Draft Environmental Assessment
Collaborative Combat Aircraft Experimental Operations Unit and Test and Training Unit One
Creech Air Force Base, Clark County, Nevada

January 2026

Prepared for:
United States Department of the Air Force
432d Wing
432d Air Expeditionary Wing

PRIVACY ADVISORY

This Environmental Assessment (EA) is provided for public review in accordance with the *National Environmental Policy Act* (NEPA), as amended by the *Fiscal Responsibility Act of 2023* (Public Law 118-5), and the United States Department of Defense (DoD) NEPA implementing procedures issued 30 June 2025, which provide an opportunity for public input on DoD decision-making, allow the public to offer inputs on alternative ways for the DoD to accomplish what it is proposing, and solicit comments on the analysis of environmental effects.

Public commenting allows the DoD to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the EA.

COMPLIANCE

In accordance with NEPA, this document has been certified that it does not exceed 75 pages, excluding citations and appendices. Pursuant to NEPA (42 USC § 4336a(g), this EA was completed within 1 year from the date the DAF first notified the public of its intent to prepare an EA for the Proposed Action evaluated herein.

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DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)
COLLABORATIVE COMBAT AIRCRAFT EXPERIMENTAL OPERATIONS UNIT AND TEST AND TRAINING UNIT ONE
CREECH AIR FORCE BASE, NEVADA

Pursuant to provisions of the *National Environmental Policy Act* (NEPA), as amended by the *Fiscal Responsibility Act of 2023* (Public Law 118-5); the United States (US) Department of Defense NEPA implementing procedures issued 30 June 2025; and Executive Order 14154, *Unleashing American Energy,* the Department of the Air Force (DAF) prepared the attached Environment Assessment (EA) to address the potential environmental impacts on the human environment, including the natural environment, from the proposed establishment of a collaborative combat aircraft (CCA) Experimental Operations Unit (EOU) and Test and Training Unit One (TT-1) at Creech Air Force Base (AFB), Nevada.

Purpose and Need

The purpose of the Proposed Action is to provide affordable and lethal aircraft to help achieve the DAF's Air Superiority Mission, which is focused on developing and maturing technologies for advanced weapons that would enable the joint warfighter to achieve and maintain air superiority across the full range of military operations in current and future threat environments.

The Proposed Action is needed to address a "capability gap" by teaming CCA with 5th-generation fighters and command and control platforms, enabling greater flexibility to achieve the Air Superiority Mission and manage risk to crewed aircraft. To maximize efficiency during the experimentation phase, the EOU must be located at an installation capable of supporting unmanned aircraft operations.

Description of Proposed Action and Alternatives

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days a year, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days a year, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually. The primary training airspace that would be used for the CCA is the Nevada Test and Training Range (NTTR), Restricted Area[1] (R-)2508, and Warning Area[2] (W-)291.

The Proposed Action would involve construction activities to support the CCA beddown, include building renovations and construction of new facilities. Two construction alternatives, referred to herein as Alternatives 1 and 2, are described below.

[1] Restricted airspace is an area typically used by the military where air traffic is restricted or prohibited for safety reasons.
[2] A warning area is airspace of defined dimensions, extending from three nautical miles outward from the coast of the US that contains activity that may be hazardous to nonparticipating aircraft.

The EA also analyzed the effects of the No Action Alternative, which would not satisfy the purpose of and need for the Proposed Action but is retained to provide a comparative baseline against which to analyze the effects of the Proposed Action.

Alternative 1

Alternative 1 involves renovation of existing facilities and construction of new facilities to support TT-1 and EOU. In total, 822,400 square feet (ft^2) of new impervious surfaces would be constructed.

Alternative 2

Alternative 2 incorporates all the construction activities under Alternative 1 with the exception of the new combined squadron operations/aircraft maintenance unit facility near Building 726 (B726). Under Alternative 2, the DAF would construct a new combined squadron operations/aircraft maintenance unit facility on the north side of the Installation rather than the south side of the runway. B726 and the associated parking lot would not be demolished under this alternative. The total impervious area under Alternative 2 would be 974,400 ft^2. Alternative 2 would create an additional 152,000 ft^2 of new impervious surface when compared to Alternative 1.

No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. The 732d Operations Group would still relocate from B718 to B1005, B1057, and B1061. This relocation is independent of the Proposed Action and was previously analyzed and decided in a separate NEPA action.

Summary of Findings

Potentially affected environmental resources were identified through communications with state and federal agencies and review of environmental documentation. The attached EA analyzes potential environmental consequences of the following resource areas: noise; airspace; safety and occupational health; air quality; biological resources; water resources; geology and soils; land use; cultural resources; socioeconomics; hazardous materials and waste, toxic substances, and contaminated sites; and infrastructure (including transportation and utilities).

Noise

Under **Alternative 1**, the 65-decibel (dB) Day-Night Average Sound Level (DNL) noise contour would expand beyond the boundaries of Creech AFB but would not include any areas that are noise sensitive. Specifically, noise levels would be between 65 and 70 dB DNL in a total of 106 acres of land that is not noise sensitive. Off-Installation areas that would experience noise levels greater than 65 dB DNL are east and west of the Creech AFB main runway and are part of NTTR and areas within the US-95 corridor. Noise levels at all noise-sensitive locations (e.g., residences, places of worship, and schools) would remain below 65 dB DNL Noise effects associated with proposed CCA operations would be limited to increased potential for annoyance, with noise levels remaining below land use compatibility thresholds. Changes in noise levels beneath existing special-use airspace would be less than 0.4 dB DNL and would not be noticeable. Implementation of Alternative 1 would result in long-term, minor, adverse impacts. Implementation of **Alternative 2** would have the same impacts as **Alternative 1.**

Airspace

Under **Alternative 1**, there would be no change to regional airspace. The proposed CCA beddown would increase the annual airfield operations at Creech AFB by 17 percent and annual sorties in NTTR by one percent. These increases would not be expected to exceed the capacity of existing scheduling and management processes. Implementation Alternative 1 would result in long-term, minor, adverse impacts to airspace management. Implementation of **Alternative 2** would have the same impacts as **Alternative 1.**

Safety and Occupational Health

Under **Alternative 1**, construction, demolition, and renovation activities could expose personnel to related risks. Implementation of **Alternative 1** would result in negligible, temporary, adverse impacts related to ground safety. There would be no impacts related to flight or explosives safety. Implementation of **Alternative 2** would have the same impacts as **Alternative 1.**

Air Quality

Under **Alternative 1,** there would be an increase in emissions during construction activities, but such increase would remain below the applicable thresholds for air quality standards. Implementation of Alternative 1 would result in long-term, minor, adverse impacts to air quality. Implementation of **Alternative 2** would have the same impacts as **Alternative 1.**

Biological Resources

Under **Alternative 1**, all construction activities would occur in developed areas. The increase in sorties has the potential to affect avian populations; however, most of the sorties would be flown above 3,000 feet above ground level. Therefore, implementation of Alternative 1 would result in no impacts to vegetation; long-term, negligible, adverse impacts to wildlife; no impacts to threatened or endangered species; and short-term, minor, adverse impacts to invasive species. Implementation of **Alternative 2** would have the same impacts as **Alternative 1**

Water Resources

Under **Alternative 1**, there would be an increase in impervious surfaces, potentially resulting in increased stormwater runoff. With adherence to best management practices implementation of Alternative 1 would result in short-term, minor, adverse impacts to stormwater during construction activities; long-term, minor, adverse impacts to surface water and stormwater due to the increase in impervious surface area; and no impacts to groundwater, wetlands, or floodplains. Implementation of **Alternative 2** would be anticipated to have the same impacts as **Alternative 1.**

Geology and Soils

Under **Alternative 1**, modifications to accommodate new construction would be to surface conditions rather than deeper geological structures. Leveling and grading of the construction area would resemble the surrounding terrain. There is a potential for soil sedimentation and erosion from increased stormwater runoff; however, this would be managed through adherence to best management practices. Therefore, implementation of Alternative 1 would result in no impacts to geology and prime farmland; long-term, negligible impacts to topography; and long-term, moderate, adverse impacts to soils. Implementation of **Alternative 2** would have the same impacts as **Alternative 1**.

Land Use

Under **Alternative 1**, there would be no change to the current land use at Creech AFB. All proposed projects are compatible and consistent with existing and future Installation land use planning guidance. Therefore, implementation of Alternative 1 would result in no adverse impacts to land use. Implementation of **Alternative 2** would have the same impacts as Alternative 1.

Cultural Resources

No properties listed or eligible for listing in the National Register of Historic Places are associated with the Proposed Action. Relevant correspondence with the State Historic Preservation Officer and federally recognized Native American tribes is included in **Appendix B** of the Draft EA. Should there be an unanticipated discovery of an archaeological resource, Creech AFB would suspend construction activities and initiate the unanticipated discoveries procedures outlined in the Integrated Cultural Resources Management Plan. Therefore, implementation of the Proposed Action, whether **Alternative 1** or **2**, would result in no adverse impacts to cultural resources.

Socioeconomics

Under **Alternative 1**, the additional DAF personnel inmigrating from outside the Region of Influence would result in an increase to the local population. Construction, demolition, and renovation activities would create a temporarily increased demand for local building and construction contractor personnel. A maximum of approximately 540 school-aged dependents would have the potential to relocate to the Region of Influence. This increase would cause a strain on Indian Springs Elementary School, but could be accommodated by Indian Springs Middle/High School and most schools in Las Vegas, North Las Vegas, or on Nellis AFB. Therefore, implementation of Alternative 1 would result in long-term, negligible-to-minor, beneficial impacts to population; short- and long-term, minor, beneficial impacts to employment; long-term, negligible, beneficial impacts to housing; long-term, negligible, adverse impacts to schools, and no impacts to public services.

Implementation of **Alternative 2** would have the same impacts as **Alternative 1.**

Hazardous Materials and Waste, Toxic Substances, and Contaminated Site

Under **Alternative 1,** construction, demolition, and renovation activities would require limited use of certain hazardous materials, resulting in generation of hazardous waste. Adherence to best management practices, operating permits, and local, state, and federal regulations would reduce the risk of spills or contamination. Implementation of Alternative 1 would result in short-term, minor, adverse impacts to hazardous materials and wastes; and no impacts to fuel storage, radon, or Environmental Restoration Program sites. Implementation of **Alternative 2** would have the same impacts as **Alternative 1**.

Infrastructure (Including Transportation and Utilities)

Under **Alternative 1**, heavy-equipment use during construction would temporarily increase traffic volumes both on and off the Installation. The additional DAF personnel would increase the number of vehicles used on the Base, potentially causing congestion. However, installation of paved parking spaces would alleviating the current practice of parking on unpaved spaces. The Base electrical distribution system, potable water supply, and sanitary sewage/waster system would be interrupted temporarily during new connections. These systems as well as solid waste management would accommodate any increase in usage due to the added DAF personnel. Implementation of Alternative 1 would result in short- and long-term, minor, adverse and beneficial impacts to

transportation; short- and long-term, negligible-to-minor, adverse impacts to the potable water supply and sanitary sewage/wastewater system; and short-term, moderate, adverse impacts to solid waste management. Implementation of **Alternative 2** would have the same impacts as **Alternative 1**.

Cumulative Impacts

The Draft EA considered cumulative impacts, which are effects on the environment that result from the incremental effects of the Proposed Action or Alternatives when added to the effects of other past, present, and reasonably foreseeable actions, regardless of what agency or person undertakes such other actions. When considered in conjunction with the incremental effects of past, present, and reasonably foreseeable future actions on Creech AFB, no significant cumulative impacts would be anticipated to occur with implementation of the Proposed Action.

Mitigation

The EA analysis concluded that the Proposed Action would not result in significant environmental impacts; therefore, no mitigation measures are required. Best management practices are described and recommended in the EA where applicable.

Conclusion

Finding of No Significant Impact. After review of the attached EA prepared in accordance with the requirements of NEPA and which is hereby incorporated by reference, I have determined that the Proposed Action would not have a significant impact on the quality of the human environment, including the natural environment. Accordingly, an Environmental Impact Statement will not be prepared.

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NICHOLAS R. PEDERSON DATE
Colonel, USAF Commander

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APPENDICES

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LIST OF ACRONYMS AND ABBREVIATIONS

ACAM	Air Conformity Applicability Model
ACM	asbestos-containing materials
AFB	Air Force Base
AFFF	aqueous film-forming foam
AGE	aerospace ground equipment
AGL	above ground level
AMU	aircraft maintenance unit
APE	Area of Potential Effects
APZ	accident potential zone
ATC	Air Traffic Control
ATCAA	air traffic-controlled assigned airspace
B	Building (as in B1209)
BASH	bird/wildlife aircraft strike hazard
BLM	Bureau of Land Management
BMP	best management practice
CAA	Clean Air Act
CCA	collaborative combat aircraft
CCSD	Clark County School District
CDP	Census Designated Place
CFR	Code of Federal Regulations
COA	Certificate of Authorization
CWA	Clean Water Act
CZ	clear zones
DAF	United States Department of the Air Force
DNL	Day-Night Average Sound Level
DoD	United States Department of Defense
DNWG	DoD Noise Working Group
EA	Environmental Assessment
EO	Executive Order
EOU	Experimental Operations Unit
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESQD	explosives safety quantity-distance
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
ft^2	square foot/feet
HAZMAT	hazardous material
ICRMP	Integrated Cultural Resources Management Plan
IDP	Installation Development Plan
lb	pound
lbf	pounds-force
LBP	lead-based paint
$L_{eq\text{-}SD}$	equivalent continuous sound pressure level
L_{max}	maximum time-weighted sound level

LRS	Logistics Readiness Squadron
LVIAQCR	Las Vegas Intrastate Air Quality Control Region
MOA	Military operations area
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTTR	Nevada Test and Training Range
NVCRIS	Nevada Cultural Resources Information System
O&M	Operations and Maintenance
PCBs	polychlorinated biphenyls
PGM	precision-guided missile
ppm	parts per million
PSD	Prevention of Significant Deterioration
R-	Restricted Airspace (as in R-2508)
RA	restricted area
ROI	Region of Influence
RPA	remotely piloted aircraft
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Officer
SUA	special-use airspace
tpy	tons per year
TT-1	Test and Training Unit One
US	United States
US-95	United States Highway 95
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	US Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
W-	Warning Area (as in W-291)

CHAPTER 1 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

Autonomous or semi-autonomous collaborative platforms, currently under development by the United States (US) Department of the Air Force (DAF), are uncrewed, autonomous or semi-autonomous aircraft that will eventually be able to perform a range of missions, such as air-to-air combat, air-to-ground combat, electronic warfare, targeting, intelligence, surveillance, and reconnaissance. Collaborative combat aircraft (CCA), a subset of autonomous collaborative platforms, will escort crewed fighters in a support capacity. As part of the development process, the DAF is proposing to establish a CCA Experimental Operations Unit (EOU) and Test and Training Unit One (TT-1) at Creech Air Force Base (AFB), Nevada.

AUTONOMOUS DRONES AND UNMANNED AERIAL SYSTEMS ARE ABLE TO MAKE INTELLIGENT DECISIONS WITHOUT INPUT FROM A PILOT OR OPERATOR, LEARNING FROM AND ADAPTING TO THE ENVIRONMENT.

The *National Environmental Policy Act of 1969*, as amended (42 *United States Code* [USC] § 4321 et seq.) (NEPA) requires federal agencies to consider alternatives to a proposed action and to analyze potential effects of alternative actions. This Environmental Assessment (EA) evaluates environmental effects of the proposed CCA EOU at Creech AFB. This EA was developed in compliance with NEPA, as amended by the *Fiscal Responsibility Act of 2023* (Public Law 118-5); the US Department of Defense (DoD) NEPA implementing procedures issued 30 June 2025; and Executive Order (EO) 14154, *Unleashing American Energy* (20 January 2025). EO 12114, *Environmental Effects Abroad of Major Federal Actions*, further requires federal agencies to consider the impact of proposed actions on the environment outside the US (e.g., Range W-291).

1.1.1 Creech AFB

Creech AFB is the main operating base of the 432d Wing and 432d Air Expeditionary Wing and is located 1 mile northwest of Indian Springs, Nevada, and 35 miles northwest of Las Vegas, Nevada (**Appendix A, Figure 1**) (DAF, 2019a). These Wings are collectively known as the "Hunters" and support the training and employment of remotely piloted aircraft (RPA) for the DAF. Creech AFB also supports various operations such as the 556th Test and Evaluation Squadron, the DAF Reserve's 91st Attack Squadron, and the DAF Reserve's 78th Reconnaissance Squadron (DAF, 2019b). The Installation occupies approximately 2,407 acres of land in Clark County, Nevada, on the north side of US Highway 95 (US-95); Creech AFB owns an additional 80 acres of land on the south side of US-95.

1.2 PURPOSE OF ACTION

The purpose of the Proposed Action is to provide affordable and lethal aircraft to help achieve the DAF's Air Superiority Mission, which is focused on developing and maturing technologies for advanced weapons that would enable the joint warfighter to achieve and maintain air superiority across the full range of military operations in current and future threat environments.

1.3 NEED FOR ACTION

The need for the Proposed Action is to address a "capability gap" by teaming CCA with 5th-generation fighters and command and control platforms, enabling greater flexibility to achieve the Air Superiority Mission and manage risk to crewed aircraft. To maximize efficiency during the experimentation phase, the EOU must be located at an installation capable of supporting unmanned aircraft operations.

1.4 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

The DoD implementation procedures, in compliance with NEPA guidance, include public and agency review of information pertinent to a proposed action and alternatives. The DAF's compliance with the requirement for intergovernmental coordination and agency participation begins with the scoping[1] process. Accordingly, and in accordance with EO 12372, *Intergovernmental Review of Federal Programs*, the DAF notified federal, state, and local agencies and tribal governments with jurisdiction that could potentially be affected by the Proposed Action and Alternatives via written correspondence throughout the development of this EA. A mailing list of the recipients of this correspondence as well as a sample of the outgoing letters and all responses are included in **Appendix B**.

1.4.1 Government-to-Government Consultation

The *National Historic Preservation Act* (54 USC § 300101, et seq.) (NHPA) and implementing regulations at 36 *Code of Federal Regulations* (CFR) Part 800 direct federal agencies to consult with federally recognized Native American tribes when a proposed action or alternatives may have an effect on tribal lands or on properties of religious and cultural significance to a tribe. Consistent with the NHPA, the *Native American Graves Protection and Repatriation Act* (25 USC § 3001 et seq.), DoD Instruction (DoDI) 4710.02, *DoD Interactions with Federally Recognized Tribes*, and DAF Instruction (DAFI) 90-2002, *Interactions with Federally Recognized Tribes*, the DAF has invited federally recognized tribes that are historically affiliated with lands in the vicinity of the Proposed Action and Alternatives to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process is distinct from NEPA consultation and requires separate notification to all relevant tribes. The timelines for tribal consultation are also distinct from those of NEPA consultation. The Creech AFB point of contact for Native American tribes is the Installation Commander. The point of contact for consultation with the Tribal Historic Preservation Officer and the State Historic Preservation Officer (SHPO) is the Creech AFB Cultural Resources Manager.

1.4.2 Agency Consultations and Coordination

Implementation of the Proposed Action involves coordination with several organizations and agencies. Compliance with Section 7 of the *Endangered Species Act of 1973*, as amended (16 USC § 1531 et seq.) (ESA), and implementing regulations (50 CFR Part 402), requires communication with the US Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration National Marine Fisheries Service. On 1 August 2025, the DAF initiated informal Section 7 consultation under the ESA for the Proposed Action using the USFWS's Information for Planning and Consultation tool. Basic information concerning the location and nature of the Proposed Action was input into the tool to obtain an official species list from the USFWS. The list identifies threatened and endangered species and other protected species (e.g., migratory birds) with potential to be affected by the Proposed Action. This information is included in **Appendix B** and incorporated into this EA where applicable.

The DAF coordinated with state agencies regarding potential effects from the Proposed Action and Alternatives. Compliance with Section 106 of the NHPA and implementing regulations (36

[1] Scoping is a process for determining the extent of issues to be addressed and analyzed in a NEPA document.

CFR Part 800) requires that the Nevada SHPO be given the opportunity to concur on determinations of eligibility and effects.

1.5 PUBLIC PARTICIPATION

The DAF invites the public and other interested stakeholders to review and comment on this Draft EA. Accordingly, a notice of availability of the Draft EA and Draft Finding of No Significant Impact (FONSI) was published on 22 February 2026 in the following local newspapers to commence a 30-day public comment period:

- *Las Vegas Review Journal*
- *Las Vegas Sun*

During the public comment period, the Draft EA and Draft FONSI are available online for view or download at http://creech.af.mil. Additionally, printed copies of the Draft EA and Draft FONSI are available by request and placed at the following area libraries for review:

- Centennial Hills Library
- Indian Springs Library

1.6 DECISION TO BE MADE

This EA analyzes the potential environmental consequences of the Proposed Action and Alternatives.

Based on the analysis in this EA, the DAF will make one of three decisions regarding the Proposed Action:

1) Choose to implement one of the alternatives and sign a FONSI, allowing implementation of the Preferred Alternative;
2) Initiate preparation of an Environmental Impact Statement if it is determined that implementation of the Proposed Action and Alternatives would cause significant effects to the human and natural environment that could not be mitigated to a level of less than significant; or
3) Select the No Action Alternative, whereby the Proposed Action would not be implemented.

This EA identifies specific actions the DAF will commit to undertake to ensure all potential environmental effects have been reduced to a level of insignificance should the DAF decide to implement the Proposed Action.

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

THIS EA USES TWO TERMS TO DESCRIBE DIFFERENT COMPONENTS OF AIRCRAFT FLYING ACTIVITIES: SORTIE AND OPERATION. AT AN AIRFIELD, A SORTIE IS ALL FLIGHT ACTIVITIES OF AN AIRCRAFT FROM DEPARTURE TO ARRIVAL. AN OPERATION COMPRISES ONE ACTION SUCH AS A DEPARTURE, ARRIVAL, OR CLOSED-PATTERN, SUCH AS A TOUCH AND GO.

2.1.1 CCA Sorties

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

2.1.2 Airspace

Federal Aviation Administration (FAA) policy prohibits unmanned aerial system operations unless an FAA-approved Certificate of Waiver or Authorization (COA) is issued to permit specific unmanned activity within the National Airspace System. The DAF proposes to operate the CCA from Creech AFB, which holds an FAA Certificate of Waiver or Authorization. Further, the area of Creech AFB proposed for CCA experimental and training operations is directly within restricted airspace. CCA would operate in existing airspace and CCA operations would require no changes to currently utilized airspace.

The primary training airspace that would be used for the CCA is the Nevada Test and Training Range (NTTR), Restricted Airspace[2] (R-)2508, and Warning Area[3] (W-)291 (**Appendix A, Figures 2-1–2-3**). The NTTR includes 5,000 square miles of airspace, which is restricted from civilian air traffic overflight, and another 7,000 square miles of military operations areas (MOAs), which are shared with civilian aircraft. The primary training areas include Desert and Reveille North/South MOAs, overlying air traffic-controlled assigned airspace (ATCAA), low-altitude tactical navigation areas, the XRay MOA, and R-4806E, R-4806W, R-4807A, R-4807B, R-4808N, R-4808S, and R-4809. Training activities within NTTR would include only subsonic flight.

The R-2508 MOA and ATCAA areas consist of four major work areas: Isabella, Owens, Saline, and Panamint. Minor MOAs in the region consist of Porterville, Bakersfield, Deep Springs, Barstow, Buckhorn, Bishop, Shoshone, Silver North, and Silver South airspace. The restricted airspace inside R-2508 consists of R-2505, R-2506, R-2524, R-2515, and R-2502. These restricted airspaces overlie military lands and are adjacent to the MOA airspace. The restricted areas (RAs) are composed of special-use airspace (SUA) within which the FAA has determined that potentially

[2] Restricted airspace is an area typically used by the military where air traffic is restricted or prohibited for safety reasons.
[3] A warning area is airspace of defined dimensions, extending from three nautical miles outward from the coast of the US that contains activity that may be hazardous to nonparticipating aircraft.

hazardous activities occur, including air-to-ground ordnance delivery (FAA, 2024). Regulations prohibit non-participating military and civil/commercial aircraft from flying within the restricted portions of the airspace without authorization

CCA also would perform flight activity in an over-water SUA, W-291, which is located off the coast of southern California and is included in the Southern California Offshore Range. This SUA extends from the ocean surface to 80,000 feet (ft) above mean sea level (MSL) and encompasses 113,000 square nautical miles of airspace.

Table 2-1 provides the projected training activities for the CCA under the Proposed Action at NTTR, R-2508, and W-291 for both low and high altitude. Implementation of the Proposed Action would result in an increase of 1,820 sorties flown each year beyond current operations.

Table 2-1 Training Sorties by Airspace

Airspace	Current Altitude	Number of Proposed Additional Training Sorties
NTTR	Low altitude (<3,000 ft AGL)	16
NTTR	High altitude (>3,000 ft AGL)	1,738
R-2508	Low altitude (<3,000 ft AGL)	0
R-2508	High altitude (>3,000 ft AGL)	50
W-291	Low altitude (<3,000 ft AGL)	0
W-291	High altitude (>3,000 ft AGL)	16
Total Proposed Airspace Sorties		**1,820**

AGL = above ground level; ft = feet; NTTR- Nevada Test and Training Range; R- = restricted airspace; W- = warning area

2.1.3 Ordnance and Defensive Countermeasures

Personnel at Creech AFB would control, maintain, and store all ordnance and munitions required for CCA mission performance. This includes training and inert bombs and rockets, live bombs and rockets, chaff, flares, gun ammunition, small arms ammunition, and other explosive and pyrotechnic devices. Chaff and flares are the defensive countermeasures dispensed by military aircraft. Additional information on defensive chaff and flares can be found in the DAF Chaff and Flare Programmatic EA (https://www.airforcechaffandflareprogrammaticea.com), as incorporated by reference (DAF, 2023a). **Table 2-2** provides the annual proposed defensive countermeasures dispensed by CCA, including RR-188 chaff and M206 flares or similar during training sortie operations in SUA where authorized.

Table 2-2 Countermeasure Usage by Airspace

Airspace	Countermeasure Type	Number of Proposed Additional Use
NTTR	Flares (M206)	36,840
	Chaff (RR-188)	49,120
R-2508 Complex	Flares (M206)	750
	Chaff (RR-188)	1,000
W-291	Flares (M206)	240
	Chaff (RR-188)	320

ft = feet; NTTR- Nevada Test and Training Range; R- = restricted airspace; W- = warning area

CCA would occasionally employ a live, advanced, medium-range, air-to-air missile (AIM-120) for testing and training purposes. AIM-120 would be employed up to 12 times per year only within W-291 airspace, which has been specifically analyzed, designed, and configured for this purpose.

2.1.4 Personnel at Creech AFB

Creech AFB currently has a workforce of 3,000 personnel. The EOU at Creech AFB would be supported by approximately 155 additional personnel, 136 of which would be either civilian or contractors; the remaining 19 personnel would be active duty. TT-1 would be supported by approximately 399 additional personnel, 20 of which would be civilians; the remaining 379 personnel would be active duty. The total increase of personnel at Creech AFB would be approximately 554 (**Table 2-3**).

Table 2-3 Proposed Increase in Personnel at Creech AFB

Unit	Officer	Enlisted	Civilian	Contractor	Total
EOU	7	12	5	131	155
TT-1	47	332	20	0	399
Totals	**54**	**344**	**25**	**131**	**554**

EOU = Experimental Operations Unit; TT-1 = Test and Training Unit One

2.1.5 Construction at Creech AFB

Construction activities to support the CCA beddown include building renovations and construction of new facilities (**Table 2-4)**. Two construction alternatives, referred to herein as Alternatives 1 and 2, are described in **Sections 2.1.5.1** and **2.1.5.2**. Alternative 2 incorporates most of Alternative 1, except for housing the aircraft maintenance unit (AMU) in a six-bay hangar.

Alternative 1 involves renovation of existing facilities and construction of new facilities to support TT-1 and EOU (**Table 2-4**). **Figure 2-4** (**Appendix A**) provides an overview of the location of Alternative 1 (and Alternative 2). **Figure 2-5** (**Appendix A**) shows in detail the locations of construction activities on the south side of the Installation. Both figures are provided at the end of **Section 2.1.5.1.**

Table 2-4 Construction Activities for CCA Beddown

Facility	Scope	New Impervious Area	Included in Alternative 1	Included in Alternative 2	Notes
Aircraft apron expansion (new ramp)	630,000 ft2 in two locations	630,000 ft2	Yes	Yes	New impervious surface across two locations
Parking lot	154,000 ft2	154,000 ft2	Yes	Yes	Parking for TT-1 and EOU south of B719 and B707
Sunshades	20 total	N/A	Yes	Yes	Installed within existing areas along the ramp
LRS storage facility	10,000 ft2	10,000 ft2	Yes	Yes	New impervious surface
AGE maintenance operation facility	5,000 ft2	5,000 ft2	Yes	Yes	New facility in unpaved area
Fuel cell	4,000 ft2	4,000 ft2	Yes	Yes	New facility and new impervious surface

Facility	Scope	New Impervious Area	Included in Alternative 1	Included in Alternative 2	Notes
Fuel storage tank and parking	10,000 ft2	N/A	Yes	Yes	New facilities – area is currently paved and unused, no new impervious surface
Flightline kitchen	3,000 ft2	3,000 ft2	Yes	Yes	New impervious surface
PGM shop	8,000 ft2	8,000 ft2	Yes	Yes	Munitions area – exact location not determined
Multi-cube magazine storage	600 ft2	600 ft2	Yes	Yes	Munitions area – exact location not determined
Hayman igloo	800 ft2	800 ft2	Yes	Yes	Munitions area – exact location not determined
Squadron operations facility	Existing B718 (36,924 ft2)	N/A	Yes	N/A	Interior renovation only
Six-bay hangar with the AMU	220,000 ft2	8,000 ft2 beyond existing footprint	Yes	N/A	Demolish B726 and parking lot south of B726
North side combined squadron operations/ AMU facility and parking lot	160,000 ft2	160,000 ft2	N/A	Yes	Construction of new facility and parking lot; new impervious surface
Total New Impervious Area by Alternative			**822,400**	**974,400**	

AGE = aircraft ground equipment; AMU = Aircraft Maintenance Unit; B = building (as in B718); ft2 = square feet; LRS = Logistics Readiness Squadron; N/A= not applicable; PGM = precision-guided missile

2.1.5.1 Alternative 1

Under Alternative 1, existing Building 718 (B718) would be used as the permanent location for the EOU and TT-1 squadron operations facility. Some interior facility renovation of B718 would be required to meet minimum interim mission requirements with more extensive long-term renovations. These long-term renovations would consist of infrastructure repair, including electrical; heating, ventilation, air conditioning; roof, sewer/plumbing; hangar door; fire suppression; and sensitive compartmented information facility updates. The current B718 occupants would relocate from B718 to B1005, B1057, and B1061.

The aircraft apron would be expanded approximately to 630,000 ft^2 of new impervious surface in two locations: up to 405,000 ft^2 on the east side of the existing apron and up to 225,000 ft^2 on the west side of the existing apron. For both the EOU and TT-1, a total of 154,000 ft^2 of new impervious surface would be constructed on the south side of B719 and B707 for vehicle parking.

In addition to the renovation of B718, the aircraft apron expansion and the vehicle parking lot, the following facilities would be constructed in the Southside Project Development Area (**Appendix A, Figures 2-4** and **2-5**) under Alternative 1:

- a new six-bay hangar with the AMU in the same location as B726 and the parking lot south of B726, both of which would be demolished;
- a new fuel cell along with a new fuel storage tank and parking space for four fuel trucks;
- 20 sunshades with electricity and airframe tie downs added to existing areas along the ramp;

- a new Logistics Readiness Squadron (LRS) storage facility (10,000 ft^2);
- an aerospace ground equipment (AGE) maintenance operation facility (5,000 ft^2); and
- a new flightline kitchen (3,000 ft^2).

The following projects also would be constructed in the existing munitions area, labeled as the Munitions Project Development Area in **Figure 2-4** in **Appendix A:**

- a new precision-guided missile (PGM) shop with administrative space (8,000 ft^2);
- a multi-cube magazine storage unit (600 ft^2); and
- a Hayman-style igloo (800 ft^2).

This EA does not provide specific locations for projects in the Munitions or Southside project development areas; therefore, the projects are evaluated as potentially occurring at any location within these areas.

2.1.5.2 Alternative 2

Alternative 2 incorporates all the construction activities under Alternative 1 (see **Table 2-4**) with the exception of the new combined squadron operations/AMU facility near B726. Under Alternative 2, the DAF would construct a new combined squadron operations/AMU facility on the north side of the Installation rather than the south side of the runway (**Appendix A**, **Figure 2-5**). B726 and the associated parking lot would not be demolished under this alternative. The total impervious area under Alternative 2 would be 974,400 ft^2 (22.3 acres). Alternative 2 would create an additional 152,000 ft^2 (3.3 acres) of new impervious surface when compared to Alternative 1.

A combined squadron operations/AMU facility on the north side would create approximately 85,000 ft^2 of new impervious surface. A parking lot for privately owned vehicles would be constructed adjacent to the new facility, adding approximately 75,000 ft^2 of new impervious surface for an approximate total of 160,000 ft^2 of impervious surface.

2.2 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. The current B718 occupants would relocate from B718 to B1005, B1057, and B1061. This relocation is independent of the Proposed Action and was previously analyzed and decided in a separate NEPA action. No increase in the operational tempo at W-291, R-2508, and the NTTR would occur, no additional ordnance would be expended, and no additional personnel would be needed at Creech AFB.

While the No Action Alternative would not satisfy the purpose of and need for the Proposed Action, this alternative is retained to provide a comparative baseline against which to analyze the effects of the Proposed Action. The No Action Alternative reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated.

2.3 Alternatives Considered but Eliminated from Detailed Analysis

NEPA (42 USC § 4332(2)(H)) and DoD's NEPA implementing procedures mandate the consideration of reasonable alternatives to the Proposed Action. "Reasonable alternatives" are those that also could be utilized to meet the purpose of and need for the Proposed Action. Selection standards are used to identify alternatives for meeting the purpose of and need for a DAF action.

The DAF developed screening criteria that support the purpose and need for the Proposed Action to establish a means for determining the reasonableness of an alternative to the Proposed Action

and whether an alternative should be carried forward for further analysis in the EA. The following criteria meet the purpose of and need for the Proposed Action and were used to identify reasonable alternatives for analysis in the EA.

1) **Training Mission:** Alternatives must be located near basing for 5th-generation fighter aircraft (F-22A and F-35A) to allow training with these aircraft
2) **Training Airspace:** Alternatives must have adequate training airspace for RPAs.
3) **Training Infrastructure:** Alternatives must have available training infrastructure.
4) **Weather:** Alternatives must have suitable weather conditions.
5) **Capacity:** Alternatives must utilize existing facilities where possible.

The alternatives considered in this EA are alternatives to the location of the Proposed Action. For all alternative locations considered, the Proposed Action would involve the CCA EOU beddown of up to 12 CCA and approximately 155 personnel and the CCA TT-1 beddown of up to 40 aircraft and up to 399 personnel. The following alternative locations were considered:

Alternative A – Creech AFB, Nevada

Alternative B – Tyndall AFB, Florida

Alternative C – Grand Forks AFB, North Dakota

Alternative D – Beale AFB, California

Alternative E – Cannon AFB, New Mexico

Alternative F – Holloman AFB, New Mexico

The screening criteria enumerated above were applied to these location alternatives to determine which installation(s) could meet the purpose of and need for the Proposed Action. **Table 2-5** summarizes the results, with Creech AFB identified as the only feasible location.

Table 2-5 Application of Screening Criteria

Alternative Descriptions	Selection Standards					Meets Need
	Training Mission	Training Airspace	Training Infrastructure	Weather	Capacity	
Alternative A – Creech AFB	Yes	Yes	Yes	Yes	Yes	Yes
Alternative B- Tyndall AFB	Yes	Yes	No	Yes	No	No
Alternative C- Grand Forks AFB	No	No	Yes	Yes	Yes	No
Alternative D – Beale AFB	No	Yes	Yes	Yes	Yes	No
Alternative E – Cannon AFB	No	No	Yes	Yes	No	No
Alternative F- Holloman AFB	No	No	Yes	Yes	No	No

2.4 PERMITS, LICENSES, AND OTHER AUTHORIZATIONS

Table 2-6 lists permits, licenses, and other authorizations potentially required for implementation of the Proposed Action and Alternatives. Regulatory requirements also are outlined for each resource area discussed within **Chapter 3**.

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 2-7 summarizes the potential environmental effects under the Proposed Action and Alternatives, including the No Action Alternative. Drawing from the detailed analysis in **Chapter 3** of this EA, this summary concisely defines the issues and potential environmental effects of each alternative.

Table 2-6 Permits, Licenses, and Other Authorizations

Resource Area(s)	Agency	Requirement
Air Quality	Clark County Department of Environment and Sustainability	Obtain a dust control permit for construction activities that involve • soil-disturbing or construction projects greater than or equal to 0.25 acre, • trenching greater than or equal to 100 lf, or • mechanical demolition of any structure larger than or equal to 1,000 ft^2.
	Clark County Department of Environment and Sustainability	Submit a dust mitigation plan in conformance with Section 94 of the Clark County Air Quality Regulations for construction sites greater than 0.25 acre.
	Clark County Department of Environment and Sustainability	Submit annual emissions inventory reports and adhere to emissions limits and monitoring processes for permitted stationary sources per Creech AFB's Title V permit.
Geology and Soils; Water Resources	US Environmental Protection Agency	Comply with Section 438 of the *Energy Independence and Security Act* to maintain or restore to predevelopment conditions.
Geology and Soils	Clark County Department of Public Works	Obtain a grading/building permit, including grading plan submittal, for surface disturbances involving grading.
Water Resources; Infrastructure, Including Transportation and Utilities	Nevada Department of Environmental Protection	Comply with the conditions in Multi-Sector General Permit (Industrial Stormwater Permit) NVR050000 and National Pollutant Discharge Elimination System Permit GNV00022233 for all discharges.
Biological Resources	US Fish and Wildlife Service	Consult on undertakings with the potential to impact biological resources in accordance with Section 7 of the *Endangered Species Act* (see **Section 3.8.2** of this EA).
Cultural Resources	Nevada State Historic Preservation Office	Consult on undertakings with the potential to impact historic resources in accordance with Section 106 of the *National Historic Preservation Act*.
Infrastructure, Including Transportation and Utilities	Nevada Division of Environmental Protection	Obtain a Construction Stormwater Nevada General Permit, which requires construction of stormwater culverts, open-top flumes, and stormwater management features to control stormwater rate.

