Draft
Environmental Assessment for Installation Development Plan Projects Davis-Monthan Air Force Base, Arizona

January 2024

United States Air Force, 355th Wing
Davis-Monthan Air Force Base, Arizona

PRIVACY ADVISORY

This Environmental Assessment (EA) is provided for public comment in accordance with the *National Environmental Policy Act* (NEPA), the President's Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500–1508), and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*.

The EIAP provides an opportunity for public input on Air Force decision-making, allows the public to offer inputs on alternative ways for the Air Force to accomplish what it is proposing, and solicits comments on the Air Force's analysis of environmental effects.

Public commenting allows the Air Force 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 identify your desire to make a statement during the public comment portion of any public meetings or hearings or 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 Personal home addresses and phone numbers will not be published in the EA.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

This document has been certified that it does not exceed 75 pages, not including appendices as defined in 40 CFR 1501.5(f). As defined in 40 CFR 1508.1(v), a "page" means 500 words and does not include maps, diagrams, graphs, tables, and other means of graphically displaying quantitative or geospatial information

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COVER SHEET
Draft Environmental Assessment for
Installation Development Projects at Davis-Monthan Air Force Base, Arizona

a. *Responsible Agency: United States Air Force*

b. *Location: Davis-Monthan Air Force Base, Arizona*

c. *Designation: Draft Environmental Assessment*

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Abstract:

The United States Air Force (Air Force) at Davis-Monthan Air Force Base (AFB) has prepared this Environmental Assessment (EA) in accordance with the *National Environmental Policy Act* to evaluate the potential impacts of implementing multiple installation development projects on Davis-Monthan AFB. These installation development projects support the Base's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons.

Potentially affected environmental resources were identified in coordination with local, state, and federal agencies. Specific environmental resources with the potential for environmental consequences include land use; air quality and regional climate; earth, water, biological, and cultural resources; noise; hazardous materials and wastes; infrastructure, including transportation and utilities; safety and occupational health; socioeconomics; and environmental justice and protection of children.

The analysis of the affected environment and environmental consequences of implementing the Proposed Action and Alternatives, including the No Action Alternative, concluded that by implementing standing environmental protection measures and Best Management Practices, there would be no significant adverse impacts to the environmental resources from the proposed installation development projects. Davis-Monthan AFB is an active installation with aircraft operations, demolition, and new construction actions currently under way as well as future development currently in the planning phase. Impacts associated with construction, demolition, and renovation would be minor; therefore, significant cumulative impacts are not anticipated from activities associated with the Proposed Action and Alternatives when considered in conjunction with other past, present, or reasonably foreseeable environmental trends or future actions at Davis-Monthan AFB.

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ACRONYMS AND ABBREVIATIONS

355 MUNS	355th Munitions Squadron
355 WG	355th Wing
ACC	Air Combat Command
ACAM	Air Conformity Applicability Model
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ADEQ	Arizona Department of Environmental Quality
ADP	Area Development Plan
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFE	aircrew flight equipment
AFFF	aqueous film forming foam
AFI	Air Force Instruction
AFMC	Air Force Materiel Command
AFRC	Air Force Reserve Command
AGE	aircraft ground equipment
AGM	aboveground magazine
Air Force	United States Air Force
AMARG	Aerospace Maintenance and Regeneration Group
ANG	Air National Guard
APE	Area of potential effects
APZ	Accident Potential Zone
AST	aboveground storage tank
AZGFD	Arizona Game and Fish Department
BGEPA	Bald and Golden Eagle Protection Act of 1940
BMP	Best Management Practice
AZPDES	Arizona Pollution Discharge Elimination System
CAA	Clean Air Act
CBP	US Customs and Border Protection
CEJC	communities with environmental justice concerns
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CPP	Comprehensive Planning Platform
CTS	Combat Training Squadron
CWA	Clean Water Act
CZ	Clear Zone
dB	decibel
dBA	A-weighted decibel
DNL	Day-Night Average Sound Level
DoD	United States Department of Defense
EA	Environmental Assessment
ECM	earth-covered magazine
ECP	Entry Control Point
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ESQD	explosive safety quantity distance
FOCUS	Facilities Operations Capability and Utilization Survey
FONSI	Finding of No Significant Impact

ft^2	square foot/feet
FY	fiscal year
GHG	greenhouse gas
HAMS	Holding Area Munitions
HAZMAT	hazardous material
HD	hazard division
HQ	Headquarters
LBP	lead-based paint
IDP	Installation Development Plan
IPaC	Information for Planning and Consultation
LID	low-impact development
MAC	Munitions Assembly Conveyor
MBTA	Migratory Bird Treaty Act
MCF	million cubic feet
MGD	million gallons per day
MSA	Munitions Storage Area
MUNS	Munitions Squadron
MVA	megavolt ampere
MXS	Maintenance Squadron
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyls
PFAS	per- and polyfluoroalkyl substances
PFOA	perfluorooctane sulfonate
PFOS	perfluorooctanoic acid
PGM	precision guided missile
POTFF	Preservation of the Force and Family
PSD	Prevention of Significant Deterioration
QD	quantity distance (arc)
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
RQS	Rescue Squadron
SARA	Superfund Amendments and Reauthorization Act
SCIF	sensitive compartmented information facility
SGCN	Species of Greatest Conservation Need
SPCC	Spill Prevention Control and Countermeasure
ST/STE	special tooling/special test equipment
SWPPP	Stormwater Pollution Prevention Plan
T&E	threatened and endangered
TCP	Traditional Cultural Properties
UFC	Unified Facilities Criteria
US	United States
USC	United States Code
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UST	underground storage tank

