center Expansion	Construction	A 5,300-square foot expansion of the existing youth center.

Proposed Project	Activity Type	Project Description
Fitness Center Expansion	Construction	A 17,800-square foot expansion to provide additional capacity to existing fitness center.
ACFT Parking Lot	Construction	New parking lot for the ACFT field totaling 105 spaces.

As part of the DAF's Environmental Impact Analysis Process (EIAP), Buckley SFB would like to request input in identifying general or specific issues or areas of concern you feel should be addressed in the environmental analysis. We also intend to provide you with notice once the Draft EA is complete and welcome comments and input at that time as well. The Draft EA will be electronically hosted at the following Buckley SFB Environmental web address:
https:/ /www.buckley.spaceforce. mil/Units/ Environmental

We request your comments within 30 days of receipt of this letter to ensure we can address them during the Environmental Impact Analysis Process. Should you have comments on the Draft EA, please send your written comments or requests for additional information to Mr. Matthew Hulbert, Cultural Resource Program Manager, Buckley SFB, at 460 CES/CEIE, 660 South Aspen Street (MS 86), Buckley SFB, Colorado 80011-9564, by email to matthew.hulbert.1@spaceforce.mil, or by phone at (720) 847-9059. We thank you for your time and attention.

Sincerely,

Matthew Rodgers, DAF
Alt. Installation Tribal Liaison Officer
460 CES/CEIE

Attachments:
Figure 1: General Location of Buckley Space Force Base
Figure 2: Buckley Space Force Base
Figure 3: ADP Districts Within Buckley Space Force Base

cc:
Molly Thrash, DAF, AFCEC/CZN, NEPA Program Manager
Matthew Hulbert, DAF, Buckley SFB, Cultural Resource Program Manager