Table 2-7 Summary of Environmental Consequences

Resource Area	Alternative 1	Alternative 2	No Action Alternative
Noise	Alternative 1 would result in long-term, minor, adverse effects to the local noise environment and negligible effects to the regional noise environment under the SUAs.	Alternative 2 would result in long-term, minor, adverse effects to the local noise environment and negligible effects to the regional noise environment under the SUAs.	No significant effects to noise.
Airspace	Alternative 1 would result in long-term, minor, adverse effects to the local airspace proposed to be used by CCA (i.e., NTTR, R-2508 complex, W-291, and airspace used to transit to and from SUAs).	Alternative 2 would result in long-term, minor, adverse effects to the local airspace proposed to be used by CCA (i.e., NTTR, R-2508 complex, W-291, and airspace used to transit to and from SUAs).	No significant effects to airspace.
Safety and Occupational Health	Alternative 1 would result in long-term, minor, adverse effects to safety.	Alternative 2 would result in long-term, minor, adverse effects to safety.	No significant effects to ground, explosive, or flight safety.
Air Quality	Alternative 1would result in long-term, minor, adverse effects to air quality.	Alternative 2 would result in long-term, minor, adverse effects to air quality.	No effects would occur to regional air quality.
Biological Resources	Alternative 1 would result in negligible effects to the biological environment at Creech AFB and under the SUAs.	Alternative 2 would result in negligible effects to the biological environment at Creech AFB and under the SUAs.	No significant effects to biological resources.
Water Resources	Alternative 1 would result in long-term, minor, adverse effects to water resources.	Alternative 2 would result in long-term, minor, adverse effects to water resources.	No effects to water resources.
Geology and Soils	Alternative 1 would result in long-term, negligible, adverse effects to soil and topography resources with no effects to geology.	Alternative 2 would result in long-term, negligible, adverse effects to soil and topography resources with no effects to geology.	No effects to geological resources.
Land Use	Alternative 1 would result in negligible effects to the land use.	Alternative 2 would result in negligible effects to land use.	No changes to existing land use.
Cultural Resources	Alternative 1 would result in no adverse effects to cultural resources.	Alternative 2 would result in no adverse effects to cultural resources.	No effects to cultural resources.
Socioeconomics	Alternative 1 would result in long-term, negligible adverse effects to socioeconomics.	Alternative 2 would result in long-term, negligible adverse effects to socioeconomics.	No change to socioeconomic conditions.
Hazardous Materials and Wastes, Toxic Substances, and Contaminated Sites	Alternative 1 would result in long-term, negligible adverse effects to hazardous waste management, asbestos-containing materials, and to contaminated sites.	Alternative 2 would result in long-term, negligible adverse effects to hazardous waste management, asbestos-containing materials, and to contaminated sites.	No effects to hazardous materials and wastes, contaminated sites, and toxic substances.
Infrastructure, Including Transportation and Utilities	Alternative 1 would result in long-term, minor effects to local traffic or utilities.	Alternative 2 would result in long-term, minor effects to local traffic or utilities.	No effects to local traffic or utilities.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 FRAMEWORK FOR ANALYSIS

Based upon the nature of the Proposed Action and the affected environment, both qualitative and quantitative thresholds were used as benchmarks to qualify effects. Further, each resource analysis section (i.e., **Sections 3.4–3.15**) concludes with a cumulative effects analysis considering the effects on the environment that result from the incremental effects of the Proposed Action when added to the effects of other past, present, and reasonably foreseeable actions at Creech AFB.

Table 3-1 briefly describes the proposed or planned projects identified for consideration of potential cumulative effects when combined with the effects of the Proposed Action at Creech AFB and on a regional scale.

3.2 RESOURCES ELIMINATED FROM DETAILED ANALYSIS

The DAF considered but eliminated from further analysis visual resources because facility construction would occur entirely within the Installation and be consistent with existing visual landscapes. Additional aircraft operations would be similar to those currently conducted so there would be no change in visual resources associated with aircraft operations.

3.3 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

Based on the results of internal and external scoping (see **Section 1.4**), Creech AFB determined the resource areas to be carried forward for analysis (**Table 3-2)**. The DAF considered Creech AFB and its environs as the Region of Influence (ROI) for each environmental resource. **Table 3.2** also identifies those resource areas that also would affect the airspace ROI. Biological resources under the SUA are not discussed in detail in this document. Since the tempo of aircraft activity within the NTTR, R-2508 and W-291 is minimal with negligible noise impacts (**Section 3.4**), this document incorporates by reference the affected environment and impact analysis discussion for biological resources under the NTTR, R-2508 and W-291 from the following NEPA documents: *Final Environmental Assessment for Addition of F-35 Joint Strike Fighters, Addition of F-22A Raptors and Contract Adversary Air at Nellis AFB* (for R-2508 and NTTR) and *Draft EIA/OEIS for Hawaii-California Training and Testing* (for W-291) (DAF 2021a, 2024).

None of the construction projects under the Proposed Action or No Action Alternative would occur outside the boundaries of Creech AFB.

Table 3-1 Past, Present, and Reasonably Foreseeable Environmental Actions

Name	Description	Timeframe	Approximate Distance from Creech AFB
Federal Projects			
Creech Installation Development Plan Environmental Assessment	Creech AFB proposes to implement 36 short-term development projects, including demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community facility upgrades, infrastructure improvement, recreational upgrades, natural infrastructure management projects, and strategic sustainability performance projects to be completed or implemented over the next 5 years (FY 2024–2029).	FY 2024–2029	At Creech AFB
BLM Solar Project	BLM has proposed a 5,000-acre solar panel project that would be located approximately 5 miles west of Indian Springs, Nevada. This project would support the generation of 300 megawatts of solar energy and battery storage.	Project initiated 5 June 2023	5 miles
NTTR Airspace Re-Designation	Internal re-partitioning and/or resignation of airspace currently within the NTTR airspace complex.	TBD	At Creech AFB
2024 Final EA for Proposed INRMP Projects at Nellis AFB and NTTR	Describes a series of projects related to natural resources management.	TBD	NTTR
Hawaii-Southern California Training and Testing (HSTT) EIS/Overseas EIS	Described training activities and potential impacts within the W-291 airspace.	2025	Within W-291
Non-Federal Projects			
Interstate 11 Feasibility Study	The Nevada Department of Transportation plans to convert US Highway 95 to an access-controlled Interstate Highway facility. Improvements would result in a freeway bypass around Indian Springs.	TBD	1 mile
Indian Springs Elementary, Middle, and High School	Located within Indian Springs, this project would replace the existing schools on a developed 37.2-acre parcel.	2027/2028 school year	1 mile
High Desert State Prison – Underground Piping Replacement	This is a state-funded project to replace underground heating and chilled water piping, as well as water controls, at the prison.	2023–2025	6 miles
Southern Desert Correctional Center – Improvements	State-funded improvements to the Southern Desert Correctional Center include additional and upgraded perimeter security fencing, electrical service meter upgrades and replacements, generator removal, fiber optic line updates throughout the facility, new cell doors and locks, and new security gates.	2023–2025	7 miles

BLM = Bureau of Land Management; INRMP = Integrated Natural Resources Management Plan; NTTR = Nevada Test and Training Range

Table 3-2 Environmental Resources Analyzed in the Environmental Assessment

Resource	Region of Influence: Creech AFB and Environs	Region of Influence: Special-Use Airspace
Noise	X	X
Airspace	X	X
Safety and Occupational Health	X	X
Air Quality	X	X
Biological Resources	X	N/A
Water Resources	X	N/A
Geology and Soils	X	N/A
Land Use	X	N/A
Cultural Resources	X	N/A
Socioeconomics	X	N/A
Hazardous Materials and Wastes, Toxic Substances, and Contaminated Sites	X	N/A
Infrastructure, Transportation, and Utilities	X	N/A

N/A = not applicable

3.4 NOISE

The ROI for noise includes areas in which CCA operations or activities associated with the Proposed Action (e.g., construction) would be heard. These areas include the vicinity of Creech AFB and areas beneath SUAs proposed to be used by CCA.

3.4.1 Affected Environment

As is normal for military installations with a flying mission, the primary contributor of noise at Creech AFB is aircraft operations. Other noise sources include ground vehicle traffic, day-to-day operations and maintenance activities, and occasional construction activities. Creech AFB supports operations of multiple based RPA flying units as well as transient aircraft, which include fighter, transport, trainer aircraft and rotorcraft. Based RPA are primarily MQ-9 aircraft and include a small number of another RPA aircraft type. Creech AFB supports 39,760 airfield operations annually under baseline conditions (see **Table 3-7** in **Section 3.5.1**). Approximately 15 percent of based RPA sorties occur at least partially in the late-night period between 10:00 p.m. and 7:00 a.m. As shown in **Figure 3-1 (Appendix A)**, noise levels exceeding 65 dB Day-Night Average Sound Level (DNL) do not extend beyond the Creech AFB boundaries under baseline conditions.

Representative noise-sensitive locations near Creech AFB include Indian Springs Schools, Indian Springs Baptist Church, and The Church of Jesus Christ of Latter-day Saints. These locations are indicated in **Figure 3-2 (Appendix A)** as points of interest numbers 1, 2, and 3, respectively. Under baseline conditions, these locations experience less than one event exceeding 50 dB maximum time-weighted sound level (L_{max}) per average daytime hour with windows open and with windows closed. For the purposes of this analysis, it was assumed that structures provide 15 dB outdoor-to-indoor sound attenuation with windows open and 25 dB sound reduction with windows closed. The equivalent continuous sound pressure level ($L_{eq\text{-}SD}$) at Indian Springs Schools is 48.4 dB, which is below the DoD Noise Working Group (DNWG) classroom noise criterion level (DNWG, 2009).

The SUAs proposed for use by CCA under Alternatives 1 and 2 are currently used intensively for a variety of military aircraft test and training activities, and areas beneath the SUAs are exposed to elevated noise levels on a regular basis. Noise generated by military aircraft operations in W-291 does not affect land areas because W-291 is located over the Pacific Ocean.

3.4.2 Environmental Consequences

Noise levels associated with operations in the vicinity of Creech AFB were calculated using the DoD noise modeling program NOISEMAP (version 7.3). NOISEMAP is a suite of several computer programs that were developed by the DAF, which serves as the lead DoD agency for fixed-wing aircraft noise modeling.

The CCA design was not finalized at the time of this analysis, and measured CCA noise levels are not available. Therefore, this analysis uses a surrogate aircraft noise source selected considering known characteristics of the CCA. The selected surrogate aircraft—the T-45 Goshawk—was selected as representative of the expected noise levels resulting from operation of the CCA to minimize understating expected noise values. For a given jet engine category (e.g., turbofan), noise levels are typically positively correlated with engine thrust. The CCA would be equipped with a single turbofan jet engine, characterized as being similar to the FJ44 jet engine. The most powerful variant of the FJ44 engine (FJ44-4A) generates 3,600 pounds-force (lbf) of thrust and is used in a twin-engine configuration on Cessna CJ4 and Pilatus PC-24 aircraft. The T-45 is equipped with a single turbofan engine (designated F405-RR-401) that generates 5,527 lbf of thrust. By using the T-45 Goshawk as the surrogate aircraft, noise levels presented in this EA provide screening level representations of potential noise effects that will identify any potential for exceedances of effects thresholds.

3.4.2.1 Evaluation Criteria

Noise effects are considered in terms of context and intensity. Adverse impacts to the noise environment would occur if the Proposed Action

- increases sound levels to greater than 65 dB DNL at noise-sensitive locations;
- exceeds classroom effects criteria at schools, as indicated by an exterior noise level greater than 60 dB $L_{eq\text{-}SD}$, or
- increases noise levels beneath SUAs relative to baseline conditions by a noticeable amount. For the purposes of this analysis, increases of greater than 1 dB (i.e., a dB change typically only detectable in a laboratory setting) would conservatively be considered potentially noticeable.

3.4.2.2 Alternative 1

As shown in **Table 3-3**, CCA would be expected to be louder than RPAs currently based at Creech AFB but would be less loud than some transient aircraft types when calculated at a distance of 1,000 feet for aircraft operating in common flight configurations. The noise level heard during an overflight depends on several factors that vary between flights (e.g., altitude, horizontal distance, power setting, weather conditions) and L_{max} experienced near Creech AFB would vary from the values listed in **Table 3-3**. The L_{max} values listed are intended to support general comparisons between aircraft in representative flight configurations at a consistent distance.

Table 3-3 Individual Overflight Noise Levels

Configuration	Aircraft	Engine Power	L_{max} (dB)[a]
Takeoff	CCA[b]	100% RPM	97
	Based RPA (e.g., MQ-9)[b]	100% Torque	77
	F-35A (representative transient)	100% ETR	110
	C-5M (representative transient)	95% N1	88
Approach	CCA[b]	86% RPM	82
	Based RPA (e.g., MQ-9)[b]	40% Torque	75
	F-35A (representative transient)	40% ETR	92
	C-5M (representative transient)	65% N1	82

a Stated noise levels are at distance of 1,000 feet, measured under standard acoustic atmospheric conditions (59 degrees Fahrenheit and 70-percent humidity). Because aircraft power setting and altitudes, as well as several other factors, vary, noise levels experienced at Creech AFB would differ from levels listed. The L_{max} values listed are intended to support general comparisons between aircraft.
b CCA and MQ-9 noise levels reflect surrogates chosen to provide conservative estimates of noise levels.
CCA = collaborative combat aircraft; ETR = engine thrust request; N1 = engine speed at location; RPM = revolutions per minute

As shown in **Table 3-4**, CCA EOU and TT-1 units would conduct a combined total of 1,820 sorties annually. Many CCA sorties would include multiple practice approaches to the runway, which are referred to as closed patterns. Each closed pattern involves the aircraft approaching the airfield (counted as one airfield operation) and then immediately departing the airfield to maneuver for another approach (counted as another airfield operation). When arrival, departure, and closed pattern operations are accounted for, there would be a total of 6,754 airfield operations by CCA conducted annually under Alternative 1. The CCA operations would increase total annual operations at Creech AFB by 17 percent from 39,760 to 46,514.

Table 3-4 Creech AFB Flight Operations

Aircraft/Units	Number per Year				
	Sorties	Departures	Arrivals	Closed Pattern Operations	Total Operations
Baseline Conditions					
Currently Based Remotely Piloted Aircraft	2,153	2,153	2,153	34,792	39,098
Ongoing Transient Aircraft Operations	331	331	331	0	662
Baseline Conditions Subtotal	**2,484**	**2,484**	**2,484**	**34,792**	**39,760**
Alternatives 1 and 2					
CCA Experimental Operations Unit	520	520	520	208	1,248
CCA First Test and Training Unit	1,300	1,300	1,300	2,906	5,506
CCA Subtotal (Alternatives 1 and 2)	**1,820**	**1,820**	**1,820**	**3,114**	**6,754**
Total (Baseline and Alternatives)	**4,304**	**4,304**	**4,304**	**37,906**	**46,514**

Source: Creech AFB, 2025

Less than 5 percent of CCA sorties (approximately 90 per year) would occur at least partially during the late-night period between 10:00 p.m. and 7:00 a.m. Under baseline conditions, based RPA conduct 15 percent of sorties (approximately 320 per year) at least partially between 10:00 p.m. and 7:00 a.m. Calculated DNL values reflect a 10 dB penalty for all noise events occurring

between 10:00 p.m. and 7:00 a.m. to account for added intrusiveness of noise during this time period.

CCA static engine runs would be conducted at locations south of the Creech AFB main runway under Alternative 1. Static engine runs, which involve the engine running while the aircraft is stationary, are conducted as part of pre/post-flight system checks and as part of aircraft maintenance procedures.

Under Alternative 1, the 65 dB DNL noise contour would expand beyond the boundaries of Creech AFB but would not include any areas that are noise sensitive (**Appendix A**, **Figure 3-3**). Specifically, noise levels would be between 65 and 70 dB DNL in a total of 106 acres of land that is not noise sensitive (**Table 3-5**). Off-Installation areas that would experience noise levels greater than 65 dB DNL would include areas to the east and to the west of the Creech AFB main runway that are part of NTTR and areas within the US-95 corridor. Noise levels at all noise-sensitive locations (e.g., residences, places of worship, and schools) would remain below 65 dB DNL under Alternative 1. Noise effects associated with proposed CCA operations would be limited to increased potential for annoyance, with noise levels remaining below land use compatibility thresholds.

Table 3-5 Off-Base Acres at 65 dB DNL or Greater

DNL (dB)	Baseline	Alternative 1	Change from Baseline	Alternative 2	Change from Baseline
65–69	0	106	+106	123	+123
70–74	0	0	0	0	0
Totals	**0**	**106**	**+106**	**123**	**+123**

At all three of the representative noise-sensitive locations near Creech AFB, the number of overflight events per average daytime hour exceeding 50 dB L_{max} (i.e., with potential to interfere momentarily with speech) would increase from less than one under baseline conditions to one under Alternative 1 (**Table 3-6**). The increase would occur whether windows are open (assuming

Table 3-6 Potential Speech Interference

Identifier	Location Description	Number of Events Exceeding 50 dB per Average Daytime Hour with Windows Open				
		Baseline	Alternative 1	Change from Baseline	Alternative 2	Change from Baseline
Windows Open						
1	Indian Springs Schools	<<1	1	+1	1	+1
2	Indian Springs Baptist Church	<<1	1	+1	1	+1
3	The Church of Jesus Christ of Latter-day Saints	<<1	1	+1	1	+1
Windows Closed						
1	Indian Springs Schools	<<1	1	+1	1	+1
2	Indian Springs Baptist Church	<<1	1	+1	1	+1
3	The Church of Jesus Christ of Latter-day Saints	<<1	1	+1	1	+1

<< = Substantially less than (for example, "<<1" is a very small number rounding to zero)
+ = Plus

a 15 dB noise reduction provided by the structure) or closed (assuming a 25 dB structural noise reduction). At Indian Springs Schools (point of interest 1; see **Figure 3-3** in **Appendix A**), $L_{eq\text{-}SD}$ would increase by 9.5 dB from 48.4 dB to 57.9 dB, remaining below the DNWG classroom noise criteria level of 60 dB $L_{eq\text{-}SD}$. Noise effects would be limited to an increase in the number of events with potential to interfere with activities (e.g., conversation), and noise level criteria associated with specific land uses (i.e., schools) would not be exceeded.

Operation of construction equipment as part of proposed construction activities under Alternative 1 would generate elevated noise levels in the immediate vicinity of the construction sites. Construction activity would be temporary, lasting only for the duration of the project, and would be expected to be limited to normal working hours (i.e., 7:00 a.m. to 5:00 p.m.). Proposed construction project locations are several hundred feet from residences and other noise-sensitive locations. Given the acoustic context, which includes aircraft noise and noise generated by traffic on US-95, construction noise would not be expected to be audible at most times at noise-sensitive locations.

Noise levels generated by the 1,754 CCA sorties proposed to occur in NTTR would have a negligible effect (less than 0.4 dB DNL) on overall noise levels beneath the SUAs. The NTTR supports approximately 1,230,000 sorties annually (57th Operational Support Squadron, 2024). Proposed CCA sorties under Alternative 1 would increase this baseline operations tempo by 1 percent. Under an extremely unlikely scenario in which 100 percent of CCA sorties were to occur in the NTTR RA with the lowest baseline operations tempo (i.e., R-4807, which supports 18,541 sorties per year under baseline conditions), there would be a 10 percent increase in operations tempo in this SUA. The CCA, which would be powered by an engine similar to engines used in business jets, would be less loud than the fighter aircraft (e.g., F-35A) that are the most common users of NTTR under baseline conditions. The largest expected potential noise level increase (of 0.4 dB DNL) is calculated under an extremely conservative scenario in which CCA generate the same amount of noise energy as the average aircraft user of NTTR and with the assumption that 100 percent of CCA sorties would occur in the NTTR RA with the lowest baseline operations tempo. A change in noise level of 0.4 dB DNL would not be noticeable, and noise effects in NTTR would be negligible. CCA would not operate at supersonic speeds and would therefore not generate sonic booms.

CCA sorties in the R-2508 complex would occur 50 times per year (once per week on average) and CCA operations in W-291 would occur 16 times per year (once per 23 days on average). Occasional use of R-2508 and W-291 by CCA would have no measurable effect on overall noise levels beneath the SUAs. The proposed firing of up to 12 AIM-120 AMRAAMs per year in W-291 would have no measurable effect on overall noise levels beneath the SUA.

In summary, noise levels in the vicinity of Creech AFB would not exceed 65 dB DNL at noise-sensitive locations nor would classroom noise level criteria be exceeded at Indian Springs Schools. Changes in noise levels beneath existing SUAs would be less than 0.4 dB DNL and would not be noticeable. Therefore, implementation of Alternative 1 would result in long-term, minor, and adverse effects related to noise.

3.4.2.3 Alternative 2

Under Alternative 2, CCA static engine run operations would be conducted on aircraft parking aprons located north of the main runway, whereas these engine runs would be conducted south of

the runway under Alternative 1. All other aspects of operations would be the same as Alternative 1, and impacts under Alternative 2 would be the same as those discussed for Alternative 1.

Noise contours calculated to reflect Alternative 2 operational parameters are shown in **Appendix A, Figure 3-4**. Noise levels exceeding 65 dB DNL would affect 123 acres of off-Installation land (see **Table 3-6**). None of the off-Installation land affected by DNL greater than 65 dB under Alternative 2—consisting entirely of NTTR and land within the US-95 corridor—is noise-sensitive. Noise levels would not exceed 65 dB DNL at any noise-sensitive locations under Alternative 2. Noise effects would be long-term, minor and adverse.

The change in the number of events per average daytime hour exceeding 50 dB L_{max} (indicating momentary speech interference) would be the same under Alternative 2 as under Alternative 1, increasing from less than one to one at all of the points of interest studied (**Table 3-6**). These increases would be experienced whether windows are open (assuming a 15 dB structural noise reduction) or closed (assuming a 25 dB reduction). Noise levels at Indian Springs Schools would increase to 57.9 dB (i.e., the same $L_{eq\text{-}SD}$ as would be experienced under Alternative 1) remaining below the DNWG classroom noise level criteria. Construction noise effects would be the same under Alternative 2 as under Alternative 1.

Noise levels beneath SUA would be identical under Alternative 2 to Alternative 1, as CCA operations in SUAs would be the same. Noise effects beneath SUAs would be negligible.

3.4.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. There would be no changes to the noise environment in the ROI beyond baseline conditions.

3.4.2.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would be anticipated to have long-term, negligible, adverse impacts to noise. Noise from construction projects, such as those described in the Creech AFB Installation Development Plan (IDP), would generate localized elevated noise levels that could overlap with noise generated by the Proposed Action. Construction noise would be temporary and generally limited to normal working hours. Cumulative noise effects associated with construction projects would be minimal.

The replacement of the Indian Springs Elementary, Middle, and High School with new structures would be expected to have negligible or minor beneficial effects on noise levels experienced in classrooms because new construction often provides more effective outdoor-to-indoor noise reduction than older buildings. Improved sound attenuation often results from structural elements, such as double-paned windows, that also provide improved thermal insulation. If outdoor-to-indoor noise insulation is higher in the newly constructed schools, then aircraft noise levels experienced in classrooms would be lower, resulting in a minor beneficial effect.

If the Nevada Department of Transportation were to re-route US-95 around Indian Springs, traffic and traffic noise levels would be expected to decrease substantially along the current US-95 corridor adjacent to Indian Springs. Traffic noise levels in northern portions of Indian Springs would be expected to decrease, resulting in minor, beneficial noise effects in those areas.

3.5 AIRSPACE

The airspace resource area refers to the ways in which airspace is designated, used, and administered. In the US, the FAA is responsible for governing and managing navigable airspace in a manner that ensures safety of flight. The FAA has structured the National Airspace System to meet the needs of civilian and military interests including facilitating the operations of RPA. In general, navigable airspace is categorized as Controlled, Special Use, Uncontrolled, and Other depending on (1) the complexity, density, and nature of aircraft operations, (2) the level of safety required, and (3) national and public interest. Airspace is a three-dimensional resource defined by latitude, longitude, and altitude. There are six classes of airspace: A, B, C, D, E (controlled airspace), and G (uncontrolled airspace). **Figure 3-4 (Appendix A)** displays examples of these classifications.

RAs and Warning Areas support activities, such as munitions firing, which could be hazardous to non-participating aircraft. Warning Areas are established over domestic or international waters at least three nautical miles from the coastline. While flight of non-participating aircraft within RAs and Warning Areas is not wholly prohibited, it is subject to restrictions when these areas are active.

MOAs and ATCAAs are established areas for nonhazardous aircraft activities. MOAs are established at altitudes below 18,000 feet above MSL. ATCAAs are established above 18,000 feet MSL and often overlie MOAs. In MOAs, military operations are segregated from non-participating air traffic operating under instrument flight rules (i.e., flight rules applicable when Aircrew visibility minimums may not be met).

The ROI for airspace includes Creech AFB Air Traffic Control (ATC) tower assigned airspace, existing SUAs that would be used as part of the Proposed Action, and airspace that would be used to transit to and from the SUAs.

3.5.1 Affected Environment

This section describes existing conditions in Creech AFB ATC tower assigned airspace, existing SUAs proposed for use as part of the Proposed Action, and airspace used for the transit to SUAs.

3.5.1.1 Creech AFB ATC Tower Assigned Airspace

Under baseline conditions shown in **Table 3-7**, 39,760 airfield operations are conducted at Creech AFB annually. Operations conducted by currently based RPA flying units make up 98 percent of annual operations (39,098 operations), with transient aircraft making up the remaining 2 percent (662 operations) (Creech AFB, 2025).

Table 3-7 Existing Creech AFB Flight Operations

Aircraft/Units	Number per Year				
	Sorties	Departures	Arrivals	Closed Pattern Operations	Total Operations
Baseline Conditions					
Currently Based Remotely Piloted Aircraft	2,153	2,153	2,153	34,792	39,098
Ongoing Transient Aircraft Operations	331	331	331	0	662
Baseline Conditions Total	**2,484**	**2,484**	**2,484**	**34,792**	**39,760**

Flight operations in Creech AFB ATC tower assigned airspace are conducted in accordance with local procedures defined in Creech AFB Instruction 11-250-O, *Flying Operations*. This instruction, which implements Air Force Policy Directive (AFPD) 13-2, *Air Traffic Control, Airspace, Airfield, and Range Management*, and Air Force Instruction (AFI) 13-204v3, *Airfield Operations, Procedures, and Programs*, establishes procedures designed to facilitate simultaneous operations of manned aircraft and RPAs. Creech AFB ATC tower assigned airspace includes Class D airspace as well as portions of RA R-4806W. Class D airspace extends from the surface up to and including 5,700 feet MSL within a five nautical mile radius of Creech AFB, excluding R-4806W. As shown in **Figure 2-1 (Appendix A)**, Creech AFB underlies the southern boundary of R-4806W, and Creech AFB ATC tower assigned airspace extends into designated portions of R-4806W.

RPA operations are approved within Creech AFB Class D airspace if specified conditions are met. RPA operations must be conducted in accordance with applicable FAA-DoD Memorandums of Understanding, FAA-DoD Letters of Agreement or Procedure, Title 14 CFR Part 91, and Creech AFB 11-250. Approval is also conditional based on Creech AFB conducting an annual review of operational procedures (Headquarters Air Combat Command Directorate of Airspace, Ranges and Airfield Operations, 2020).

3.5.1.2 Existing Special-Use Airspace

Existing SUAs that would be used as part of the Proposed Action include the NTTR, the R-2508 airspace complex, and W-291.

The NTTR is scheduled and managed by the Nellis ATC Facility. The operations of RPA currently based at Creech AFB in R-4809, Desert and Reveille MOA/ATCAA, and in Class A airspace assigned and controlled by the Nellis ATC Facility are subject to special provisions identified in an Airspace Access Authorization from the FAA (Headquarters Air Combat Command Directorate of Airspace, Ranges and Airfield Operations, 2021). Procedural requirements stated in the Airspace Access Authorization include a requirement for RPA operations in the NTTR MOAs to be conducted at or above 12,000 feet MSL. While in MOAs, RPAs must also operate in accordance with the Desert/Reveille Safety Case and Mitigation Measures. The Airspace Access Authorization also specifies that RPAs must be above 18,000 feet MSL prior to exiting RAs and ATCAA airspace (such that the transition would be into Class A airspace). Operational characteristics of NTTR SUAs, including airspace floor altitude, airspace ceiling altitude, and baseline sortie counts, are listed in **Table 3-8**. The number of sorties conducted annually in the SUAs ranges from 16,167 per year (in Reveille North/South MOA) to 19,993 per year (in R-4806W).

The R-2508 airspace complex includes airspace used and managed by Naval Air Weapons Station China Lake, the National Training Center at Fort Irwin, and the Air Force Test Center at Edwards AFB (Edwards AFB, 2025). The airspace, which includes RAs, MOAs, and ATCAAs is scheduled by the R-2508 Central Coordinating Facility. R-2508 includes the surface to unlimited altitude. MOA floor altitudes within the complex are either 200 or 2,000 feet AGL extending upwards to 18,000 feet MSL. The ATCAAs span altitudes from 18,000 feet MSL to 60,000 feet MSL. According to the R-2508 User's Handbook, RPA operations in the complex at or above 40,000 feet MSL do not require a chase aircraft, but RPA operations below this altitude require a chase aircraft (R-2508 Complex Control Board, 2025).

W-291 is scheduled by the Navy's Fleet Area Control and Surveillance Facility in San Diego and extends from the ocean surface to 80,000 feet MSL. W-291 primarily supports aviation training and Research, Development, Test and Evaluation conducted by all aircraft in the Navy and Marine Corps inventories including RPAs. Ordnance use is permitted in W-291 (Navy, 2024).

Table 3-8 NTTR Operational Characteristics

Component SUA Name	Floor (feet AGL)	Ceiling (feet above MSL) [a]	Baseline Sorties per Year
Desert MOA	100	18,000	18,848
Reveille North/South MOA	100	18,000	16,167
R-4806E	100	Unlimited	17,053
R-4806W	Surface	Unlimited	19,993
R-4807A	Surface	Unlimited	18,541
R-4807B	Surface	Unlimited	16,139

Source: 57th Operational Support Squadron, 2024
AGL = above ground level (altitude above); MOA = military operations area; MSL = mean sea level (altitude above); SUA = special-use airspace

3.5.1.3 Airspace Used for Transit to SUAs

CCA operations outside of existing SUAs and Creech AFB Class D airspace (e.g., transitions from Creech AFB to the R-2508 complex or W-291) would be conducted through Class A airspace. Class A airspace spans altitudes from 18,000 feet MSL to 60,000 feet MSL. A COA has been granted by the FAA for certain ongoing Creech AFB-based RPA operations under baseline conditions.

Some areas within Class A airspace are used more frequently than other areas. The non-SUA airspace corridor between NTTR and the R-2508 complex, for example, is used regularly by aircraft transiting between Las Vegas and points west of Las Vegas. Military aircraft transiting between NTTR and the R-2508 complex are often routed through the corridor at altitudes between 18,000 and 20,000 feet MSL because this altitude band is less heavily used by civilian air traffic than altitudes above 20,000 feet MSL.

3.5.2 Environmental Consequences

3.5.2.1 Evaluation Criteria

Effects to airspace management and use would be considered significant if any component of the proposed action would not comply with applicable regulations. The number of operations proposed to occur is also considered when assessing the significance of potential airspace management impacts. Large increases in operations tempo could pose challenges to existing scheduling and management processes.

3.5.2.2 Alternative 1

As previously mentioned in **Section 2.1.2**, the Proposed Action would not involve physical changes (e.g., external boundaries, dimensions, altitudes) to any airspace. Changes associated with Alternative 1 would be limited to how existing airspace is used. As the CCA program evolves and matures and it is determined that CCA missions require a new COA, a COA would be requested from the FAA.

Creech AFB ATC Tower Assigned Airspace

Under Alternative 1, the number of airfield operations flown annually at Creech AFB would increase by 6,754 from 39,760 to 46,514. This 17 percent increase would not be expected to exceed the capacity of existing management processes and procedures established to support operations at Creech AFB.

As noted in **Section 3.5.1.1**, RPA operations are conditionally approved in Creech AFB Class D airspace. CCA operations at Creech AFB would generally be expected to operate in a manner similar to currently based RPA.

Existing Special-Use Airspace

As noted previously, no changes to existing SUA are required to support the proposed CCA operations. NTTR airspace is contiguous with Creech AFB ATC tower-controlled airspace, and CCA could transition directly into NTTR SUA from tower-controlled airspace. The Airspace Access Authorization for Airspace Delegated to the Nellis ATC Facility makes specific reference to RPA types currently based at Creech AFB (i.e., MQ-9 and the other based RPA). The Airspace Access Authorization would be revised to include CCA operational requirements prior to initiation of CCA flight operations.

The number of sorties in NTTR airspace would increase by 1,754 under Alternative 1 (**Table 2-1**). There are 122,917 sorties flown in NTTR airspace under baseline conditions (**Table 3-2**). CCA operations would be scheduled through existing processes through the Nellis ATC Facility. The proposed 1 percent increase in sorties flown in NTTR would not be expected to exceed the capacity of existing airspace management processes.

CCA operations in the R-2508 airspace complex and W-291 would be conducted in accordance with applicable airspace-specific regulations and applicable COA(s). CCA operations in these airspace complexes would be scheduled through existing scheduling processes. There would be 50 CCA sorties per year (one per week on average) in the R-2508 complex and 16 CCA sorties per year in W-291 (one per 23 days on average). The relatively small numbers of CCA sorties proposed to be flown annually in these airspaces would not be expected to exceed the capacity of existing airspace scheduling and management processes.

Airspace Used for Transit to SUAs

CCA missions that require the aircraft to depart SUA (e.g., transitions to the R-2508 complex or W-291) would follow operational procedures similar to those used by RPA currently based at Creech AFB. Transitions would be expected to be conducted at between 18,000 feet and 20,000 feet MSL to minimize the potential for interfering with civilian air traffic transiting the non-SUA corridor between NTTR and R-2508.

In summary, CCA operations would be conducted in accordance with applicable laws, regulations, Memorandums of Understanding, and Letters of Agreement or Procedure. In instances where existing authorizations do not cover the proposed CCA operations, DAF would apply for a COA from the FAA. DAF would conduct internal coordination to develop a revised Airspace Access Authorization documenting CCA procedures and/or requirements for airspace access. The proposed CCA beddown would increase the annual airfield operations at Creech AFB by 17 percent and annual sorties in NTTR by one percent. These increases would not be expected to exceed the capacity of existing scheduling and management processes. Implementation of Alternative 1 would result in long-term, minor, adverse effects to airspace management and use.

3.5.2.3 Alternative 2

Under Alternative 2, impacts related to airspace management and use would be the same as those discussed for Alternative 1 with the exception of the location of ground-based aircraft activities at Creech AFB.

3.5.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. There would be no changes to airspace management or use in the ROI beyond baseline conditions.

3.5.2.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would be anticipated to have long-term, negligible, adverse impacts to airspace. Re-designation of airspace within the NTTR is focused on simplifying airspace scheduling and coordination and would be expected to have minor, beneficial effects on airspace management. The changes to NTTR airspace are not required to support the proposed CCA beddown. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, no significant adverse cumulative impacts to airspace would be anticipated to occur with implementation of the Proposed Action.

3.6 Safety and Occupational Health

The ROI for safety is the vicinity of Creech AFB and areas beneath SUAs proposed to be used by CCA.

3.6.1 Affected Environment

3.6.1.1 Ground Safety

The primary federal statute addressing occupational hazards is the *Occupational Safety and Health Act* (29 USC §§ 651–678). Ground safety considers issues associated with ground construction, operations, and maintenance activities that support unit operations including arresting gear capability, jet blast/maintenance testing, and safety danger. Aircraft maintenance testing occurs in designated safety zones. Ground safety also considers the safety of personnel and facilities on the ground that may be placed at risk from flight operations in the vicinity of the airfield. Clear zones (CZs) and accident potential zones (APZs) around the airfield restrict the public's exposure to areas where there is higher accident potential. Although ground and flight safety are addressed separately, in the immediate vicinity of the runway, risks associated with safety-of-flight issues are interrelated with ground safety concerns.

Creech AFB would adhere to DAF safety procedures and aircraft-specific emergency procedures produced by the original equipment manufacturer. In accordance with AFI 91-202, all construction contractors at Creech AFB must follow safety regulations and worker's compensation programs to avoid posing any risks to workers or personnel on or off the Installation. Construction contractors are responsible for reviewing potentially hazardous workplace operations, and monitoring exposure to workplace chemicals (e.g., asbestos, lead, hazardous materials), physical hazards (e.g., noise propagation, slips, trips, falls), and biological agents (e.g., infectious waste, wildlife, poisonous plants). Construction contractors are also required to recommend and evaluate controls (e.g., preventative, administrative, engineering) to ensure that personnel are properly

protected and to implement a medical surveillance program to perform occupational health physicals for those workers subject to any accidental chemical exposures.

3.6.1.2 Flight Safety

Flight safety considers aircraft flight risks such as midair collision, bird/wildlife aircraft strike hazard (BASH), and in-flight emergency. The primary safety concern for military aircraft activity is the potential for aircraft accidents. Research into accident potential conducted by the DAF found that most aircraft accidents occurred during takeoff or landing and were clustered along the runway and its extended centerline. This resulted in the designation of safety zones around airfields, and the restriction of incompatible land uses to reduce the public's exposure to safety hazards. CZs and APZs are designated rectangular safety zones extending outward from the ends of active military airfields that delineate areas recognized as having the greatest risk of aircraft accidents. APZs are further defined as APZ I, APZ II, and APZ III depending on their level of accident potential with APZ III being the least restrictive.

Within the Installation, CZs flank the western and eastern portions of Runway 08/26, followed by APZ I. APZ II for Runway 08/26 extends beyond the boundaries of Creech AFB. Additional CZs are associated with Runway 13/31, which is oriented southeast to northwest, perpendicular to Runway 08/26. The northern CZ of Runway 13/31 extends beyond the Installation boundary, while its southern CZ ends at US-95 before extending to APZ I (**Appendix A, Figure 3-5**).