CHAPTER 1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

Davis-Monthan Air Force Base (Davis-Monthan AFB) is an Air Combat Command (ACC) Base located 5 miles south-southeast of downtown Tucson, Arizona (**Figure 1-1**). As part of its installation development planning process, Davis-Monthan AFB has prepared an Installation Development Plan (IDP) that describes the Installation's past, present, and future physical state and serves as a guidance document for future facility planning (Davis-Monthan AFB, 2016a). Davis-Monthan AFB is divided into six planning districts that represent areas of similar use or activity. District Plans are prepared at the planning district level, and Area Development Plans (ADPs) are prepared for smaller areas within a planning district or at the organizational level to directly address needs within specific functions of the Base. Davis-Monthan AFB has developed four planning documents: 1) Flightline District Plan (Davis-Monthan AFB, 2020a), 2) Rescue Groups Campus Plan (Davis-Monthan AFB, 2018a), 3) Aerospace Maintenance and Regeneration Group (AMARG) District Plan (Davis-Monthan AFB, 2015, 2021a), and 4) Munitions Storage Area Campus Plan (Davis-Monthan AFB, 2022). In addition, a Facilities Operations Capability and Utilization Survey (FOCUS) was performed for the Air Force Reserve Command (AFRC) to evaluate workspace and make recommendations to maximize building efficiency and effective use of space. (Davis-Monthan AFB, 2020b). Davis-Monthan AFB planning now uses the Comprehensive Planning Platform (CPP), a digitial database system that integrates planning across the Base and includes ADPs and other planning documents. Through the CPP, the Air Force has identified multiple installation development projects across several planning districts, including the Flightline District, Main Base District (both North and South areas), AMARG District, and the Munitions and Range District.

The United States (US) Air Force (Air Force), ACC, prepared this Environmental Assessment (EA) in accordance with the *National Environmental Policy Act of 1969*, as amended (42 *United States Code* [USC] § 4321 et seq.) (NEPA); the Council on Environmental Quality (CEQ) NEPA regulations (40 *Code of Federal Regulations* [CFR] Parts 1500–1508); and the Air Force NEPA regulations at 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*. Per the updated CEQ NEPA regulations, this EIAP complies with the prescriptive timeline and page limits for an EA. Other applicable provisions of 40 CFR Parts 1500–1508 are cited below. The CEQ NEPA regulations at 40 CFR § 1500.1(b), 40 CFR § 1506.6(b) and (c), and 40 CFR § 1507.4 provide purpose and direction for streamlining the NEPA process. To render this document more concise, links are provided to online data sources to which the reader can refer for more information. Should the reader not have internet access, please contact the Air Force point of contact listed on the **Cover Sheet** of this EA and accommodations will be made to provide printed copies of relevant information requested.

The information presented in this EA will serve as the basis for deciding whether the projects identified in the Installation planning process, collectively referred to as the "Proposed Action," would result in a significant impact to the human or natural environment, requiring the preparation of an Environmental Impact Statement (EIS), or whether no significant impacts would occur, in which case a Finding of No Significant Impact (FONSI) would be issued. If execution of the Proposed Action or Alternatives would unavoidably occur in a wetland or floodplain, a Finding of No Practicable Alternative would be prepared in conjunction with the FONSI, pursuant to the requirements of Executive Order (EO) 11990, *Protection of Wetlands*, and EO 11988, *Floodplain Management*.