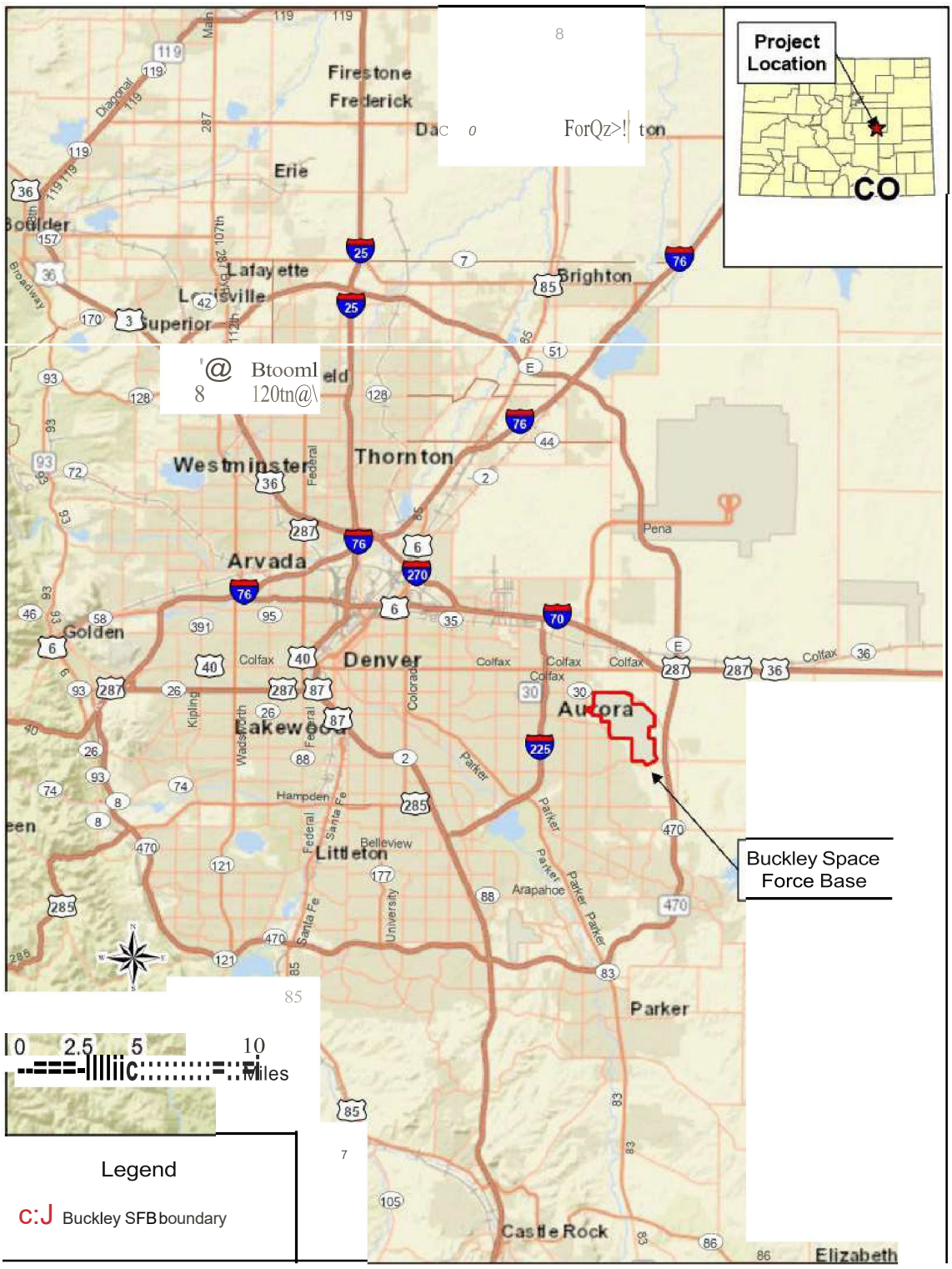


Figure 1. General Location of Buckley SFB

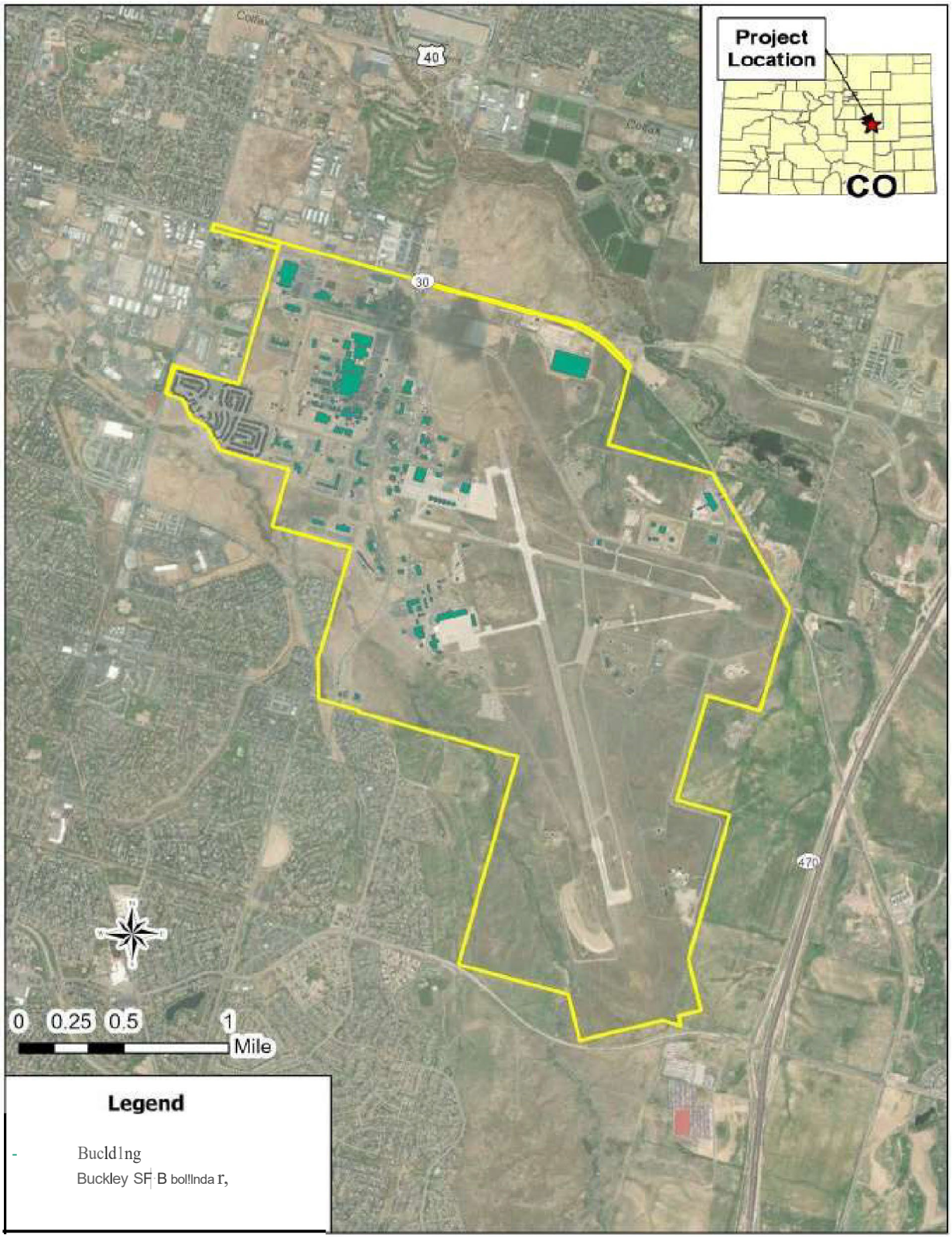


Figure 2. Buckley Space Force Base

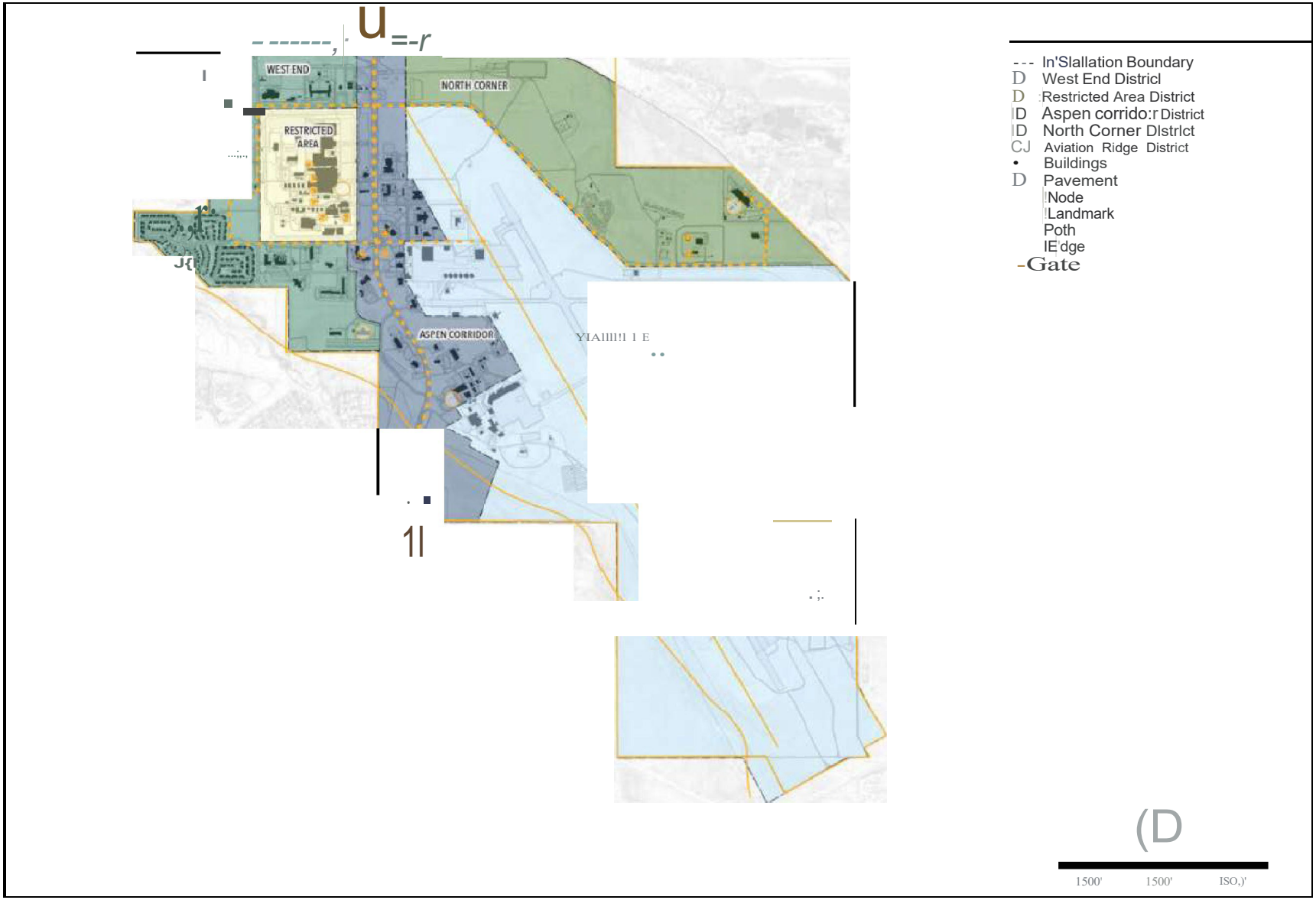


Figure 3. ADP Districts Within Buckley Space Force Base

1 ## A.1.2. Stakeholder Responses

History Colorado

12 July 2023 HC #67129

Matthew Rodgers, DAF
Alt. Installation Tribal Liaison Officer
460 CES/CEIE
660 S. Aspen St., MS 86
Buckley SFB, CO 80011-9564

RE: Proposed Area Development Plans for Buckley Space Force Base

Dear M. Rodgers:

Thank you for your recent correspondence received 30 June 2023, concerning five Area Development Plans for Buckley Space Force Base. Our office has reviewed the submitted materials. The plans in question outline planned developments at Buckley SFB over the next twenty years, with the current focus placed in work anticipated to begin by 2028.

We note that some of the proposed undertakings involve new construction and/or significant ground disturbance. Some of this work will take place in areas that have been disturbed by other construction projects (for example, surface parking lots). Other projects will take place in areas that have not been developed. Construction in these areas may affect historic and/or prehistoric subsurface resources. In addition, construction of (or rehabilitation of existing) buildings may affect existing historic properties.

The Advisory Council on Historic Preservation notes that "(f)ederal agencies' statutory obligations under NEPA and NHPA are independent, but integrating the processes creates efficiencies, promotes transparency and accountability, and supports a broad discussion of effects to the human environment." We encourage Buckley SFB to consider this as it continues to develop and refine the ADP Environmental Assessment. We look forward to working with your office on undertakings that require consultation pursuant to 36.CFR.800.

If you have any questions, please contact Joseph Saldibar, Architectural Services Manager, at (303) 866-3741.

Sincerely,

Dawn DiPrince
State Historic Preservation Officer

NRCS
Natural Resources Conservation Service
Denver Federal Center
Building 56, Room 2604
P.O. Box 25426
Denver, CO 80225

SUBJECT: Farmland Protection Policy Act July 3rd, 2023

Matthew C. Rodgers, DAF
460 CES/CEIE
660 South Aspen Street (MS 86)
Buckley SFB, Colorado 80011-9564

RE: Buckley SFB Area Development Plans - Aurora, CO - Environmental Assessment

Dear Matthew,

The Farmland Protection Policy Act (FPPA) is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural use. It assures that to the extent possible federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland.

For the purpose of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to the FPPA requirements does not have to be currently used for cropland. Projects are subject to the FPPA requirements if they may irreversibly convert farmland to non-agriculture use and are completed by a federal agency or with assistance from a federal agency.