Creech AFB implements a BASH program to support the avoidance of potential aircraft collisions with birds and wildlife while maintaining mission capability. Migratory birds and raptors can present serious strike hazards to aircraft when they cross into the flight path. Other wildlife, such as deer and coyotes also pose a strike risk for landing aircraft when crossing onto the runway (DAF, 2023b). The Creech AFB Natural Resources Program and 432nd Wing Flight Safety cooperate to conduct avian point-count surveys around the flightline and apply for state and federal depredation permits. Bird surveys are conducted to quantify seasonal trends in bird density and abundance in areas in and next to the flight path. The Creech AFB Natural Resources Program also traps small mammals around the flight lines to reduce the amount of prey for raptors and coyotes that could create BASH problems. Creech AFB also has a Bird Hazard Working Group to discuss BASH issues and review the BASH program (DAF, 2023b).

Small mammals are discouraged from using areas around the airfield through habitat management. This includes removal of vegetation and soil stabilization with chemical solutions to ensure that there is no suitable habitat for prey that would attract BASH predators. Creech AFB maintains an internal DAF waiver of AFI 91-202 grass height standards, allowing the total removal of vegetation as a best practice for wildlife mitigation in desert environments. Additionally, drainage channels are in place to avoid water ponding, and vegetation is regularly removed from the channels to prevent birds from taking up residence (DAF, 2023b).

3.6.1.3 Explosives Safety

Explosives safety relates to the management and safe use of ordnance and munitions. Defense Explosives Safety Regulation 6055.09 DAFMAN 91-201, *Explosives Safety Standards,* establishes the size of the clearance zone around facilities used to store, handle, and maintain munitions based on the quantity-distance criteria. Defined distances are maintained between munitions storage areas and a variety of other types of facilities. These distances, called explosives safety quantity-distance (ESQD) arcs, are associated with munitions storage and hot cargo pads, the CZs associated with the runway, and the noise zones associated with airfield operations. Within

these ESQD arcs, development is either restricted or prohibited (DAF, 2015). The ESQD arcs within Creech AFB are located centrally in the airfield and in the northwestern portion of the Installation surrounding the Munitions Storage Area (**Appendix A, Figure 3-5**).

3.6.2 Environmental Consequences

3.6.2.1 Evaluation Criteria

Safety-related impacts from a proposed action are assessed according to the potential to increase or decrease safety risks to personnel, the public, property, or the environment. Adverse impacts related to safety would occur if the Proposed Action resulted in DAF and/or Occupational Safety and Health Administration criteria being exceeded or the improper implementation of established or proposed safety measures, creating unacceptable safety risk to personnel. Adverse impacts would occur if the Proposed Action

- substantially increases risks associated with the safety of construction personnel, contractors, military personnel, or the local community;
- substantially hinders the ability to respond to an emergency; or
- introduces a new health or safety risk for which Creech AFB is not prepared or does not have adequate management and response plans in place.

3.6.2.2 Alternative 1

Ground Safety

Alternative 1 would involve construction activities, which could expose personnel to risks from heavy equipment operation, hazardous materials (HAZMAT), and potentially noisy and confined environments. To minimize health and safety risks, contractors would be required to maintain site-specific health and safety programs that follow all applicable regulations. Creech AFB personnel would review these programs prior to beginning work to ensure that contractors take appropriate measures to reduce potential health and safety risks. In addition, the overall water use associated with the Proposed Action would be minimal and would not impact Creech AFB's fire response capability. Therefore, implementation of Alternative 1 would result in negligible, temporary, adverse impacts to ground safety.

Flight Safety

No changes to existing APZs or CZs would be required with implementation of Alternative 1. Under Alternative 1, the number of airfield operations flown annually at Creech AFB would increase by 6,754 from 39,760 to 46,514. This 17 percent increase would not be expected to exceed the capacity of existing management processes and procedures established to support operations at Creech AFB. The accident rate for the CCA is not yet known at the time of this analysis but is expected to be similar to that of the MQ-9 (4.4 per 100,000 sorties over the period FY 2016–2021). Creech AFB would continue to work with communities and developers to apply the Air Installations Compatible Use Zones guidelines.

Bird aircraft strikes constitute a safety concern because they can result in damage to aircraft or injury to aircrews or local populations if an aircraft crashes. Since most birds fly closer to the ground, over 98 percent of reported bird strikes occur below 5,000 ft AGL (AFSEC 2018a). Approximately 49 percent of bird strikes happen in the airport environment (climb-out, traffic pattern, approach, and landing), and about 42 percent occur during low-altitude flight training (AFSEC 2018b). The increase in airfield operations that would result from implementation of

Alternative 1 would negligibly increase the risk of bird/wildlife aircraft strikes at Creech AFB and within the associated airspace. The BASH plan would remain in place and the BASH program would continue to be followed to reduce these risks.

The majority of flight operations for the CCA would be conducted over remote areas; however, in the unlikely event that an aircraft accident occurred, existing response, investigation, and follow-on procedures would be enforced to ensure the health and safety of underlying populations and lands. Implementation of flight safety procedures and compliance with all flight safety requirements would minimize the chances for aircraft mishaps.

Fire risk associated with flares stems from an unlikely, but possible, scenario of a flare reaching the ground or vegetation while still burning. If a flare struck the ground while still burning, it could ignite surface material and cause a fire. The approved altitude from which flares are dropped ranges from 2,000 to 5,000 feet above ground level depending on the MOA and is regulated by the Airspace Manager based on a number of factors including flare burnout rate. Defensive flares typically burn out in 3.5 to 5 seconds, during which time the flare would fall between 200 and 400 feet.

Flare and ordnance deployment in authorized ranges and airspace is governed by a series of regulations based on safety and environmental considerations and limitations. These regulations establish procedures regulating the use of flares over ranges, other government-owned and -controlled lands, and non-government-owned or -controlled areas. Pilots would only use flares in compliance with existing airspace altitude and seasonal restrictions to ensure fire safety. Therefore, implementation of Alternative 1 would result in no impacts to flight safety.

Explosives Safety

Under Alternative 1, a PGM shop multi-cube, a magazine storage, and Hayman igloo would be constructed/installed within the munitions storage development area. All of these projects fall under munitions storage which is considered a permitted use in their proposed locations. Existing ESQD arcs at Creech AFB would not be impacted with implementation of the Alternative 1. Therefore, implementation of Alternative 1 would result in no impacts to explosives safety.

3.6.2.3 Alternative 2

Under Alternative 2, impacts to safety and occupational health would be the same as those discussed for Alternative 1.

3.6.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. There would be no changes to safety in the ROI beyond baseline conditions.

3.6.2.5 Cumulative Effects

When combined with the projects identified in **Table 3-1**, implementation of the Proposed Action would have negligible, temporary, adverse impacts on ground safety; minor, long-term, impacts to explosives safety; and negligible impacts to flight and BASH safety. Under the IDP EA, Creech AFB proposes to implement 36 short-term development projects, including demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community facility upgrades, and infrastructure improvement. These projects would overlap the proposed construction under Alternatives 1 and 2. When considered in conjunction

with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, no significant adverse cumulative impacts to safety and occupational health would be anticipated to occur with implementation of the Proposed Action.

3.7 AIR QUALITY

3.7.1 Affected Environment

To improve air quality and reduce air pollution, Congress passed the *Clean Air Act* (42 USC § 7401 et seq.) (CAA) and its amendments in 1970 and 1990, which set regulatory limits on air pollutants and helped to ensure basic health and environmental protection from air pollution. Under the CAA, the US Environmental Protection Agency (USEPA) has divided the country into geographical regions known as air quality control regions to evaluate compliance with the National Ambient Air Quality Standards (NAAQS). Creech AFB is located in Clark County, Nevada, which is in the Las Vegas Intrastate Air Quality Control Region (LVIAQCR) (40 CFR § 81.80).

The LVIAQCR maintains the following designations for NAAQS (see 40 CFR § 81.329): nonattainment for the 2015 ozone NAAQS (as of 5 January 2023) for the portion of Clark County that lies within Hydrographic Area 212; maintenance/attainment for carbon monoxide and particulate matter less than or equal to 10 microns in diameter (PM_{10}) for the portion of Clark County that lies within Hydrographic Area 212; and unclassifiable/attainment for lead, nitrogen dioxide, sulfur dioxide, and particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$). Creech AFB is outside of Hydrographic Area 212 and, therefore, is designated as unclassifiable/attainment for all NAAQS.

Although the flight paths associated with the Proposed Action extend well beyond the boundaries of LVIAQCR, only the portion of the flight that falls within the "mixing zone" is quantified and measured against significance factors. The mixing zone is generally considered to be the area below 3,000 feet AGL. All of the sorties that extend outside of the LVIAQCR consist of high altitude flights well above the mixing zone. Therefore, the geographic regions where airspace is located are not included in this assessment. All quantifiable emissions associated with the proposed action are associated with takeoff and landing and occur in the area immediately adjacent to Creech. The ROI for this action is limited to the portion of the LVIAQCR that lies outside of Hydrographic Area 212.

3.7.1.1 Air Emission Sources at Creech AFB

Creech AFB is a major stationary source for nitrogen oxides and a minor source for PM_{10}, $PM_{2.5}$, carbon monoxide, sulfur dioxide, volatile organic compound, and hazardous air pollutants. Creech AFB is not a categorical stationary source and operates under a Part 70 Operating Permit issued by Clark County under authority delegated by the State of Nevada and the USEPA. **Table 3-9** summarizes the source of potential emissions for each regulated air pollutant for all emission units addressed by the Part 70 Operating Permit.

Table 3-9 Creech AFB Potential to Emit

Emission Source	PM_{10}	$PM_{2.5}$	NO_X	CO	SO_2	VOC	HAPs	H25	Pb
Storage Tanks	0	0	0	0	0	13.60	1.76	0	0
External Combustion Units	1.47	1.47	25.71	15.52	0.14	2.06	0.14	0	0
Internal Combustion Units	8.93	8.93	181.01	33.74	0.81	13.03	0.65	0	0
Mineral Processing	9.81	1.54	0	0	0	0	0	0	0
Surface Coating	0	0	0	0	0	6.60	4.62	0	0
Misc. Chemical Usage	0	0	0	0	0	5.00	2.50	0	0
Total	**20.21**	**11.94**	**206.72**	**49.26**	**0.95**	**40.29**	**9.67**	**0**	**0**

CO = carbon monoxide; HAP = hazardous air pollutant; NOx = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_2 = sulfur oxides; VOC = volatile organic compound

3.7.1.2 Regional Climate

The regional climate of the Creech AFB area is semiarid desert with mild winters, hot summers, and low precipitation. The climate at Creech AFB is characterized by warm-to-hot spring, summer, and early fall temperatures (National Oceanic and Atmospheric Administration [NOAA], 2024). July is the hottest month, with an average daily high temperature of 104.9 degrees Fahrenheit (°F) and an average low temperature of 77.9°F. Average temperatures in spring, summer, and fall are 66.3°F (April), 91.4°F (July), and 69.5°F (October), respectively. Winter temperatures tend to be mild; December is the coolest month of the year, with an average daily high temperature of 58.5°F and an average low temperature of 36.8°F (NOAA, 2024).

Precipitation in the Creech AFB area occurs almost entirely in the form of rain. Creech AFB normally receives about 4.72 inches of precipitation annually, and extended periods of drought have been recorded (NOAA, 2024). Precipitation typically has seasonal peaks in winter and summer. Winter rains occur primarily in December, January, and February with an annual average of 0.58, 0.55 and 0.79 inches, respectively. Winter rains originate from frontal systems that begin in the Pacific Ocean and move eastward across Nevada. Summer rains result from moisture moving into Nevada from Mexico, the Gulf of Mexico, and/or the Gulf of California. Summer rains or monsoons tend to be highly localized and result in brief, torrential downpours often accompanied by high winds and lightning, causing flooding and flows in otherwise dry stream channels.

3.7.2 Environmental Consequences

3.7.2.1 Evaluation Criteria and Methodology

The environmental impact methodology for air quality impacts presented in this EA is derived from DAFMAN 32-7002, *Environmental Compliance and Pollution Prevention* (June 2025). The Proposed Action is broken down into basic units. For example, a basic development project that consists of replacing a building with a new building could be broken down into demolition (square

feet [ft^2]), grading (ft^2), building construction (ft^2 and height), architectural coatings (ft^2), and paving (ft^2). These data are then input into the Air Force's Air Conformity Applicability Model (ACAM), which models emissions based on the inputs and estimates air emissions for each specific criteria and precursor pollutant, as defined in the NAAQS. ACAM is also used to model estimated emissions that would result from the addition of personnel to the Base in support of the proposed action. The model calculates emissions associated with automotive transport based on the average length of commute. The default commute used by the model is 20 minutes, however, because Creech does not have a large municipality adjacent to it, a commute time of 45 minutes was used to simulate a commute from Las Vegas.

The CCA design is not finalized at the time of this analysis and measured CCA air emissions are not available. The selected surrogate aircraft—the T-45 Goshawk—was selected as representative of the expected emissions resulting from operation of the CCA to minimize understating expected air quality emissions. Emissions associated with flight operations are also calculated using ACAM to calculate emissions that occur within the mixing zone, an area generally defined as airspace below 3,000 ft AGL. For Alternative 1, takeoff, landing, and low-altitude flights were modeled.

The emissions calculated by ACAM are then compared against the applicable threshold based on the attainment status of the ROI. If the annual net increase in emissions from the project are below the applicable thresholds, then Alternatives 1 and 2 are not considered significant and would not be subject to any further conformity determination. Assumptions of the model, methods, and detailed summary results are provided in **Appendix C** of this EA.

The LVIAQCR is in attainment for all NAAQS for the ROI, which includes the portion of Clark County that lies outside of Hydrographic Area 212. Due to the attainment status; the 250 tons per year (tpy) Prevention of Significant Deterioration (PSD) value is used for volatile organic compounds, nitrogen oxides, carbon monoxide, ammonia, $PM_{2.5}$, and PM_{10}. Additionally, due to the toxicity of lead, the use of the lead PSD threshold as an indicator of potential air quality impact insignificance is not protective of human health or the environment. Therefore, the *de minimis* value of 25 tpy is used instead. The Air Force has adopted a PSD value of 75,000 tpy (68,039 metric tons per year) for CO_2e. The following thresholds are applicable for the Proposed Action:

- 250 tpy PSD value for volatile organic compounds, nitrogen oxides, carbon monoxide, ammonia, $PM_{2.5}$, and PM_{10}
- 25 tpy *de minimis* value for lead
- 75,000 tpy PSD value for CO_2e

Assumptions

For the purpose of the ACAM analysis, the demolition, construction, and grading activities are assumed to occur over a two-year period starting January 2027. The area of grading is estimated to be 20 percent greater than the combined area of demolition and construction activities.

3.7.2.2 Alternative 1

Table 3-10 summarizes the results of the ACAM analysis annualized over the course of implementation of Alternative 1 within the LVIAQCR.

Table 3-10 Annual Air Emissions, LVIAQCR – Alternative 1

Pollutant	2027	2028	2029	2030 (steady-state)
Volatile organic compound	0.598	11.374	8.863	8.863
Nitrogen oxides	5.181	15.490	12.433	12.433
Carbon monoxide	6.010	47.579	59.110	59.110
Sulfur oxides	0.014	1.734	1.738	1.738
PM_{10}	120.421	85.925	9.393	9.393
$PM_{2.5}$	0.195	9.473	9.387	9.387
Lead	0.000	0.000	0.000	0.000
Ammonia	0.003	0.053	0.176	0.176
Carbon dioxide-equivalent	1,467	7,066	8,096	8,096

LVIAQCR = Las Vegas Intrastate Air Quality Control Region; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter

Table 3-11 summarizes the highest annual ACAM emissions for each pollutant compared to their respective thresholds for Alternative 1 within the LVIAQCR. Emissions sources under Alternative 1 include grading, construction, paving, increased building heating, emissions associated with personnel commutes, and emissions associated with flight operations.

Table 3-11 Highest Annual Air Emissions and Indicators/Thresholds, LVIAQCR – Alternative 1

Pollutant	Highest Annual Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	11.374	250	No
Nitrogen oxides	15.490	250	No
Carbon monoxide	59.11	250	No
Sulfur oxides	1.738	250	No
PM_{10}	120.421	250	No
$PM_{2.5}$	9.473	250	No
Lead	0.000	25	No
Ammonia	0.176	250	No
Carbon dioxide-equivalent	8,096	75,000	No

LVIAQCR = Las Vegas Intrastate Air Quality Control Region; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter

During the first year of the project (2027), most emissions are attributed to construction activities and consist mainly of particulate matter associated with ground-disturbing activities. As the project proceeds, emissions associated with flight operations and personnel are introduced. The highest emissions are calculated in 2028, this is when flight operations, personnel commutes, and construction activities all overlap. The model demonstrates an increase in combustion-related emissions along with still elevated particulate matter emissions. By 2029, construction activities have been completed; this is reflected in the drop off in particulate matter emissions. Emissions calculated for the year 2030 represent "steady-state" conditions. These are the emissions that are expected to occur annually for the life of the action. For this project, it is assumed that personnel levels would stay consistent and that flight operations would remain unchanged indefinitely.

Emissions associated with Alternative 1 are anticipated to be minimal. During the year with the highest annual emissions (2028), ACAM demonstrates that emissions would be at least an order of magnitude lower than the proposed thresholds for all constituents. Steady-state emissions for 2030 are demonstrably lower than those calculated for 2028 and as such are also lower than the proposed thresholds. Overall, implementation of Alternative 1 would result in short-term, minor, adverse impact to air quality.

3.7.2.3 Alternative 2

Emissions sources under Alternative 2 are very similar to those identified under Alternative 1. Alternative 2 includes slightly more paving, slightly less grading, and does not include any demolition. Also, Alternative 2 includes approximately 172,000 less ft^2 of construction than Alternative 1. The differences between the alternatives account for a relatively small difference in the calculated emissions associated with Alternative 2 as compared with emissions associated with Alternative 1. While the results presented in **Tables 3-12** and **3-13** demonstrate that emissions associated with Alternative 2 would be slightly lower than those associated with Alternative 1, the difference is insignificant and would occur predominantly during the construction phase.

Table 3-12 Annual Air Emissions, LVIAQCR – Alternative 2

Pollutant	2027	2028	2029	2030 (steady-state)
Volatile organic compound	0.568	9.349	8.826	8.826
Nitrogen oxides	4.824	14.946	11.760	11.760
Carbon monoxide	5.610	47.110	58.544	58.544
Sulfur oxides	0.012	1.731	1.734	1.734
PM_{10}	112.431	80.874	9.342	9.342
$PM_{2.5}$	0.179	9.436	9.336	9.336
Lead	0.000	0.000	0.000	0.000
Ammonia	0.003	0.053	0.176	0.176
Carbon dioxide-equivalent	1,225	6,545	7,362	7,362

LVIAQCR = Las Vegas Intrastate Air Quality Control Region; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter

Table 3-13 Highest Annual Air Emissions and Indicators/Thresholds, LVIAQCR – Alternative 2

Pollutant	Highest Annual Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	9.349	250	No
Nitrogen oxides	14.946	250	No
Carbon monoxide	58.544	250	No
Sulfur oxides	1.734	250	No
PM_{10}	112.431	250	No
$PM_{2.5}$	9.436	250	No
Lead	0.000	25	No
Ammonia	0.176	250	No
Carbon dioxide-equivalent	7,362	75,000	No

LVIAQCR = Las Vegas Intrastate Air Quality Control Region; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter

Calculated steady-state emissions under Alternative 2 are nearly identical to those under Alternative 1, with a small difference attributed to less heating demand associated with the smaller construction area.

Overall, implementation of Alternative 2 would result in short-term, minor, adverse impacts to air quality.

3.7.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB, and fugitive dust emissions would not occur from construction, demolition, and renovation of facilities. There would be no changes to air quality in the ROI beyond baseline conditions.

3.7.2.1 Cumulative Effects

When combined with the actions identified in **Table 3-1**, implementation of the Proposed Action would be anticipated to have short-term, negligible-to-minor, adverse impacts to air quality. The Bureau of Land Management (BLM) solar project, I-11 feasibility study, Creech IDP, Indian Springs Schools project, the High Desert State Prison project, and the Southern Desert Correctional Center project would all involve short-term construction and the use of earth-moving equipment. When considered in conjunction with the effects of other past, present, and reasonably foreseeable future actions at Creech AFB, no significant cumulative effects to air quality would be anticipated to occur with implementation of the Proposed Action.

3.8 BIOLOGICAL RESOURCES

The ROI for biological resources is the vicinity of Creech AFB and areas beneath SUAs proposed to be used by CCA. Since CCA sorties in the SUAs would have no measurable effect on overall noise levels beneath the SUA (see **Section 3.4.2**), biological resources under airspace are not carried forward for analysis.

3.8.1 Affected Environment

3.8.1.1 Vegetation

As described in the 2020 *Integrated Natural Resources Management Plan: Nellis Air Force Base, Creech Air Force Base, Nevada Test and Training Range* (DAF, 2020), Creech AFB is in the northeastern portion of the Mojave Desert within the Mojave biogeographic province, a dry environment that receives approximately 4 inches of precipitation per year. Most of the land area on Creech AFB has been developed for Installation and airfield infrastructure or has been graded to remove vegetation as part of BASH management efforts. No detailed vegetation inventory or mapping has been conducted due to the sparseness of the plants that remain. In 2023, Creech AFB prepared the *Integrated Natural Resources Management Plan (Regulatory Draft)* (DAF, 2023b), which describes the three most prevalent key habitats found on Creech AFB as the Desert Playas and Ephemeral Pools Habitat (approximately 965 acres), the Intermountain Cold Desert Scrub Habitat (approximately 235 acres), and the Mojave Warm Desert and Mixed Desert Scrub Habitat (approximately 1,209 acres).

The remaining native vegetation and historical vegetation on Creech AFB are influenced by its location on the north edge of a bajada (an alluvial area at the foot of a mountainous area) that extends north from the Spring Mountains to a broad area of ephemeral desert washes that drain a playa on the NTTR-South Range from the north. Vegetation on bajadas in the Mojave Desert is

characterized by an open shrub layer primarily made up of creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*).

If there is an herbaceous layer present within the ROI, it is usually sparse and often includes desert trumpet (*Eriogonum inflatum*), California croton (*Croton californicus*), and big galleta (*Pleuraphis rigida*) (DAF, 2022b). Vegetation on the northern part of Creech AFB can be inferred from recent vegetation classification surveys of the NTTR-South Range. Creosote bush and white bursage remain common species but areas of bare soil occur more frequently. The northwest corner of Creech AFB is the only remaining area that has been minimally disturbed by previous development and operations (DAF, 2020, 2023b).

The climate of Creech AFB supports various drought-tolerant trees and shrubs, perennial species, and grasses that grow in the improved, irrigated areas of the Installation. Improved ground areas include turf grasses and ornamental landscaping that must be maintained regularly. However, over the last several years, Creech AFB has moved toward xeriscaping, a landscaping style that uses native species adapted to the desert climate and reduces the need for irrigation water and ongoing maintenance. Desert adapted species that require little water can now be found in landscaped areas across the Installation (DAF, 2023b; National Geographic, 2023; Southern Nevada Water Authority & Southern Nevada Regional Planning Coalition, 2021).

3.8.1.2 Wildlife

Creech AFB is mostly developed and contains limited wildlife habitat; the abundance of wildlife within the ROI is low and lacks diversity. The portions of the NTTR-South Range that surround Creech AFB to the north and east may contain habitat for species that could move between the Range and the Installation, especially birds or other winged species (DAF, 2023b).

Small, terrestrial mammal species are common on Creech AFB and provide food for various predators, enabling seed dispersal and germination, mixing and aerating soils, and enhancing nutrient cycles. Small mammals known to occur in the ROI based on trap surveys include Merriam's kangaroo rat (*Dipodomys merriami*), the chisel-toothed kangaroo rat (*Dipodomys microps*), desert woodrat (*Neotoma lepida*), brush mouse (*Peromyscus boylii*), and white-tailed antelope ground squirrel (*Ammospermophilus leucurus*) (DAF 2020, 2023b; Center for Environmental Management Military Lands, 2021).

Reptiles present on Creech AFB include the Great Basin whiptail (*Aspidoscelis tigris tigris*), zebra-tailed lizard (*Callisaurus draconoides*), yellow-backed spiny lizard (*Sceloporus uniformis*), and side-blotched lizard (*Uta stansburiana*). One amphibian, the red-spotted toad (*Anaxyrus punctatus*), also has a probable presence within the Installation (DAF, 2020, 2023b).

Eleven bat species were detected on Creech AFB in 2016 and 2017 with acoustical monitors. None of the bats detected are federally listed but seven are designated by the Nevada Department of Wildlife (NDOW) as Species of Greatest Conservation Need (SGCN) (DAF, 2023b). Other than man-made structures, Creech AFB lacks roosting sites for bats. These species are likely using the area for foraging and roosting in areas such as the adjacent community of Indian Springs to the south or surrounding mountainous areas.

Due to its small size, a perimeter fence that keeps wildlife from most of the Installation, and limited availability of suitable wildlife habitat, Creech AFB does not require an extensive fish and wildlife management program. Combined with the lack of water resources and the resulting lack of fish species, amphibians, and waterfowl, most of the fish and wildlife management on the Installation

is focused on conservation efforts or reducing BASH risks from small mammals and avian species (DAF, 2023b).

3.8.1.3 Threatened, Endangered, and Other Protected Species

Threatened or Endangered Species

The only federally designated species known to occur on Creech AFB is the Mojave Desert tortoise (desert tortoise) (*Gopherus agassizii*). The Mojave population of the desert tortoise was listed as threatened under the ESA in 1990. No critical habitat for the desert tortoise exists within the ROI (DAF, 2023b).The desert tortoise is also protected by the state of Nevada because its populations are declining due to fragmentation and loss of habitat as well as disease and human activity.

The desert tortoise is found in arid and semiarid desert environments. It utilizes a variety of habitats, including desert flats and slopes dominated by creosote scrub at lower elevations and black brush zones at mid-elevations. The species requires soils that are conducive to burrow digging, but firm enough to prevent the burrows from collapsing. It also uses rocky habitats such exposed caliche layers in washes. Washes and draws that channel rainwater often contain preferred food plants. Desert tortoises are considered a keystone species because the burrows they create are used as shelter by many other Mojave Desert species; their digging also supports nutrient cycling in desert soils (DAF, 2023b).

The Desert National Wildlife Refuge abuts Creech AFB's northern boundary (see **Figure 1-1** in **Appendix A**). This is the largest wildlife refuge in the contiguous US of which the desert tortoise is a resident species. Located north, west, and east of the Installation, the desert tortoise is primarily observed on the NTTR-South Range and has occasionally burrowed under the Creech AFB perimeter fence designed to keep it out. However, there have been no observations of a breeding population located on Creech AFB (DAF, 2023b).

Two federally designated avian species, the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and the threatened yellow-billed cuckoo (*Coccyzus americanus)* are known to occur in Nevada. In the western US, both species use habitat with dense cover and nearby water sources, including wooded areas with low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes (USFWS 2014, 2025). No habitat for either bird, critical or otherwise, exists in the ROI, and there are no records of their occurrence on the Installation (DAF 2023b; Creech AFB, 2023).

The Monarch butterfly (*Danaus plexippus*) is a candidate species for protection under the ESA. The Monarch butterfly migrates seasonally in the spring and fall through Nevada, which is part of the butterfly's summer breeding area. Milkweeds (*Asclepias* spp.) are crucial to their breeding process as are the presence of nectar-producing plants (87 FR 26169, 3 May 2022). Due to the lack of water resources and scarce vegetation across Creech AFB, suitable habitat for this species does not exist in the ROI (DAF, 2023b).

Migratory Birds

Migratory and neotropical bird surveys were conducted on Creech AFB in 2018 and 2019. In 2018, 68 individuals of 14 different species were detected, while in 2019, 31 individuals of 8 different species were detected (DAF, 2023b). The previously noted lack of abundance and diversity of wildlife in the ROI extends to avian species as well due to poor-quality habitat and a lack of bird attractants. Neither survey detected avian species with a special-status designation. Two species designated as SGCN, the phainopepla (*Phainopepla nitens*) and the loggerhead shrike (*Lanius*

ludovicianus), are also confirmed to occur on Creech AFB. The loggerhead shrike is also listed as a Nevada sensitive bird (DAF, 2023b). In coordination with the NDOW and USFWS, Creech AFB manages any bird species that may occur near or on the airfield under a BASH program to maintain aviation safety (see **Section 3.6.1.2**).

Species of High Priority

The DAF is required to protect and manage state-listed species when consistent with the mission, in accordance with Section 3.38.1, *Federally Listed Species*, of DAFMAN 32-7003, *Environmental Conservation*. Nevada has four levels of state protection for wildlife under the Nevada Administrative Code, Chapter 503: state protected, sensitive, threatened, and endangered. In 2022, NDOW published the most recent Nevada State Wildlife Action Plan, a management plan that classifies some species as SGCN. This classification is meant to inform management actions for species that are in need, but it does not provide any state or federal protection (DAF, 2023b). **Table 3-14** presents all Nevada state-listed species that are confirmed to have or have a probable presence on Creech AFB.

Table 3-14 Species of High Priority on Creech AFB

Common Name	Scientific Name	State Status	Presence on Creech AFB
Birds			
Loggerhead shrike	*Lanius ludovicianus*	SGCN, SB	Confirmed
Phainopepla	*Phainopepla nitens*	SGCN	Confirmed
Reptiles			
Western banded gecko	*Coleonyx variegatus*	SGCN	Confirmed
Great Basin collared lizard	*Crotaphytus bicinctores*	SGCN	Confirmed
Long-nosed leopard lizard	*Gambelia wislizenii*	SGCN	Confirmed
Desert tortoise	*Gopherus agassizii*	SGCN, TR	Confirmed
Desert horned lizard	*Phrynosoma platyrhinos*	SGCN	Confirmed
Western threadsnake	*Rena humilis*	SGCN	Probable
Chuckwalla	*Sauromalus ater*	SGCN	Confirmed
Smith's black-headed snake	*Tantilla hobartsmithi*	SGCN	Probable
Sonoran lyre snake	*Trimorphodon lambda*	SGCN	Probable
Mammals			
Pallid bat	*Antrozous pallidus*	PM	Confirmed
Townsend's big-eared bat	*Corynorhinus townsendii*	SGCN, SM	Confirmed
Big brown bat	*Eptesicus fuscus*	PM	Confirmed
Silver-haired bat	*Lasionycteris noctivagans*	SGCN	Confirmed
Western red bat	*Lasiurus blossevillii*	SGCN, SM	Confirmed
Hoary bat	*Lasiurus cinereus*	SGCN	Confirmed
Long-eared myotis	*Myotis evotis*	SGCN	Confirmed
Fringed myotis	*Myotis thysanodes*	SGCN, PM	Confirmed
Canyon bat	*Parastrellus hesperus*	N/A	Confirmed
Mexican free-tailed bat	*Tadarida brasiliensis*	SGCN, PM	Confirmed

Source: Creech AFB, 2023b
N/A = not applicable; P (M, R, B) = protected mammal, reptile, or bird); SGCN = Species of Greatest Conservation Need; S (M, R, B) = sensitive mammal, reptile, or bird; T (M, R, B) = threatened mammal, reptile, or bird

3.8.1.4 Invasive and Noxious Weed Species

The most predominant annual invasive plants found on the NTTR-South Range are Russian thistle (*Salsola tragus*) and red brome (*Bromus rubens*), both aggressive species that can displace populations of native annual plants in disturbed soil. Red brome has become an invasive vegetation community regardless of soil disturbance. Russian thistle and red brome have been documented on Creech AFB, as well as cheatgrass (*Bromus tectorum*), saltlover (*Halogeton glomeratus*), and tamarisk (*Tamarix* sp.), a Nevada state-listed noxious weed (DAF, 2023b).

The Pest Management Program for Creech AFB and the surrounding areas of the NTTR-South Range includes control and management of invasive plants. However, efforts to eradicate red brome from the NTTR-South Range are no longer practical, which has increased the risk of this plant spreading to Creech AFB. In addition to competing with native species for limited soil moisture, the flammable dormant red brome plants increase the susceptibility of areas to more frequent wildland fires to which native plant communities are not as adapted, but that create ideal conditions for red brome to continue thriving (DAF, 2023b).

3.8.2 Environmental Consequences

3.8.2.1 Evaluation Criterial

The level of impact on biological resources is based on the following:

- importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- proportion of the resource that would be affected relative to its occurrence in the region;
- sensitivity of the resource to the proposed activities; and
- duration of potential ecological impact.

Adverse impacts on biological resources would occur if the Proposed Action negatively affects species or habitats of high concern over relatively large areas, or if estimated disturbances cause reductions in population size or distribution of a species of high concern.

As a requirement under the ESA, federal agencies must provide documentation that ensures that the agency's proposed actions would not adversely affect the existence of any threatened or endangered species. The ESA requires that all federal agencies avoid "taking" federally threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7(a)(2) of the ESA establishes a consultation process with USFWS that ends with either a "No Effect" determination by the federal agency or a biological opinion from USFWS that the Proposed Action either would or would not jeopardize the continued existence of a species.

3.8.2.2 Alternative 1

Vegetation

The only component of Alternative 1 that could potentially affect vegetation communities is the proposed construction projects associated with the CCA beddown. All the proposed construction projects would occur in areas that have been previously developed or where native vegetation has been removed or degraded. Therefore, implementation of Alternative 1 would result in no impacts to vegetation.

Wildlife

The construction projects proposed under Alternative 1 would not disturb wildlife habitat and would result in no impacts to wildlife species.

Combined, the EOU and TT-1 programs would fly 1,820 sorties annually from Creech AFB (see **Section 2.1.1**). Creech AFB would continue to implement the existing BASH program for flight operations. The increase in sorties that would be flown under Alternative 1 each year could increase depredation or relocation of some wildlife under the BASH program as permitted by either the NDOW or the USFWS. While the total acreage under the 65 dB DNL would increase by 106 acres, impacts to wildlife would not be expected to increase because of the lack of habitat immediately surrounding the airfield.

As shown in **Table 2-1**, almost all RPA aircraft sorties under Alternative 1 would be flown above 3,000 ft AGL. Approximately 16 sorties per year would occur at altitudes of less than 3,000 ft AGL, and those sorties would be flown over the NTTR that currently supports a wide range of aircraft operations including fighter jets. Because RPA aircraft are relatively quiet compared to other military aircraft (e.g., fighter jets, helicopters), no noise effects on wildlife from flights above 3,000 ft AGL are expected. Potential noise effects from those few flights below 3,000 ft AGL on NTTR would not be discernible from the effect of noise created by other military aircraft that frequently operate on NTTR. Therefore, with adherence to the Installation's BASH program, the increase in sorties under Alternative 1 would result in long-term, negligible, adverse impacts to wildlife.

Threatened, Endangered, and Other Protected Species

Threatened or Endangered Species

The desert tortoise is the only federally listed species that would potentially occur on Creech AFB. The desert tortoise is not known to occur on Creech AFB, including within the project development areas proposed under Alternative 1, because the native vegetation has been cleared or degraded by past activity. The DAF has determined that implementation of Alternative 1 would result on "no effect" to the desert tortoise.

Migratory Birds

Migratory birds are of the most concern during nesting season, which generally occurs between 1 April and 15 July (USFW, 2020). No impacts to migratory birds would be expected because the project development areas have been previously developed or the vegetation has been cleared or degraded. No impacts to golden eagles would be anticipated because suitable habitat does not exist on Creech AFB and none of the RPA flights would have the potential to impact the species while in flight. Implementation of Alternative 1 would result in no impacts to migratory birds.

Species of High Priority

The species of high priority listed in **Table 3-14** are unlikely to occur within the project development areas as most sites are developed or the vegetation has been either cleared or degraded. As previously discussed, RPA flights would occur at an elevation above 3,000 ft AGL, at which no disturbances to wildlife would be expected to occur. Therefore, the increase in sorties under Alternative 1 would result in no impacts to species of high priority.

Invasive and Noxious Weed Species

Both Russian thistle and red brome are particularly adapted to areas where soils have been disturbed. Saltlover also establishes in disturbed areas where vegetation has been removed or along roadsides where native vegetation is sparse (Utah State University Extension, 2025). Many of the project sites have been previously developed and have limited to no opportunity for the establishment of either invasive or noxious weed species. Several projects (e.g., munition storage area) would occur in areas that have been cleared of vegetation and have the potential for establishment of invasive and noxious weed species. Weed control on the Installation occurs as routine maintenance. Projects that involve new soil disturbance during construction would be monitored for invasive plants after project completion. The Creech AFB Pest Management Program, in conjunction with the Creech Natural Resources Program and regulators, oversees invasive and noxious weed species management on the Installation. Therefore, with adherence to appropriate procedures, Alternative 1 would result in short-term, minor, adverse impacts related to invasive and noxious weed species.

3.8.2.1 Alternative 2

Under Alternative 2, potential impacts to biological resources would be the same as those discussed for Alternative 1.

3.8.2.2 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB and there would be no changes to biological resources beyond baseline conditions.

3.8.2.3 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would be anticipated to have short-term, negligible-to-minor, adverse impacts to biological resources because of additional soil, vegetation, and/or habitat disturbance. The BLM solar project would clear approximately 5,000 acres of previously undeveloped land. While located approximately 5 miles from Creech AFB, the clearing of 5,000 acres would have the potential to eradicate invasive weeds in the vicinity as well as further reduce the habitat of the desert tortoise. However, within Creech AFB, invasive weeds are currently managed and desert tortoise habitat is limited with active precautions to keep the tortoise outside of the Installation. The I-11 feasibility study is currently reviewing alternatives, one of which would result in construction of a bypass around Indian Springs, Nevada, which could permanently disturb biological resources in currently undeveloped areas. However, this project is still in its feasibility stage, and there is no development planned. There would be no impacts to biological resources from the Indian Springs Schools, the High Desert State Prison, or the Southern Desert Correctional Center projects as these projects would take place on developed areas. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, minor, adverse cumulative effects to biological resources would be anticipated to occur with implementation of the Proposed Action.

3.9 WATER RESOURCES

The ROI for water resources is Creech AFB.