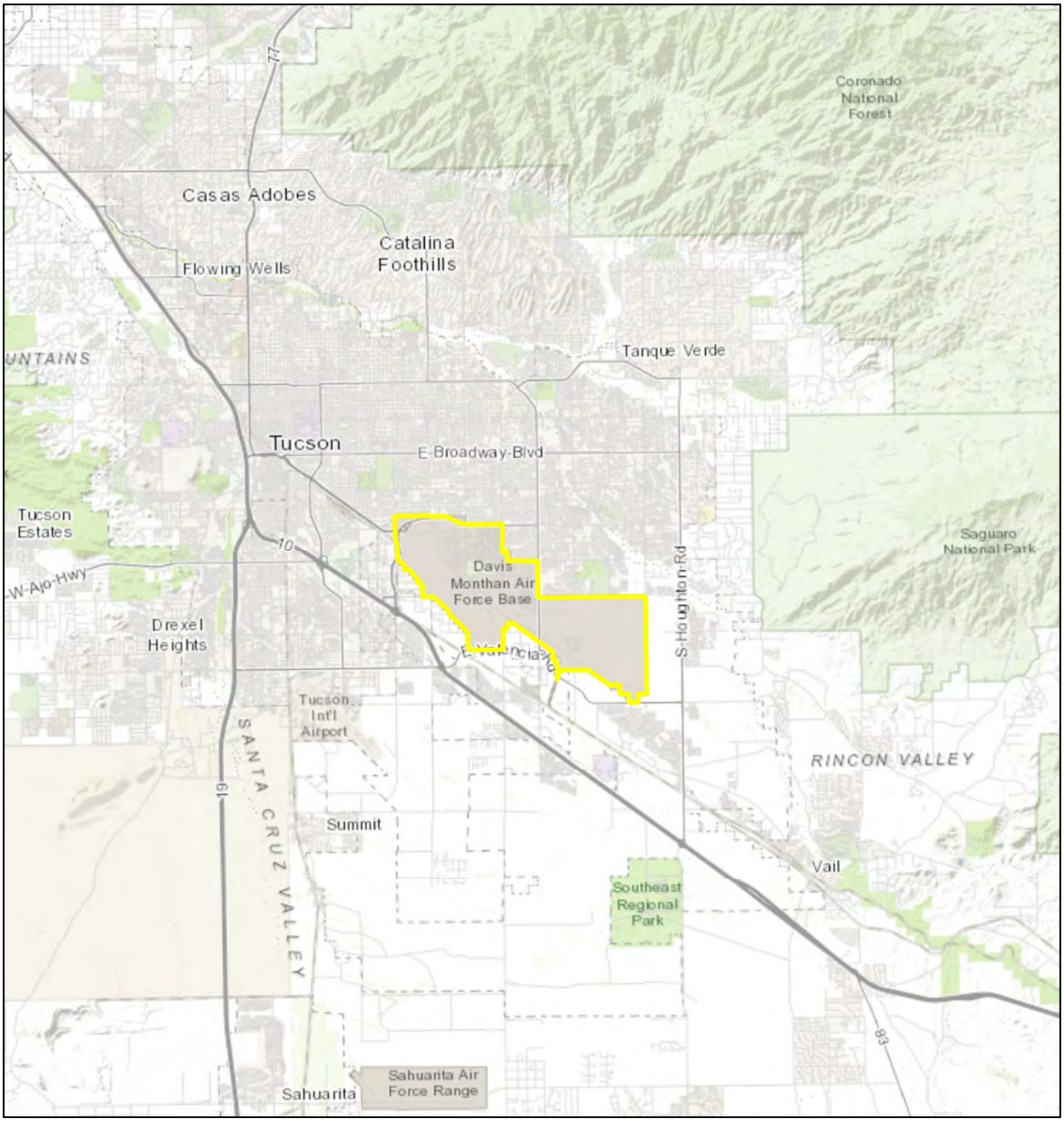

FIGURE 1-1
Regional Overview

Installation Boundary

0 5 Mile

Coordinate System: WGS 1984 UTM Zone 12N

1.2 DAVIS-MONTHAN AFB

Davis-Monthan AFB was established in 1925 as Davis-Monthan Landing Field and became an AFB in 1940. The host unit for Davis-Monthan AFB is the 355th Wing (355 WG) assigned to the ACC. In addition to the ACC, other tenant Mission Partners represented at Davis-Monthan AFB include the AFRC, Air Force Materiel Command (AFMC), 12th Air Force, 55th Electronic Combat Group, 610th Command and Control Squadron, 612th Air Operations Center, US Customs and Border Protection (CBP), and the 214th Attack Group of the Air National Guard (ANG). The Base is the location of the AFMC 309th AMARG, which operates and maintains the aircraft boneyard for all excess military and US government aircraft and aerospace vehicles. The following aircraft operate from the Installation: A-10, F-16, HH-60, C130J, HC-130, and CBP aircraft. There is one runway at Davis-Monthan AFB, Runway 12/30, which is 13,645 by 200 feet. The 355 WG is segregated into five groups: Fighter, Rescue, Maintenance, Medical, and Mission Support. The Fighter Group is responsible for training and deploying A-10C Thunderbolt II pilots and is the sole Formal Training Unit for the A-10 aircraft, providing initial and recurrent training to all Air Force A-10 and OA-10 pilots, including those in the AFRC and the ANG. The 563d Rescue Group, which is part of the 355 WG, directs flying operations for the Air Force's combat search and rescue missions.

1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of projects identified for installation development under the Proposed Action is to support Davis-Monthan AFB's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. The need for projects proposed for each planning district is outlined below.

1.3.1 Rescue Group Campus Projects

Projects identified within the Rescue Group Campus are needed because the three resident Guardian Angel (rescue) squadrons assigned to Davis-Monthan AFB currently have inadequate space for storage of equipment and operations. Current storage space is spread across multiple locations, making it inefficient for gathering and using equipment and materials. Some equipment is currently being stored outside in the intense desert sun, shortening the equipment life cycle. Several facilities are undersized, preventing the completion of some critical tasks (e.g., packing of all required parachutes). There are no facilities to accommodate the new 414th Combat Training Squadron as part of the Red Flag exercise requirements.

1.3.2 Flightline District Plan Project

The construction of the new Communications Squadron headquarters within the Flightline District is needed to provide updated facilities with an efficient layout and space for current and future mission requirements. The Communications Squadron currently operates out of a 1945 hangar building that was converted to administrative space in 1985. The existing building is substandard, nearing end of life condition, and occupies highly desirable land space along the flightline that could be better used for flight operation functions.