All aspects of this project will occur in the existing developed areas or in previously disturbed rights-of-way and the project is not subject to the FPPA. NRCS encourages the use of accepted erosion control practices during the construction of this project.

If you have any further questions, please call at (720) 544-2855.

Thank you,

T. Riley Dayberry
Asst. State Soil Scientist
thomas.dayberry@usda.gov

cc:
Eugene Backhaus - State Resource Conservationist, NRCS, Denver CO
Clint Evans - State Conservationist, NRCS, Denver CO
William Shoup - State Soil Scientist, NRCS, Denver CO

From: RODGERS, MATTHEW CCIV USSF SPOC 460 CES/CEIE
To: HULBERT, MATTHEW J CIV USSF SpOC 460 CES/CEIE; Brandon Faustini
Subject: FW: [URL Verdict: Neutral][Non-DoD Source] comments regarding Dept. of Air Force EA for 5 Area Development Plans for Space Base Delta 2
Date: Thursday, July 20, 2023 5:37:35 PM

Matt, thanks for sending and, Brandon, FYSA....

//SIGNED//
MATTHEW C. RODGERS, DAF
Chief - Environmental Element

460 CES/CEIE
660 South Aspen Street (MS 86)
Bldg. 1005, Room 178
Buckley SFB, CO 80011-9564

DSN: 847-7245; COMM: 720-847-7245
Email: matthew.rodgers.7@spaceforce.mil

From: HULBERT, MATTHEW J CIV USSF SpOC 460 CES/CEIE <matthew.hu1bert.1@spaceforce.mil>
Sent: Thursday, July 20, 2023 2:57 PM
To: Streisfeld - CDOT, Lisa <lisa.streisfeld@state.co.us>
Cc: Jessica Myklebust - CDOT <jessica.myklebust@state.co.us>; RODGERS, MATTHEW CCIV USSF SPOC 460 CES/CEIE <matthew.rodgers.7@spaceforce.mil>
Subject: Re: [URL Verdict: Neutral][Non-DoD Source] comments regarding Dept. of Air Force EA for 5 Area Development Plans for Space Base Delta 2

Good Afternoon Ms. Streisfeld,

We have received CDOT's comments on the Buckley Space Force Base ADP EA and will add these comments to our records accordingly. We will notify CDOT of the EA when it becomes available for public comment.

Thank you for your time and attention.

Regards,

Matthew Hulbert

From: Streisfeld - CDOT, Lisa <lisa.streisfeld@state.co.us>
Sent: Thursday, July 20, 2023 2:20 PM
To: HULBERT, MATTHEW J CIV USSF SpOC 460 CES/CEIE <matthew.hulbert.1@spaceforce.mil>
Cc: Jessica Myklebust - CDOT <jessica.myklebust@state.co.us>
Subject: [URL Verdict: Neutral][Non-DoD Source] comments regarding Dept. of Air Force EA for 5

Area Development Plans for Space Base Delta 2

Dear Mr. Hulbert,

Thank you for the opportunity to review and provide comments regarding the Department of Air Force (DAF) Environmental Assessment (EA) which will evaluate environmental impacts associated with implementing activities outlined within the five Area Development Plans (ADPs) in order to provide essential infrastructure adequate to the needs of Space Base Delta 2.