3.9.1 Affected Environment

3.9.1.1 Surface Water

Waters of the US, also known as jurisdictional waters, including surface water resources as defined at 33 CFR § 328.3, are regulated under Sections 401 and 404 of the *Clean Water Act* (33 USC § 1251 et seq.) (CWA) and Section 10 of the *Rivers and Harbors Act* (33 USC §§ 400-467). Creech AFB is located in an area characterized by low precipitation and sporadic, severe thunderstorms due to its semiarid climate. Creech AFB lies within the Indian Springs Valley basin, a contained basin that does not connect to waters of the US and contributes to the southern portion of the Sand Springs-Tikaboo Watershed. The minor amounts of surface water located within the watershed occur in the form of ephemeral streams, alluvial fans, valley collectors, and dry lake beds or playa lakes. Within Creech AFB, ephemeral streams are located in the northern portions of the Installation. These streams originate north of the Installation and cross the Munitions Projects Development Area (**Appendix A, Figure 3-6**). The small quantity of precipitation that does occur is often lost to evaporation. Runoff from surrounding mountain snowpacks is also prone to evaporation, collecting and depositing salts and other materials in the area's playas and dry lake beds. Because of these salt and material deposits, vegetation is stunted. Surrounding Creech AFB, ephemeral streams exist only for hours or weeks, depending on the time of year (DAF, 2023b).

3.9.1.2 Stormwater

Creech AFB and the surrounding areas are prone to intense thunderstorms that can result in flash floods. Annually, these storms generate approximately 4.5 inches of precipitation, where most months receive 0 inches of rainfall (DAF, 2021b). These waters are prone to evaporation but supply the area's ephemeral streams for limited amounts of time. Four stormwater inlets are located along the southern portion of the Installation with five outlets and one larger outfall located in the northern and northeastern portions of Creech AFB, respectively. Stormwater runoff within Creech AFB is diverted through the ephemeral streams and a series of unlined channels and either evaporates or discharges through the Installation's northeast outfall. The outfall diverts stormwater off the Installation and into the Indian Springs Valley dry playa to the north, where it evaporates and/or contributes to the expansive groundwater system in the area (DAF, 2021b). Much of Creech AFB is flat, and evaporation rates are high due to high temperatures and an arid environment. As such, stormwater runoff does not always reach the outfall before evaporating or soaking into the terrain, though the capacity for stormwater drainage remains when needed (DAF, 2023b). Creech AFB was issued a National Pollution Discharge Elimination System (NPDES) permit to discharge stormwater in association with Creech AFB's Multi-Sector General Permit Industrial Stormwater – NVR050000, which was administratively continued 11 June 2024. Creech AFB discharges stormwater through NPDES Permit GNV00022233.

3.9.1.3 Groundwater

Creech AFB is located within the carbonate rock province of the Great Basin; this province covers eastern and southern Nevada and western Utah. Groundwater within this province is extensive due to the permeability of carbonate rock. Groundwater within the province is located hundreds of feet below ground surface and is contained within two interconnected aquifer systems: one deep and one shallow. The deep aquifer system is expansive and contained in carbonate bedrock while the shallow aquifer system is alluvial, residing in individual basins and watersheds (DAF, 2023b). Both systems rely on winter snowpack and storm precipitation for recharge.

Within Creech AFB, the amount of groundwater recharge that occurs is highly dependent on the permeability of the soils, the amount of precipitation received, and the rate at which surface evaporation or groundwater evapotranspiration occurs. Groundwater recharge rates rely on permeable surfaces with the occurrence of more precipitation than evapotranspiration. Creech AFB utilizes three groundwater wells to support the Installation's supply of water (DAF, 2023b).

3.9.1.4 Floodplains

Federal Emergency Management Agency (FEMA) floodplain data is not available for Creech AFB. However, permanent streams are not known to occur within the boundaries of the Installation (see **Appendix A**, **Figure 3-6**). Flooding is anticipated to occur as flash floods follow storm events, and shallow flooding can occur from impermeable surfaces such as pavements or poorly drained soils. During storm events, the ephemeral streams and dry lake beds fill with precipitation, resulting in opportunities for flash flooding events (DAF, 2023b). The nearest FEMA floodplain is over 1 mile west of Creech AFB (FEMA, 2002). Therefore, this resource is not carried forward for analysis in this EA.

3.9.1.5 Wetlands

No known wetlands occur within the boundaries of Creech AFB; additionally, no jurisdictional wetland delineations have occurred on the Installation. While some hydrologic areas support ephemeral streams, further analysis would be needed to determine if wetlands characteristics are present within the Installation (DAF, 2023b). Therefore, this resource is not carried forward for analysis in this EA.

3.9.2 Environmental Consequences

3.9.2.1 Evaluation Criteria

Evaluation criteria for potential impacts on water resources are based on water availability, quality, and use; existence of floodplains; and associated regulations. Potential adverse impacts to water resources would occur if the Proposed Action:

- reduces water availability or supply to existing users,
- overdrafts groundwater basins,
- exceeds safe annual yield of water supply sources,
- adversely affects water quality,
- endangers public health by creating or worsening health hazard conditions, or
- violates established laws or regulations adopted to protect sensitive water resources.

3.9.2.2 Alternative 1

Surface Water

No permanent surface water exists at Creech AFB. Under Alternative 1, 822,400 ft^2 (18.9 acres) of new impervious surfaces would be constructed. Most of the increase in impervious surfaces would occur on developed or previously disturbed land with no surface water located nearby.

The proposed Munitions Projects Development Area has a known ephemeral stream occurring in its northern portion. This stream only contains water during precipitation events and is prone to rapid evaporation. Construction activities in the Munitions Development Area would avoid this stream. In addition, the potential for runoff from construction and demolition at the site during these events would be managed through the application of best management practices (BMPs).

Implementation of Alternative 1 would result in long-term, minor, adverse impacts to surface waters due to the increase in impervious surfaces.

Stormwater

The increase in the overall impervious surface under Alternative 1 would lead to increased runoff into ephemeral streams, dry lake beds, and stormwater infrastructure found within and near the Installation. Storm events are anticipated to result in flash flooding and shallow flooding where impermeable surfaces or poorly drained soils exist. Creech AFB is largely developed and has the capacity to manage increased stormwater runoff from additional impervious surfaces through unlined channels and ephemeral streams. These routes carry stormwater runoff from developed areas into dry lake beds that distribute and hold water for short periods of time before evaporating and returning to dry conditions.

During construction, crews would adhere to BMPs for stormwater management, as determined by the Creech AFB Natural Resources Division, to minimize runoff potential. Potential BMPs include maintaining grading and topography at project locations; staging equipment and construction materials in areas outside of known flash flooding areas; adhering to and implementing BMPs for construction and post-construction stormwater management in accordance with the USEPA's National Menu of BMPs for Stormwater or other technical guidance; and designing projects to utilize stormwater drainage through the numerous, existing unlined channels and ephemeral streams at Creech AFB, which have adequate capacity to support additional development.

Projects that increase impervious surfaces would result in increases to stormwater runoff on undeveloped parcels within the Installation (i.e., where surfaces were previously permeable). Implementation of Alternative 1 would result in short-term, minor, adverse impacts to stormwater during construction activities and would be managed with implementation of the BMPs described above. Creech AFB would have the capacity to manage the increase in stormwater runoff associated with the increased impervious surface area under Alternative 1 through ephemeral stream drainage. Implementation of Alternative 1 also would result in long-term, minor, adverse impacts to stormwater due to the overall increase in impervious surface area and subsequent runoff within the existing system.

Groundwater

The increase in overall impervious surface under Alternative 1 would further limit the ability of groundwater resources to recharge directly below the Installation. However, the groundwater system is expansive in this area and would continue to be able to absorb water from the adjacent, undeveloped areas surrounding Creech AFB. The majority of actions under Alternative 1 would occur on land that is developed or previously disturbed. Therefore, implementation of Alternative 1 would result in no impacts to groundwater.

3.9.2.3 Alternative 2

Under Alternative 2, potential impacts to water resources would be the same as those discussed for Alternative 1.

3.9.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB and there would be no changes to water resources beyond baseline conditions.

3.9.2.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would be anticipated to have long-term, minor, adverse impacts to water resources because of increased runoff from new impervious surfaces near ephemeral streams within the region. The increase in impervious surfaces from projects under the Creech IDP EA could result in runoff to these streams, dry lake beds and washes, and existing stormwater infrastructure in the area. BMPs and mitigation would be employed on a project level basis to minimize impacts to these resources where practicable. When considered in conjunction with the effects of past, present, and reasonably foreseeable actions at Creech AFB, minor, adverse cumulative impacts to surface water, stormwater, groundwater, and floodplains would be anticipated to occur with implementation of the Proposed Action.

3.10 GEOLOGY AND SOILS

The ROI for geology and soils is Creech AFB.

3.10.1 Affected Environment

3.10.1.1 Geology

Creech AFB is located within the Mojave Desert ecosystem of the Basin and Range physiographic province, which is characterized by a series of mountain ranges that trend north to south and broad desert basins that stretch from southeast Oregon into Mexico. The geological terrain can be divided into a southeastern area consisting of Paleozoic sedimentary rocks and a northwestern area of mainly volcanic rocks of the late Cenozoic age. The valleys in this area contain thick deposits of alluvium, i.e., clay, silt, sand, and gravel left behind by running water, that originated from the adjacent mountain ranges. The underlying geology at Creech AFB is made up sedimentary deposits common in arid and semiarid environments, including playa, lake beds, and flood plain deposits (Crafford, A.E.J., 2010). The region's complex tectonic history features faults that were formed by thrusting, folding, and wrenching during compressional mountain-building events. Though most of the faults on Creech AFB are considered inactive, the Installation is located in Seismic Zone 2B and is considered an area of moderate damage potential (DAF, 2023b).

3.10.1.2 Topography

Creech AFB is located within a basin with relatively flat topography, with elevations ranging from approximately 3,100 ft above MSL to approximately 3,200 ft above MSL (US Geological Survey, 1977). The average elevation on the Installation is approximately 3,110 ft above MSL. There are no notable landforms within the boundary of the Installation that would contribute to significant differences in elevation (DAF, 2023b).

3.10.1.3 Soils

Soil surveys were conducted to the south of the Creech AFB, as well as on a small portion of the southwestern part of the Installation that is parallel to US-95. The soils surveyed were found to primarily consist of the Corncreek-Haymont association. These soils are characterized by slopes of 2 to 8 percent and are classified as well drained with low runoff potential. The susceptibility to compaction rating is “low”, indicating that the soil in the region can support standard equipment and development (US Department of Agriculture [USDA], 2024a). While the remainder of Creech AFB has not been surveyed for soil composition, it is likely that the soils in the surrounding area exhibit characteristics similar to that of the Corncreek-Haymont association and would be able to support development on the Installation.

The dry and arid climate of the desert environment where Creech AFB is located creates conditions suitable for dust generation from fine, dry soil particles. The combination of dry soil and high winds can create dust storms that result in reduced visibility and respiratory ailments. To reduce exposure to dust during dust-generating activities such as construction, the Clark County Division of Air Quality utilizes Dust Control Permitting that regulates and mitigates the amount of particulate matter that is emitted into the air.

3.10.1.4 Prime Farmland

Prime farmland is defined by the US Department of Agriculture in the *Farmland Protection Policy Act* (7 USC §§ 4201–4209). There are no prime farmland soils located within Creech AFB. Therefore, this resource is not carried forward for analysis in this EA.

3.10.2 Environmental Consequences

3.10.2.1 Evaluation Criterial

Potential adverse impact(s) on earth resources would occur if the Proposed Action

- substantially alters unique, valued, or beneficial geologic or topographic conditions;
- causes substantial soil loss or erosion off site;
- results in a measurable loss or degradation of a valued or beneficial soil function; or
- disturbs soils with contaminant(s) above regulatory threshold(s).

3.10.2.2 Alternative 1

Geology

Under Alternative 1, new facilities and impervious surfaces would be constructed while B726 and the associated parking lot would be demolished. Construction and demolition activities associated with this development would include excavation, grading, and paving that would alter the subsurface geology of the area. However, these modifications would be to surface conditions rather than deeper geological structures. Additionally, these modifications would primarily occur in areas that have already been developed. This basic earthwork would not have the potential to disturb underlying geology at Creech AFB; therefore, implementation of Alternative 1 would result in no impacts to the geology.

Topography

Alterations to ground surfaces under Alternative 1 would occur during earth-moving activities such as grading and compaction. Leveling and flattening ground surfaces during construction and demolition of facilities would result in a minor reshaping of the topography at Creech AFB. However, the terrain is relatively flat and this development would occur in areas of the Installation that are already developed. Furthermore, after placing and compacting fill soils, superficial soils would be graded to match the local topography to maintain efficient drainage. Implementation of Alternative 1 would result in long-term, negligible, adverse impacts to topography.

Soils

Under Alternative 1, 822,400 ft^2 (18.9 acres) of new impervious surfaces would be constructed. Increases in impervious surfaces further prevent the infiltration of rainfall and as a result can increase the potential for soil erosion and sedimentation. Implementation of BMPs during and post construction and adherence to design standards to manage increases in stormwater runoff would limit opportunities for sedimentation and erosion.

Construction activities under Alternative 1 would result in the disturbance of more than 5 acres of soil and would therefore require a Surface Area Disturbance Permit from the Nevada Department of Environmental Protection. Additionally, Creech AFB would need to obtain a Dust Control Operating Permit from the Clark County Division of Air Quality since construction activities would disturb 0.25 acres or greater in overall area (Clark County, 2025). The Installation would follow all requirements and soil management techniques outlined in these permits to minimize impacts to soils to the greatest extent practicable. Overall, implementation of Alternative 1 would result in long-term, negligible, adverse impacts to soil.

3.10.2.3 Alternative 2

Under Alternative 2, potential impacts to geology, topography, and soils would be the same as those discussed for Alternative 1.

3.10.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB and there would be no changes to geology and soils beyond baseline conditions.

3.10.2.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would result in minor, short-term, adverse impacts to geology and soils. The High Desert State Prison and the Southern Desert Correctional projects would disturb soil during the installation of fencing and underground piping replacements. Nevada general permitting rules for ground disturbance from any such future construction actions would be managed on a project-level basis. Additionally, these projects would not be anticipated to overlap or impact the planned projects to occur at Creech AFB.

Under the IDP EA, Creech AFB proposes to implement 36 short-term development projects, including demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community facility upgrades, and infrastructure improvement. These projects would overlap the proposed construction under Alternatives 1 and 2. Increases in impervious surfaces further prevent the infiltration of rainfall and as a result can increase the potential for soil erosion and sedimentation When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, no significant cumulative impacts to geology and topography would be anticipated to occur with implementation of the Proposed Action. Cumulative impacts to soils likely would be long term, moderate, and adverse.

3.11 LAND USE

The ROI for land use is Creech AFB.

3.11.1 Affected Environment

Creech AFB occupies approximately 2,085 acres in Clark County, located in southern Nevada. The Installation is located 1 mile northwest of Indian Springs and is approximately 50 miles northwest of Nellis AFB. Creech AFB utilizes form-based planning to enhance land use planning through the regulation of building types, height, setbacks, circulation patterns, and landscaping. Creech AFB is generally organized into the following six districts based on mission function:

- The **Airfield District** allows airfield operations and maintenance (O&M) uses, industrial and light industrial uses, and open space (DAF, 2015). Some of the projects in the northern portion of the Southside Project Development Area occur in the Airfield District.
- The **Community Support District** allows medical, commercial and retail uses, community service, residential, recreation, and open space (DAF, 2015). No projects under Alternatives 1 or 2 occur in the Community Support District.
- The **Missions Operations Complex District** allows airfield O&M, industrial and light industrial uses, administrative, medical, and open space (DAF, 2015). Alternative 2 occurs in the Missions Operations Complex District.
- The **Munitions Storage Area District** allows munitions storage and open space (DAF, 2015). All projects in the Munitions Project Development Area occur in the Munitions Storage Area District.
- The **Southside Operations District** allows a variety of uses such as airfield O&M, industrial and light industrial, administrative, medical, outdoor recreation, and open space. Community uses, retail, lodging, and residential are permitted in the district with restrictions (DAF, 2015). Many of the projects in the Southside Project Development Area occur in the Southside Operations District.
- The **T-Shirt District** allows medical, community uses, retail, lodging, residential, outdoor recreation, and open space (DAF, 2015). No projects under Alternatives 1 or 2 occur in the T-Shirt District.

Land surrounding the Installation to the north, east, and west is undeveloped and zoned Open Lands by Clark County. The land to the west of the Installation is owned by the BLM. The undeveloped northern portion has been withdrawn for use by the DAF and is part of NTTR and the Desert National Wildlife Refuge (DAF, 2022a). The town of Indian Springs is located south of the main Installation, across US-95 and east of the Installation's T-Shirt District. Land to the south of the Installation in the Town of Indian Springs has a variety of zoning designations including General Highway Frontage District and Industrial Light along the south side of the Highway allowing for residential, office, commercial, and industrial uses. Residential Single Family to the south with areas zoned for Commercial and Public Use throughout the town (Clark County, 2024a; Clark County, 2024b).

3.11.2 Environmental Consequences

3.11.2.1 Evaluation Criteria

Potential impacts on land use are based on the level of land use sensitivity in areas potentially affected by a proposed action as well as compatibility of the action with existing conditions. Potential adverse impacts to land use would occur if the Proposed Action

- is inconsistent or noncompliant with mandatory land use requirements,
- precludes the viability of existing land use,
- precludes continued use or occupation of an area,
- is incompatible with adjacent land use to the extent that public health or safety is threatened, or
- conflicts with planning criteria established to ensure the safety and protection of human life and property.

3.11.2.2 Alternative 1

The majority of projects under Alternative 1 would occur in the Southside Operations District and the Airfield District. Currently permitted uses in both districts include Airfield O&M, Industrial, and Administrative (DAF, 2015). All projects under Alternative 1 (see **Table 2-4**) in both districts are consistent with the existing land use in their proposed locations.

The Munitions Projects Development Area occurs in the Munitions Storage Area. The two existing uses in the Munitions Storage Area are munitions storage and open space (DAF, 2015). The Munitions Storage Area is generally undeveloped and is categorized in the IDP as developable land (DAF, 2015). Projects under Alternative 1 that are within the Munitions Storage Area are a PGM shop, a multi-cube magazine storage, and a Hayman igloo. All of these projects are classified as munitions storage and are consistent with the existing land use in their proposed locations.

As discussed in **Section 3.4.2**, the 65 dB DNL noise contour would expand beyond the boundaries of Creech AFB but would not include any areas that are noise sensitive (**Appendix A, Figure 3-3**). Specifically, noise levels would be between 65 and 70 dB DNL in a total of 106 acres of land that is not noise sensitive (**Table 3-5**). Off-Installation areas exposed to noise levels greater than 65 dB DNL would include areas to the east and to the west of the Creech AFB main runway that are part of NTTR and areas within the US Highway 95 corridor. Noise levels at all noise-sensitive locations (e.g., residences, places of worship, and schools) would remain below 65 dB DNL under Alternative 1. There would be no change in land use due to an increase in noise.

Projects under Alternative 1 would not be anticipated to change or alter the existing land use. These projects are compatible and consistent with existing and future Installation land use planning guidance as identified in the Creech AFB IDP and Area Development Plan. Implementation of Alternative 1 would result in no adverse impacts to land use.

3.11.2.3 Alternative 2

The majority of the projects analyzed under Alternative 2, including those planned for the Munitions Storage Area, would be the same as Alternative 1, with the exception of the Northside Combined Squadron Operations/AMU Complex Facility. This project is proposed in the Mission Operations Complex District on undeveloped land. The Mission Operations Complex serves as the core of RPA combat operations and combat support. Structures in this district range in size from small storage buildings to large aircraft docks, and multi-tenant administrative buildings (DAF, 2019b). Some intended uses in the Missions Operations Complex include Airfield O&M, Industrial, and Administrative (DAF, 2015). The Northside Combined Squadron Operations/AMU Complex Facility falls within the expected land uses in the Missions Operations Complex District.

Projects under Alternative 2 would not be anticipated to change or alter the existing land use. These projects are compatible and consistent with existing and future Installation land use planning guidance as identified in the Creech AFB IDP and Area Development Plan. Implementation of Alternative 2 would result in no adverse impacts to land use.

3.11.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB and there would be no impacts to land use beyond baseline conditions.

3.11.2.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would not result in changes to land use within the ROI. Development associated with the Creech IDP would occur at Creech AFB but would not change land use at the Installation. The BLM solar project would have the potential to impact approximately 5,000 acres of vacant land that will be used to construct a new solar farm southwest of Creech AFB, near Indian Springs, Nevada. The I-11 feasibility study is currently reviewing alternatives, one of which would result in construction of a bypass around Indian Springs, which could permanently change the current access to the Installation and adjacent land use. However, this project is still in its feasibility stage and there is no development planned. The High Desert State Prison and Southern Desert Correctional projects would not impact existing or future Installation land uses, as they would occur outside the boundaries of Creech AFB. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, no significant cumulative impacts to land use would be anticipated to occur with implementation of the Proposed Action.

3.12 CULTURAL RESOURCES

3.12.1 Definition of the Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. These resources are protected and identified under several federal laws and EOs, including the *Archaeological and Historic Preservation Act of 1974*, as amended (54 USC § 300101 et seq.), the *American Indian Religious Freedom Act of 1978* (42 USC § 1996), the *Archaeological Resources Protection Act of 1979*, as amended (16 USC §§ 470aa–470mm), the *Native American Graves Protection and Repatriation Act of 1990* (25 USC §§ 3001–3013), the NHPA, as amended through 2016, and associated regulations (36 CFR Part 800). The NHPA requires federal agencies to consider effects of federal undertakings on historic properties prior to deciding or taking an action and integrate historic preservation values into their decision-making process. Federal agencies fulfill this requirement by completing the NHPA Section 106 consultation process, as set forth in 36 CFR Part 800. NHPA Section 106 also requires agencies to consult with federally recognized American Indian tribes with a vested interest in the undertaking. NHPA Section 106 requires all federal agencies to seek to avoid, minimize, or mitigate adverse effects to historic properties (36 CFR § 800.1(a)).

Significant cultural resources are those listed on the National Register of Historic Places (NRHP) or determined to be eligible for listing.[4]

The following properties are not considered eligible for listing in the NRHP: ordinary cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years. However, such properties would qualify if they are integral parts of districts that do meet the criteria or if they fall within identified categories, referred to as "criteria considerations" (36 CFR § 60.4). For example, resources on DoD property

[4]To be eligible for NRHP listing, properties must be at least 50 years old and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. They must possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to convey their historical significance and meet at least one of four NRHP criteria for evaluation.

constructed prior to the end of the Cold War in December 1991 could still be considered eligible under criterion consideration "g" if associated with the Cold War despite its age being less than 50 years, should its historical significance and aspects of integrity deem it eligible.

For the purposes of this analysis, cultural resources yet to be evaluated for NRHP eligibility were treated as NRHP eligible.

The ROI for cultural resources is considered equivalent to the Area of Potential Effects (APE), defined by 36 CFR § 800.16(d). The APE is influenced by the scale and nature of the undertaking and may be different for various kinds of effects caused by the undertaking.

The physical APE for the Proposed Action includes the areas of proposed ground disturbance for each project. This EA does not provide specific locations for projects in the Munitions or Southside project development areas; therefore, the projects are evaluated as potentially occurring at any location within these areas. The visual APE includes a 0.5-mile radius from each project's physical APE, which also incorporates the radius of atmospheric, auditory, and cumulative effects. This APE has yet to be reviewed and confirmed by SHPO, and this EA will be updated, as necessary, upon issuance of guidance by SHPO.

3.12.2 Affected Environment

Creech AFB follows standard operating procedures for the management and protection of cultural resources on the lands included within the APE. Procedures outlined in the Creech AFB Integrated Cultural Resources Management Plan (ICRMP) address mission conflicts, management and coordination for NHPA Section 106, and other necessary consultations (DAF, 2023c). A review of all available information about previous archaeological and historical inventories within Creech AFB was conducted. Searches for previous reports and archaeological site forms were completed for all identified lands associated with this document. Reviews included information from the Nevada Cultural Resources Information System (NVCRIS) online digital archive, the Nevada SHPO, and records and reports on file at Creech AFB. For the purposes of this EA, cultural resources yet to be evaluated for NRHP eligibility will be treated as NRHP-eligible.

3.12.2.1 Architectural Properties

To date, 45 buildings and structures constructed prior to 1990 have been identified within the APE, of which four have been determined NRHP-eligible, 38 have been determined NRHP-ineligible, and three are unevaluated. The three unevaluated buildings have been demolished. The four NRHP-eligible properties are depicted on **Figure 3-7** (**Appendix A**) and listed in **Table 3-15**. Nine historic architectural surveys have been conducted within the APE (**Appendix D**). One survey report (23425) was denoted as in-process in the NVCRIS database at the time of review.

Table 3-15 NRHP-Eligible Architectural Resources within the APE

SHPO ID	Historic Name	Date Built	NRHP Status and Eligibility Criteria	APE
S1829	Runway 08/26	1943	Eligible (A)	Visual
S1830	Runway 13/31	1943	Eligible (A)	Visual
S1831	Taxiway B	1943	Eligible (A)	Visual
S1832	Beacon	1952	Eligible (A, C)	Physical

Source: NVCRIS
(A) = eligible under Criterion A; APE = Area of Potential Effects; (C) = eligible under Criterion C; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office

3.12.2.2 Archaeological Sites

There have been 18 archaeological sites identified within the physical and visual APE for Alternatives 1 and 2. Of the 18 sites, 1 was determined NRHP-eligible (CK1649), 1 was determined NRHP-ineligible with SHPO concurrence, and 16 are considered unevaluated. All 16 unevaluated sites have been either recommended as ineligible for NRHP listing by the DAF and DAF contracted archaeologists, or the sites are inherently ineligible as isolated non-diagnostic artifacts. However, the SHPO has yet to officially concur with these recommendations. The one NRHP-eligible site (CK1649) and the 16 unevaluated sites are listed in **Table 3-16**. Only four of these sites are within the physical APE, all of which are unevaluated. The entirety of the physical APE has been subject to systematic archaeological survey. The 20 previous archaeological surveys within the physical and visual APE are listed in **Appendix D**.

Table 3-16 NRHP-Eligible and Unevaluated Archaeological Sites within the APE

Site No.	Temporal Affiliation	Description	NRHP Status	APE
CK1649	Historic	Las Vegas and Tonopah Railroad berm	Eligible	Visual
CK3871	Prehistoric	Isolate chert interior flake, broken	Unevaluated	Visual
CK3906	Prehistoric	Lithic scatter	Unevaluated	Physical
CK3907	Prehistoric	Isolated obsidian tertiary flake	Unevaluated	Physical
CK3908	Prehistoric	Lithic scatter; 4 chert flakes	Unevaluated	Physical
CK3909	Prehistoric	Isolated chert tertiary flake	Unevaluated	Visual
CK3910	Prehistoric	Isolated chert secondary flake	Unevaluated	Visual
CK3911	Prehistoric	Isolated chert secondary flake	Unevaluated	Visual
CK5267	Prehistoric	Lithic scatter	Unevaluated	Visual
CK5268	Prehistoric	Lithic scatter	Unevaluated	Visual
CK5269	Prehistoric	Lithic scatter	Unevaluated	Visual
CK5270	Prehistoric: Archaic	Lithic scatter with tools	Unevaluated	Visual
CK5271	Prehistoric	Lithic scatter	Unevaluated	Visual
CK5272	Prehistoric	Lithic scatter; 3 flakes, 1 core	Unevaluated	Visual
CK5273	Prehistoric	Lithic scatter; 4 flakes, 2 cores	Unevaluated	Visual
CK5276	Historic	Trash scatter/automotive parts	Unevaluated	Visual
CK11814	Historic	Refuse scatter	Unevaluated	Physical

Source: NVCRIS

3.12.2.3 Traditional Cultural Properties

Sixteen federally recognized Native American tribes have historical ties to Creech AFB and the surrounding area. In accordance with DoDI 4710.02 and DAFI 90-2002, the DAF initiated consultation with Tribal Historic Preservation Officers and tribal leaders of the 16 federally recognized Native American tribes to identify Traditional Cultural Properties that could be affected by the Proposed Action (see **Appendix B**). To date, no such properties have been identified within the APE.

There were no areas of concern for cultural resources identified by the tribes during consultation for the Proposed Action. Therefore, this resource is not carried forward for analysis in this EA.

3.12.3 Environmental Consequences

3.12.3.1 Evaluation Criteria

Adverse impacts to cultural resources would occur if the Proposed Action:

- physically alters, damages, or destroys all or part of a resource;
- alters characteristics of the surrounding environment that contribute to the resource's significance;
- introduces visual or audible elements that are out of character with the property or alter its setting;
- neglects the resource to the extent that it deteriorates or is destroyed; or
- results in the sale, transfer, or lease of the property out of agency ownership (or control) without adequate enforceable restrictions or conditions to ensure preservation of the property's historic significance.

For the purposes of this EA, an impact is considered significant if it alters the integrity of a NRHP-listed, eligible, or potentially eligible resource.

3.12.3.2 Alternative 1

Architectural Properties

There are two NRHP-eligible runways (S1829, S1830) and one NRHP-eligible taxiway (S1831) located within the visual APE of the Proposed Action. No projects within the scope of this EA would physically alter these resources, nor do any projects include actions that would cause visual, atmospheric, or auditory effects to the resources. Implementation of Alternative 1 would result in no adverse impacts to S1829, S1830, and S1831.

Beacon (S1832) is located atop the Creech AFB water tower along the south-central boundary of Creech AFB, situated in the Southside Project Development Area between North Frontage Road to the south and 1st Street to the north. The structure is made of metal and has been painted orange. The beacon has four lights equally spaced from each other, and it is designed to rotate 360 degrees. The beacon is mounted on a steel substructure and has a lightning rod next to it. The steel substructure consists of a circular rotating disk, bolted to a motor to operate the beacon. It is accessed via an enclosed ladder on the water tower. Real property records state that the light stands 75 feet off the ground, measures 10 feet by 10 feet, and that it was constructed in 1952. Since the proposed project locations within the Southside Project Development Area are unknown, an adverse effect would occur to S1832 if it was physically altered in any way as a result of such projects. Therefore, the DAF would avoid any physical alteration of this resource. In addition, there are no projects that include actions that would cause visual, atmospheric effects to the resource. Implementation of Alternative 1 would result in no adverse impacts to S1832.

Adverse visual effects to historic architectural resources would have the potential to occur from introduced visual or audible elements from development of the Proposed Action that are out of character with historic architectural resources that alter their setting or feeling. Adverse visual effects would have the potential to occur if NRHP-eligible architectural resources were within the visual APE and had visual modifications that alter their setting or feeling. The projects included under Alternative 1 are military in nature and would be in character with the surrounding built environment. Therefore, Alternative 1 is unlikely to cause an adverse visual, auditory, or atmospheric effect to architectural historic properties within the APE. A precise layout for some

projects under the Proposed Action has not been determined, and potential direct, minor, adverse visual effects could occur if any of the four architectural historic properties within the APE were altered to be out of character for their built environment during project development. With implementation of procedures outlined in the ICRMP and continued consultation with the SHPO on potential effects and mitigation measures, there would be no adverse effects to architectural properties under Alternative 1.

Archaeological Sites

There are no NRHP-eligible or -listed archaeological sites within the physical APE for Alternative 1. There are four sites that are considered unevaluated for NRHP eligibility within the physical APE that could be subject to physical disturbance. Site types include two lithic scatters, one isolated lithic artifacts, and one historic refuse scatter. While these four sites have not yet been evaluated with SHPO concurrence, these sites likely have exhausted their ability to provide important information about the past, and/or they have lost their historic integrity through physical disturbance.

For each of the 13 sites within the visual APE (see **Table 3-16**), implementation of Alternative 1 would result in no adverse effect, either direct or indirect. Archaeological resources typically are only eligible for the NRHP under Criterion D, aside from special cases with unique circumstances. Because the significance and integrity of resources eligible under Criterion D typically are dependent on the recovery of data important, or potentially important, to the past, only physical disturbance likely would threaten these sites. Therefore, implementation of Alternative 1 would result in no adverse impacts to the 13 sites within the visual APE.

In the event of an unanticipated discovery of an archaeological resource, Creech AFB would initiate the inadvertent discovery procedures outlined in the ICRMP (DAF, 2023c). Construction in the immediate area of the discovery would pause and the SHPO, Advisory Council on Historic Preservation, and federally recognized tribes affiliated with Creech AFB would be notified within 48 hours of discovery (36 CFR § 800.13). The remaining procedures outlined in the ICRMP would continue to be followed until resolved. With adherence to such measures, implementation of Alternative 1 would result in no adverse impacts to archaeological properties.

3.12.3.3 Alternative 2

The majority of the projects analyzed under Alternative 2 are the same under Alternative 1, with the exception of the Northside Combined Squadron Operations/AMU Complex Facility which is proposed in the Mission Operations Complex District on undeveloped land. A cultural resources survey was performed in June 2025 for this proposed location. No cultural resources, including archaeological resources, were identified. The survey report has not been reviewed by the SHPO as of the printing of this EA. **Figure 3-7 (Appendix A)** includes the APE for the Northside Combined Squadron Operations/AMU Complex Facility.

Implementation of Alternative 2 would result in no impacts to architectural properties or archaeological sites.

3.12.3.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. No changes to cultural resources at Creech AFB would be expected to occur beyond baseline conditions.

3.12.3.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would result in no adverse impacts to cultural resources. Development associated with the Creech IDP EA involves demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community facility upgrades, and infrastructure improvement. Creech AFB is currently in consultation with SHPO regarding those projects.

The Indian Springs Schools, the High Desert State Prison, and the Southern Desert Correctional Center projects would occur on previously disturbed areas and would not be anticipated to encounter cultural resources. The BLM solar project would result in 5,000 acres of land disturbance and would need SHPO consultation prior to construction. The US-95 conversion project is currently reviewing alternatives. Depending on the chosen alternative, undeveloped land may be developed and SHPO consultation would be needed prior to construction. However, this project is still in its feasibility stage, and there is no development planned. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, no significant cumulative impacts to cultural resources would be anticipated to occur with implementation of the Proposed Action.

3.13 SOCIOECONOMICS

A socioeconomics analysis considers population, employment, housing, educational resources (schools), employment, and public services. The ROI for population, housing, and schools is the Census Designated Place (CDP)[5] of Indian Springs (the community closest to Creech AFB) and the CDPs of Las Vegas, North Las Vegas, and Nellis AFB,[6] the populated portion of which is included in the North Las Vegas CDP. The ROI for employment is Creech AFB and Clark County, and the ROI for public services is Creech AFB and the Indian Springs CDP.

3.13.1 Affected Environment

3.13.1.1 Population

Creech AFB lies within Clark County, 1 mile north of Indian Springs CDP, and approximately 35 miles northwest of Las Vegas, Nevada. In 2023, the population of Clark County was estimated to be 2,293,764. In the ROI between 2013 and 2023, the Las Vegas city and North Las Vegas city CDPs saw overall increases in population. This trend is reflected at the state and national level. Indian Springs CDP experienced an overall population decline of 14.7 percent between 2013 and 2023, or a loss of approximately 127 people (**Table 3-17**).

[5] CDPs are statistical geographic entities outlined by USCB to represent and provide meaningful data for well-defined, populated areas that are not incorporated municipalities with legally defined boundaries. This EA uses CDPs to provide a more accurate representation of the regions with the greatest potential to be impacted by the Proposed Action.
[6] There is no government housing for families or dormitories for Aircrews on Creech AFB. Active-duty personnel interested in living on Base are referred to Nellis AFB.

Table 3-17 Population Characteristics

Location	Census Year		AARG	Total Growth (Percent)
	2013	2023		
United States	311,536,594	332,387,540	0.7	6.7
Nevada	2,730,066	3,141,000	1.5	15.1
Clark County	1,976,925	2,293,764	1.6	16
Las Vegas city CDP	591,496	650,873	1.0	10
North Las Vegas city CDP	219,725	270,773	2.3	23.2
Indian Springs CDP	863	736	-1.5	-14.7

Source: USCB 2013, 2023a
AARG = average annual growth rate; CDP = Census Designated Place

3.13.1.2 Employment

The 2023 estimated labor force participation and unemployment rates in the ROI are listed in **Table 3-18**, along with the rates for Nevada and the US.

Table 3-18 Employment Characteristics

Location	Labor Force Participation Rate[a] (%)	Unemployment Rate
United States	63.5	5.2
Nevada	63.1	6.8
Clark County	63.7	7.4

Source: USCB, 2023b
a Refers to the working-age civilian population (those 16 years of age or older) who are employed or actively seeking work.

The ROI, Clark County, had higher labor force participation and unemployment rates than both the state and nation, although the labor force participation rates are similar across all three locations (USCB, 2023c).

The top three industries by employment (industries with the three highest percentages of civilian employed population 16 years and over) in the ROI, along with the top three industries in Nevada and the US, are listed in **Table 3-19**.

Table 3-19 Top Three Industries by Employment per Location

Location	Industry 1	Industry 2	Industry 3
United States	Educational services; and healthcare and social assistance	Professional, scientific, and management; and administrative and waste management services	Retail trade
Nevada	Arts, entertainment, and recreation; and accommodation and food services	Educational services; and healthcare and social assistance	Professional, scientific, and management; and administrative and waste management services
Clark County	Arts, entertainment, and recreation; and accommodation and food services	Educational services; and healthcare and social assistance	Professional, scientific, and management; and administrative and waste management services

Source: USCB, 2023b

The top industry by employment in the ROI was the arts, entertainment, and recreation; and accommodation and food services industry. This was also the top industry for Nevada, while the

top industry nationwide was educational services; and healthcare and social assistance (USCB, 2023c).

The top employer in the ROI is the DAF (Nevada Department of Employment, Training and Rehabilitation, 2024). Creech AFB currently employs approximately 3,000 individuals.

3.13.1.3 Housing

There is no government housing on Creech AFB. DAF personnel interested in living in Base housing are referred to Nellis AFB, located approximately 50 miles southeast of Creech AFB. Housing on Nellis AFB is privatized and is managed by Hunt Military Communities (DAF, 2018).

At Nellis AFB, approximately 2,360 active-duty personnel and their families live on Base. Both the privatized family housing and the dormitories at Nellis AFB adequately meet existing mission requirements and have opportunities for development and mission expansion (DAF, 2018). The remainder of the active-duty personnel and dependents associated with Nellis AFB live off Base and utilize housing resources in the surrounding communities.