1.3.3 AFRC FOCUS Projects

The projects identified in the AFRC FOCUS support the facility needs of the 943d Rescue Group, 924th Fighter Group, 610th Command and Control Squadron, and 720th Security Forces Squadron. Projects proposed in the AFRC FOCUS are needed to provide sufficient space for current and future mission requirements. Presently, the 943d Aerospace Medical Squadron lacks adequate administrative and training space for its facility functions. The 943d Maintenance Squadron needs additional indoor space for storing aircraft ground equipment (AGE); a hangar building for unscheduled maintenance of A-10 aircraft; and administrative, training, and shop space for maintenance of the HH-60 helicopter and training of personnel.

1.3.4 AMARG District Plan Projects

The AMARG serves an important function in maintaining and storing all excess US military aircraft. Projects identified in the AMARG District Plan are needed to consolidate mission functions, improve operational efficiency, and facilitate communications within the organization. Currently, the Mission Support Center operates out of eight separate, substandard buildings. The AMARG packaging and fabrication function needs a consolidated facility; currently, it is served by multiple buildings, several of which are three-sided and open to the harsh desert climate. The Air Force has notified AMARG that any special tooling/special test equipment (ST/STE) requiring long-term storage will be stored at Davis-Monthan AFB. AMARG needs a large storage warehouse for storing the ST/STE, as no facility exists for this purpose.

1.3.5 Other Installation Development Projects

As identified in the Dormitory Master Plan, construction of an additional dormitory is needed because Davis-Monthan AFB has insufficient on-Base housing to accommodate unaccompanied enlisted personnel.

Additionally, Davis-Monthan AFB proposes to purchase eight tracts of contiguous, privately owned land on the southeast end of Davis-Monthan AFB near the Munitions Storage Area (MSA). Because the land parcels are within Davis-Monthan AFB, the private owners cannot access the property. Several parcels overlap the explosive safety quantity distance (QD) arcs for the munition's storage units. Currently, the Air Force continues to pay rent on the land under a lease agreement; however, purchasing the parcels outright would provide cost-savings and ensure appropriate land use of the parcels in perpetuity.

1.3.6 Munitions Storage Area Projects

Projects proposed for the MSA under the Proposed Action are needed because the munitions storage facilities at Davis-Monthan AFB were initially constructed more than 60 years ago. Most of the storage igloos were constructed in the 1950s and do not meet munitions storage requirements, except for Storage Igloo 172, which was constructed in 2008. The older MSA facilities do not meet requirements for personnel quality of life due to lack of indoor cooling, adequate work and administrative space, and adequate rest rooms. The 355th Munitions Squadron (MUNS) Airmen are also outside in extreme weather, particularly during the summer months when Davis-Monthan AFB is exposed to high temperatures and constant sunshine. In addition, testing has revealed that some facilities in the MUNS compound have asbestos and lead paint.

In addition to the existing facilities being antiquated, many of the 355 MUNS facilities are poorly configured for current operations, resulting in inefficient operations and potentially unsafe work conditions. Several MUNS operations cannot be performed concurrently because they are co-located within existing buildings and the operations are incompatible due to safety requirements, resulting in the temporary suspension of some operations. There is no loading dock within the MSA, forcing current loading and unloading of shipments to be performed outside the MSA secured area with mobile ramps. The 355 MUNS has outgrown its administrative facilities, with some administrative and maintenance operations displaced from the MSA. The current administrative facilities are inside the secured MSA, requiring access to secured areas that would otherwise be unnecessary if the functions were separated.

Monsoon rains during the summer often cause localized flooding, creating issues throughout the district (e.g., Building 184 and several storage igloos). There are minimal pedestrian routes that can be used, especially after rainstorms. Pavement within the MSA is old and of poor quality for moving munitions. Finally, the MSA is located on the southeast end of Davis-Monthan AFB and is very dark at night. Current lighting is limited and creates potential safety issues during night munitions operations.

1.4 SCOPE OF THE ENVIRONMENTAL ANALYSIS

This EA analyzes the potential environmental consequences of the Proposed Action and Alternatives. The analysis addresses facility construction, demolition, and renovation.

This EA has been prepared in accordance with NEPA, CEQ regulations, and the Air Force EIAP. NEPA is the basic national requirement for identifying environmental consequences of federal decisions. NEPA ensures that environmental information, including the anticipated environmental consequences of a proposed action, is available to the public, federal and state agencies, tribal governments, and the decision-maker before decisions are made and before actions are taken.

Consistent with the CEQ regulations, the EA is organized into the following sections:

- Chapter 1, Purpose and Need for Action, includes an introduction and background on the project location, purpose and need statements, scope of environmental analysis, decision to be made, interagency and intergovernmental coordination and consultation activities, public and agency review process, and applicable laws and environmental regulations.
- Chapter 2, Description of the Proposed Action and Alternatives, includes a description of the Proposed Action, alternative selection standards, screening of alternatives, alternatives eliminated from further consideration, a description of the selected alternatives, summary of potential environmental consequences, and any mitigation and environmental commitments.
- Chapter 3, Affected Environment and Environmental Consequences, includes a description of the natural and man-made environments within and surrounding Davis-Monthan AFB that may be affected by the Proposed Action and Alternatives. This chapter also includes a discussion of direct and indirect impacts.
- Chapter 4, List of Preparers, provides a list of the preparers of this EA.
- Chapter 5, References, contains references for studies, data, and other resources used in the preparation of this EA.
- Appendices, as required, provide relevant correspondence, studies, modeling results, and public review information.