With regards to the Buckley location, any transportation improvements (a.k.a. horizontal projects) planned at the Gate entrance with the intersection of Aspen Street and SH 30 may possibly require an Access Permit from Region **1** of the Colorado Department of Transportation (CDOT). This could potentially require a Traffic Impact Study. The CDOT Region 1 contact is Kirk Allen: Kirk.Allen@state.co.us and (303) 757-9531. Information about Access Permits may be found in the following website. Additional information may be found on the Frequently Asked Question website.

CDOT would be very appreciative of further notification when the Draft EA becomes available. Thank you for your time and consideration. Please let me know if you have any questions.

Sincerely,
Lisa Streisfeld

Lisa Streisfeld

Region 1 Environmental Manager

Colorado Department of Transportation

2829 West Howard Place, Denver, Colorado 80204

Cell (303) 349-7483 Phone (720) 497-6924

Lisa.Streisfeld@state.co.us | **www.cdot.gov** | **www.cotrip.org**

A.2 Native American Consultation

The DAF offered consultation with federally recognized tribes that are historically affiliated with the geographic region of each alternative site being considered for the Proposed Action regarding the potential to affect properties of cultural, historical, or religious significance to the tribes. A sample consultation letter is presented in Exhibit 2. Section A.2.1 contains a list of stakeholders DAF sent the early notification letters and Section A.2.2 contains responses received.

Apache Tribe of Oklahoma
PO Box 1330
Anadarko, OK 73005
POC: Bobby Komardley

Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation
PO Box 1027
Poplar, MT 59255
POC: Dyan Youpee

Blackfeet Nation
P.O. Box 850
Browning, MT 59417
POC: John Murray

Cheyenne and Arapaho Tribes of Oklahoma
100 Red Moon Circle
PO Box 167
Concho, OK 73022
POC: Reggie Wassana

Cheyenne River Sioux Tribe
PO Box 590
Eagle Butte, SD 57625
POC: Steve Vance

Comanche Nation of Oklahoma
PO Box 908
Lawton, OK 73502
POC: Martina Minthorn

Crow Creek
PO Box 50
Fort Thompson, SD 57339
POC: Merle Marks

Crow Tribe
PO Box 159
Crow Agency, MT 59022
POC: Aaron Brien

Eastern Shoshone Tribe
Building 17A North Fork Rd.
Fort Washakie, WY 82514
POC: Joshua Mann

Flandreau Santee Sioux Tribe
PO Box 283
Flandreau, SD 57028
POC: Gary Kills A Hundred

Fort Belknap Indian Community
656 Agency Main Street
Harlen, MT 59526
POC: Michael Black Wolf

Fort Sill Apache Tribe
48187 US Hwy 281
Apache, OK 73006
POC: Leland Darrow

Jicarilla Apache Tribe
PO Box 1367
Dulce, NM 87028

Kiowa Tribe of Oklahoma
PO Box 50
Carnegie, OK 73015
POC: Tahnee Growingthunder

Little Shell Tribe of Chippewa Indians
615 Central Avenue West
Great Falls, MT 59404
POC: Duane Reid

Lower Brule Sioux Tribe of the Lower Brule Reservation, SD
187 Oyate Circle
Lower Brule, SD 57548
POC: Boyd Gourneau

Mescalero Apache Tribe
PO Box 227
Mescalaro, NM 88340
POC: Holly Houghten

Navajo Nation
PO Box 4950
Window Rock, AZ 86515
POC: Olsen Johnson

Northern Arapaho Tribe
PO Box 396
Fort Washakie, WY 82514
POC: Crystal Bearing

Northern Cheyenne Tribe
PO Box 1128
Lame Deer, MT 59043
POC: Teanna Limpy

Oglala Sioux Tribe
Thomas Brings
TPHO
PO Box 2070
Pine Ridge, SD 57770
POC: Thomas Brings

Pawnee Nation of Oklahoma
PO Box 470
Pawnee, OK 74058
POC: Matt Reed

Pueblo of Taos
PO Box 2596
Taos, NM 87571
POC: Fred Romero

Pueblo of Zuni
PO Box 1149
Zuni, NM 87327
POC: Kurt Dongoske

Rosebud Sioux Tribe
PO Box 750
Rosebud, SD 57570
POC: Ione Quigley

Santee Sioux Nation
425 Frazier Avenue North #2
Niobrara, NE 68760
POC: Misty Flowers

Southern Ute Indian Tribe
PO Box 737
Ignacio, CO 81137
POC: Cassandra Atencio

Spirit Lake Nation
PO Box 198
Fort Trotten, ND 58335
POC: Kenneth Graywater

Standing Rock Sioux Tribe
PO Box D
Fort Yates, ND 58763
POC: Jonathan Eagle

T**hree Affiliated Tribes of the Mandan, Hidatsa & Arikara Nation**
404 Frontage Road
New Town, ND 58763
POC: Allen Demaray

Ute Indian Tribe of the Uintah & Ouray Reservation
PO Box 190
Ft. Duchesne, UT 84026
POC: Betsy Chapoose

Ute Mountain Ute Tribe
PO Box 468
Towaoc, CO 81334
POC: Terry Knight

Yankton Sioux Tribe
PO Box 1153
Wagner, SD 57380
POC: Galena Drapeau

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE BASE DELTA2

6/9/2023

Matthew C. Rodgers, DAF
Alt. Installation Tribal Liaison Officer
460 CES/CEIE
660 South Aspen Street (MS 86)
Buckley SFB, Colorado 80011-9564

Dyan Youpee
Tribal Historic Preservation Officer
Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation
PO Box 1027
Poplar, MT 59255

Dear Ms. Youpee,

The Department of Air Force (DAF) is preparing an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA) to evaluate potential environmental impacts associated with implementing activities outlined within the five Area Development Plans (ADPs) that together encompass the entirety of Buckley Space Force Base (SFB), CO (see Figures 1 through 3). These ADPs summarize projects that are scheduled to occur within the next 20 years or more; however, this EA assesses the potential impacts expected to result from construction and operation of the short-term projects proposed for construction within the next 5 years.