Outside of on Base housing opportunities at Nellis AFB for active-duty personnel, many working at Creech AFB (both active-duty and civilian) opt to live in the more populated areas of Clark County, closer to the city of Las Vegas; however, the closest off-Base housing for those employed at Creech AFB is available in Indian Springs CDP, a small, unincorporated town with limited amenities. Indian Springs CDP's housing availability is limited due to its size and population. Housing characteristics for the ROI as well as for the county, state, and nation are presented below in **Table 3-20**.

Table 3-20 Housing Characteristics

Housing Characteristic	Indian Springs CDP	Las Vegas City CDP	North Las Vegas City CDP	Clark County	Nevada
Total units	397	263,958	91,524	935,960	1,307,338
Owner-occupied (percent)	67.6	55.7	62.7	57	59.3
Renter-occupied (percent)	32.4	44.3	37.3	43	40.7
Vacant units	91	19,529	5,710	88,582	123,945
Homeowner vacancy rate[a] (percent)	5.9	1.1	0.6	1.2	1.2
Rental vacancy rate[b] (percent)	28.3	4.6	5.4	7.0	6.7
Median value[c] ($)	319,100	395,300	372,300	400,800	406,100
Median rent ($)	943	1,456	1,605	1,518	1,489

Source: USCB, 2023c
a Homeowner vacancy rate is the proportion of the homeowner inventory that is vacant "for sale."
b Rental vacancy rate is the proportion of the rental inventory that is vacant "for rent."
c Median value of owner-occupied units.
CDP = Census Designated Place

Indian Springs CDP has a small number of vacant units compared to the rest of the ROI and has a rental vacancy rate that is notably higher than any other location listed in **Table 3-20**. While other areas of the ROI, Las Vegas and North Las Vegas city CDPs, have rental vacancy rates that are more reflective of state and national trends, they have many more vacant units available. Clark County has a higher vacancy rate than the ROI, the state, and the US, apart from Indian Springs CDP. The median values of housing units in both Las Vegas and North Las Vegas city CDPs are

approximately $69–$92,000 higher than the national median value but are lower than the median values in Clark County and Nevada. In Indian Springs CDP, the median rent is markedly lower than in the rest of the ROI. The median value of housing units in Indian Springs CDP, however, while lower than the median values in the rest of the ROI, the county, and the state, is higher than the national median value by approximately $16,000, which could suggest a more competitive market due to limited availability (USCB, 2023c).

3.13.1.4 Schools

The Clark County School District (CCSD), the fifth largest in the US with an enrollment of more than 300,000 students, provides education within the ROI (Nellis AFB, 2025). The CCSD operates 233 elementary schools, 61 middle schools, 53 high schools, and 34 specialized magnet schools (public schools with specialized courses of study) and career and technical academies. In addition, there are various charter and private school options (DoD, 2025a).

There are no schools located at Creech AFB. Indian Springs Schools, located south of Creech AFB, provides education from pre-Kindergarten through 5th grade at the Indian Springs Elementary School and 6th through 12th grade at the Indian Springs Middle/High School. Enrollment at the Indian Springs Elementary and Middle/High Schools as of May 2025 was 133 elementary-aged students, 85 middle school students, and 123 high school students (CCSD, 2025).

Education opportunities for elementary school-aged children are available on Base at Nellis AFB via the Coral Academy of Science, a pre-Kindergarten through 8th grade charter school that accepts students based on a lottery system (DoD, 2025a). Off Base, the Lomie G. Heard Elementary School, the Carroll M. Johnston Middle School, and the Mojave High School are the schools in the northwest Las Vegas Valley that are zoned for or generally serve the Nellis AFB area (Nellis AFB, 2025).

Several higher education facilities and programs can be found at Nellis AFB, including the College of Southern Nevada, Embry-Riddle Aeronautical University, and University of Oklahoma (DoD, 2025b). There are also numerous higher education facilities in the surrounding area, including Nevada State University, the University of Nevada Las Vegas and its Reno Extension, and the Northwest Career College.

In recent years the CCSD has been dealing with overcrowding challenges which have led to discussions of reallocating resources and transferring students to schools that are operating under capacity (Lane, 2024). The Indian Springs Elementary School is currently operating over its program capacity of 93 students with 133 enrolled as of May 1, 2025. The Indian Springs Middle/High School is operating under its program capacity of 618 students with 85 middle school students and 123 high school students enrolled for a total of 208 students.

The elementary, middle, and high schools that generally serve Nellis AFB are operating below their program capacity as of May 1, 2025 (CCSD, 2025).

3.13.1.5 Public Services

On Creech AFB, the 432nd Security Forces Squadron provides law enforcement services, responds to incidents, and provides security. The Clark County Police Department responds to incidents that occur in the ROI outside of the Installation's boundaries (DAF, 2019).

The Creech AFB Fire Department, located in the Airfield District, and the Clark County Fire Department provide fire and emergency services in the ROI, including Creech AFB. The Clark

County Fire Department is supported by 30 locations throughout Clark County, with 10 stations operated by volunteers. Because of the large size (region and population) of the county and many volunteer first responders, Creech AFB occasionally responds to calls off the Installation, such as in Indian Springs CDP (DAF, 2015). Clark County Fire District Station 83 is located in the Indian Springs CDP.

There are no hospitals on Creech AFB; medical services for Creech AFB personnel are routed through Nellis AFB or other local community doctors. There is a medical aid clinic on Creech AFB that provides routine medical services to the Installation, but it is not equipped to provide emergency medical care (DAF 2015, 2019). There are no urgent care or medical facilities in Indian Springs CDP; however, as common in any metropolitan area, medical facilities are abundant throughout the Las Vegas Valley outside of the ROI, including several hospitals and smaller, non-emergency clinics.

3.13.2 Environmental Consequences

3.13.2.1 Evaluation Criteria

Consequences to socioeconomic resources are assessed in terms of the potential impacts on the local economy from implementation of a proposed action. The level of impacts from expenditures associated with Alternatives 1 and 2 was assessed in terms of direct impacts on the local economy and indirect impacts on other socioeconomic resources (e.g., housing, employment). The magnitude of potential impacts can vary greatly depending on the location of an action. For example, implementation of an action that creates 10 employment positions might be unnoticed in an urban area but might have significant impacts in a rural region. In addition, if potential socioeconomic changes from a Proposed Action and Alternatives result in substantial shifts in population trends or in adverse effects on regional spending and earning patterns, such changes may be considered adverse.

3.13.2.2 Alternative 1

Population

Under Alternative 1, 554 additional personnel would be required to support the EOU and TT-1 units. Of those, 156 would be civilians or contractors. The remaining 398 would be active duty. It is likely that some civilian and contractor personnel would be hired from within the ROI; however, the reassignment of active-duty personnel to Creech AFB from other DAF installations outside of the ROI would be anticipated. To capture the maximum potential impact, this analysis assumes all 554 civilian, contract, and active-duty personnel would relocate from outside of the ROI. The number of dependents associated with the additional personnel would be anticipated to be approximately 900 and of those dependents, approximately 540 would be anticipated to be school-aged. With implementation of Alternative 1, a maximum potential of 1,454 total individuals would relocate to the ROI. This equates to approximately 198 percent of the current estimated population of Indian Springs, but less than 1 percent of the combined current estimated population of Las Vegas and North Las Vegas. While Indian Springs is the nearest town to Creech AFB, many personnel employed at Creech AFB choose to live in the more populated areas of the ROI, such as Las Vegas and North Las Vegas. The increase in personnel in the ROI would have the potential to result in negligible beneficial impacts by contributing to continued population growth. Therefore, implementation of Alternative 1 would result in long-term, negligible-to-minor, beneficial impacts to population in the ROI.

Employment

Under Alternative 1, construction, demolition, and renovation activities associated with the Proposed Action would create a temporarily increased demand for local building and construction contractor personnel. This temporary increase in the need for labor would have the potential to result in short-term, minor, beneficial impacts to employment in the ROI. The need for increased civilian and contractor personnel to support the EOU and TT-1 units under Alternative 1 would also have the potential to result in long-term, minor, beneficial impacts employment in the ROI by creating permanent positions that could be filled in part by civilians and contractors from the local area. Therefore, implementation of Alternative 1 would result in short- and long-term, minor beneficial impacts to employment in the ROI.

Housing

Under Alternative 1, up to approximately 1,454 people would have the potential to relocate to and need housing resources in the ROI. As Creech AFB does not have housing, any DAF personnel interested in residing in Base housing would need to live at Nellis AFB in North Las Vegas. Nellis AFB has adequate housing resources to meet existing mission requirements, and incoming active-duty personnel could work with the Nellis AFB Military Accompanied Family Housing Office to explore housing opportunities (DAF, 2018; DoD, 2025c). While Indian Springs is the nearest town to Creech AFB for off-Base housing, there are not enough available housing units in Indian Springs to accommodate the maximum number of additional personnel and dependents that would have the potential to relocate to the ROI. However, many personnel employed at Creech AFB choose to live in the more populated areas of the ROI, such as Las Vegas and North Las Vegas, both of which have enough available housing to accommodate the needs of the additional personnel that would be associated with Alternative 1. Further, filling housing vacancies would support the housing market and local economy. Implementation of Alternative 1 would result in long-term, negligible, beneficial impacts to housing.

Schools

Under Alternative 1, a maximum of approximately 540 school-aged dependents would have the potential to relocate to the ROI. As stated above, many personnel employed at Creech AFB choose to live in the more populated areas of Las Vegas and North Las Vegas. The age and grade level of dependents would vary, and they would be spread across elementary, middle, and high school. The Indian Springs Elementary School was operating above its program capacity as of May of 2025. Depending on the number of families associated with personnel increases that decide to reside in Indian Springs and have elementary-school-aged children, implementation of Alternative 1 potentially would result in long-term, moderate, adverse impacts to Indian Springs Elementary School due to increasing the strain on already overburdened educational resources. The Indian Springs Middle/High School was operating below capacity by approximately 533 students; implementation of Alternative 1 would result in no impacts to Indian Springs Middle/High School because there is available program capacity.

The elementary, middle, and high schools that generally serve Nellis AFB were operating under program capacity as of May 2025 and would be able to accommodate an increase in enrollment under Alternative 1. For Creech AFB personnel choosing to live in Las Vegas or North Las Vegas, there are multiple options for primary, secondary, and higher education. While the CCSD has the overall program capacity to accommodate any additional school-aged dependents under Alternative 1, educational resources in the CCSD generally continue to be under strain until further

solutions are put in place to manage capacity concerns. Therefore, implementation of Alternative 1 would result in long-term, negligible, adverse impacts to schools in Las Vegas and North Las Vegas.

Public Services

Alternative 1 would have no impact to public services in the ROI. Alternative 1 would not be anticipated to contribute to an increase in demand for police, fire, or hospital services.

3.13.2.3 Alternative 2

Under Alternative 2, potential impacts to socioeconomic conditions would be the same as those discussed for Alternative 1.

3.13.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. The additional 1,454 personnel and dependents would not relocate to the ROI. No changes to socioeconomic resources would be expected to occur beyond baseline conditions.

3.13.2.5 Cumulative Effects

When combined with the projects identified in **Table 3-1**, implementation of the Proposed Action would result in short-term, minor impacts to socioeconomics. Under the IDP EA, Creech AFB proposes to implement 36 short-term development projects, including demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community facility upgrades, and infrastructure improvement. CCSD has proposed construction and demolition activities to replace the existing Indian Springs Schools buildings with new facilities. Construction was set to begin during the 2027-2028 school year but has been paused for one year as of April 2025. If these projects were to begin moving forward again while construction activities for Alternatives 1 and 2 would be taking place, temporary, short-term, beneficial cumulative impacts to employment in the ROI would be anticipated to occur. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions at Creech AFB, no cumulative effects to socioeconomics would be anticipated to occur with implementation of Alternatives 1 and 2.

3.14 HAZARDOUS MATERIALS AND WASTES, TOXIC SUBSTANCES, AND CONTAMINATED SITES

The ROI for HAZMAT and hazardous waste is Creech AFB.

3.14.1 Affected Environment

3.14.1.1 Hazardous Materials and Waste and Toxic Substances

Hazardous substances are used at Creech AFB for aircraft operations support and maintenance, including petroleum, oils, and lubricants management and distribution. HAZMAT is managed in accordance with the Creech AFB Hazardous Materials Management Plan, which regulates the approval, acquisition, utilization, and storage of hazardous materials used at Creech AFB. Types of hazardous substances found on Creech AFB include paints, solvents, thinners, adhesives, aircraft fuel, diesel, gasoline, lubricants and oils, hydraulic fluids, cleaners, batteries, acids, refrigerants, herbicides, insecticides, rodenticides, and compressed gases (DAF, 2023e).

Hazardous and toxic substance disposal procedures are identified in the Creech AFB Hazardous Waste Management Plan, and all waste is disposed of in compliance with federal, state, and local

regulations (DAF, 2023e). The USEPA considers Creech AFB a small-quantity generator of hazardous waste and maintains the Hazardous Waste EPA ID Number NV0570090019 (DAF, 2021b). To maintain the small-quantity generator status, the facility cannot dispose of more than 2,200 pounds (lbs) of hazardous waste per month. Hazardous waste at Creech AFB is collected at the central accumulation point (B255), initial accumulation points, and universal waste collection centers (DAF, 2023e). The Hazardous Waste Management Plan also includes processes and waste-handling procedures for general and aircraft maintenance activities (DAF, 2023e).

Buildings located on Creech AFB may contain asbestos-containing material (ACM). These materials were commonly used during construction on buildings built from the 1940s through the 1980s. Nonfriable asbestos are not considered HAZMAT until removed or disturbed. Buildings constructed prior to 1977 are likely to contain friable asbestos in building materials. Disruption of these materials may cause asbestos to become airborne, producing a risk of inhalation. The Air Force manages asbestos in accordance with Air Force Instruction 32-1001, *Civil Engineer Operations*, and applicable USEPA regulations (USEPA, 2024).

Occupational Safety and Health Administration and the USEPA have determined that human exposure to lead is an adverse health risk. Sources of exposure to lead include dust, soils, and lead-based paint (LBP). In 1973, the Consumer Product Safety Commission established a maximum lead content in paint of 0.5 percent by weight in a dry film of newly applied paint. In 1978, under the *Consumer Product Safety Act* (15 USC §§ 2051–2089), the Commission lowered the allowable lead level in paint to 0.06 percent (600 parts per million). The Act also restricted the use of LBP in nonindustrial facilities. The DoD implemented a ban on LBP use in 1978; therefore, it is possible that facilities constructed prior to or during 1978 may contain LBP.

Fuel Storage

At Creech AFB, fuel is stored in the Bulk Fuel Storage Area, which consists of B115, B117, and B121 to the south of the airfield in the Southside Operations District. The fuel is stored in aboveground storage tanks, and the Installation has a total capacity of 171,000 gallons. Fuels managed in this area include aviation fuel (Jet-A) and unleaded gasoline. Jet fuel (JP-8) is also stored in B278 (DAF, 2021b).

Radon

The USEPA radon zone for Clark County, Nevada, is Zone 3 (low potential, predicted indoor average level less than 2 pCi/L); however, radon potential throughout the county can vary (USEPA, 2024a). Because of the low probability of the Proposed Action changing the overall risk, this resource is not carried forward for analysis in this EA.

3.14.1.2 Contaminated Sites

At Creech AFB, there are nine active and three closed Environmental Restoration Program (ERP) sites.[7] As illustrated in **Figure 3-8 (Appendix A)**, eight of the nine active ERP sites are located on areas where historic aqueous film-forming foam (AFFF) release is known to have occurred, and the ninth active site is located on an area where a leak of JP-8 from a bulk fuel farm pipeline release is known to have occurred. The three closed ERP sites are former landfills.

[7] Under the ERP initiated in 1980, a subcomponent of the Defense ERP that became law under the *Superfund Amendments and Reauthorization Act*, each DoD installation is required to identify, investigate, and clean up hazardous waste disposal or release sites. Remedial activities for ERP sites follow the Hazardous and Solid Waste Amendments under the *Resource Conservation and Recovery Act* Corrective Action Program.

Per- and Polyfluoroalkyl Substances

The current fire training area has no history of AFFF usage (USACE, 2016). Historically, one former fire training area (AFFF #1) utilized training activities that included the release of unknown quantities of AFFF on bare soil with no liner or collection system. Hangars 707 (AFFF #2) and 718 (AFFF #3) had been equipped with AFFF fire suppression systems; however, there have been no reported releases of AFFF from these systems. Prior to 2016, biennial testing of the system involved the release of approximately 25 gallons of AFFF mixture in the vicinity of the hanger's concrete approach aprons on the northern sides of both buildings. Therefore, areas in the vicinity have the potential for impacted media due to the possibility of unreported historical release (AFCEC, 2022).

There are two fire stations located on Creech AFB. Prior to the 2017 AFFF phase-out, both fire stations had fire emergency vehicles that were equipped with AFFF storage; Fire Station 2 (AFFF #5) was the primary location for AFFF storage. AFFF resupply of fire emergency vehicles occurred on the approach apron on the northern side of Fire Station 1 (AFFF #4) and on the apron on the south side of Fire Station 2. Small releases of AFFF during resupply would flow onto the adjacent paved areas with the potential to reach unpaved areas. Several 55-gallon drums of AFFF were stored in a designated storage room. There are no reported releases of AFFF at either fire station, and the supply of AFFF was replaced with foam that reduced perfluorooctanesulfonic acid and perfluorooctanoic acid exposure from 2011 to 2017 (AFCEC, 2017). There are three known historical aircraft crash sites where AFFF was released. The emergency response, including the release of unknown quantities of AFFF, occurred in an unpaved area in 1982 directly northwest of Taxiway D (AFFF #7); in 1994 in an open area 250 feet north of Creech AFB Runway 08/26 (AFFF #6); and in 2013 in open desert land about half a mile northeast of the Installation (not shown on the figure) (AFCEC, 2022).

3.14.2 Environmental Consequences

3.14.2.1 Evaluation Criteria

A significant impact to HAZMAT and hazardous wastes, petroleum/oil/lubricants, toxic substances, and contaminated sites within the ROI would occur if the Proposed Action

- is noncompliant with applicable federal and state regulations;
- increases amounts of hazardous waste generated or procured beyond Creech AFB's current waste management procedures and capacities; or
- disturbs or creates contaminated sites resulting in negative effects on human health or the environment.

Impacts to ERP sites would be considered adverse if the Proposed Action disturbs (or creates) contaminated sites resulting in adverse effects to human health or the environment. Physical development of contaminated sites could expose construction and maintenance workers, visitors, occupants, or ecological systems to potential hazards associated with contaminants.

3.14.2.2 Alternative 1

Hazardous Materials and Wastes and Toxic Substances

Under Alternative 1, a limited use of certain HAZMAT would be required during construction, renovation, and demolition activities. Such HAZMAT might include paints, welding gases, solvents, preservatives, sealants, and pesticides. Additionally, hydraulic fluids and petroleum

products, such as diesel and gasoline, would be anticipated to be used in construction and demolition equipment and vehicles. As such, Alternative 1 would have the potential for the accidental discharge or spill of HAZMAT that could contaminate the environment or result in exposure of persons to such contaminants.

Construction activities associated with Alternative 1 would have the potential to unearth contaminants in environmental media not yet known or identified for management action. Even without a major release or discovery event, multiple minor releases of HAZMAT could affect the environment or persons in the vicinity. As a precaution to ensure potable water sources are not contaminated, Creech AFB has implemented BMPs that limit mission actions involving potential HAZMAT to beyond 200 feet of any production well, monitoring well, or natural spring, unless such actions are mission critical (DAF, 2023e).

Concerns of ACM, LBP, and polychlorinated biphenyls (PCBs) are associated with the age of a building, specifically buildings constructed during or before 1974. The use of ACM, LBP, and PCBs was banned in 1977, 1978, and 1979, respectively. Buildings associated with Alternative 1 would not be expected to contain ACM, LBP, or PCBs, as they were all constructed after 1984.

With the use of appropriate BMPs, implementation of Alternative 1 would result in short-term, minor, adverse impacts to HAZMAT and hazardous wastes, toxic materials, and contaminated sites.

Fuel Storage

An additional aboveground fuel tank would be added as part of Alternative 1. The exact size of the tank is not known at this time and the rate of fuel usage for the CCA has not yet been determined. The aboveground storage tank and associated fuel transfer facilities would be fully enclosed within adequate secondary containment, equipped with adequate spill response equipment and supplies, and added to the Nellis/Creech AFB SPCC Plan and Facility Response Plan. Implementation of Alternative 1 would result in no adverse impacts to fuel storage.

Contaminated Sites

Of the ERP sites, only AFFF #3 and AFFF #4 are located within the Southside Development Area. AFFF #3 is located around B718, which is proposed for interior renovations only. AFFF #4 is located in the location of Fire Station 1, which would not be impacted under Alternative 1. Implementation of Alternative 1 would result in no adverse impacts to these ERP sites.

3.14.2.3 Alternative 2

Under Alternative 2, potential impacts to HAZMAT and hazardous wastes, toxic substances, and contaminated sites would be the same as those discussed for Alternative 1.

3.14.2.4 No Action Alternative

Under the No Action Alternative, the CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. No changes to HAZMAT and hazardous wastes, toxic substances, and contaminated sites at Creech AFB would be expected to occur beyond baseline conditions.

3.14.2.5 Cumulative Effects

When combined with projects identified in **Table 3-1**, implementation of the Proposed Action would result in short-term, minor, adverse impacts to hazardous wastes and materials. The High Desert State Prison and Southern Desert Correctional Center projects would enhance infrastructure

through the replacement of utility piping and cabling at the facilities. These projects would not be anticipated to overlap or impact planned projects that would occur at Creech AFB.

Under the IDP EA, Creech AFB proposes to implement 36 short-term development projects, including demolition of aging facilities, new facility construction, facility upgrades, facility repair and renovation, utilities upgrades, community facility upgrades, and infrastructure improvement. The timeline of these construction projects could overlap with the Proposed Action. Only short-term, minor, adverse impacts to hazardous wastes and materials would be anticipated to occur. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions and planned actions at Creech AFB, no significant cumulative impacts to HAZMAT and hazardous wastes, toxic substances, and contaminated sites would be anticipated to occur with implementation of the Proposed Action.

3.15 INFRASTRUCTURE, INCLUDING TRANSPORTATION AND UTILITIES

The ROI for infrastructure is Creech AFB and the external infrastructure components and services relied upon to operate the Installation.

3.15.1 Affected Environment

3.15.1.1 Transportation

Creech AFB is only accessible via US-95 along the southern boundary of the Installation with vehicle entry through the East Gate. The East Gate, located just north of US-95, is the primary access control point and is manned 24 hours a day for the entry of personnel, goods, and equipment. The East Gate can be accessed via Perimeter Road or Viper Road and is approximately one mile from the Installation boundary. Mass transit is not available at Creech AFB, but an on-Base shuttle is available for transit between the south side and north side of the Base (DAF, 2015, 2019).

The primary roadway network is largely free of traffic congestion and backups apart from peak morning hours on the south side of the Installation. The roadway network at Creech AFB is made up of primary roads, such as Perimeter Road, that carry most of the traffic; secondary roads that distribute traffic from primary roads to local streets; and tertiary roads that connect individual parcels of land to secondary roads. Although the roadway network is in adequate condition, the design is inefficient and lacks the capacity to effectively support the facilitation of traffic flow throughout the Installation. Additionally, the shortage of available parking spaces near mission facilities has led to the use of unpaved areas as makeshift parking lots (DAF, 2015, 2019).

3.15.1.2 Electricity and Natural Gas

NV Energy owns and operates a 12.5-kilovolt electrical substation that supplies power to both Creech AFB and Indian Springs. However, the substation is close to capacity based on a study completed in 2015 (DAF, 2015). If the substation fails, the Nevada Energy would provide mobile generators to sustain temporary power until the substation is operational (DAF, 2019). The constraint of the transmission system has been identified by Nevada Energy and is planned to be mitigated through a traditional capital upgrade project in 2026 (Nevada Power Company, 2025).

Medium voltage electrical power is supplied to Creech AFB by Valley Electric Association through a privatized contract that is valid until 2063. Creech AFB uses three electrical feeders that are connected to a main Base transformer with a power capacity of 6,000 kilovolt-amperes. Diesel-powered generators are used to provide power when running electricity is not available (DAF, 2015). In 2023, Creech AFB worked with DoD and commercial utility providers to be retrofitted

with redundant power technologies to ensure that impacts to mission efficiency from outages is mitigated (Creech AFB, 2023).

There are no natural gas distribution systems to which Creech AFB can connect; therefore, the Installation does not use natural gas. Rather, the Installation uses propane gas that sufficiently provides adequate supply and distribution. Propane is transported onto the Installation via trucks through a contract service. Because there is no natural gas system within the ROI, this resource is not carried forward for analysis in this EA (DAF, 2015).

3.15.1.3 Potable Water Supply

Drinking water is supplied through three on-Base operating wells constructed in 2009 to draw from local groundwater sources. The water supply system has a capacity of approximately 57 million gallons per year, which is sufficient capacity to meet current and future demands for potable water supply. While the water supply system provides an adequate supply of potable water to meet duration, flow rate, and pressure requirements for industrial and domestic consumption, the system does not meet fire protection needs (DAF, 2019).

3.15.1.4 Sanitary Sewage/Wastewater

Creech AFB is connected to the Indian Springs Water Reclamation Facility that is operated by the Clark County Water Reclamation District and offers sufficient capacity to meet existing and future mission requirements. The wastewater system consists of both gravity and force mains that convey wastewater to the Indian Springs Water Reclamation Facility (DAF, 2019). The sanitary sewer system collects domestic sewage from commercial buildings, as well as industrial wastewater discharged from industrial facilities primarily in the form of releases from all onsite oil-water separators. The oil-water separators on Creech AFB are used to prevent potential sources of pollution from entering the sanitary or storm water drainage system. Pass-through flow from the oil-water separators that are connected to the sanitary sewer system are directed to the Clark County wastewater treatment facility. Within the Installation, 11 active and 2 inactive oil-water separators are used to prevent potential sources of pollution from entering the sanitary or stormwater drainage systems (DAF, 2023d).

Located on the southern side of the Base where the Proposed Action would occur are Vehicle Wash Stations. Routine vehicle and equipment washing is part of normal maintenance and care, as well as reducing the potential for spreading materials accumulated by vehicles and equipment. Wash racks are closed loop and some have berms to collect the wastewater and/or sloped to direct the wastewater through an oil-water separator for pretreatment, prior to discharge to the sanitary sewer. As such, the wastewater from the approved washing areas does not present a potential pollutant source to stormwater (DAF, 2023d).

Stormwater collects throughout the Base in a series of unlined channels. The primary drainage area that discharges stormwater from the district drains to an 18-foot wide by four-foot deep unlined channel. The drainage channel routes stormwater to a three-foot diameter corrugated metal pipe that runs under Perimeter Road before discharging back to the channel, which then exits the Base boundary and extends into the BLM/NTTR property. Stormwater outfalls associated with industrial activities on the Base, including AGE, maintenance and washing for aircraft, vehicles and equipment, grounds maintenance activities, hazardous waste storage, recycling activities, and bulk fuel storage and fuel transfer activities are permitted for discharge under Nevada Department of Environmental Protection Permit# NVR050000.

3.15.1.5 Solid Waste Management

Creech AFB follows state and federal regulations for solid waste management in accordance with the Installation's Integrated Solid Waste Management Program. Changes in solid waste generation at the Installation correspond with variations in mission, organization, industrial processes, regulations, and relocation of units and activities. Municipal solid waste on Creech AFB is collected by Republic Services where it is transported to the APEX Regional Landfill (DAF, 2022). This landfill has a service life through 2379 with sufficient capacity to accommodate waste generation from current and future missions (USEPA, 2023). Industrial solid waste generated at the Installation is generally disposed of in a permitted Class I (municipal solid waste) or Class III (industrial solid waste) landfill based on the type of waste accepted at each facility.

Recyclable materials at the Installation are reused to the greatest extent possible. As Creech AFB does not operate a recycling center, recycled waste is collected and transported to Nellis AFB for processing through their recycling center. The Nellis AFB recycling center receives an annual average of 7.2 tons of co-mingled recyclables from Creech AFB, including mixed plastics, aluminum cans, paper and cardboard. There is no compostable waste on Creech AFB (DAF, 2022).

3.15.2 Environmental Consequences

3.15.2.1 Evaluation Criteria

Impacts to infrastructure and utilities would be considered significant if the proposed action caused an impairment of utilities service to the Installation and local communities, homes, or businesses. Impacts to traffic and transportation would be considered significant if the Proposed Action

- measurably changes or reduces service within the regional transportation network;
- causes a prolonged or repeated interruption of public transportation services regionally;
- causes prolonged or repeated service disruptions to utility end users; or
- substantially increases utility demand relative to existing and planned regional uses.

3.15.2.2 Alternative 1

Transportation

Under Alternative 1, there would be temporary increases in traffic with the transportation of equipment and vehicles used during construction. While this increase could result in temporary delays at the only access point through the East Gate, overall impacts would be short term and minor and would cease with completion of the construction activities.

Under Alternative 1, the addition of approximately 554 personnel (an increase of approximately 18 percent) potentially would result in long-term, minor, adverse impacts to transportation by generating higher traffic volumes on the Installation, particularly during peak commute hours, and a greater potential for congestion in areas of limited flow and at the access point.

A total of 154,000 ft^2 of new impervious surfaces would be constructed for vehicle parking for both EOU and TT-1 south of B719 and B707. Though the overall project would not include the development of new roads, the additional parking provided would reduce personnel parking on unpaved lots due to the lack of available parking spaces, resulting in long-term, minor, beneficial impacts.

Overall, Alternative 1 would result in a short- and long-term, minor, adverse increase in traffic from both construction and the proposed increase of personnel. Alternative 1 also would result in beneficial impacts to transportation due to the proposed new parking.

Electricity

Under Alternative 1, short-term, negligible, adverse impacts to the electrical distribution system could occur during construction and demolition activities due to temporary service interruptions when rerouting aboveground or underground electrical lines, disconnecting a building slated for demolition, or connecting a newly constructed facility to the Installation's electrical distribution system.

Under Alternative 1, long-term, minor, adverse impacts to the electrical system in the ROI could occur because the operation of newly constructed buildings would have the potential to increase the demand for electricity and may impact the Nevada Energy substation that has been reported as nearing maximum capacity. However, Creech AFB has been retrofitted with power technologies to increase redundancy and operates on an additional power supply through Valley Electric Association; this increase would not be expected to result in additional outages. Additionally, the planned 2026 improvement of the Nevada Energy substation would further increase the capacity to supply energy to the Installation.

Overall, Alternative 1 would result in short- and long-term, negligible-to-minor, adverse impacts to electricity.

Potable Water Supply

Under Alternative 1, new facilities would be developed in the Southside Development Area that would result in an increase in demand on potable water used. Additionally, the expansion of operations at the new facilities would increase personnel and contribute to a growing demand for potable water. The water supply system at Creech AFB has sufficient capacity to meet this increased demand. Implementation of Alternative 1 would result in short-term, minor, adverse impacts to the potable water system during connection to the new facilities.

Sanitary Sewage/Wastewater

Under Alternative 1, short-term, negligible, adverse impacts on the sanitary sewer and wastewater treatment system in the ROI could occur during construction and demolition activities due to temporary service interruptions when existing sewer/wastewater lines are connected to newly constructed facilities or capped as appropriate. Additionally, the expansion of operations at the new facilities would increase personnel and contribute to a growing demand for sanitary sewer and wastewater treatment. The Indian Springs Water Reclamation Facility has sufficient capacity to sustain this increased demand. Implementation of Alternative 1 would result in short-term, negligible, adverse impacts to the sanitary sewage/wastewater system during connection to the new facilities.

Solid Waste Management

Under Alternative 1, construction and demolition activities would generate solid waste in the form of construction and demolition debris. Construction projects generate approximately 4.39 lbs/ft^2 of construction activity and approximately 158 lbs/ft^2 from demolition projects (buildings and impervious surfaces) (USEPA, 2003). When considered for the proposed building construction and demolition projects, total debris under Alternative 1 would result in approximately 1,554 tons

of construction waste and 483 tons of demolition waste over the lifetime of the projects. In addition, the increase in personnel under the Proposed Action would marginally increase the solid waste produced on a daily basis.

Implementation of Alternative 1 would result in short-term, moderate, adverse impacts to solid waste management during construction and demolition. No long-term impacts to solid waste management would be expected because the projects would not appreciably increase the amount of solid waste generated on Creech AFB, and the APEX Regional Landfill has sufficient capacity to accommodate the waste generated under Alternative 1.

3.15.2.3 Alternative 2

Under Alternative 2, impacts related to infrastructure would be the same as those discussed for Alternative 1 with the exception of the amount of solid waste debris generated during construction and demolition activities.

Under Alternative 2, construction and demolition activities would generate solid waste in the form of construction and demolition debris. Using the USEPA reference data, total debris under Alternative 2 would result in approximately 1,825 tons of construction over the lifetime of the projects. The APEX Regional Landfill has sufficient capacity to accommodate the waste generated under Alternative 2.

3.15.2.4 No Action Alternative

Under the No Action Alternative, a CCA EOU and TT-1 would not be established. No new facilities in support of the CCA would be constructed at Creech AFB. No changes to infrastructure, including transportation and utilities, at Creech AFB would be expected to occur beyond baseline conditions.

3.15.2.5 Cumulative Effects

When combined with the projects identified in **Table 3-1**, implementation of the Proposed Action would result in moderate, short-term, adverse impacts to infrastructure, including transportation and utilities. The development projects associated with the Creech IDP would overlap the proposed construction under the Proposed Action. Moderate, short-term, adverse impacts to solid waste would be expected during these combined construction and demolition activities due to the increased demand on the solid waste system. The High Desert State Prison and Southern Desert Correctional Center projects would enhance infrastructure through the replacement of utility piping and cabling at the facilities. These projects would not be anticipated to overlap or impact planned projects that would occur at Creech AFB. When considered in conjunction with the effects of other past, present, and reasonably foreseeable actions and planned actions at Creech AFB, no significant cumulative impacts to infrastructure, including transportation and utilities, would be anticipated to occur with implementation of the Proposed Action.