NEPA, which is implemented through the CEQ regulations, requires federal agencies to consider alternatives to the Proposed Action and to analyze potential impacts of alternative actions. Potential impacts of the Proposed Action and Alternatives described in this document will be assessed in accordance with the Air Force EIAP (32 CFR Part 989). To help the public and decision-makers understand the implications of impacts, the impacts will be described in the short and long term, cumulatively, and within context.

1.5 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

The EIAP, in compliance with NEPA guidance, includes public and agency review of information pertinent to a proposed action and alternatives. The Air Force's compliance with the requirement for intergovernmental coordination and agency participation begins with the scoping[1] process (40 CFR § 1501.9). Accordingly, and per EO 12372, *Intergovernmental Review of Federal Programs*, the Air Force 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 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 A**.

1.5.1 Government to Government Consultation

The *National Historic Preservation Act* (54 USC § 300101, et seq.) (NHPA) and its regulations at 36 CFR Part 800 direct federal agencies to consult with federally recognized Indian 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 and Protection and Repatriation Act* (25 USC § 3001 et seq.), US Department of Defense (DoD) Instruction 4710.02, *Interactions with Federally Recognized Tribes*, and Department of Air Force Instruction 90-2002, *Air Force Interaction with Federally*

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

Recognized Tribes, the Air Force 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 the other consultations. The Davis-Monthan AFB point of contact for Indian tribes is the Base Commander. The point of contact for consultation with the Tribal Historic Preservation Officer and the Advisory Council on Historic Preservation is the Davis-Monthan AFB Cultural Resources Manager. A mailing list of the tribal government recipients of this invitation as well as a sample of the outgoing correspondence and all responses are included in **Appendix A.**

1.5.2 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 § 1536 et seq.) (ESA) and implementing regulations (50 CFR Part 402) require communication with the US Fish and Wildlife Service (USFWS) and/or National Oceanic and Atmospheric Administration National Marine Fisheries Service. On [date], the Air Force initiated Section 7 consultation under the ESA for the Proposed Action using the USFWS's Information for Planning and Consultation (IPaC) tool. Basic information concerning the location and nature of the projects included in the Proposed Action was input into IPaC to obtain an official species list from the USFWS. The list identified 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 A** and incorporated into this EA where applicable.

Other federal agencies the Air Force might coordinate with include the US Environmental Protection Agency (USEPA), Bureau of Land Management, National Park Service, US Forest Service, and Bureau of Indian Affairs.

The Air Force coordinated with the following state government agencies regarding potential effects from the Proposed Action and Alternatives:

- NHPA Section 106 compliance – State Historic Preservation Office
- Air and water quality effects – Arizona Department of Environmental Quality (ADEQ)
- Habitat and species of concern – Arizona Game and Fish Department (AZGFD)

Finally, notice of the Proposed Action and Alternatives was provided to elected officials that represent the state at the federal and local levels. A sample of agency correspondence and any responses are included in **Appendix A**.

1.6 Public and Agency Review of Environmental Assessment

The Air Force invites the public and other interested stakeholders to review and comment on this EA. Accordingly, a notice of availability of the Draft EA and Draft FONSI was published in the following local newspaper to commence a 30-day public comment period.

- *Arizona Daily Star*

The public comment period of the Draft EA and FONSI concludes on 2 March 2024. During the public comment period, the Draft EA and Draft FONSI are available online for view or download at https://www.dm.af.mil/About-DM/Environmental-Stewardship/. Additionally, printed copies of the Draft EA and Draft FONSI are available upon request and placed at the following Tucson area libraries for review:

- Eckstrom-Columbus Branch Library, 4350 East 22nd Street
- Quincie Douglas Library, 1585 East 36th Street

The Final EA will address all substantive comments received on the Draft EA and Draft FONSI; written comments will be included as an appendix to the Final EA. If appropriate, the Air Force will subsequently issue a final (signed) FONSI to comply with NEPA.

1.7 DECISION TO BE MADE

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

1. Choose the Proposed Action and sign a FONSI, allowing implementation of the selected alternative;

2. Initiate preparation of an EIS if it is determined that significant impacts would occur through implementation of the Proposed Action or Alternatives; or

3. Select the No Action Alternative, whereby the Proposed Action would not be implemented.

As required by NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project and be available to inform decision-makers of the potential environmental impacts.

1.8 APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS

Other laws and regulations applicable to the Proposed Action include, but are not limited to:

- *Clean Water Act* (33 USC § 1251 et seq.) (CWA)
- *Resource Conservation and Recovery Act* (42 USC § 6901 et seq.) (RCRA)
- Section 438 of the *Energy Independence and Security Act* (Public Law 110-140) (EISA)
- *Comprehensive Environmental Response, Compensation, and Liability Act* (42 USC § 9601 et seq.) (CERCLA)
- Federal *Clean Air Act* (42 USC § 7401 et seq., as amended) (CAA)
- *Migratory Bird Treaty Act* (16 USC § 703 et seq.) (MBTA)
- *Toxic Substances Control Act* (15 USC § 2601 et seq.)
- EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994),
- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997), as amended by EO 13296 (2003)
- EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All* (2023)