The purpose and need of the Proposed Action evaluated in the ADP EA is to support current and future mission requirements by constructing and maintaining infrastructure. The Proposed Action is needed for Buckley SFB to continue to provide essential infrastructure adequate to the needs of Space Base Delta 2, which is the Host Agency at Buckley SFB and that provides installation support functions for the resident air operations, space-based missile warning capabilities, space surveillance operations, space communications missions, and other tenant units.

The proposed projects are referred to in terms of type and generally classified as construction, renovation, and demolition. Projects are also described in terms of being "vertical" or "horizontal" and are defined as follows:

- Vertical projects are buildings that need to be completed to fulfill the plan.

- Horizontal projects include, but are not limited to: paving, pavement removal, construction of sidewalks and fences, introduction of planting

strips, installation of pervious pavers, landscaping, realignment of streets, construction of new streets, installation of bollards, and definition of access points and staging areas with concrete curbs.

The following table lists each proposed project with the associated activity and description for each ADP:

Summary of ADP Short-term Projects

Proposed Project	Activity Type	Project Description
Aspen Corridor		
Outdoor Rec Warehouse & Parking Lot Improvements - Building 1022	Construction	A new, 6,000-square foot warehouse would be constructed on top of existing paving. Minimal sitework would be needed. Extra parking would be added to the site as needed over time. A second driveway and improvements to the parking area are also proposed. Proposed improvements would include the demolition of approximately 2,780 square feet of existing pavement and the construction of 12,799 square feet of new pavement. An additional 778 square feet of curb and gutter are also proposed.
LDC Sidewalk Network Improvements	Construction	Construct approximately 3,000 square feet of proposed sidewalk to improve the existing sidewalk network.
ADF-C Parking Garage Phase 1 and Steamboat Avenue Roundabout	Construction	The first phase of ADF-C parking garages moves parking outside of the Restricted Area fence to allow for more developable land inside the fence. The garage would be two floors: a ground floor and a second floor above ground. The west wall of the garage, adjacent to the ADF-C, would align with and replace the outside fence of the Restricted Area. The wall would be constructed of solid concrete for security and snow protection and would be stamped with motifs to be attractive. The garage is set back from Aspen Street to allow for future infill development of

Proposed Project	Activity Type	Project Description
		buildings along the corridor's street edge. The garage would have an architecturally emphasized entry and stairway on the corner. The top floor would accommodate 990-kilowatt photovoltaic (solar) panels over parking stalls and would generate 1.6 million kilowatt-hours per year. The build would remove 345 existing parking spaces. The project includes installation of a roundabout at Steamboat Avenue to mitigate congestion.
ADF-C Parking Garage Phase 2 and Keystone Avenue Roundabout	Construction	The parking garage would be two floors: a ground floor and a second floor above ground. The garage is set back from Aspen Street to allow for future infill development of buildings along the corridor's street edge. The garage would have an architecturally emphasized entry and stairway on the corner. The top floor would accommodate 990-kilowatt photovoltaic (solar) panels over parking stalls and would generate 1.6 million kilowatt-hours per year. Removal of 353 existing parking spaces. The project includes installation of a roundabout near Building 620 to mitigate congestion.
Renovate Brand Name Food Options - Building 630	Renovation	The project would renovate the existing Building 630. The building footprint encompasses 5,210 square feet. A new, 436-square foot patio with outdoor dining will be located at the front of the building facing west. In addition, approximately 3,095 square feet of open space and 1,861 square feet of sidewalk are proposed.
Renovate Space Delta 4 HQ-Building 620	Renovation	The project would renovate Building 620 to support the headquarters for Space Delta 4 including modernizing interior finishes and the exterior to give building a fresh look.

Proposed Project	Activity Type	Project Description
Aviation Ridge		
Fire Protection Water Storage Tank	Construction	Installation of water to tank to increase storage capacity for the Building 1510 and Building 1500 fire suppression systems from 140,000 gallons to 200,000 gallons.
Helo Slide	Construction	Construct approximately 225,000 square feet of new apron. This project would also include approximately 9,815 square feet of vertical demolition, 11,119 square feet of road demolition, and 35,237 square feet of horizontal demolition.
140th ANG Aircraft Ground Equipment	Construction	The project would include construction of a 12,449-square foot vehicle maintenance area, a 227-square foot water tank, 281 square feet of sidewalk, and 21,672 square feet of parking lot. Approximately 2,348 square feet of sidewalk would be demolished, and an additional 6,565 square feet of horizontal demolition are proposed.
ARNG Motorpool Expansion	Construction	The project would include construction of 27,273 square feet of parking area.
East Taxiway	Construction	The project would include construction of approximately 1.57 million square feet of new apron. In addition, approximately 1.8 million square feet of horizontal demolition are proposed, and 192,557 square feet of road would be demolished.
Small East Ramp	Construction	The project would include construction of 3,035,097 square feet of apron. Approximately 176 square feet of vertical demolition and 122,212 square feet of horizontal demolition are also proposed.
Wastewater Projects	Construction	The project would include installation of a new, larger sewage lift station suitable to collect sanitary sewage for this area due to the topography and

Proposed Project	Activity Type	Project Description
		lack of service connection. The sewage lift station would discharge by force main to the existing South Piccadilly Road 24-inch sanitary sewer gravity flow collection main.
Munitions Complex	Construction	The project would include construction of a Munitions Storage and Maintenance Complex. The complex would consist of 9 small Storage Igloos (904 square feet), 4 larger Storage Igloos (2,100 square feet), 1 Administrative Facility (12,000 square feet), **1** Conventional Maintenance Facility with 2 bays (6,600 square feet), and one Missile Maintenance Facility (6,600 square feet). The complex also includes a 40,000-square foot Munitions Assembly Conveyer pad with a 12,000-square foot covered area.
140th ANG Snow Barn	Construction	Construct a 17,986-square foot vehicle maintenance project.
Water Supply Repair	Construction	Construct a new 16-inch water branch main routed to the northeastern corner of the base and a 12-inch looped water service line that ties into it.
Gas Service Repairs	Construction	Provide two 6-inch natural gas branch mains.
Relocate/Repair Sunlight Way	Renovation	The project would include a full-depth replacement of 15,000 square yards of existing asphalt access road altering the route and security fence to meet current airfield criteria.
North Corner		
NRO Expansion	Construction	The project would add two new radomes to the Remote Terminal Facility, construction of an administrative building, construction of 28,401 square feet of road and demolition of 13,295 square feet of road.