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APPENDIX A. FIGURES

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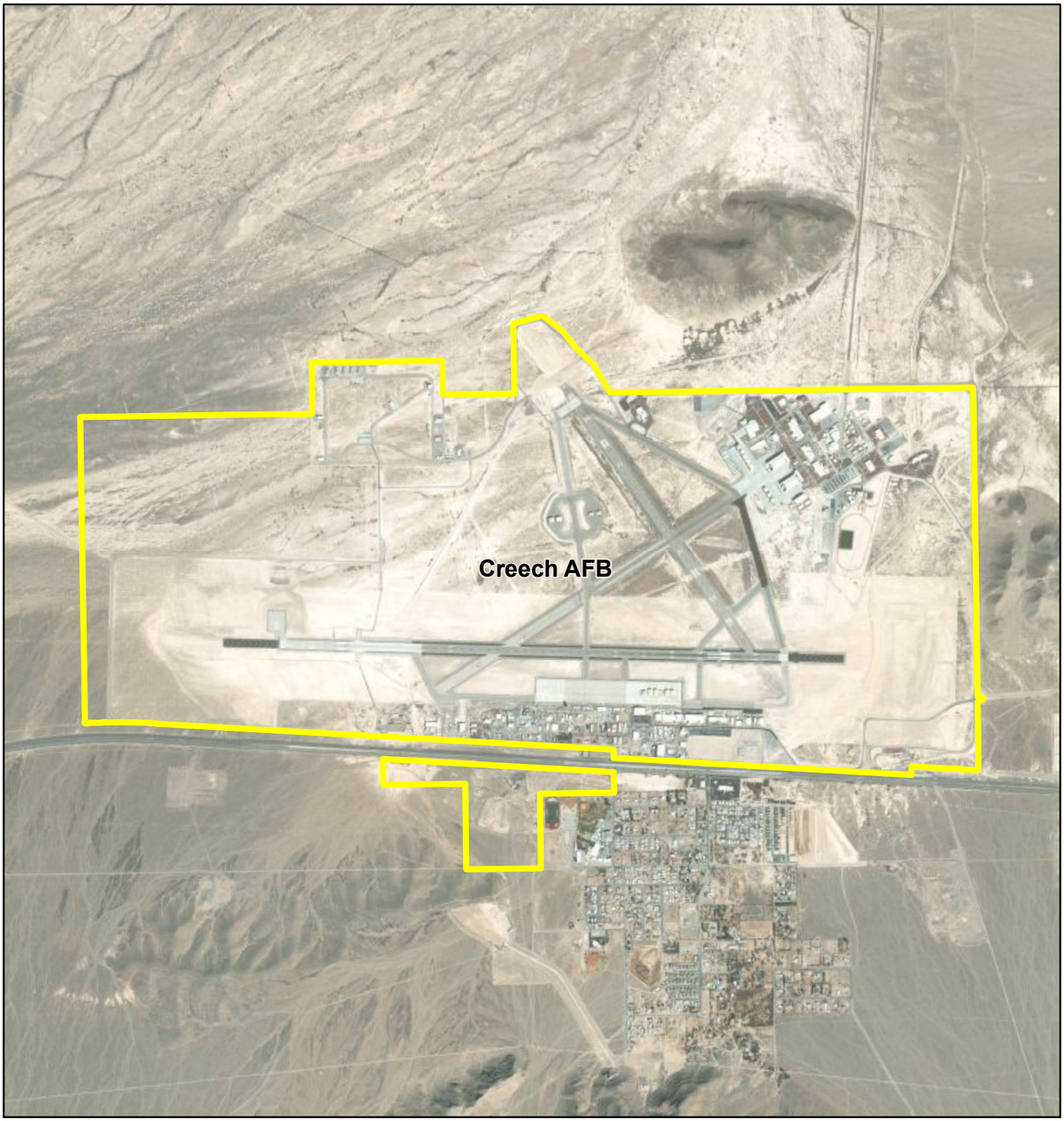


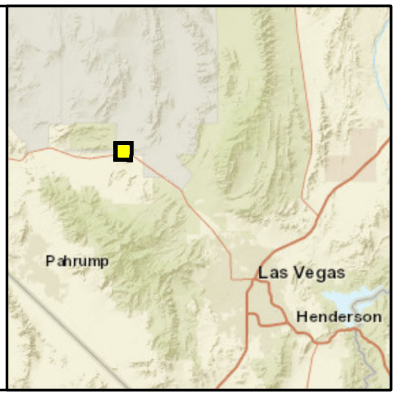
FIGURE 1-1
Creech Air Force Base

Installation Boundary

N

0 1 Mile

Imagery: Maxar 2021, 2024
Coordinate System: WGS 1984 UTM Zone 11N



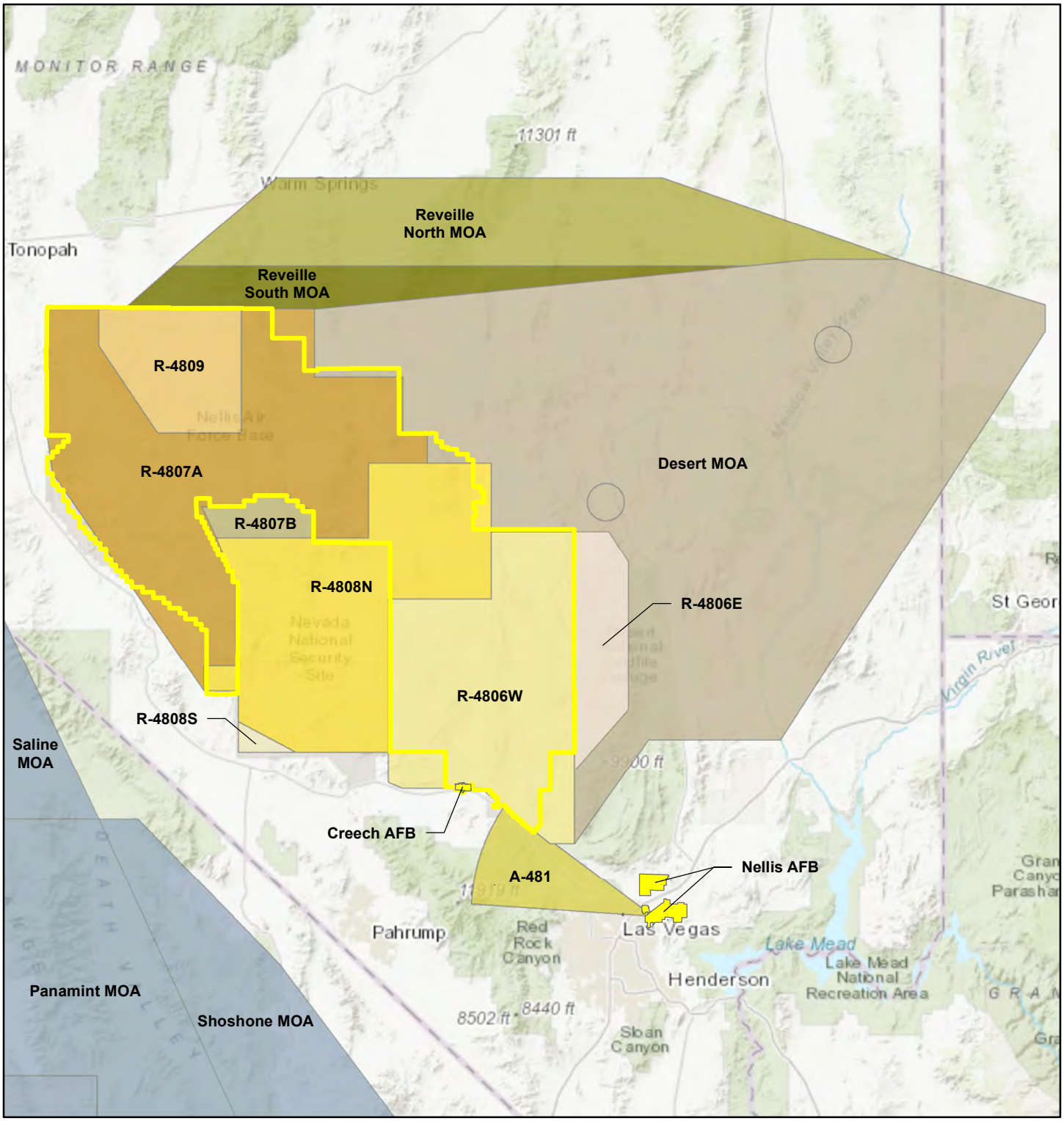


FIGURE 2-1
NTTR Airspace

NTTR	R-2508	R-4807B	Reveille North MOA
A-481	R-4806E	R-4808N	Reveille South MOA
Desert MOA	R-4806W	R-4808S	
Installation	R-4807A	R-4809	

MOA = military operations area; NTTR = Nevada Test and Training Range

N

0 50 Miles

Coordinate System: WGS 1984 Web Mercator (Auxilary Sphere)

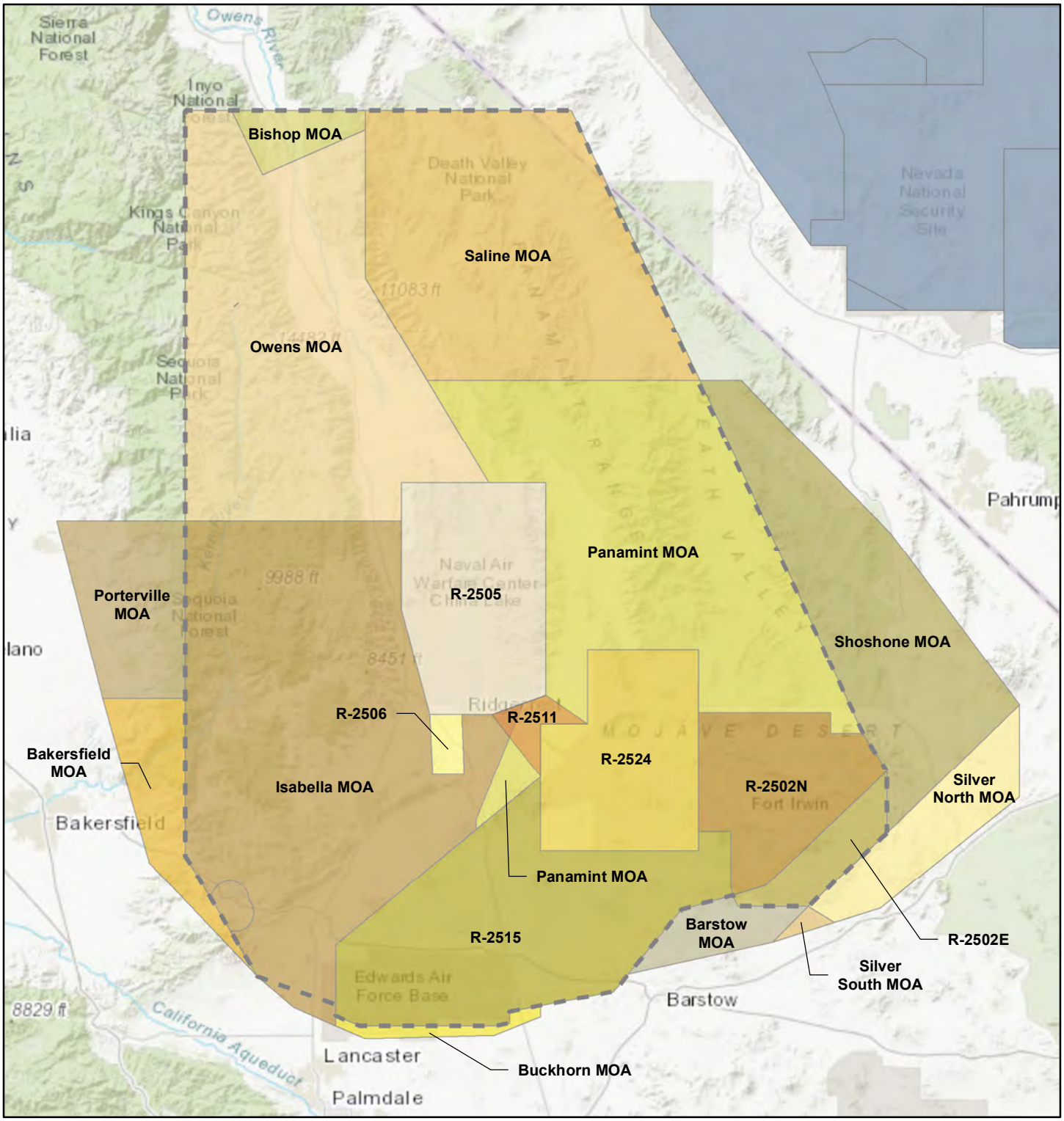


FIGURE 2-2
R-2508 Airspace

R2508
Bakersfield MOA
Barstow MOA
Bishop MOA
Buckhorn MOA
Isabella MOA
Owens MOA
NTTR Airspace
Panamint MOA
Porterville MOA
R-2502E
R-2502N
R-2505
R-2506
R-2511
R-2515
R-2524
Saline MOA
Shoshone MOA
Silver North MOA
Silver South MOA

MOA = military operations area; NTTR = Nevada Test and Training Range

N

0 50 Miles

Coordinate System: WGS 1984 Web Mercator (Auxiliary Sphere)

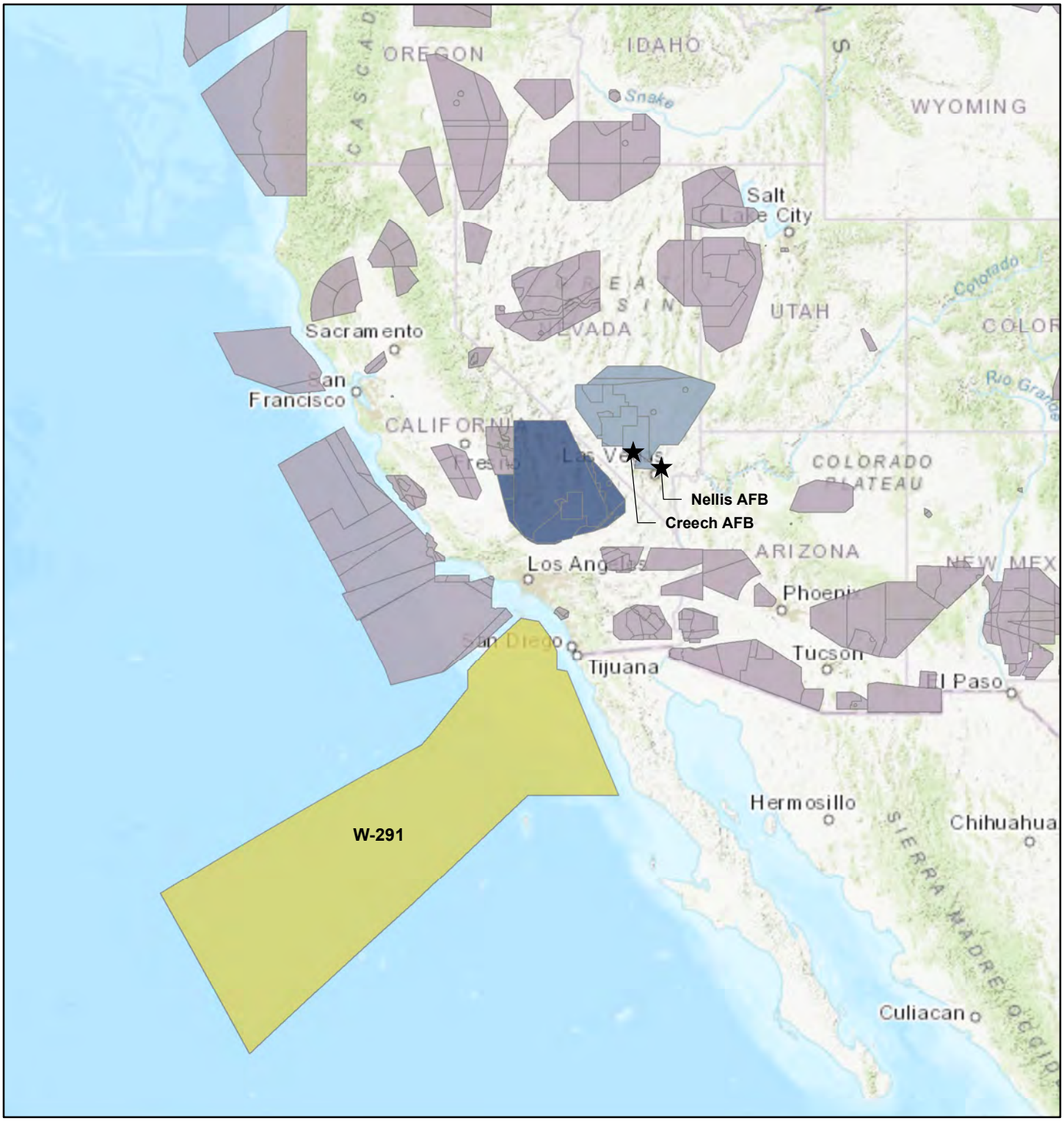


FIGURE 2-3
W-291 Airspace

★ Installation Point
NTTR Airspace
Other Special Use Airspace
R-2508 Airspace
W-291

N
0 400 Miles

Coordinate System: WGS 1984 Web Mercator (Auxiliary Sphere)

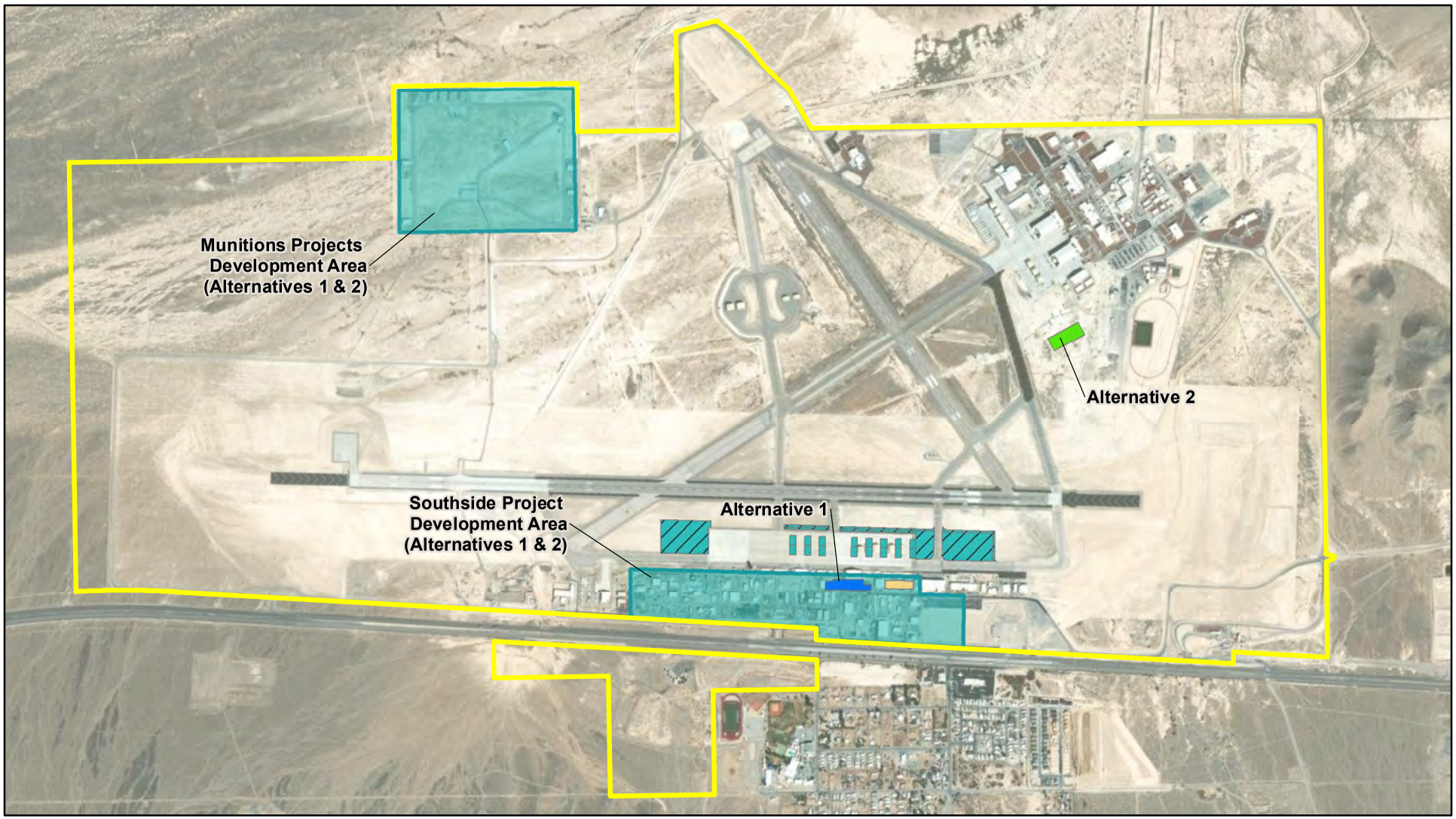


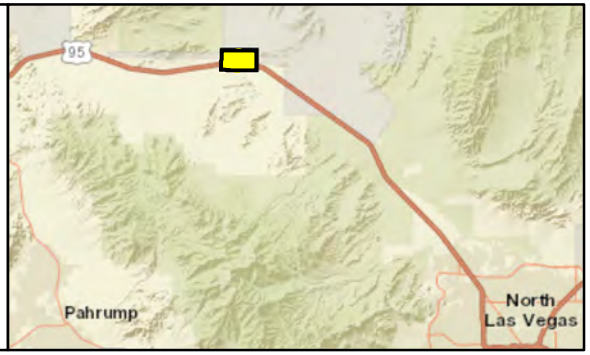
FIGURE 2-4
Project Location Overview*

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alternatives 1 & 2 Project (Paving)
- Alternative 2
- Project Building 718

N

0 1 Mile

Imagery: Maxar 2021, 2024
Coordinate System: WGS 1984 UTM Zone 11N



* Exact locations of Munitions Area projects are undetermined.

FIGURE 2-5
Alternatives 1 and 2 Project Locations*

* Munitions Projects Development Area pictured in inset map.

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alts 1 & 2 Project (Paving)
- Alternative 2 Project
- Building

N

0 0.25 Miles

Alts = alternatives; AMU = Aircraft Maintenance Unit

Imagery: Maxar 2021
Coordinate System: WGS 1984 UTM Zone 11N

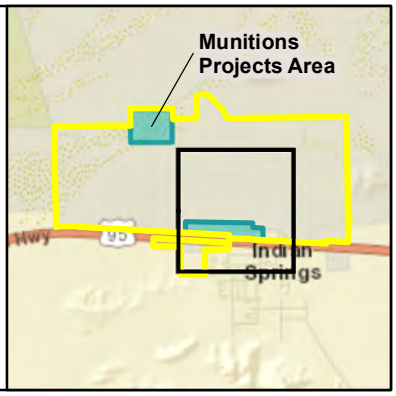


Figure 3-1
Baseline DNL Contours

Point of Interest
Installation Boundary

Baseline Noise Contour (dB DNL)
65
70
75

N

0 1 Mile

DNL = Day-Night Average Sound Level

Imagery: Maxar 2021
Coordinate System: WGS 1984 UTM Zone 11N

Figure 3-2
Alternative 1 and Baseline DNL Contours

Point of Interest
Installation Boundary

Alternative 1 DNL Contours
65
70
75
80
85

Baseline DNL Zones
65
70
75

DNL = Day-Night Average Sound Level

N

0 1 Mile

Imagery: Maxar 2021
Coordinate System: WGS 1984 UTM Zone 11N

Figure 3-3
Alternative 2 and Baseline DNL Contours

Point of Interest
Installation Boundary

Alternative 2 DNL Contours
65
70
75
80
85

Baseline DNL Zones
65
70
75

DNL = Day-Night Average Sound Level

N

0 1 Mile

Imagery: Maxar 2021
Coordinate System: WGS 1984 UTM Zone 11N

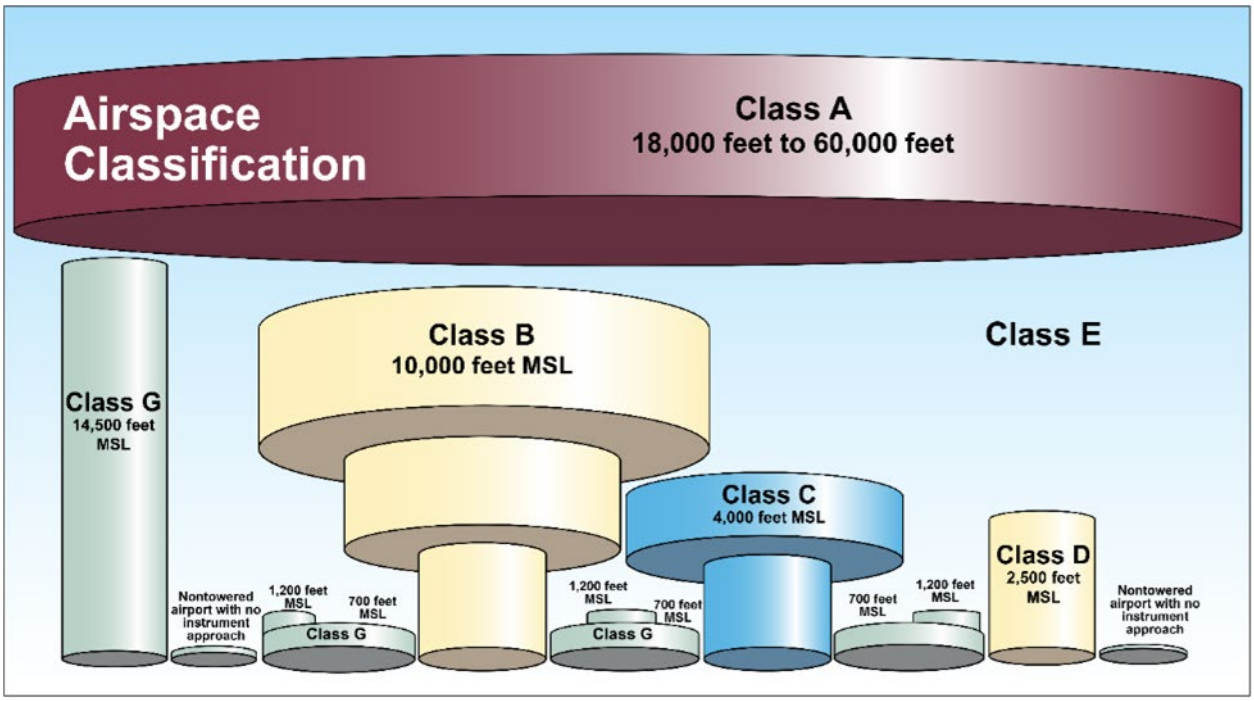


Figure 3-4 Airspace Classification

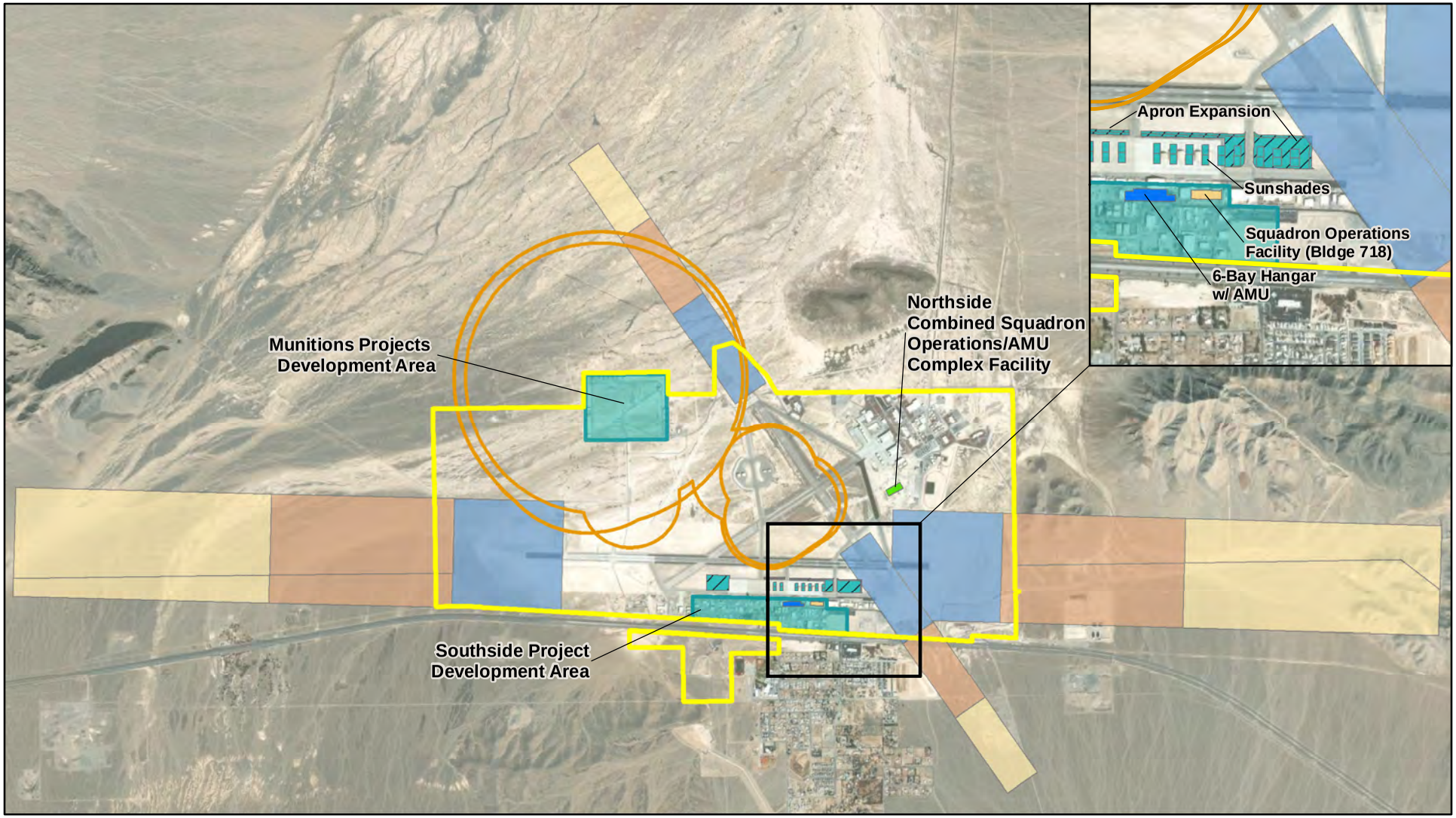


FIGURE 3-5

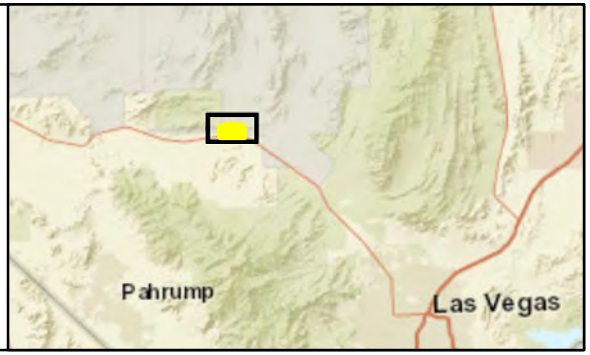
Air Accident Potential Zones and Explosives Safety Quantity Distance Arcs

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alts 1 & 2 Project (Paving)
- Alternative 2 Project
- Building 718
- ESQD Arc
- APZ I
- APZ II
- Clear Zone

N

0 2 Miles

Imagery: Maxar 2021, 2024
Coordinate System: WGS 1984 UTM Zone 11N



Alts = Alternatives; APZ = Accident Potential Zone; CZ = Clear Zone; ESQD = Explosives Safety Quantity Distance
*Exact locations of Munitions Area projects are undetermined.

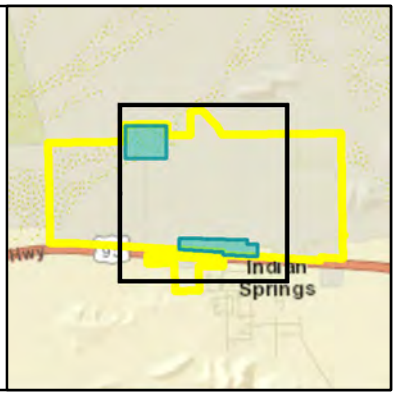
FIGURE 3-6
Surface Waters

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alts 1 & 2 Project (Paving)
- Alternative 2 Project
- Building 718
- Ephemeral Stream

N

0 0.5 Miles

Imagery: Maxar 2021, 2024
Coordinate System: WGS 1984 UTM Zone 11N



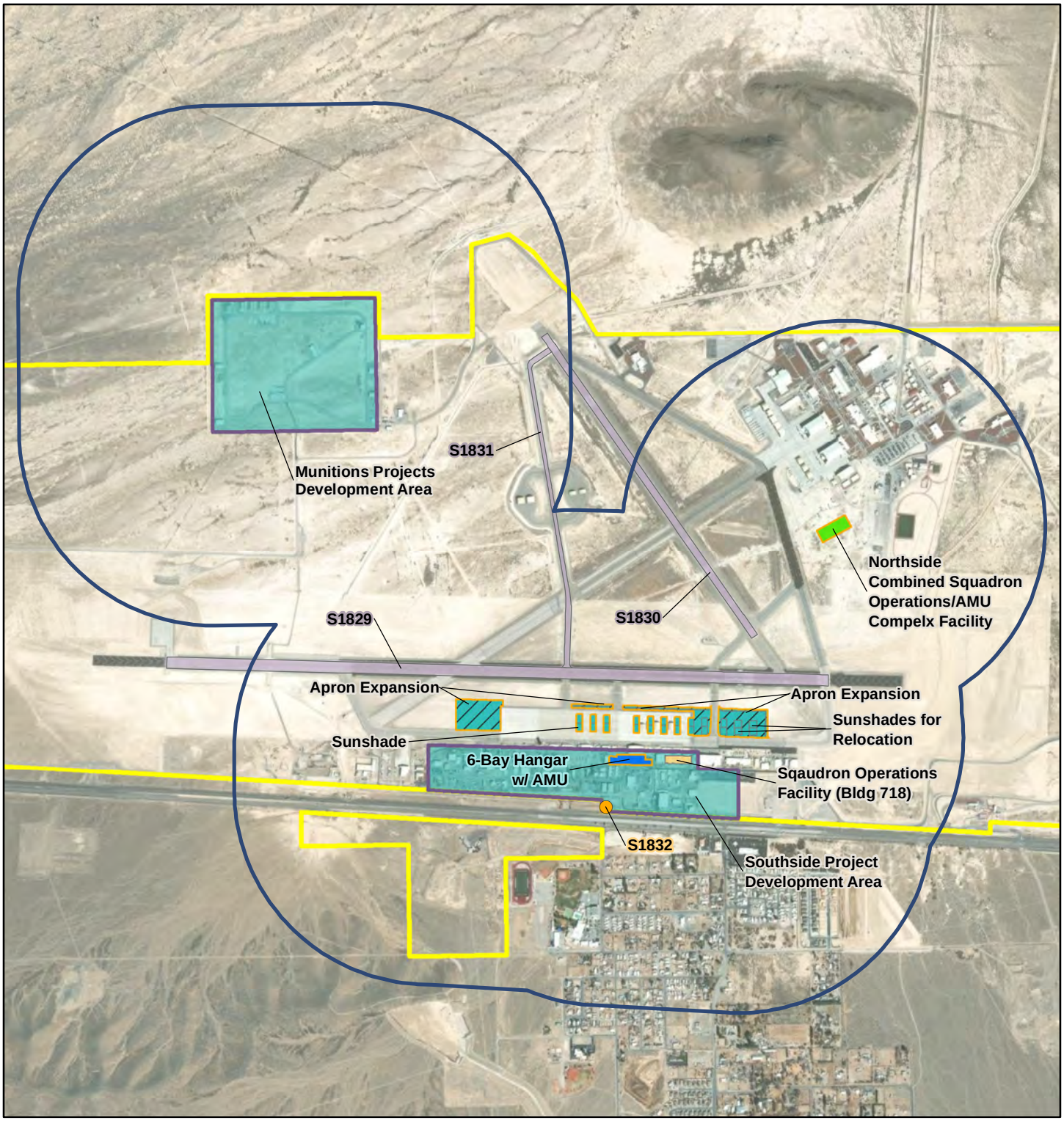


FIGURE 3-7
Cultural Resources Area of Potential Effects (APE)

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alts 1 & 2 Project (Paving)
- Alternative 2 Project
- NRHP-Eligible Architectural Resource
- APE (Physical)
- APE (Physical) - Project Footprints TBD
- APE (Visual, Atmospheric, Auditory)
- NRHP-Eligible Architectural Resource

N

0 0.5 Miles

Imagery: Maxar 2021
Coordinate System: WGS 1984 UTM Zone 11N

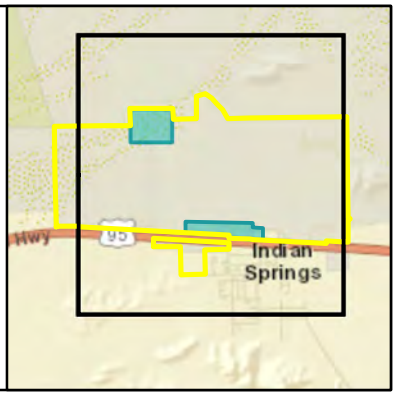


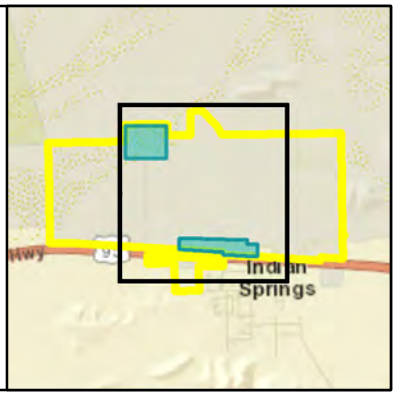
FIGURE 3-8
Environmental Restoration Program Sites

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alts 1 & 2 Project (Paving)
- Alternative 2 Project
- Building 718
- ERP Site

N

0 0.5 Miles

Imagery: Maxar 2021, 2024
Coordinate System: WGS 1984 UTM Zone 11N



APPENDIX B. INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

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Forest Supervisor
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Las Vegas, NV 89130

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Debbie O'Neil, Chairperson
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Duckwater, NV 89314

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Independence, CA 93526

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Fort Mojave Indian Tribe of Arizona, California, and Nevada
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Needles, CA 92363

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Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada
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Lone Pine, CA 93545

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Paiute Indian Tribe of Utah (Cedar Band of
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Koosharen Band of Paiutes, Indian Peaks
Band of Paiutes, and Shivwits Band of
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Margaret Cortez, Chairperson
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Shane Saulque, Chairperson
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Benton, CA 93512

Darryl Brady, Chairperson
Yomba Shoshone Tribe of the Yomba
Reservation, Nevada
HC 61, Box 6275
Austin, NV 89310

Marie Reed
Branch Associate
Indian Springs Library
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Indian Springs, NV 89018

Director
Centennial Hills Library
6711 N Buffalo Dr.
Las Vegas, NV 89131

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 432D WING
CREECH AIR FORCE BASE NEVADA

19 November 2025

Colonel Trevor T. Merrell, USAF
Commander
432d Wing
1065 Perimeter Rd
Creech AFB NV 89018

Mr. Jamie Gottlieb
USDA Natural Resource Conservation Service
Las Vegas Service Center
7080 La Cienega St Suite 100
Las Vegas NV 89119

Dear Mr. Gottlieb

The United States Department of the Air Force (DAF) is preparing an Environmental Assessment (EA) associated with establishing a Collaborative Combat Aircraft (CCA) Experimental Operations Unit (EOU) and a Test and Training Unit (TT-1) at Creech Air Force Base (AFB), Nevada. The EA will evaluate the potential environmental impacts associated with aircraft operations and associated construction projects that make up the Proposed Action. To account for possible environmental concerns, the DAF is engaging early with all potentially affected resource agencies as it formulates this undertaking. Accordingly, the DAF seeks consultation with your office.

Proposed Action

The DAF is proposing to establish a CCA EOU and a TT-1 at Creech AFB, Nevada. Facility renovation and construction would be required to support both the EOU and TT-1 with the associated increase in personnel and aircraft (**Attachment 1**).

Purpose and Need

The purpose of the Proposed Action is to provide affordable lethal mass for the Air Superiority Mission and to give the DAF an autonomous capability in uncrewed aircraft by fielding the CCA in two units. The first unit would be the EOU, which would conduct initial experimentation on capabilities requirements for the CCA and how to best use the aircraft in combat. The second unit would be the TT-1, which would conduct test and training of the aircraft. The need for the Proposed Action is to address a "capability gap" by teaming with 5th generation and next generation fighters and command and control platforms to enable greater flexibility to manage risk to crewed platforms. The EOU must be established at an installation that can support the operation of uncrewed aircraft in order to maximize efficiency during the experimentation phase of development.

Environmental Assessment

The EA will assess the potential environmental consequences of the Proposed Action and No Action Alternative. The EA will also examine the cumulative effects when combined with past, present, and reasonably foreseeable environmental trends and planned actions at Creech AFB. In support of this process, we request your input in identifying general or specific issues or areas of concern you believe should be addressed in the EA.

We intend to notify your agency when the Draft EA is completed and welcome comments and input at that time as well. Please inform us if someone else within your agency other than you should receive the Draft EA. So that we remain on schedule to complete the environmental impact analysis process in a timely manner, please provide your response no later than 30 days from receipt of this correspondence. Please send your response via postal mail or email (preferred) to:

ATTN: Sean Dorrough
US Department of the Air Force
432 SPTS/CE
1065 Perimeter Road
Creech AFB NV 89018
Phone: 702-404-1836
Email: sean.dorrough.1@us.af.mil

The DAF appreciates your interest in and support of its military mission at Creech AFB. We thank you in advance for your assistance and look forward to your response.

Sincerely

MERRELL.TREVOR.T.1152801617
Digitally signed by MERRELL.TREVOR.T.1152801617
Date: 2025.10.21 13:04:11 -07'00'

TREVOR T. MERRELL, Colonel, USAF
Commander

Attachments:
1. Project Location Overview

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 432D WING
CREECH AIR FORCE BASE NEVADA

19 November 2025

Colonel Trevor T. Merrell, USAF
Commander
432d Wing
1065 Perimeter Rd
Creech AFB NV 89018

Honorable Darryl Brady, Chairperson
Yomba Shoshone Tribe of the Yomba Reservation, Nevada
HC 61 Box 6275
Austin NV 89310

Dear Honorable Brady

The United States Department of the Air Force (DAF) is preparing an Environmental Assessment (EA) associated with establishing a Collaborative Combat Aircraft (CCA) Experimental Operations Unit (EOU) and Test and Training Unit (TT-1) at Creech Air Force Base (AFB), Nevada. The EA will evaluate the potential environmental impacts associated with aircraft operations and associated construction projects that make up the Proposed Action.