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CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 OVERVIEW OF THE PROPOSED ACTION

The installation development projects included as part of the Proposed Action were selected based on current and future needs at Davis-Monthan AFB identified through the installation planning process, including the IDP, District Plans, ADPs, and Campus Plans, and as outlined in the *Unified Facilities Criteria (UFC) for Installation Master Planning* (UFC 2-100-01), Air Force Instruction (AFI) 32-1015 *Integrated Installation Planning*, the 2022 Air Force *Civil Engineer District Planning Playbook*, and the Defense Explosives Safety Regulation DESR6055.09_AFMAN 91-201, *Explosives Safety Standards*. The District Plans are included in the electronic enterprise-wide CPP that Davis-Monthan AFB uses for integrated planning, programming, asset management, and budget execution. Each of the proposed projects would support the overall purpose of and need for installation development as described in **Section 1.3**.

The Proposed Action would occur over a 5-year period, from Fiscal Year (FY) 2024 through FY 2028. **Table 2-1** summarizes the Proposed Action by Alternative and the square footage of new buildings and earth-covered magazines (ECMs), pads/paved areas, demolition, renovation, and approximate area of new impervious surfaces (i.e., buildings and paved areas). Both Alternatives 1 and 2 (as further defined below in **Section 2.3**) would add approximately 1 million square feet (ft^2) of building space but demolition would remove about 126,000 to 128,000 ft^2 of building for a net gain of about 877,000 ft^2 under Alternative 1 and 874,000 ft^2 under Alternative 2. However, most of the net gain in building square footage under all four Alternatives would be attributable to the 600,000 ft^2 AMARG storage warehouse for ST/STE, which would account for 68 to 70 percent of the proposed construction square footage.

Table 2-1.
Summary of Alternatives

Alternative	New Buildings/ ECMs (ft^2)	New Pads/Paved Areas (ft^2)	Demolition (ft^2)	Renovation (ft^2)	Net Gain of Building Space (ft^2)	New Impervious Area (ft^2)
1	1,002,441	102,624	125,714	4,020	876,727	920,000
2	1,001,441	60,000	127,764	0	873,677	897,000
3	959,071	40,000	87,729	0	871,342	850,000
4	925,514	40,000	76,484	0	849,030	819,000

ECM = earth-covered magazine; ft^2 = square foot

As can be seen in **Table 2-1**, Alternative 1 would create the largest amount of new impervious surface area, at approximately 920,000 ft^2, with Alternative 4 creating the least, at approximately 100,000 ft^2 less than Alternative 1. The largest increase in impervious surfaces would occur from construction of the 600,000-ft^2 AMARG storage warehouse. No net change in impervious surfaces would occur when facilities would be built on existing impervious surfaces, such as sites where buildings would be demolished.

The proposed projects and a description of the size and extent of the projects identified under each alternative are listed in **Table 2-2**. The proposed locations for the projects are identified on **Figures 2-1–2-4.**

Table 2-2.
Characteristics of the Proposed Projects by Alternative

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
Rescue Group Campus Plan Projects						
1	Guardian Angel Storage Facility	Construct a 59,879-ft^2 storage and vehicle maintenance facility with reinforced concrete foundation and floor slab, structural-steel frame, standing-seam metal roof system, split-faced block, site improvements, landscaping with landscape establishment irrigation, asphalt pavement and parking, fire detection/protection, and all necessary support for a complete and usable facility.	X	X	X	X
2	Guardian Angel Storage Facility for 306 RQS	Construct a 13,003-ft^2 storage facility for the 306 RQS. This storage facility would be used to protect rolling stock, RQS equipment, and Internal Airlift/Helicopter Slingable Container Units from the intense desert sun. A small section of the storage facility would be climate controlled for the storage of medical supplies and other items that require climate-controlled storage. The rest of the facility would have evaporative coolers to provide summertime cooling: heating is not necessary. The entire storage facility would have a fire suppression system.	X	X	X	X
3	Guardian Angel Preservation of the Force and Family (POTFF) Facility	Construct a 32,172-ft^2 POTFF facility with reinforced concrete foundation and floor slab, structural-steel frame, standing-seam metal roof system, split-faced block, site improvements, landscaping with landscape establishment irrigation, asphalt pavement and parking, fire detection/protection, and all necessary support for a complete and usable facility.	X	X	X	X
4	Guardian Angel Squadron Operations Facility	Construct a 42,998-ft^2 squadron operations facility to support the 48th RQS. The facility would provide space for administrative offices, aircrew flight equipment (AFE) and storage cages for issued gear. The AFE shop would be used for maintenance, repair, and packing of personnel parachutes. Facility would include conference spaces, sensitive compartmented information facility (SCIF) space, offices, and an auditorium.	X	X	X	X
5	Red Flag Rescue Ops Facility	Construct a 47,400-ft^2 squadron operations facility to support the 414th Combat Training Squadron (CTS). The facility would provide space for administrative offices, conference spaces, and SCIF space. This facility would be similar to the 549 CTS Green Flag exercise facility at the Nellis AFB.	X	X	X	X
Flightline District Plan Project						
6	Communications Facility	Construct a new 19,080-ft^2 Communications Squadron headquarters facility to replace the current headquarters facility. The new facility would contain the Communication Squadron Command Section as well as most administrative functions for the Communications Squadron. The facility would also house secure and non-classified internet protocol router network hubs, radio maintenance/control, the Alternate	X	X	X	X