Proposed Project	Activity Type	Project Description
Realign Steamboat Ave Out of Graded Clear Zone	Construction/Demolition	The project includes construction of 4,065-square foot planting strip, 56,444 square feet of road, and 5,758 square feet of sidewalk. Demolish 34,964 square feet of sidewalk and 60,914 square feet of road.
RV Storage Yard Fix	Construction/Demolition	The project would construct 263,917 square feet of parking area and 1,769 square feet of road. In addition, 1,769 square feet of horizontal demolition.
FamCamp Expansion	Construction	An additional 25 RV sites to be constructed after a complete draining of the current lake.
Close NOSC Gate	Demolition	The project includes demolition of 15,953 square feet of roadway.
Restricted Area		
Convert 450 Gate Parking Lot to Vehicle Inspection & Backup Fueling Station, Pave Contractor Parking Lot	Construction	The project includes construction of a 2,000-square foot proposed control center, 39,905 square feet of pavement, 6,978 square feet of sidewalk, and 2,545 square feet of curb and gutter. In addition, 54,294 square feet of open space would be created. Demolition of a 415-square foot building and 578 linear feet of fence would also occur.
Central Uninterrupted Power Supply	Construction	The project would include construction of a 27,000-square foot building, 14,346 square feet of pavement, and 1,724 square feet of curb and gutter. In addition, 50,291 square feet of open space would be created. Demolition of 14,552 square feet of pavement would also occur.
Expand Northwest Parking and Relocate Fence	Construction	Increase parking in the northwest portion of the ADF-C within the Restricted Area. Increases the parking capacity of 639 spaces. This project involves construction of 429,575 square feet of pavement and 8,010 square feet of curb and gutter. In addition, 162,419 square feet of open space would be created. This project would also require the demolition of

Proposed Project	Activity Type	Project Description
		17,989 linear feet of fencing and 194,192 square feet of pavement.
Chiller Plant Expansion	Construction	Expand the chiller plant to provide district chilled water to the facilities.
South Fueling Station	Construction	The project would include construction of approximately 9,157 square feet of pavement and 1,664 square feet of curb and gutter. This project includes addition of new fuel storage tanks and fuel transfer lines.
Covered Walkway between East Parking and Mission Facilities	Construction	Construct a covered walkway between the east parking lot to the Space Delta 4 mission buildings Construct 14,060 square feet of covered walkway and 300 square feet of sidewalk. Approximately 15,283 square feet of open space would also be created.
E-Force *I*NextGen Parking Garage (Parking Garage North)	Construction	Construct a 2-story parking garage encompassing a total of approximately 140,000 square feet. In addition, 7,514 square feet of sidewalk would be constructed, and 15,811 square feet of open space would be created. This project would also include the demolition of approximately 48,275 square feet of pavement.
Renovate Existing Fueling Station	Renovation	Construct approximately 6,080 square feet of pavement and 889 square feet of curb and gutter.
Repair Replacement Generator B416 PL-1 Security Lighting	Renovation	Replace PL-1 exterior security lighting with energy-efficient LED lights. Replace security lighting backup generator in B416 with a new generator right-sized for new lighting. Construct 1,414 square feet of security lighting.
Demolish Building 448	Demolition	Demolish 1,470 square feet of building space and 2,271 square feet of pavement.
Demolish Buildings 430, 433	Demolition	Demolish 47,383 square feet of building space and 4,319 square feet of pavement.

Proposed Project	Activity Type	Project Description
Demolish Space Delta 4 Shops and Warehouses	Demolition	Demolish Space Delta 4 legacy facilities, shops and warehouses totaling 8 buildings and 34,300 square feet.
West End		
Youth Ballfields	Construction	Construct 2,232 square feet of proposed structures, 55,788 square feet of recreation area, 17,490 square feet of parks and quads, 15,854 square feet of pavement, 15,719 square feet of sidewalk, and 15,854 square feet of curb and gutter.
Steamboat Ave Roundabout	Construction/ Demolition	Construct traffic roundabout at the intersections of Steamboat and Telluride Avenues. Construct 370,361 square feet of pavement, 47,232 square feet of sidewalk, 101,541 square feet of parks and quads, 83,914 square feet of median, and 353,139 square feet of curb and gutter. Demolish 170-square foot Building 2 and 490,198 square feet of pavement.
Education Center Expansion	Construction	Construct a 2,000-square foot administrative building and demolish 1,024 linear feet of fence.
Skate Park	Construction	Construct 42,785 square feet of pavement.
Pave Contractor Parking	Construction	Construct 34,207 square feet of pavement, 19,747 square feet of open space, 4,793 square feet of sidewalk, and 34,207 square feet of curb and gutter.
Chapel Expansion	Construction/ Demolition	Construct 9,000 square feet of building space, 31,425 square feet of pavement, 1,970 square feet of recreation space, 4,481 square feet of sidewalk, and 31,425 square feet of curb and gutter. Demolish 503 square feet of building space and 4,830 square feet of pavement.
Youth Center Expansion	Construction	A 5,300-square foot expansion of the existing youth center.

Proposed Project	Activity Type	Project Description
Fitness Center Expansion	Construction	A 17,800-square foot expansion to provide additional capacity to existing fitness center.
ACFT Parking Lot	Construction	New parking lot for the ACFT field totaling 105 spaces.

Buckley SFB would like to initiate government-to-government consultation regarding the potential adverse effects of the Proposed Action on cultural and tribal resources of significance. We recognize that your Tribe has traditional cultural affiliation with the areas considered under the environmental analysis process and we respectfully request your input in identifying any issues or areas of concern you feel should be addressed. We also intend to provide you with notice by email once the Draft EA is complete and welcome comments and input at that time as well. The Draft EA will be electronically hosted at the following Buckley SFB Environmental web address: https:/ /www.buckley.spaceforce.mil/Units/Environmental

This letter serves as an initial assessment tool to inform project planning and identify potential impacts. It does not replace or fulfill theconsultation obligations mandated by the National Historic Preservation Act (NHPA) or any other applicable regulations. A formal Section 106 consultation process will be pursued to ensure compliance with all relevant cultural resource protection requirements under the NHPA once preliminary analysis has been performed.