Proposed Action

The DAF is proposing to establish a CCA EOU and TT-1 at Creech AFB, Nevada. Facility renovation and construction would be required to support both the EOU and TT-1 for the associated increase in personnel and aircraft (Attachment 1).

Purpose and Need

The purpose of the Proposed Action is to provide affordable lethal mass for the Air Superiority Mission and to give the DAF an autonomous capability in uncrewed aircraft by fielding the CCA in two units. The first unit would be the EOU, which would conduct initial experimentation on capabilities requirements for the CCA and how to best use the aircraft in combat. The second unit would be the TT-1, which would conduct test and training of the aircraft. The need for the Proposed Action is to address a "capability gap" by teaming with 5th generation and next generation fighters and command and control platforms. The EOU must be established at an installation that can support the operation of uncrewed aircraft in order to maximize efficiency during the experimentation phase of development.

Pursuant to Section 106 of the *National Historic Preservation Act* (NHPA), implementing regulations at 36 CFR Part 800, and Department of Defense (DoD) Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes,* we would like to initiate government-to-government consultation on the Proposed Action. Pursuant to 36 CFR §§

800.4(a) and (b), we request your assistance in defining the Area of Potential Effect and seek information on any historic properties located therein that may be affected by the proposed undertaking. The DAF desires to discuss the proposal in detail with you early in the EA process so that we may understand and consider any comments, concerns, and suggestions you may have. We invite you, pursuant to 36 CFR § 800.4(a)(4), to provide information on any properties of historic, religious, or cultural significance that may be affected by our proposed undertaking. The DAF is committed to complying with the *Native American Graves Protection and Repatriation Act* by informing your Tribe of any inadvertent discovery of archaeological or human remains and consulting on their disposition.

If you have any questions or concerns, please contact the Creech AFB Environmental Program Manager, Sean Dorrough, via postal mail or email (preferred) to:

ATTN: Sean Dorrough
US Department of the Air Force
432 SPTS/CE
1065 Perimeter Road
Creech AFB NV 89018
Phone: 702-404-1836
Email: sean.dorrough.1@us.af.mil

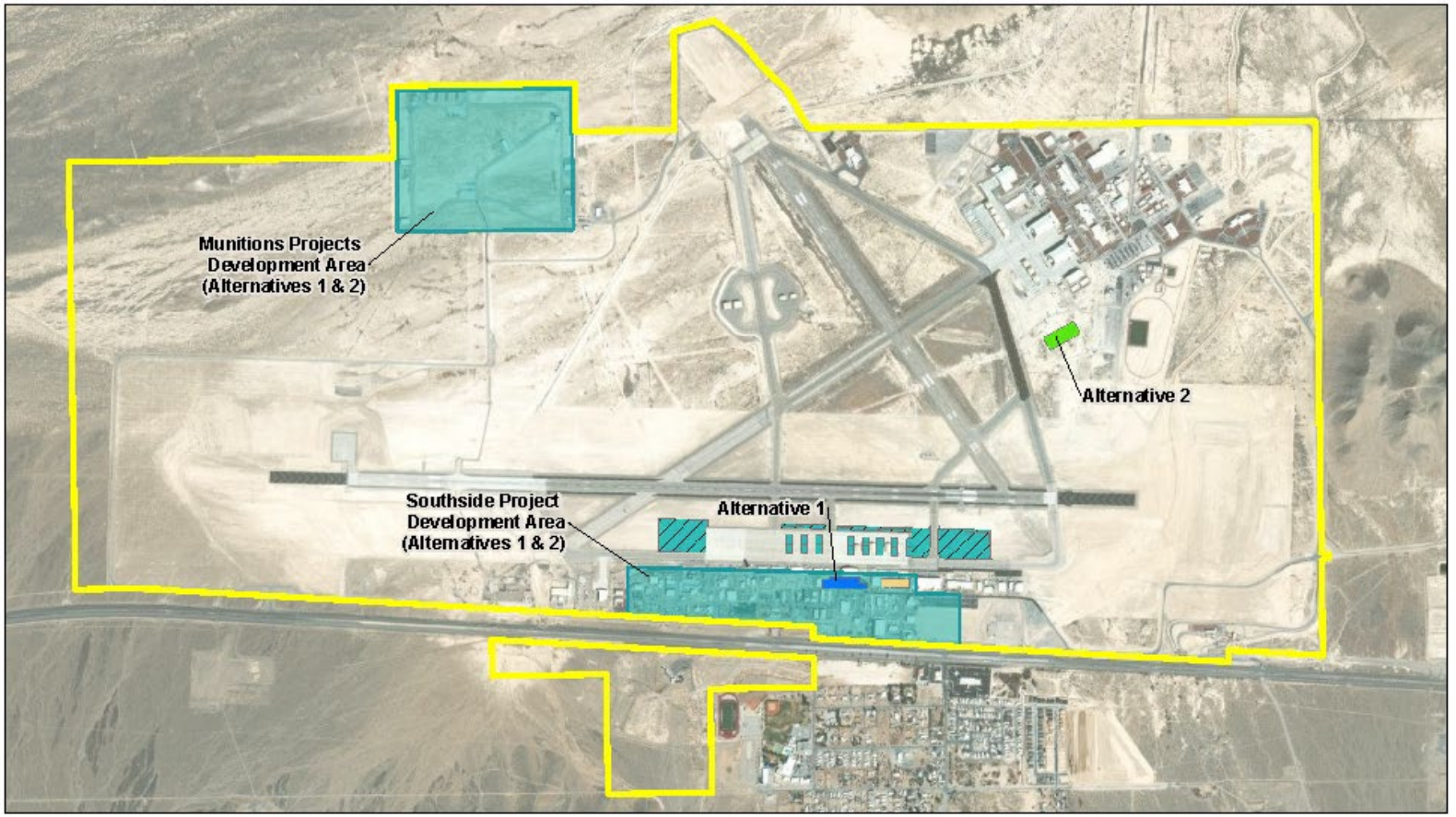
The DAF appreciates your interest in and support of its military mission at Creech AFB. We thank you in advance for your assistance and look forward to your response.

Sincerely

MERRELL.TREVOR.T.1152801617
Digitally signed by MERRELL.TREVOR.T.1152801617
Date: 2025.10.21 13:04:28 -07'00'

TREVOR T. MERRELL, Colonel, USAF
Commander

Attachments:
1. Project Location Overview



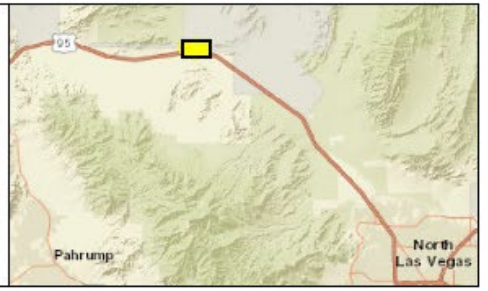
Attachment 1
Project Location Overview

- Installation Boundary
- Alternative 1 Project
- Alts 1 & 2 Project Development Area
- Alts 1 & 2 Project (Paving)
- Alternative 2 Project
- Building 718

N

0 1 Mile

Imagery: Maxar 2021, 2024
Coordinate System: WGS 1984 UTM Zone 11N



Alts = Alternatives;
*Exact locations of Munitions Area projects are undetermined.

Attachment 1

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Southern Nevada Fish And Wildlife Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130-2301
Phone: (702) 515-5230 Fax: (702) 515-5231

In Reply Refer To: 08/01/2025 21:17:57 UTC
Project Code: 2025-0130525
Project Name: Creech AFB CCA EA

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Southern Nevada Fish And Wildlife Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130-2301
(702) 515-5230

PROJECT SUMMARY

Project Code: 2025-0130525
Project Name: Creech AFB CCA EA
Project Type: Military Operations
Project Description: The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.59202195,-115.68045015908322,14z

Counties: Clark County, Nevada

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

REPTILES

NAME	STATUS
Desert Tortoise *Gopherus agassizii* Population: Wherever found, except AZ south and east of Colorado R., and Mexico There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4481	Threatened

FISHES

NAME	STATUS
Devils Hole Pupfish *Cyprinodon diabolis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7409	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
DESERT NATIONAL WILDLIFE RANGE https://www.fws.gov/our-facilities?$keywords="%5C%22DESERT+NATIONAL+WILDLIFE+RANGE%5C%22"	769,009.328

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For

assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

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

Probability of Presence (■)

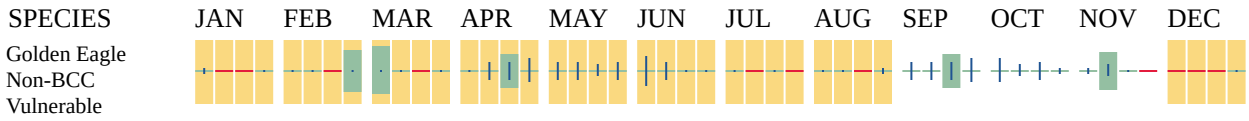
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

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

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black-chinned Sparrow *Spizella atrogularis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Costa's Hummingbird *Calypte costae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Lawrence's Goldfinch *Spinus lawrencei* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Long-eared Owl *asio otus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15

PROBABILITY OF PRESENCE SUMMARY

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

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

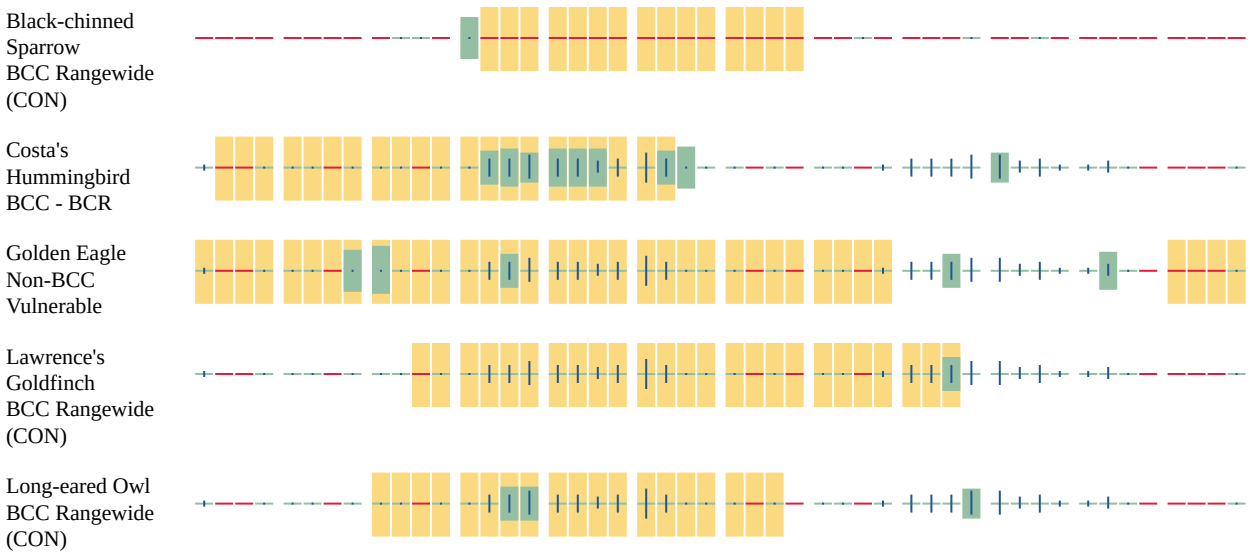
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

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

■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

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

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

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

RIVERINE

- R5UBH
- R4SBC

APPENDIX C. AIR QUALITY ANALYSIS

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

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

a. Action Location:

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Collaborative Combat Aircraft Experimental Operations Unit and First Test and Training Unit

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

d. Projected Action Start Date: 1 / 2027

e. Action Description:

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

f. Point of Contact:

Name: Ryan Sauter
Title: Project Manager
Organization: Environmental Assessment Services
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

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

____ applicable
__X__ not applicable

Total reasonably foreseeable net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (hsba.e., no net gain/loss in emission stabilized and the action is fully implemented) emissions. The ACAM analysis uses the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the *USAF Air Emissions Guide for Air Force Stationary Sources*, the *USAF Air Emissions Guide for Air Force Mobile Sources*, and the *USAF Air Emissions Guide for Air Force Transitory Sources*.

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

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of the proposed Action's potential impacts to local air quality. The insignificance indicators are trivial (de minimis) rate thresholds that have been demonstrated to have little to no impact to air quality. These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold and 25 ton/yr for lead for actions occurring in areas that are "Attainment" (hsba.e., not exceeding any National Ambient Air Quality Standard (NAAQS)). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutants is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQS. For further detail on insignificance indicators, refer to *Level II, Air Quality Quantitative Assessment, Insignificance Indicators*.

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

Analysis Summary:

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.598	250	No
NOx	5.181	250	No
CO	6.010	250	No
SOx	0.014	250	No
PM 10	120.421	250	No
PM 2.5	0.195	250	No
Pb	0.000	25	No
NH3	0.003	250	No

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	11.374	250	No
NOx	15.490	250	No
CO	47.579	250	No
SOx	1.734	250	No
PM 10	85.925	250	No
PM 2.5	9.473	250	No
Pb	0.000	25	No
NH3	0.053	250	No

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

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	8.863	250	No
NOx	12.433	250	No
CO	59.110	250	No
SOx	1.738	250	No
PM 10	9.393	250	No
PM 2.5	9.387	250	No
Pb	0.000	25	No
NH3	0.176	250	No

2030 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	8.863	250	No
NOx	12.433	250	No
CO	59.110	250	No
SOx	1.738	250	No
PM 10	9.393	250	No
PM 2.5	9.387	250	No
Pb	0.000	25	No
NH3	0.176	250	No

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

Ryan Sauter, Project Manager — Jul 18 2025

Name, Title — **Date**

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

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

a. Action Location:

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Collaborative Combat Aircraft Experimental Operations Unit and First Test and Training Unit

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

d. Projected Action Start Date: 1 / 2027

e. Action Description:

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

f. Point of Contact:

Name: Ryan Sauter
Title: Project Manager
Organization: Environmental Assessment Services
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

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

____ applicable
__X__ not applicable

Total reasonably foreseeable net direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the start of the action through achieving "steady state" (hsba.e., no net gain/loss in emission stabilized and the action is fully implemented) emissions. The ACAM analysis uses the latest and most accurate emission estimation techniques available; all algorithms, emission factors, and methodologies used are described in detail in the *USAF Air Emissions Guide for Air Force Stationary Sources*, the *USAF Air Emissions Guide for Air Force Mobile Sources*, and the *USAF Air Emissions Guide for Air Force Transitory Sources*.

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

"Insignificance Indicators" were used in the analysis to provide an indication of the significance of the proposed Action's potential impacts to local air quality. The insignificance indicators are trivial (de minimis) rate thresholds that have been demonstrated to have little to no impact to air quality. These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold and 25 ton/yr for lead for actions occurring in areas that are "Attainment" (hsba.e., not exceeding any National Ambient Air Quality Standard (NAAQS)). These indicators do not define a significant impact; however, they do provide a threshold to identify actions that are insignificant. Any action with net emissions below the insignificance indicators for all criteria pollutants is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQS. For further detail on insignificance indicators, refer to *Level II, Air Quality Quantitative Assessment, Insignificance Indicators*.

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

Analysis Summary:

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.568	250	No
NOx	4.824	250	No
CO	5.610	250	No
SOx	0.012	250	No
PM 10	112.431	250	No
PM 2.5	0.179	250	No
Pb	0.000	25	No
NH3	0.003	250	No

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	9.349	250	No
NOx	14.946	250	No
CO	47.110	250	No
SOx	1.731	250	No
PM 10	80.874	250	No
PM 2.5	9.436	250	No
Pb	0.000	25	No
NH3	0.053	250	No

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

2029

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	8.826	250	No
NOx	11.760	250	No
CO	58.544	250	No
SOx	1.734	250	No
PM 10	9.342	250	No
PM 2.5	9.336	250	No
Pb	0.000	25	No
NH3	0.176	250	No

2030 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	8.826	250	No
NOx	11.760	250	No
CO	58.544	250	No
SOx	1.734	250	No
PM 10	9.342	250	No
PM 2.5	9.336	250	No
Pb	0.000	25	No
NH3	0.176	250	No

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

Ryan Sauter, Project Manager — Jul 18 2025

Name, Title — **Date**

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to estimate GHG emissions and assess the theoretical Social Cost of Greenhouse Gases (SC GHG) associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide. This report provides a summary of GHG emissions.

a. Action Location:

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Collaborative Combat Aircraft Experimental Operations Unit and First Test and Training Unit

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

d. Projected Action Start Date: 1 / 2027

e. Action Description:

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

f. Point of Contact:

Name: Ryan Sauter
Title: Project Manager
Organization: Environmental Assessment Services
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

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

GHG Emissions Analysis Summary:

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO2), methane (CH4), and nitrous oxide (NO2). These three GHGs represent more than 97 percent of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of CO2 equivalents (CO2e). The CO2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO2. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources.

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

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

Action-Related Annual GHG Emissions (mton/yr)						
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**	**Threshold**	**Exceedance**
2027	1,462	0.05355347	0.01453294	1,467	68,039	No
2028	7,042	0.27785054	0.07075261	7,066	68,039	No
2029	8,065	0.31859816	0.09584991	8,096	68,039	No
2030 [SS Year]	8,065	0.31859816	0.09584991	8,096	68,039	No
2031	8,065	0.31859816	0.09584991	8,096	68,039	No
2032	8,065	0.31859816	0.09584991	8,096	68,039	No
2033	8,065	0.31859816	0.09584991	8,096	68,039	No
2034	8,065	0.31859816	0.09584991	8,096	68,039	No
2035	8,065	0.31859816	0.09584991	8,096	68,039	No
2036	8,065	0.31859816	0.09584991	8,096	68,039	No
2037	8,065	0.31859816	0.09584991	8,096	68,039	No
2038	8,065	0.31859816	0.09584991	8,096	68,039	No
2039	8,065	0.31859816	0.09584991	8,096	68,039	No
2040	8,065	0.31859816	0.09584991	8,096	68,039	No
2041	8,065	0.31859816	0.09584991	8,096	68,039	No
2042	8,065	0.31859816	0.09584991	8,096	68,039	No
2043	8,065	0.31859816	0.09584991	8,096	68,039	No
2044	8,065	0.31859816	0.09584991	8,096	68,039	No
2045	8,065	0.31859816	0.09584991	8,096	68,039	No
2046	8,065	0.31859816	0.09584991	8,096	68,039	No
2047	8,065	0.31859816	0.09584991	8,096	68,039	No
2048	8,065	0.31859816	0.09584991	8,096	68,039	No
2049	8,065	0.31859816	0.09584991	8,096	68,039	No
2050	8,065	0.31859816	0.09584991	8,096	68,039	No

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

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

State's Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2027	39,602,863	85,229	6,288	39,694,380
2028	39,602,863	85,229	6,288	39,694,380
2029	39,602,863	85,229	6,288	39,694,380
2030 [SS Year]	39,602,863	85,229	6,288	39,694,380
2031	39,602,863	85,229	6,288	39,694,380
2032	39,602,863	85,229	6,288	39,694,380
2033	39,602,863	85,229	6,288	39,694,380
2034	39,602,863	85,229	6,288	39,694,380
2035	39,602,863	85,229	6,288	39,694,380
2036	39,602,863	85,229	6,288	39,694,380
2037	39,602,863	85,229	6,288	39,694,380
2038	39,602,863	85,229	6,288	39,694,380
2039	39,602,863	85,229	6,288	39,694,380
2040	39,602,863	85,229	6,288	39,694,380
2041	39,602,863	85,229	6,288	39,694,380
2042	39,602,863	85,229	6,288	39,694,380
2043	39,602,863	85,229	6,288	39,694,380
2044	39,602,863	85,229	6,288	39,694,380
2045	39,602,863	85,229	6,288	39,694,380
2046	39,602,863	85,229	6,288	39,694,380
2047	39,602,863	85,229	6,288	39,694,380
2048	39,602,863	85,229	6,288	39,694,380
2049	39,602,863	85,229	6,288	39,694,380
2050	39,602,863	85,229	6,288	39,694,380

U.S. Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2027	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2028	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2029	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2030 [SS Year]	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2031	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2032	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2033	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2034	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2035	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2036	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2037	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2038	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2039	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2040	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2041	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2042	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2043	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2044	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2045	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2046	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2047	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2048	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2049	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2050	5,136,454,179	25,626,912	1,500,708	5,163,581,798

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

GHG Relative Significance Assessment:

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

The action's surroundings, circumstances, environment, and background (context associated with an action) provide the setting for evaluating the GHG intensity (impact significance). From an air quality perspective, context of an action is the local area's ambient air quality relative to meeting the NAAQSs, expressed as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). GHGs are non-hazardous to health at normal ambient concentrations and, at a cumulative global scale, action-related GHG emissions can only potentially cause warming of the climatic system. Therefore, the action-related GHGs generally have an insignificant impact to local air quality.

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

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

Total GHG Relative Significance (mton)					
		CO2	**CH4**	**N2O**	**CO2e**
2027-2050	State Total	950,468,700	2,045,499	150,913	952,665,113
2027-2050	U.S. Total	123,274,900,296	615,045,880	36,016,983	123,925,963,160
2027-2050	Action	185,929	7.340564	2.193984	186,634
Percent of State Totals		0.01956179%	0.00035886%	0.00145381%	0.01959072%
Percent of U.S. Totals		0.00015082%	0.00000119%	0.00000609%	0.00015060%

Ryan Sauter, Project Manager — Jul 18 2025

Name, Title — **Date**

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

1. General Information: The Air Force's Air Conformity Applicability Model (ACAM) was used to perform an analysis to estimate GHG emissions and assess the theoretical Social Cost of Greenhouse Gases (SC GHG) associated with the action. The analysis was performed in accordance with the Air Force Manual 32-7002, Environmental Compliance and Pollution Prevention; the Environmental Impact Analysis Process (EIAP, 32 CFR 989); and the USAF Air Quality Environmental Impact Analysis Process (EIAP) Guide. This report provides a summary of GHG emissions and SC GHG analysis.

a. Action Location:

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: Collaborative Combat Aircraft Experimental Operations Unit and First Test and Training Unit

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

d. Projected Action Start Date: 1 / 2027

e. Action Description:

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

f. Point of Contact:

Name: Ryan Sauter
Title: Project Manager
Organization: Environmental Assessment Services
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

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

GHG Emissions Analysis Summary:

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO2), methane (CH4), and nitrous oxide (NO2). These three GHGs represent more than 97 percent of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of CO2 equivalents (CO2e). The CO2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO2. All GHG emissions estimates were derived from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and/or Air Emissions Guide for Air Force Transitory Sources.

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

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

Action-Related Annual GHG Emissions (mton/yr)						
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**	**Threshold**	**Exceedance**
2027	1,251	0.04867788	0.01126397	1,255	68,039	No
2028	6,521	0.26767016	0.06137494	6,545	68,039	No
2029	7,332	0.30479195	0.0820437	7,362	68,039	No
2030 [SS Year]	7,332	0.30479195	0.0820437	7,362	68,039	No
2031	7,332	0.30479195	0.0820437	7,362	68,039	No
2032	7,332	0.30479195	0.0820437	7,362	68,039	No
2033	7,332	0.30479195	0.0820437	7,362	68,039	No
2034	7,332	0.30479195	0.0820437	7,362	68,039	No
2035	7,332	0.30479195	0.0820437	7,362	68,039	No
2036	7,332	0.30479195	0.0820437	7,362	68,039	No
2037	7,332	0.30479195	0.0820437	7,362	68,039	No
2038	7,332	0.30479195	0.0820437	7,362	68,039	No
2039	7,332	0.30479195	0.0820437	7,362	68,039	No
2040	7,332	0.30479195	0.0820437	7,362	68,039	No
2041	7,332	0.30479195	0.0820437	7,362	68,039	No
2042	7,332	0.30479195	0.0820437	7,362	68,039	No
2043	7,332	0.30479195	0.0820437	7,362	68,039	No
2044	7,332	0.30479195	0.0820437	7,362	68,039	No
2045	7,332	0.30479195	0.0820437	7,362	68,039	No
2046	7,332	0.30479195	0.0820437	7,362	68,039	No
2047	7,332	0.30479195	0.0820437	7,362	68,039	No
2048	7,332	0.30479195	0.0820437	7,362	68,039	No
2049	7,332	0.30479195	0.0820437	7,362	68,039	No
2050	7,332	0.30479195	0.0820437	7,362	68,039	No

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

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

State's Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2027	39,602,863	85,229	6,288	39,694,380
2028	39,602,863	85,229	6,288	39,694,380
2029	39,602,863	85,229	6,288	39,694,380
2030 [SS Year]	39,602,863	85,229	6,288	39,694,380
2031	39,602,863	85,229	6,288	39,694,380
2032	39,602,863	85,229	6,288	39,694,380
2033	39,602,863	85,229	6,288	39,694,380
2034	39,602,863	85,229	6,288	39,694,380
2035	39,602,863	85,229	6,288	39,694,380
2036	39,602,863	85,229	6,288	39,694,380
2037	39,602,863	85,229	6,288	39,694,380
2038	39,602,863	85,229	6,288	39,694,380
2039	39,602,863	85,229	6,288	39,694,380
2040	39,602,863	85,229	6,288	39,694,380
2041	39,602,863	85,229	6,288	39,694,380
2042	39,602,863	85,229	6,288	39,694,380
2043	39,602,863	85,229	6,288	39,694,380
2044	39,602,863	85,229	6,288	39,694,380
2045	39,602,863	85,229	6,288	39,694,380
2046	39,602,863	85,229	6,288	39,694,380
2047	39,602,863	85,229	6,288	39,694,380
2048	39,602,863	85,229	6,288	39,694,380
2049	39,602,863	85,229	6,288	39,694,380
2050	39,602,863	85,229	6,288	39,694,380

U.S. Annual GHG Emissions (mton/yr)				
YEAR	**CO2**	**CH4**	**N2O**	**CO2e**
2027	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2028	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2029	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2030 [SS Year]	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2031	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2032	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2033	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2034	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2035	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2036	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2037	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2038	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2039	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2040	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2041	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2042	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2043	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2044	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2045	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2046	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2047	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2048	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2049	5,136,454,179	25,626,912	1,500,708	5,163,581,798
2050	5,136,454,179	25,626,912	1,500,708	5,163,581,798

AIR CONFORMITY APPLICABILITY MODEL REPORT
GREENHOUSE GAS (GHG) EMISSIONS

GHG Relative Significance Assessment:

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

The action's surroundings, circumstances, environment, and background (context associated with an action) provide the setting for evaluating the GHG intensity (impact significance). From an air quality perspective, context of an action is the local area's ambient air quality relative to meeting the NAAQSs, expressed as attainment, nonattainment, or maintenance areas (this designation is considered the attainment status). GHGs are non-hazardous to health at normal ambient concentrations and, at a cumulative global scale, action-related GHG emissions can only potentially cause warming of the climatic system. Therefore, the action-related GHGs generally have an insignificant impact to local air quality.

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

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

Total GHG Relative Significance (mton)					
		CO2	**CH4**	**N2O**	**CO2e**
2027-2050	State Total	950,468,700	2,045,499	150,913	952,665,113
2027-2050	U.S. Total	123,274,900,296	615,045,880	36,016,983	123,925,963,160
2027-2050	Action	169,067	7.021771	1.8776	169,754
Percent of State Totals		0.01778770%	0.00034328%	0.00124416%	0.01781888%
Percent of U.S. Totals		0.00013715%	0.00000114%	0.00000521%	0.00013698%

Ryan Sauter, Project Manager — Jul 18 2025

Name, Title — **Date**

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Collaborative Combat Aircraft Experimental Operations Unit and First Test and Training Unit

- Project Number/s (if applicable): NA

- Projected Action Start Date: 1 / 2027

- Action Purpose and Need:

The purpose of the Proposed Action is to provide affordable and lethal aircraft to help achieve the DAF's Air Superiority Mission, which is focused on developing and maturing technologies for advanced weapons that would enable the joint warfighter to achieve and maintain air superiority across the full range of military operations in current and future threat environments.

The need for the Proposed Action is to address a "capability gap" by teaming CCA with 5th-generation fighters and command and control platforms, enabling greater flexibility to achieve the Air Superiority Mission and manage risk to crewed aircraft. To maximize efficiency during the experimentation phase, the EOU must be located at an installation capable of supporting unmanned aircraft operations.

- Action Description:

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

- Point of Contact

Name: Ryan Sauter
Title: Project Manager
Organization: Environmental Assessment Services
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Combined CCA EOU and TT-1 Sorties
3.	Aircraft	16 low altitude flights
4.	Personnel	EOU Personnell
5.	Personnel	TT- Personnel
6.	Construction / Demolition	Construction to support the proposed action
7.	Heating	Heating for all constructed facilities Year 1
8.	Heating	Heating for all construction added year 2

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Combined CCA EOU and TT-1 Sorties

- Activity Description:
The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

- Activity Start Date
Start Month: 1
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	6.966906
SO_x	1.648998
NO_x	9.967946
CO	35.440867

Pollutant	Emissions Per Year (TONs)
PM 10	8.968690
PM 2.5	8.968690
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.207589
N_2O	0.040501

Pollutant	Emissions Per Year (TONs)
CO_2	4936.884812
CO_2e	4954.145354

- Activity Emissions of Criteria Pollutants [LTO Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	6.966906
SO_x	1.648998
NO_x	9.967946
CO	35.440867

Pollutant	Emissions Per Year (TONs)
PM 10	8.968690
PM 2.5	8.968690
Pb	0.000000
NH_3	0.000000

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Global Scale Activity Emissions of Greenhouse Gasses [LTO Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
CH_4	0.207589
N_2O	0.040501

Pollutant	Emissions Per Year (TONs)
CO_2	4936.884812
CO_2e	4954.145354

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-45
Engine Model: F405-RR-401
Primary Function: Trainer
Aircraft has After burn: No
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? Yes
Original Aircraft Name: Unknown unmannded aircract
Original Engine Name: NA

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Criteria Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
Idle	498.00	39.12	1.07	0.27	151.21	8.94	8.94
Approach	1495.00	1.71	1.07	2.68	19.54	8.11	8.11
Intermediate	3826.00	0.23	1.07	8.33	3.72	4.92	4.92
Military	4559.00	0.17	1.07	10.10	3.27	3.65	3.65
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- Aircraft & Engine Greenhouse Gasses Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
Idle	498.00	0.13	0.03	3203.44	3214.64
Approach	1495.00	0.13	0.03	3203.44	3214.64
Intermediate	3826.00	0.13	0.03	3203.44	3214.64
Military	4559.00	0.13	0.03	3203.44	3214.64
After Burn	0.00	0.13	0.03	3203.44	3214.64

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 92
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 1820
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	13
Approach [Approach] (mins):	4.17
Climb Out [Intermediate] (mins):	0.72
Takeoff [Military] (mins):	0.87
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	12
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Criteria Pollutant Emission Factors (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5

- Auxiliary Power Unit (APU) Greenhouse Gasses Emission Factors (lb/hr)

Designation	Fuel Flow	CH_4	N_2O	CO_2	CO_2e

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 16 low altitude flights

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:
The 16 low altitude flights are within NTTR

- Activity Start Date
Start Month: 1
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.013940
SO_x	0.066547
NO_x	0.528830
CO	0.228624

Pollutant	Emissions Per Year (TONs)
PM 10	0.298271
PM 2.5	0.298271
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.008377
N_2O	0.001634

Pollutant	Emissions Per Year (TONs)
CO_2	199.232612
CO_2e	199.929177

- Activity Emissions of Criteria Pollutants [LFP Flight Operations part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.013940
SO_x	0.066547
NO_x	0.528830
CO	0.228624

Pollutant	Emissions Per Year (TONs)
PM 10	0.298271
PM 2.5	0.298271
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses [LFP Flight Operations part]:

Pollutant	Emissions Per Year (TONs)
CH_4	0.008377
N_2O	0.001634

Pollutant	Emissions Per Year (TONs)
CO_2	199.232612
CO_2e	199.929177

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-45
Engine Model: F405-RR-401
Primary Function: Trainer
Aircraft has After burn: No
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Criteria Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
Idle	498.00	39.12	1.07	0.27	151.21	8.94	8.94
Approach	1495.00	1.71	1.07	2.68	19.54	8.11	8.11
Intermediate	3826.00	0.23	1.07	8.33	3.72	4.92	4.92
Military	4559.00	0.17	1.07	10.10	3.27	3.65	3.65
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- Aircraft & Engine Greenhouse Gasses Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
Idle	498.00	0.13	0.03	3203.44	3214.64
Approach	1495.00	0.13	0.03	3203.44	3214.64
Intermediate	3826.00	0.13	0.03	3203.44	3214.64
Military	4559.00	0.13	0.03	3203.44	3214.64
After Burn	0.00	0.13	0.03	3203.44	3214.64

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 1
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 16
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 110
Takeoff [Military] (mins): 10
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Personnel

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: EOU Personnell

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:
155 personel will be added to support the EOU

- Activity Start Date
Start Month: 1
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.510349
SO_x	0.004635
NO_x	0.248600
CO	6.311956

Pollutant	Emissions Per Year (TONs)
PM 10	0.012926
PM 2.5	0.011430
Pb	0.000000
NH_3	0.049194

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.031207
N_2O	0.011145

Pollutant	Emissions Per Year (TONs)
CO_2	698.293817
CO_2e	702.391400

4.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 19
Civilian Personnel: 5
Support Contractor Personnel: 131
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: No

- Average Personnel Round Trip Commute (mile): 45

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week
Civilian Personnel: 5 Days Per Week
Support Contractor Personnel: 5 Days Per Week
Air National Guard (ANG) Personnel: 4 Days Per Week
Reserve Personnel: 4 Days Per Month

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

4.4 Personnel Emission Factor(s)

- On Road Vehicle Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- On Road Vehicle Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

4.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year

$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{Total}: Total Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

5. Personnel

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: TT- Personnel

- Activity Description:
399 personnel to serve the TT-1 program

- Activity Start Date
Start Month: 1
Start Year: 2029

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	1.313738
SO_x	0.011932
NO_x	0.639945
CO	16.248196

Pollutant	Emissions Per Year (TONs)
PM 10	0.033274
PM 2.5	0.029424
Pb	0.000000
NH_3	0.126635

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.080334
N_2O	0.028689

Pollutant	Emissions Per Year (TONs)
CO_2	1797.543438
CO_2e	1808.091410

5.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 379
Civilian Personnel: 20
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: No

- Average Personnel Round Trip Commute (mile): 45

- Personnel Work Schedule

Active Duty Personnel:	5 Days Per Week
Civilian Personnel:	5 Days Per Week
Support Contractor Personnel:	5 Days Per Week
Air National Guard (ANG) Personnel:	4 Days Per Week
Reserve Personnel:	4 Days Per Month

5.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

5.4 Personnel Emission Factor(s)

- On Road Vehicle Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- On Road Vehicle Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

5.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)

VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year
$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{Total}: Total Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6. Construction / Demolition

6.1 General Information & Timeline Assumptions

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Construction to support the proposed action

- Activity Description:
Total of 794,000 sq ft of paving, 1,097, 60 sq ft of grading, 288,324 sq ft of construction, and 22,182 of demolition spread out over 2 years.