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
		Command Post, and the Alternate Crisis Action Team room.				
AFRC FOCUS Projects						
7	Admin & Training Addition to B415	Construct a 3,358-ft^2 administrative and training addition to B-415 that is compatible with existing structure and architectural scheme (e.g., standing-seam roofing, split-faced block, xeriscaping, anti-terrorism/force protection) and provides all controls and supporting utilities for a complete and usable facility.	X	X	X	X
8	943 MXS AGE Equipment Staging Facility	Construct a 2,600-ft^2 pre-engineered steel cover/sidewall(s) facility to protect AGE from weather and provide shade. The facility would be used for the 943d Maintenance Squadron (943 MXS) AGE staging (completed/ awaiting maintenance) in support of the 943d Rescue Group mission to provide worldwide combat rescue operations. The facility would provide a foundation system designed for static and wind loads and a building system that is architecturally compatible and complementary to the surrounding facilities.	X	X	X	X
9	924 MXS Unscheduled Maintenance Hangar	Construct a 11,000-ft^2 single-bay, fighter (A-10) unscheduled maintenance hangar of the 924th Fighter Group's mission to train and produce qualified A-10 pilots for theater commanders worldwide. The facility would provide reinforced concrete foundation, flooring, access apron, and a bridge crane. The facility construction would comply with local architectural standards/ schemes, UFC, and building codes. Site construction would include security, parking lot, lighting, and access pavements and provide all supporting utilities and controls for a complete and usable facility.	X	X	X	X
10	Construct Addition 943 MXS Maintenance Hangar, B1750	Construct a 5,877-ft^2 addition to aircraft maintenance hangar B-1750 to provide glazing protection from debris blown by taxing/turning aircraft. The facility would include reinforced concrete foundation and floor slabs, standing-seam metal roof, an exterior that is compatible with existing structure, and provide all controls and supporting utilities for a complete and usable facility.	X	X	X	X
AMARG District Plan Projects						
11	Tooling/Test Equipment Storage Warehouse	Construct a 600,000-ft^2 high-bay storage facility. AMARG is a US Department of Defense-designated storage facility for ST/STE. Weapon systems require ST/STE stored in a facility to ensure that the assets are not degraded through exposure to natural elements. This project is part of the current ADP.	X	X	X	X
12	Consolidated Packaging/ Fabrication Center (AMARG)	Construct a 29,601-ft^2 permanent facility with an aircraft parts packaging and crating shop, reinforced concrete foundations and floor slabs, structural-steel frames, standing-seam metal roof systems, split-faced block, all utilities, site improvements, landscaping with landscape establishment irrigation, asphalt pavement and	X	X	X	X

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
		parking, fire detection/protection, and all necessary supporting facilities for a complete and usable facility. This project would also demolish seven facilities: B-7409, B-7427, B-7431, B-7434, B-7435, B-7437, and B-7446.				
13	Consolidated Mission Support Center (AMARG)	Construct a 34,561-ft^2 permanent consolidated Mission Support Center (AMARG) with reinforced concrete foundations and slabs, structural-steel frames, standing-seam metal roof systems, all utilities, site improvements, landscaping, asphalt pavement and parking, fire detection/protection, and all necessary supporting facilities for a complete and usable facility. This project would also involve asbestos abatement of six facilities (B-7507, B-7513, B-7514, B-7613, B-7708, and B-7713) and demolition of eight facilities (B-7403, B-7507, B-7513, B-7514, B-7610, B-7613, B-7708, and B-7713).	X	X	X	X
Other Installation Development Projects						
14	Dormitory (240 PN)	Construct a 20,385-ft^2 dormitory facility to house first-term enlisted Airmen. Each dorm module would be in Dorms-4-Airmen configuration, which can accommodate four Airmen, each with a private bedroom. Additionally, the facility would have one bathroom, a shared kitchen, social space, a community laundry room, storage, and all necessary supporting facilities in accordance with the Air Force's *Unaccompanied Housing Design Guide*. The project would also involve the demolition of B-4219 and B-4221.	X	X	X	X
15	Purchase Private Party Parcels	Purchase approximately 95.97 acres (8 tracts) of contiguous private-party land located within the boundaries of Davis-Monthan AFB.	X	X	X	X
Munitions Storage Area Projects						
16	Stormwater Improvements	Use low-impact development solutions to improve stormwater drainage.	X	X	X	X
17	MSA Main Gate Upgrade	Upgrade the MSA ECP gate to increase security and reduce maintenance requirements.	X	X	X	X
18	Road Improvements	Repair existing paved roads in the operations area and replace the road surfaces and entrances to the igloos in the storage area.	X	X	X	X
19	Install Grounding and Interior Lighting	Provide electrical grounding and interior lighting to igloos to improve safety of operations.	X	X	X	X
20	Lighting Improvements	Add lighting to the MSA ECP and existing storage for night operations and security.	X	X	X	X
21	Construct Chaff/Flare Operations Building	Construct one stand-alone, single-bay 1,500-ft^2 operations building for chaff and flare buildup. This facility is designed for up to 3,000 pounds of new Hazard Division (HD) 1.1 material.	X	X	X	X
22	Construct Explosives Storage Pads	Construct one 20,000-ft^2 open explosives holding pad designed for up to 30,000 pounds of new HD 1.1 material.	X	X	X	X
23	Construct Inert Storage Pad	Construct one 20,000-ft^2 open pad for storage of inert materials.	X	X	X	X
24	Shade Structures for Pads	Improve shade structures for the existing Munitions Assembly Conveyor (MAC) pad 11005 and 267 and add shade structure to the Holding Area Munitions (HAMS) yard.	X	X	X	X