We request your comments within 30 days of receipt of this letter to ensure we can address them during the Environmental Impact Analysis Process. Should you have comments on the Draft EA, please send your written comments or requests for additional information to Mr. Matthew Hulbert, Cultural Resource Program Manager, Buckley SFB, at 460 CES/CEIE, 660 South Aspen Street (MS 86), Buckley SFB, Colorado 80011-9564, by email to matthew.hulbert.1@spaceforce.mil, or by phone at (720) 847-9059. We thank you for your time and attention.

Sincerely,

Matthew Rodgers, DAF
Alt. Installation Tribal Liaison Officer
460 CES/CEIE

Attachments:
Figure 1: General Location of Buckley Space Force Base

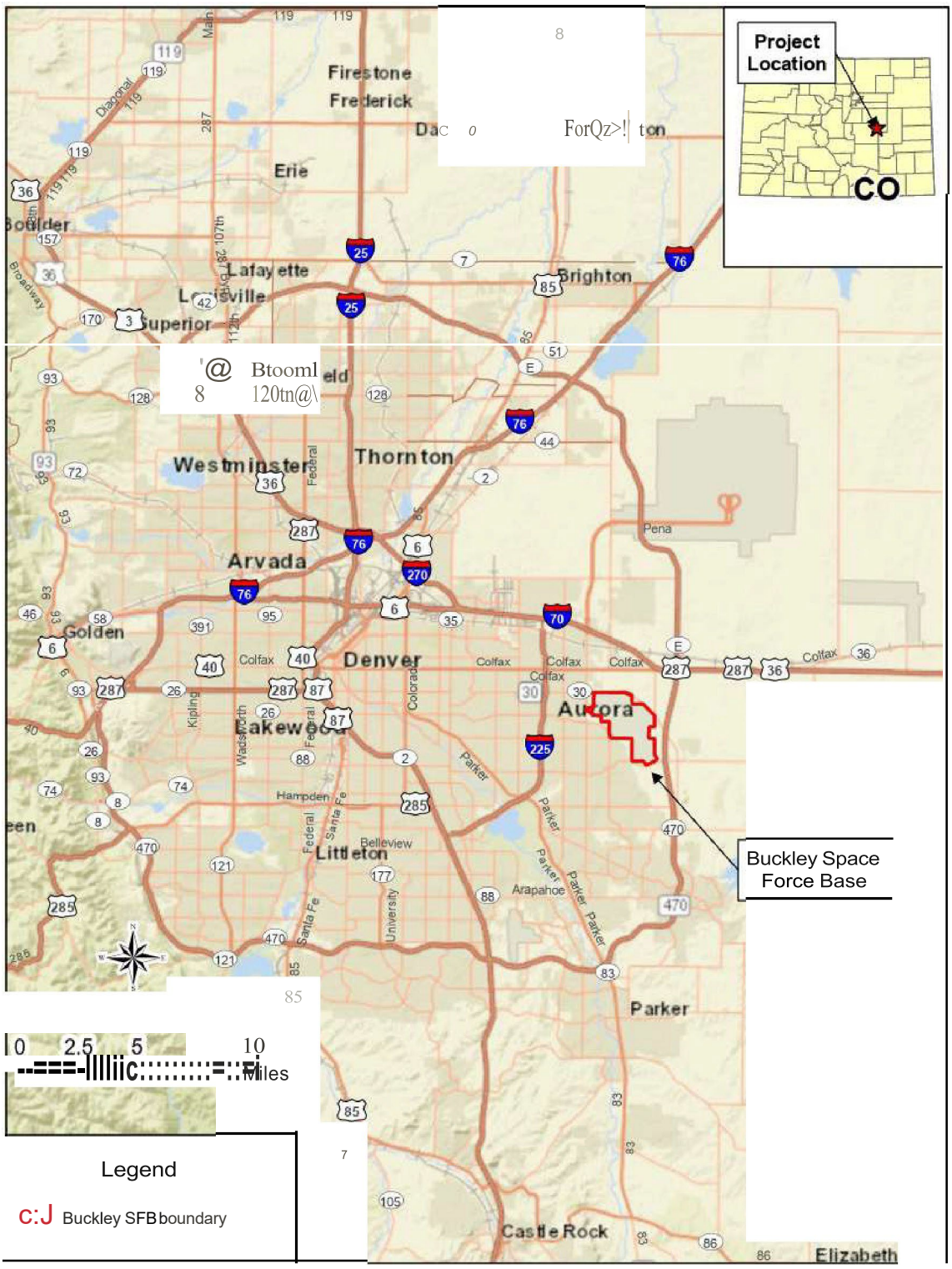


Figure 1. General Location of Buckley SFB

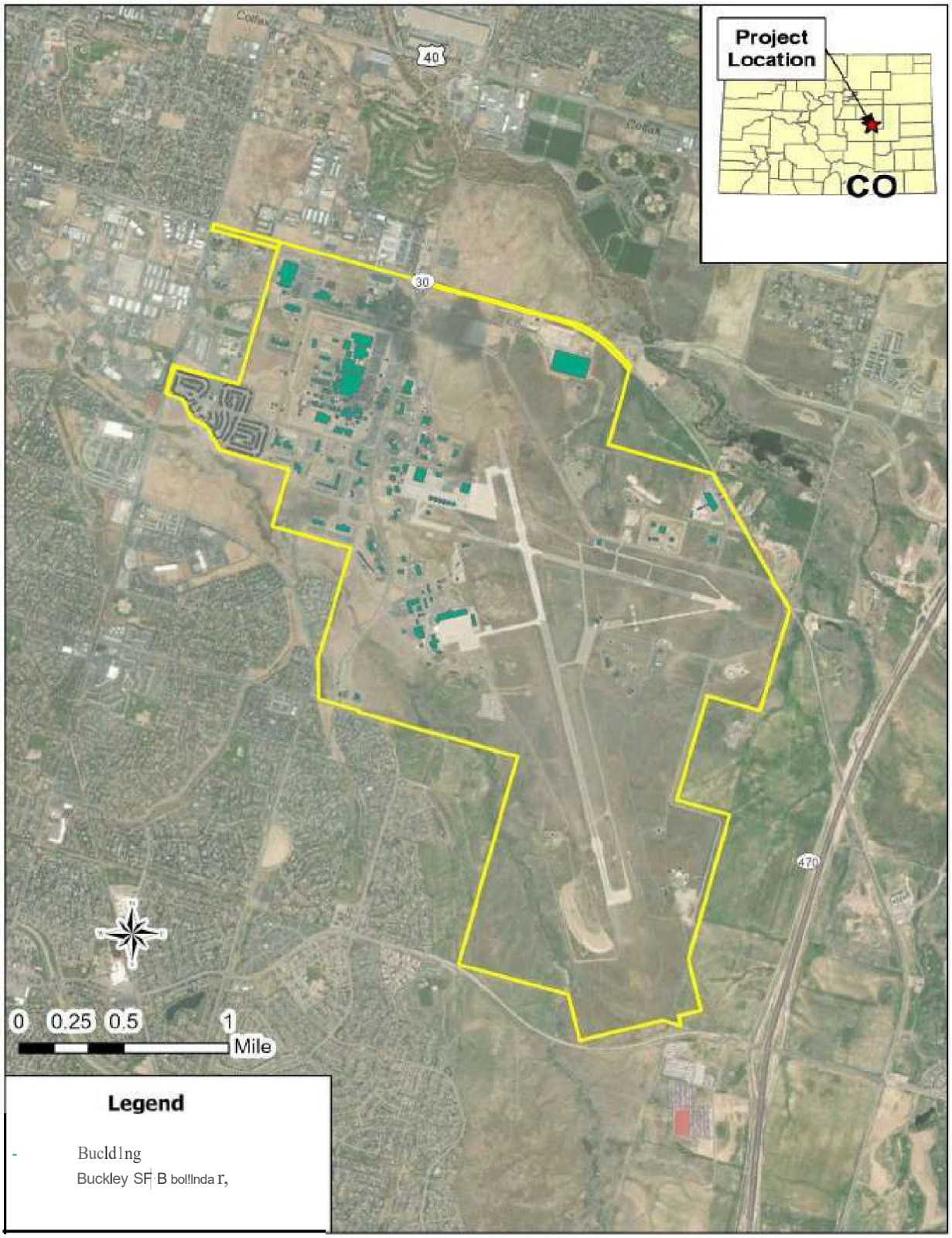


Figure 2. Buckley Space Force Base

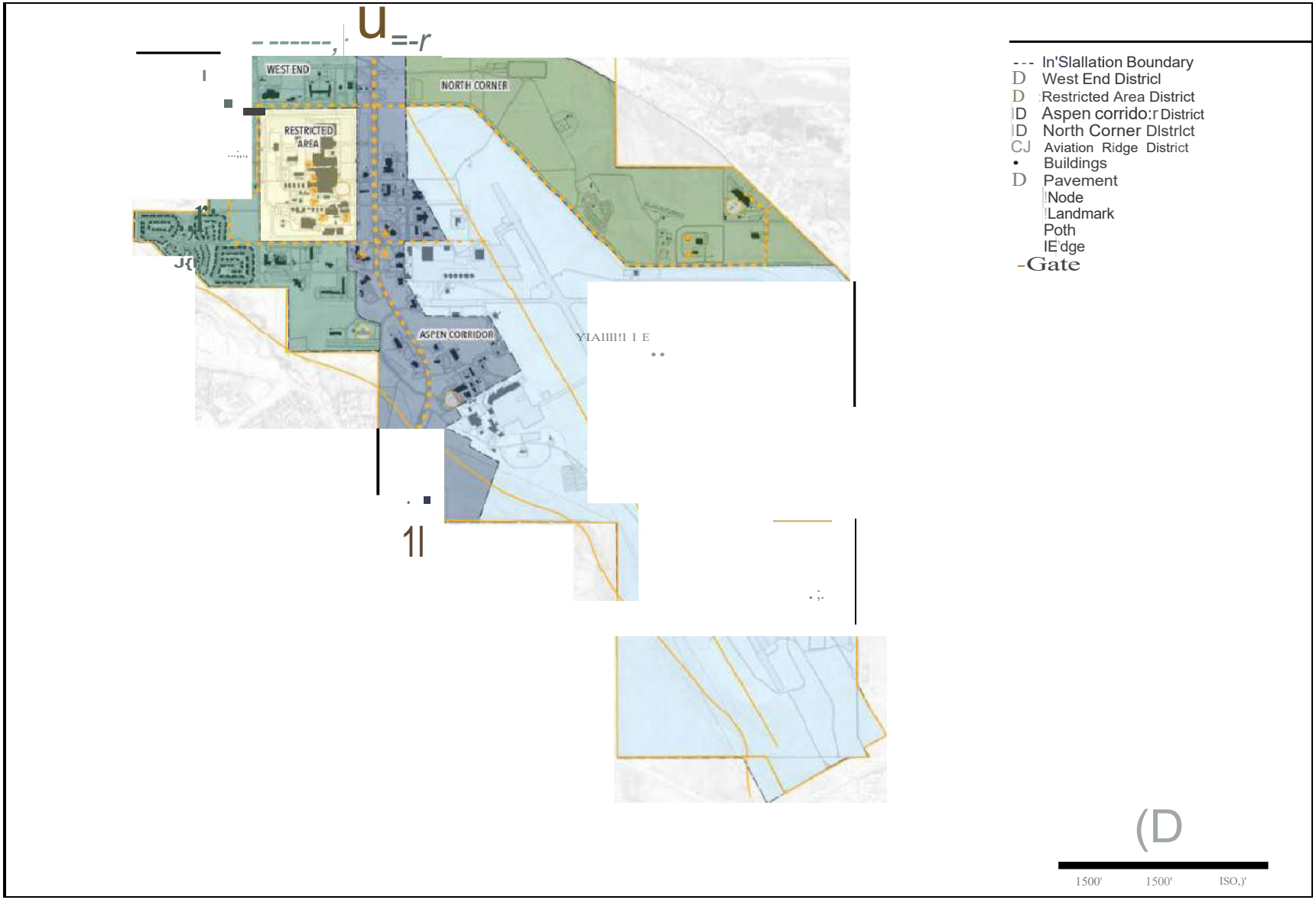


Figure 3. ADP Districts Within Buckley Space Force Base