- Activity Start Date
Start Month: 1
Start Month: 2027

- Activity End Date
Indefinite: False
End Month: 11
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	4.429771
SO_x	0.022477
NO_x	9.008842
CO	10.837015

Pollutant	Total Emissions (TONs)
PM 10	196.995590
PM 2.5	0.320257
Pb	0.000000
NH_3	0.007280

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH_4	0.097411
N_2O	0.020005

Pollutant	Total Emissions (TONs)
CO_2	2439.097189
CO_2e	2447.492511

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH_4	0.097410
N_2O	0.020005

Pollutant	Total Emissions (TONs)
CO_2	2439.092221
CO_2e	2447.487515

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6.1 Demolition Phase

6.1.1 Demolition Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 3
Number of Days: 0

6.1.2 Demolition Phase Assumptions

- General Demolition Information
Area of Building to be demolished (ft^2): 22182
Height of Building to be demolished (ft): 20

- Default Settings Used: Yes

- Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Concrete/Industrial Saws Composite	1	8
Rubber Tired Dozers Composite	1	1
Tractors/Loaders/Backhoes Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.1.3 Demolition Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Concrete/Industrial Saws Composite [HP: 33] [LF: 0.73]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.38980	0.00742	3.42957	4.29108	0.07071	0.06505
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.34288	0.00492	3.09108	2.65644	0.13550	0.12466
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.17717	0.00489	1.80740	3.48712	0.05440	0.05005

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Concrete/Industrial Saws Composite [HP: 33] [LF: 0.73]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02330	0.00466	574.33236	576.30332
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02160	0.00432	532.55942	534.38703
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02148	0.00430	529.61807	531.43559

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	**N_2O**	**CO_2**	**CO_2e**
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.1.4 Demolition Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (0.00042 * BA * BH) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
0.00042: Emission Factor (lb/ft^3)
BA: Area of Building to be demolished (ft^2)
BH: Height of Building to be demolished (ft)
2000: Conversion Factor pounds to tons

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- Construction Exhaust Emissions per Phase

CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL}* 0.002205) / 2000

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

VMT_{VE} = BA * BH * (1 / 27) * 0.25 * (1 / HC) * HT

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building being demolish (ft^2)
BH: Height of Building being demolish (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
0.25: Volume reduction factor (material reduced by 75% to account for air space)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

VMT_{WT} = WD * WT * 1.25 * NE

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

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6.2 Site Grading Phase

6.2.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 18
Number of Days: 0

6.2.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 1097680
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Scrapers Composite	3	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.2.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.37809	0.00542	3.36699	4.21640	0.08879	0.08169
Graders Composite [HP: 148] [LF: 0.41]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.29535	0.00490	2.28401	3.40565	0.12705	0.11688
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.25231	0.00487	2.49971	3.48392	0.13245	0.12186
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.34288	0.00492	3.09108	2.65644	0.13550	0.12466
Scrapers Composite [HP: 423] [LF: 0.48]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.19058	0.00488	1.60937	1.52212	0.06336	0.05829
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.17717	0.00489	1.80740	3.48712	0.05440	0.05005

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02383	0.00477	587.39431	589.41010
Graders Composite [HP: 148] [LF: 0.41]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02155	0.00431	531.25291	533.07604
Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.44206	529.25211
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02160	0.00432	532.55942	534.38703
Scrapers Composite [HP: 423] [LF: 0.48]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02145	0.00429	528.70476	530.51914
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02148	0.00430	529.61807	531.43559

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.2.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6.3 Building Construction Phase

6.3.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 5
Start Quarter: 1
Start Year: 2027

- Phase Duration

Number of Month: 18
Number of Days: 0

6.3.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Commercial or Retail
Area of Building (ft^2): 288324
Height of Building (ft): 20
Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	7
Forklifts Composite	2	7
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

6.3.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.19464	0.00487	1.74774	1.62852	0.07179	0.06605
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.22849	0.00487	2.15229	3.56761	0.09240	0.08501
Generator Sets Composite [HP: 14] [LF: 0.74]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.53730	0.00793	4.30480	2.85227	0.17170	0.15796
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.17717	0.00489	1.80740	3.48712	0.05440	0.05005
Welders Composite [HP: 46] [LF: 0.45]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.43501	0.00735	3.46616	4.46084	0.07894	0.07263

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.45492	529.26501
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02138	0.00428	527.06992	528.87869
Generator Sets Composite [HP: 14] [LF: 0.74]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.30624	570.25652
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02148	0.00430	529.61807	531.43559
Welders Composite [HP: 46] [LF: 0.45]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.29664	570.24689

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.3.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (0.32 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.32 / 1000): Conversion Factor ft^3 to trips (0.32 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = BA * BH * (0.05 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.05 / 1000): Conversion Factor ft^3 to trips (0.05 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6.4 Architectural Coatings Phase

6.4.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2028

- Phase Duration
Number of Month: 6
Number of Days: 0

6.4.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 288324
Number of Units: N/A

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- Architectural Coatings Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.4.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.4.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase
$VMT_{WT} = (1 * WT * PA) / 800$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft^2)
800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft^2)
2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
0.0116: Emission Factor (lb/ft^2)
2000: Conversion Factor pounds to tons

6.5 Paving Phase

6.5.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2028

- Phase Duration
Number of Month: 8
Number of Days: 0

6.5.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 794000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.5.3 Paving Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Pavers Composite [HP: 81] [LF: 0.42]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21588	0.00486	2.33827	3.43520	0.10542	0.09699
Paving Equipment Composite [HP: 89] [LF: 0.36]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.16337	0.00488	1.88314	3.37709	0.05778	0.05316
Rollers Composite [HP: 36] [LF: 0.38]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.50057	0.00542	3.50905	4.08429	0.13206	0.12150

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Pavers Composite [HP: 81] [LF: 0.42]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02133	0.00427	525.89644	527.70118
Paving Equipment Composite [HP: 89] [LF: 0.36]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02141	0.00428	527.90982	529.72147
Rollers Composite [HP: 36] [LF: 0.38]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02382	0.00476	587.11688	589.13172

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	**N_2O**	**CO_2**	**CO_2e**
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.5.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment

WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

7. Heating

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Heating for all constructed facilities Year 1

- Activity Description:
heating added for first half of construction

- Activity Start Date
Start Month: 8
Start Year: 2027

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.028823
SO_x	0.003144
NO_x	0.524046
CO	0.440199

Pollutant	Emissions Per Year (TONs)
PM 10	0.039828
PM 2.5	0.039828
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.011843
N_2O	0.011843

Pollutant	Emissions Per Year (TONs)
CO_2	628.955095
CO_2e	629.604912

7.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 133071
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0827

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

7.3 Heating Emission Factor(s)

- Heating Criteria Pollutant Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3
5.5	0.6	100	84	7.6	7.6		

- Heating Greenhouse Gasses Pollutant Emission Factors (lb/1000000 scf)

CH_4	N_2O	CO_2	CO_2e
2.26	2.26	120019	120143

7.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year

FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement (MMBtu/ft^2)
HV: Heat Value (MMBTU/ft^3)
1000000: Conversion Factor

- Heating Emissions per Year

HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

8. Heating

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Heating for all construction added year 2

- Activity Description:
Heating for all construction added year 2

- Activity Start Date
Start Month: 9
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.028823
SO_x	0.003144
NO_x	0.524046
CO	0.440199

Pollutant	Emissions Per Year (TONs)
PM 10	0.039828
PM 2.5	0.039828
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.011843
N_2O	0.011843

Pollutant	Emissions Per Year (TONs)
CO_2	628.955095
CO_2e	629.604912

8.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 133071
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0827

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

8.3 Heating Emission Factor(s)

- Heating Criteria Pollutant Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3
5.5	0.6	100	84	7.6	7.6		

- Heating Greenhouse Gasses Pollutant Emission Factors (lb/1000000 scf)

CH_4	N_2O	CO_2	CO_2e
2.26	2.26	120019	120143

8.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year
$FC_{HER} = HA * EI / HV / 1000000$

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

- Heating Emissions per Year
$HE_{POL} = FC * EF_{POL} / 2000$

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: CREECH AFB
State: Nevada
County(s): Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Action Title: Collaborative Combat Aircraft Experimental Operations Unit and First Test and Training Unit

- Project Number/s (if applicable): NA

- Projected Action Start Date: 1 / 2027

- Action Purpose and Need:

The purpose of the Proposed Action is to provide affordable and lethal aircraft to help achieve the DAF's Air Superiority Mission, which is focused on developing and maturing technologies for advanced weapons that would enable the joint warfighter to achieve and maintain air superiority across the full range of military operations in current and future threat environments.

The need for the Proposed Action is to address a "capability gap" by teaming CCA with 5th-generation fighters and command and control platforms, enabling greater flexibility to achieve the Air Superiority Mission and manage risk to crewed aircraft. To maximize efficiency during the experimentation phase, the EOU must be located at an installation capable of supporting unmanned aircraft operations.

- Action Description:

The DAF proposes to establish a CCA EOU and TT-1 at Creech AFB, NV. The EOU would conduct initial experimentation to define the capability requirements for the CCA and to establish effective combat employment tactics. The EOU would consist of up to 12 aircraft and approximately 155 personnel at Creech AFB. The TT-1 would serve as the initial organization for aircraft testing and operator training, and provide deployable CCA assets. The TT-1 would consist of up to 40 aircraft and approximately 399 personnel at Creech AFB. In total, 52 aircraft and 554 personnel would be added to Creech AFB.

The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

- Point of Contact

Name: Ryan Sauter
Title: Project Manager
Organization: Environmental Assessment Services
Email: ryan.sauter@easbio.com
Phone Number: 651.341.9955

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Combined CCA EOU and TT-1 Sorties
3.	Aircraft	16 low altitude flights
4.	Personnel	EOU Personnell
5.	Personnel	TT- Personnel
6.	Construction / Demolition	Construction to support the proposed action
7.	Heating	Heating for all constructed facilities Year 1
8.	Heating	Heating for all construction added year 2

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Emission factors and air emission estimating methods come from the United States Air Force's Air Emissions Guide for Air Force Stationary Sources, Air Emissions Guide for Air Force Mobile Sources, and Air Emissions Guide for Air Force Transitory Sources.

2. Aircraft

2.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Combined CCA EOU and TT-1 Sorties

- Activity Description:
The CCA EOU program would fly approximately two sorties per day for 260 days, for a total of 520 sorties annually. The TT-1 program would fly approximately five sorties per day for 260 days, for a total of 1,300 annual sorties. Combined, the EOU and TT-1 would fly 1,820 sorties annually.

- Activity Start Date
Start Month: 1
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	6.966906
SO_x	1.648998
NO_x	9.967946
CO	35.440867

Pollutant	Emissions Per Year (TONs)
PM 10	8.968690
PM 2.5	8.968690
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.207589
N_2O	0.040501

Pollutant	Emissions Per Year (TONs)
CO_2	4936.884812
CO_2e	4954.145354

- Activity Emissions of Criteria Pollutants [LTO Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
VOC	6.966906
SO_x	1.648998
NO_x	9.967946
CO	35.440867

Pollutant	Emissions Per Year (TONs)
PM 10	8.968690
PM 2.5	8.968690
Pb	0.000000
NH_3	0.000000

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Global Scale Activity Emissions of Greenhouse Gasses [LTO Flight Operations (includes Trim Test & APU) part]:

Pollutant	Emissions Per Year (TONs)
CH_4	0.207589
N_2O	0.040501

Pollutant	Emissions Per Year (TONs)
CO_2	4936.884812
CO_2e	4954.145354

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: T-45
Engine Model: F405-RR-401
Primary Function: Trainer
Aircraft has After burn: No
Number of Engines: 1

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? Yes
Original Aircraft Name: Unknown unmannded aircract
Original Engine Name: NA

2.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Criteria Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
Idle	498.00	39.12	1.07	0.27	151.21	8.94	8.94
Approach	1495.00	1.71	1.07	2.68	19.54	8.11	8.11
Intermediate	3826.00	0.23	1.07	8.33	3.72	4.92	4.92
Military	4559.00	0.17	1.07	10.10	3.27	3.65	3.65
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- Aircraft & Engine Greenhouse Gasses Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
Idle	498.00	0.13	0.03	3203.44	3214.64
Approach	1495.00	0.13	0.03	3203.44	3214.64
Intermediate	3826.00	0.13	0.03	3203.44	3214.64
Military	4559.00	0.13	0.03	3203.44	3214.64
After Burn	0.00	0.13	0.03	3203.44	3214.64

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 92
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 1820
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	13
Approach [Approach] (mins):	4.17
Climb Out [Intermediate] (mins):	0.72
Takeoff [Military] (mins):	0.87
Takeoff [After Burn] (mins):	0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins):	12
Approach (mins):	27
Intermediate (mins):	9
Military (mins):	12
AfterBurn (mins):	0

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)
TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

2.4 Auxiliary Power Unit (APU)

2.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer

2.4.2 Auxiliary Power Unit (APU) Emission Factor(s)

- Auxiliary Power Unit (APU) Criteria Pollutant Emission Factors (lb/hr)

Designation	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5

- Auxiliary Power Unit (APU) Greenhouse Gasses Emission Factors (lb/hr)

Designation	Fuel Flow	CH_4	N_2O	CO_2	CO_2e

2.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

$APU_{POL} = APU * OH * LTO * EF_{POL} / 2000$

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)
APU: Number of Auxiliary Power Units
OH: Operation Hours for Each LTO (hour)
LTO: Number of LTOs
EF_{POL}: Emission Factor for Pollutant (lb/hr)
2000: Conversion Factor pounds to tons

3. Aircraft

3.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: 16 low altitude flights

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- Activity Description:
The 16 low altitude flights are within NTTR

- Activity Start Date
Start Month: 1
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.013940
SO_x	0.066547
NO_x	0.528830
CO	0.228624

Pollutant	Emissions Per Year (TONs)
PM 10	0.298271
PM 2.5	0.298271
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.008377
N_2O	0.001634

Pollutant	Emissions Per Year (TONs)
CO_2	199.232612
CO_2e	199.929177

- Activity Emissions of Criteria Pollutants [LFP Flight Operations part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.013940
SO_x	0.066547
NO_x	0.528830
CO	0.228624

Pollutant	Emissions Per Year (TONs)
PM 10	0.298271
PM 2.5	0.298271
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses [LFP Flight Operations part]:

Pollutant	Emissions Per Year (TONs)
CH_4	0.008377
N_2O	0.001634

Pollutant	Emissions Per Year (TONs)
CO_2	199.232612
CO_2e	199.929177

3.2 Aircraft & Engines

3.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine
Aircraft Designation: T-45
Engine Model: F405-RR-401
Primary Function: Trainer
Aircraft has After burn: No
Number of Engines: 1

- Aircraft & Engine Surrogate
Is Aircraft & Engine a Surrogate? No
Original Aircraft Name:
Original Engine Name:

3.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Criteria Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO_x	NO_x	CO	PM 10	PM 2.5
Idle	498.00	39.12	1.07	0.27	151.21	8.94	8.94
Approach	1495.00	1.71	1.07	2.68	19.54	8.11	8.11
Intermediate	3826.00	0.23	1.07	8.33	3.72	4.92	4.92
Military	4559.00	0.17	1.07	10.10	3.27	3.65	3.65
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00

- Aircraft & Engine Greenhouse Gasses Pollutant Emission Factors (lb/1000lb fuel)

	Fuel Flow	CH_4	N_2O	CO_2	CO_2e
Idle	498.00	0.13	0.03	3203.44	3214.64
Approach	1495.00	0.13	0.03	3203.44	3214.64
Intermediate	3826.00	0.13	0.03	3203.44	3214.64
Military	4559.00	0.13	0.03	3203.44	3214.64
After Burn	0.00	0.13	0.03	3203.44	3214.64

3.3 Flight Operations

3.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 1
Flight Operation Cycle Type: LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 16
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 0
Climb Out [Intermediate] (mins): 110
Takeoff [Military] (mins): 10
Takeoff [After Burn] (mins): 0

Per the Air Emissions Guide for Air Force Mobile Sources, the defaults values for military aircraft equipped with after burner for takeoff is 50% military power and 50% afterburner. (Exception made for F-35 where KARNES 3.2 flight profile was used)

- Trim Test

Idle (mins): 0
Approach (mins): 0
Intermediate (mins): 0
Military (mins): 0
AfterBurn (mins): 0

3.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

$AEM_{POL} = (TIM / 60) * (FC / 1000) * EF * NE * FOC / 2000$

AEM_{POL}: Aircraft Emissions per Pollutant & Mode (TONs)

TIM: Time in Mode (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
FOC: Number of Flight Operation Cycles (for all aircraft)
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$AE_{FOC} = AEM_{IDLE\_IN} + AEM_{IDLE\_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$

AE_{FOC}: Aircraft Emissions (TONs)
AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)
AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)
$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)
$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)
$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

$AEPS_{POL} = (TD / 60) * (FC / 1000) * EF * NE * NA * NTT / 2000$

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)
TD: Test Duration (min)
60: Conversion Factor minutes to hours
FC: Fuel Flow Rate (lb/hr)
1000: Conversion Factor pounds to 1000pounds
EF: Emission Factor (lb/1000lb fuel)
NE: Number of Engines
NA: Number of Aircraft
NTT: Number of Trim Test
2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

$AE_{TRIM} = AEPS_{IDLE} + AEPS_{APPROACH} + AEPS_{INTERMEDIATE} + AEPS_{MILITARY} + AEPS_{AFTERBURN}$

AE_{TRIM}: Aircraft Emissions (TONs)
$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)
$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)
$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)
$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)
$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

4. Personnel

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: EOU Personnell

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- Activity Description:
155 personel will be added to support the EOU

- Activity Start Date
Start Month: 1
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.510349
SO_x	0.004635
NO_x	0.248600
CO	6.311956

Pollutant	Emissions Per Year (TONs)
PM 10	0.012926
PM 2.5	0.011430
Pb	0.000000
NH_3	0.049194

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.031207
N_2O	0.011145

Pollutant	Emissions Per Year (TONs)
CO_2	698.293817
CO_2e	702.391400

4.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 19
Civilian Personnel: 5
Support Contractor Personnel: 131
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: No

- Average Personnel Round Trip Commute (mile): 45

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week
Civilian Personnel: 5 Days Per Week
Support Contractor Personnel: 5 Days Per Week
Air National Guard (ANG) Personnel: 4 Days Per Week
Reserve Personnel: 4 Days Per Month

4.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

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4.4 Personnel Emission Factor(s)

- On Road Vehicle Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- On Road Vehicle Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

4.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year

$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{Total}: Total Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

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5. Personnel

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: TT- Personnel

- Activity Description:
399 personnel to serve the TT-1 program

- Activity Start Date
Start Month: 1
Start Year: 2029

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	1.313738
SO_x	0.011932
NO_x	0.639945
CO	16.248196

Pollutant	Emissions Per Year (TONs)
PM 10	0.033274
PM 2.5	0.029424
Pb	0.000000
NH_3	0.126635

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.080334
N_2O	0.028689

Pollutant	Emissions Per Year (TONs)
CO_2	1797.543438
CO_2e	1808.091410

5.2 Personnel Assumptions

- Number of Personnel
Active Duty Personnel: 379
Civilian Personnel: 20
Support Contractor Personnel: 0
Air National Guard (ANG) Personnel: 0
Reserve Personnel: 0

- Default Settings Used: No

- Average Personnel Round Trip Commute (mile): 45

- Personnel Work Schedule
Active Duty Personnel: 5 Days Per Week
Civilian Personnel: 5 Days Per Week
Support Contractor Personnel: 5 Days Per Week
Air National Guard (ANG) Personnel: 4 Days Per Week

Reserve Personnel: 4 Days Per Month

5.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	37.55	60.32	0	0.03	0.2	0	1.9
GOVs	54.49	37.73	4.67	0	0	3.11	0

5.4 Personnel Emission Factor(s)

- On Road Vehicle Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- On Road Vehicle Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

5.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$VMT_P = NP * WD * AC$

VMT_P: Personnel Vehicle Miles Travel (miles/year)
NP: Number of Personnel
WD: Work Days per Year
AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

$VMT_{Total} = VMT_{AD} + VMT_C + VMT_{SC} + VMT_{ANG} + VMT_{AFRC}$

VMT_{Total}: Total Vehicle Miles Travel (miles)
VMT_{AD}: Active Duty Personnel Vehicle Miles Travel (miles)
VMT_C: Civilian Personnel Vehicle Miles Travel (miles)
VMT_{SC}: Support Contractor Personnel Vehicle Miles Travel (miles)
VMT_{ANG}: Air National Guard Personnel Vehicle Miles Travel (miles)
VMT_{AFRC}: Reserve Personnel Vehicle Miles Travel (miles)

- Vehicle Emissions per Year

$V_{POL} = (VMT_{Total} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{Total}: Total Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Personnel On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6. Construction / Demolition

6.1 General Information & Timeline Assumptions

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Construction to support the proposed action

- Activity Description:
Total of 869,000 sq ft of paving, 1,028,680 sq ft of grading, 116,400 sq ft of construction, and 22,182 of demolition spread out over 2 years.

- Activity Start Date
Start Month: 1
Start Month: 2027

- Activity End Date
Indefinite: False
End Month: 11
End Month: 2028

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	2.407635
SO_x	0.021757
NO_x	8.696382
CO	10.463733

Pollutant	Total Emissions (TONs)
PM 10	184.000437
PM 2.5	0.311586
Pb	0.000000
NH_3	0.006086

- Activity Emissions of GHG:

Pollutant	Total Emissions (TONs)
CH_4	0.094131
N_2O	0.019381

Pollutant	Total Emissions (TONs)
CO_2	2339.437798
CO_2e	2347.565190

- Global Scale Activity Emissions for SCGHG:

Pollutant	Total Emissions (TONs)
CH_4	0.094131
N_2O	0.019381

Pollutant	Total Emissions (TONs)
CO_2	2339.437798
CO_2e	2347.565190

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6.1 Site Grading Phase

6.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date
Start Month: 2
Start Quarter: 1
Start Year: 2027

- Phase Duration
Number of Month: 18
Number of Days: 0

6.1.2 Site Grading Phase Assumptions

- General Site Grading Information
Area of Site to be Graded (ft^2): 1025680
Amount of Material to be Hauled On-Site (yd^3): 0
Amount of Material to be Hauled Off-Site (yd^3): 0

- Site Grading Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	8
Graders Composite	1	8
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	8
Scrapers Composite	3	8
Tractors/Loaders/Backhoes Composite	3	8

- Vehicle Exhaust
Average Hauling Truck Capacity (yd^3): 20 (default)
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.37809	0.00542	3.36699	4.21640	0.08879	0.08169
Graders Composite [HP: 148] [LF: 0.41]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.29535	0.00490	2.28401	3.40565	0.12705	0.11688
Other Construction Equipment Composite [HP: 82] [LF: 0.42]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.25231	0.00487	2.49971	3.48392	0.13245	0.12186
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.34288	0.00492	3.09108	2.65644	0.13550	0.12466
Scrapers Composite [HP: 423] [LF: 0.48]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.19058	0.00488	1.60937	1.52212	0.06336	0.05829
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.17717	0.00489	1.80740	3.48712	0.05440	0.05005

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Excavators Composite [HP: 36] [LF: 0.38]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02383	0.00477	587.39431	589.41010
Graders Composite [HP: 148] [LF: 0.41]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02155	0.00431	531.25291	533.07604
Other Construction Equipment Composite [HP: 82] [LF: 0.42]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.44206	529.25211
Rubber Tired Dozers Composite [HP: 367] [LF: 0.4]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02160	0.00432	532.55942	534.38703
Scrapers Composite [HP: 423] [LF: 0.48]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02145	0.00429	528.70476	530.51914
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02148	0.00430	529.61807	531.43559

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$PM10_{FD} = (20 * ACRE * WD) / 2000$

$PM10_{FD}$: Fugitive Dust PM 10 Emissions (TONs)
20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
ACRE: Total acres (acres)
WD: Number of Total Work Days (days)
2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
HA_{OnSite}: Amount of Material to be Hauled On-Site (yd^3)
$HA_{OffSite}$: Amount of Material to be Hauled Off-Site (yd^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6.2 Building Construction Phase

6.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 5
Start Quarter: 1
Start Year: 2027

- Phase Duration

Number of Month: 18
Number of Days: 0

6.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Commercial or Retail
Area of Building (ft^2): 116400
Height of Building (ft): 20
Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	6
Forklifts Composite	2	6
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	1	8
Welders Composite	3	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips

Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

- Vendor Trips

Average Vendor Round Trip Commute (mile): 40 (default)

- Vendor Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

6.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.19464	0.00487	1.74774	1.62852	0.07179	0.06605
Forklifts Composite [HP: 82] [LF: 0.2]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.22849	0.00487	2.15229	3.56761	0.09240	0.08501
Generator Sets Composite [HP: 14] [LF: 0.74]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.53730	0.00793	4.30480	2.85227	0.17170	0.15796
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.17717	0.00489	1.80740	3.48712	0.05440	0.05005
Welders Composite [HP: 46] [LF: 0.45]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.43501	0.00735	3.46616	4.46084	0.07894	0.07263

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Cranes Composite [HP: 367] [LF: 0.29]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02140	0.00428	527.45492	529.26501
Forklifts Composite [HP: 82] [LF: 0.2]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02138	0.00428	527.06992	528.87869
Generator Sets Composite [HP: 14] [LF: 0.74]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.30624	570.25652
Tractors/Loaders/Backhoes Composite [HP: 84] [LF: 0.37]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02148	0.00430	529.61807	531.43559
Welders Composite [HP: 46] [LF: 0.45]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02305	0.00461	568.29664	570.24689

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment
WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = BA * BH * (0.32 / 1000) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.32 / 1000): Conversion Factor ft^3 to trips (0.32 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase
$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase
$VMT_{VT} = BA * BH * (0.05 / 1000) * HT$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft^2)
BH: Height of Building (ft)
(0.05 / 1000): Conversion Factor ft^3 to trips (0.05 trip / 1000 ft^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

6.3 Architectural Coatings Phase

6.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date
Start Month: 1
Start Quarter: 1
Start Year: 2028

- Phase Duration
Number of Month: 6
Number of Days: 0

6.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information
Building Category: Non-Residential
Total Square Footage (ft^2): 116400
Number of Units: N/A

- Architectural Coatings Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.3.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	SO_x	NO_x	CO	PM 10	PM 2.5	NH_3
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	N_2O	CO_2	CO_2e
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.3.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase
$VMT_{WT} = (1 * WT * PA) / 800$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
1: Conversion Factor man days to trips (1 trip / 1 man * day)
WT: Average Worker Round Trip Commute (mile)
PA: Paint Area (ft^2)
800: Conversion Factor square feet to man days (1 ft^2 / 1 man * day)

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase
VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0

VOC_{AC}: Architectural Coating VOC Emissions (TONs)
BA: Area of Building (ft^2)
2.0: Conversion Factor total area to coated area (2.0 ft^2 coated area / total area)
0.0116: Emission Factor (lb/ft^2)
2000: Conversion Factor pounds to tons

6.4 Paving Phase

6.4.1 Paving Phase Timeline Assumptions

- Phase Start Date
Start Month: 4
Start Quarter: 1
Start Year: 2028

- Phase Duration
Number of Month: 8
Number of Days: 0

6.4.2 Paving Phase Assumptions

- General Paving Information
Paving Area (ft^2): 869000

- Paving Default Settings
Default Settings Used: Yes
Average Day(s) worked per week: 5 (default)

- Construction Exhaust (default)

Equipment Name	Number Of Equipment	Hours Per Day
Pavers Composite	1	8
Paving Equipment Composite	2	8
Rollers Composite	2	6

- Vehicle Exhaust
Average Hauling Truck Round Trip Commute (mile): 20 (default)

- Vehicle Exhaust Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	0	0	0	0	0	100.00	0

- Worker Trips
Average Worker Round Trip Commute (mile): 20 (default)

- Worker Trips Vehicle Mixture (%)

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
POVs	50.00	50.00	0	0	0	0	0

6.4.3 Paving Phase Emission Factor(s)

- Construction Exhaust Criteria Pollutant Emission Factors (g/hp-hour) (default)

Pavers Composite [HP: 81] [LF: 0.42]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.21588	0.00486	2.33827	3.43520	0.10542	0.09699
Paving Equipment Composite [HP: 89] [LF: 0.36]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.16337	0.00488	1.88314	3.37709	0.05778	0.05316
Rollers Composite [HP: 36] [LF: 0.38]						
	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**
Emission Factors	0.50057	0.00542	3.50905	4.08429	0.13206	0.12150

- Construction Exhaust Greenhouse Gasses Pollutant Emission Factors (g/hp-hour) (default)

Pavers Composite [HP: 81] [LF: 0.42]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02133	0.00427	525.89644	527.70118
Paving Equipment Composite [HP: 89] [LF: 0.36]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02141	0.00428	527.90982	529.72147
Rollers Composite [HP: 36] [LF: 0.38]				
	CH_4	**N_2O**	**CO_2**	**CO_2e**
Emission Factors	0.02382	0.00476	587.11688	589.13172

- Vehicle Exhaust & Worker Trips Criteria Pollutant Emission Factors (grams/mile)

	VOC	**SO_x**	**NO_x**	**CO**	**PM 10**	**PM 2.5**	**NH_3**
LDGV	0.19651	0.00194	0.08153	2.79017	0.00489	0.00433	0.02307
LDGT	0.20378	0.00255	0.13169	3.07762	0.00688	0.00608	0.02470
HDGV	0.86777	0.00616	0.74592	12.28258	0.02573	0.02277	0.05074
LDDV	0.05464	0.00096	0.06098	2.62903	0.00240	0.00220	0.00813
LDDT	0.05515	0.00118	0.09471	2.06930	0.00319	0.00293	0.00847
HDDV	0.08693	0.00400	2.29951	1.46936	0.02954	0.02718	0.03208
MC	3.07458	0.00258	0.74109	13.04706	0.02482	0.02195	0.05386

- Vehicle Exhaust & Worker Trips Greenhouse Gasses Emission Factors (grams/mile)

	CH_4	**N_2O**	**CO_2**	**CO_2e**
LDGV	0.01247	0.00437	292.50495	294.11848
LDGT	0.01396	0.00642	383.34847	385.60774
HDGV	0.07227	0.02680	926.64521	936.42673
LDDV	0.03218	0.00069	287.75658	288.76488
LDDT	0.02832	0.00101	351.77586	352.78430
HDDV	0.02452	0.00327	1192.70860	1194.29635
MC	0.12837	0.00308	389.11778	393.24576

6.4.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$

- Construction Exhaust Emissions per Phase
$CEE_{POL} = (NE * WD * H * HP * LF * EF_{POL} * 0.002205) / 2000$

CEE_{POL}: Construction Exhaust Emissions (TONs)
NE: Number of Equipment

WD: Number of Total Work Days (days)
H: Hours Worked per Day (hours)
HP: Equipment Horsepower
LF: Equipment Load Factor
EF_{POL}: Emission Factor for Pollutant (g/hp-hour)
0.002205: Conversion Factor grams to pounds
2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
PA: Paving Area (ft^2)
0.25: Thickness of Paving Area (ft)
(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd^3 / 27 ft^3)
HC: Average Hauling Truck Capacity (yd^3)
(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd^3)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

$V_{POL} = (VMT_{VE} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Vehicle Exhaust On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

$VMT_{WT} = WD * WT * 1.25 * NE$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)
WD: Number of Total Work Days (days)
WT: Average Worker Round Trip Commute (mile)
1.25: Conversion Factor Number of Construction Equipment to Number of Works
NE: Number of Construction Equipment

$V_{POL} = (VMT_{WT} * 0.002205 * EF_{POL} * VM) / 2000$

V_{POL}: Vehicle Emissions (TONs)
VMT_{VE}: Worker Trips Vehicle Miles Travel (miles)
0.002205: Conversion Factor grams to pounds
EF_{POL}: Emission Factor for Pollutant (grams/mile)
VM: Worker Trips On Road Vehicle Mixture (%)
2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$VOC_P = (2.62 * PA) / 43560$

VOC_P: Paving VOC Emissions (TONs)
2.62: Emission Factor (lb/acre)
PA: Paving Area (ft^2)
43560: Conversion Factor square feet to acre (43560 ft2 / acre)^2 / acre)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

7. Heating

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Heating for all constructed facilities Year 1

- Activity Description:
heating added for first half of construction

- Activity Start Date
Start Month: 8
Start Year: 2027

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.010304
SO_x	0.001124
NO_x	0.187349
CO	0.157373

Pollutant	Emissions Per Year (TONs)
PM 10	0.014238
PM 2.5	0.014238
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.004234
N_2O	0.004234

Pollutant	Emissions Per Year (TONs)
CO_2	224.853882
CO_2e	225.086194

7.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 58200
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0676

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

7.3 Heating Emission Factor(s)

- Heating Criteria Pollutant Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3
5.5	0.6	100	84	7.6	7.6		

- Heating Greenhouse Gasses Pollutant Emission Factors (lb/1000000 scf)

CH_4	N_2O	CO_2	CO_2e
2.26	2.26	120019	120143

7.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year

FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement (MMBtu/ft^2)
HV: Heat Value (MMBTU/ft^3)
1000000: Conversion Factor

- Heating Emissions per Year

HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

8. Heating

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location
County: Clark
Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: Heating for all construction added year 2

- Activity Description:
Heating for all construction added year 2

- Activity Start Date
Start Month: 9
Start Year: 2028

- Activity End Date
Indefinite: Yes
End Month: N/A
End Year: N/A

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions of Criteria Pollutants:

Pollutant	Emissions Per Year (TONs)
VOC	0.010304
SO_x	0.001124
NO_x	0.187349
CO	0.157373

Pollutant	Emissions Per Year (TONs)
PM 10	0.014238
PM 2.5	0.014238
Pb	0.000000
NH_3	0.000000

- Global Scale Activity Emissions of Greenhouse Gasses:

Pollutant	Emissions Per Year (TONs)
CH_4	0.004234
N_2O	0.004234

Pollutant	Emissions Per Year (TONs)
CO_2	224.853882
CO_2e	225.086194

8.2 Heating Assumptions

- Heating
Heating Calculation Type: Heat Energy Requirement Method

- Heat Energy Requirement Method
Area of floorspace to be heated (ft^2): 58200
Type of fuel: Natural Gas
Type of boiler/furnace: Commercial/Institutional (0.3 - 9.9 MMBtu/hr)
Heat Value ($MMBtu/ft^3$): 0.00105
Energy Intensity ($MMBtu/ft^2$): 0.0676

- Default Settings Used: Yes

- Boiler/Furnace Usage
Operating Time Per Year (hours): 900 (default)

8.3 Heating Emission Factor(s)

- Heating Criteria Pollutant Emission Factors (lb/1000000 scf)

VOC	SO_x	NO_x	CO	PM 10	PM 2.5	Pb	NH_3
5.5	0.6	100	84	7.6	7.6		

- Heating Greenhouse Gasses Pollutant Emission Factors (lb/1000000 scf)

CH_4	N_2O	CO_2	CO_2e
2.26	2.26	120019	120143

8.4 Heating Formula(s)

- Heating Fuel Consumption ft^3 per Year
FC_{HER}= HA * EI / HV / 1000000

FC_{HER}: Fuel Consumption for Heat Energy Requirement Method
HA: Area of floorspace to be heated (ft^2)
EI: Energy Intensity Requirement ($MMBtu/ft^2$)
HV: Heat Value ($MMBTU/ft^3$)
1000000: Conversion Factor

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Heating Emissions per Year

HE_{POL}= FC * EF_{POL} / 2000

HE_{POL}: Heating Emission Emissions (TONs)
FC: Fuel Consumption
EF_{POL}: Emission Factor for Pollutant
2000: Conversion Factor pounds to tons

APPENDIX D. CULTURAL RESOURCES SURVEYS

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Architectural Surveys Conducted within the APE

SHPO Report Number	Report Author(s)	Report Name	Year
TBD	Curran, Joe; Peter Mires, Ashley Konoske Wiley, and Kelly Edmiston	Cultural Resource Inventory for Creech Air Force Base, Clark County, Nevada	2024
23425	SWCA	Historic Overview of the Creech Air Force Base Runway System, Indian Springs, Clark County	2018
24132	Edwards, Erin	Historic Building Inventory of Nellis Air Force Base, Creech Air Force Base, and Nevada Test and Training Range, Las Vegas, Nevada	2018
20179	Edwards, Susan	Architectural Survey and Historic Evaluation of Ten Resources at Nellis and Creech Air Force Bases, Clark County	2015
20297	Edwards, Susan	Documentation Regarding Nine Demolished Buildings at Nellis and Creech Air Force Bases, Clark County, Nevada	2015
20182	Higgins, Courtney, Daron Duke, and Steven J. Melvin	Cultural Resources Inventory of 17 Acres for the Creech Air Force Base Land Acquisition Project, Clark County	2014
TBD	Travisano, Mikel, Michelle Wurtz, Marsha Prior, and Tarin E. Erickson	Nellis Air Force Base Historic Evaluation of 64 Buildings	2009
TBD	Travisano, Mikel, Michelle Wurtz, Natalie K. Thomas, and Marsha Prior	Nellis Air Force Base Historic Evaluation of 251 Buildings	2007
175	Geo-Marine, Inc.	Nellis Air Force Base, Historic Evaluation of 9 Buildings	2006

Source: NVCRIS

Archaeological Surveys Conducted within the APE

SHPO Report Number	Report Author(s)	Report Name	Year
TBD	Environmental Assessment Services, LLC	Class III Intensive Cultural Resources Survey of Approximately 5-Acres at Creech Air Force Base – Collaborative Combat Aircraft Experimental Operations Unit and Test Training Unit #1, Clark County, Nevada	2025
TBD	Curran, Joe; Peter Mires, Ashley Konoske Wiley, and Kelly Edmiston	Cultural Resource Inventory for Creech Air Force Base, Clark County, Nevada	2024
29858	Younie, A.; Perri, A.; Cook, M.	Class III Archaeological Inventory for Fence-To-Fence Environmental Services at Creech Air Force Base, Clark County, Nevada	2022
18756	Riddle, Jennifer E.	A Class III Cultural Resource Investigation of Material Pit NY 07-04 and the NDOT Right-of-Way on US-95 from Milepost NY 8.14 to Milepost CL 120.44 in Nye and Clark Counties, Nevada	2013
4686	Eskenazi, Suzanne and Christopher Harper	Archaeological Survey for the Proposed Mercury to Indian Springs Fiber Optic Line, Clark and Nye Counties, Nevada	2010
3997	Leavitt, Robert M. and Jeffrey L. Baker	Class III Cultural Resource Inventory of Proposed Sewage Disposal Pond and Associated Facilities on Clark County Water Reclamation District Property and Public Rights of Way Indian Springs, Clark County, NV	2009
11293	Myhrer, Keith	An Inventory of 111 Acres for a Bypass Road and Staging Area at Creech Air Force Base, Clark County, Nevada Nellis AFB Report 07-03	2007
657	Kolvet, Renee Corona et al	A Stratified Archaeological Sample of Low Elevation Areas on Nellis Air Force Range, Nevada	2000
11402	Pippin, Lonnie C. and Susan Edwards	A Class III Cultural Resources Reconnaissance for a 167 Km Fiber Optic Line Between the Air Force Auxiliary Field at Indian Springs and the Cedar Pass Gate on the Tonopah Test Range, Nellis Air Force Range, Nevada	1997
11392	York, Andrew L., Robin E. McMullen, Paula del Espinasse, and W. Geoffrey Spaulding	Archaeological Survey of the Indian Springs Air Force Auxiliary Field, Nellis Air Force Base, Clark County, Nevada	1996
11324	Bergin, Kathleen Ann	A Cultural Resource Inventory of the Indian Springs Landfill Expansion Project Area, Indian Springs Air Force Auxiliary Field, Clark County, Nevada	1991
13045	Sheets, Robert S.	Indian Springs Fiber Optic Project	1991
5-1763	Myhrer, Keith	Material Pits Near Indian Springs	1989
SR071888-1	Livingston, Stephanie D. and Lonnie C. Pippen	Evaluation of Site 26CK3906 on the Air Force Auxiliary Field, Indian Springs, Nevada	1989
16231	Durand, Stephen R., Reno, Ronald and Alvin McLane	Archaeological Survey and Evaluation of Six Parcels on Nellis Air Force Base, Lincoln, Clark, and Nye Counties, Nevada	1988

SHPO Report Number	Report Author(s)	Report Name	Year
16243	Reno, Ronald L., Katherine Cheryl Dojaquez	A Class III Cultural Resources Reconnaissance of Radiological Monitoring Stations for the Yucca Mountain Project, Clark and Nye Counties, Nevada	1988
12377	Blair, Lynda M. Blair and Peter J. Calos	A Cultural Resource Inventory of the National Guard Licensed Area on Range 65 Near Indian Springs, Clark County, Nevada	1987
12981	N/A	An Archaeological Survey between Beatty, Nye County, and Indian Springs, Clark County, Nevada	1982
13027	Windham, Michael D.	Seismic Exploration Lines Near the Spring Mountains Clark County, Nevada	1981
5-772	Liebhauser, William J.	12-5 KV Aerial Powerline R/W N-30598	1981

Source: NVCRIS
N/A = not available; KV = kilovolt; NDOT = Nevada Department of Transportation; SHPO = State Historic Preservation Office