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
25	Lighting Improvements	Add lighting to operations facilities and MAC pads for night operations and security.	X	X	X	
26	Improve Sidewalks/Paths	Improve pedestrian connections throughout the MSA by paving over pedestrian paths.	X	X	X	
27	Shade Structures for Pads	Improve shade structure at pad 267 and add to the HAMS pad and all new pads. Shade structures would be designed to protect munitions at low sun angles.	X	X	X	
28	Construct Conventional Munitions Operations Building	Construct a 14,000-ft^2 facility as an explosive operating location in which operations pertaining to the manufacture, processing, handling, loading, or assembling of munitions and explosives would be performed. The facility would be designed for up to 3,000 pounds of new HD 1.1 material.	X	X	X	
29	Construct HQ/Admin/ Scheduling Building/Trailer Maintenance	Construct a 9,500-ft^2 administration facility that includes planning and scheduling tasks outside the MSA perimeter fence. The facility would include administrative space and trailer maintenance. The project would also release B-4515 back to the 355 WG.	X	X	X	
30	Construct Box Type F ECM	Construct a 10,057-ft^2 box-type earth-covered magazine (ECM) designed for the storage of larger containerized munitions and missiles. This facility would have three individual 16-foot-wide sliding doors on the headwall and access pavement to connect to the existing roads.	X	X	X	
31	Demolition Projects in Operations Area	Demolish B-142, B-190, and B-188 and MAC pad 11005.	X	X	X	
32	Construct HD 1.3/1.4 Explosives Storage Pad	Construct HD 1.3/1.4 explosives storage pad and demolish B-187 and B-265 and remove multi-cube storage units 270, 275, 280, 285, and 290.	X	X		
33	Construct PGM Operations Building	Construct a 14,000-ft^2 facility as an explosive operating location in which operations pertaining to the transferring and preparation of missiles for operations would be performed. The facility would be designed for up to 2,500 pounds of new HD 1.1 material.	X	X		
34	Construct Inspection Building	Construct a 3,800-ft^2 facility as an explosive operating location in which operations pertaining to the inspection and surveillance of ammunition and explosives would be performed. The facility would be designed for up to 3,000 pounds of new HD 1.1 material.	X	X		
35	Construct Multi-Bay AGMs	Construct three 24-bay multi-bay AGMs along the northern boundary of the existing MSA. Each facility would be 8,190 square feet and designed for an aggregate of 3,000 pounds of new HD 1.1 material. Access road would be constructed as part of the project.	X	X		
36	Improve the Entry Control Point (ECP)	Construct a 1,000-ft^2 guard house outside the security fence with gate operated and controlled from within the guard house.	X			
37	Demolish Building at Entry Point	Once improvements of the ECP are complete (see Project 36), demolish B-184.	X			
38	Renovate Building 188	Upon completion of the new HQ building (see Project 29), renovate B-188 for the Line Delivery Flight and add 13,239 ft^2 of pavement for parking and connection to B-236.	X			

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
39	Loading Dock for Munitions inside the MSA	Construct a 2,100-ft^2 permanent loading dock in the southeast corner of the storage operations area inside of the MSA and a 42,624-ft^2 paved pad for connecting to Storage Unit 172 and maneuvering trucks. This facility would be designed to support 20,000 pounds of new HD 1.1 material.	X			
40	Widen Igloo Doors	Widen the existing 8-foot-wide doors on the igloo ECMs to allow for larger, modern munitions to safety pass through the doors.	X			
41	Construct MSA Loading Dock	Construct a 2,100-ft^2 facility as an elevated, open-truck dock with a sunshade canopy. This facility would be designed for up to 5,000 pounds of new HD 1.1 material and located south of the MSA security fence.		X	X	X
42	Improve Pedestrian Paths	Improve pedestrian connections throughout the MSA by covering the existing pathways with gravel to mitigate the effects of rain during the monsoon season.				X

AFE = aircrew flight equipment; AFRC = Air Force Reserve Command; AGE = aircraft ground equipment; AGM = aboveground magazine; AMARG = Aerospace Maintenance and Regeneration Group; B = Building, as in B-187; CTS = Combat Training Squadron; ECM = earth-covered magazine; ECP = Entry Control Point; FOCUS = Facilities Operations Capability and Utilization Survey; ft^2 = square foot/feet; HAMS = Holding Area Munitions; HD = Hazard Division; HQ = headquarters; MAC = Munitions Assembly Conveyor; MSA = Munitions Storage Area; MXS = Maintenance Squadron; PGM = precision guided missile; POTFF = Preservation of the Force and Family; RQS = Rescue Squadron; SCIF = sensitive compartmented information facility; UFC = Unified Facilities Criteria

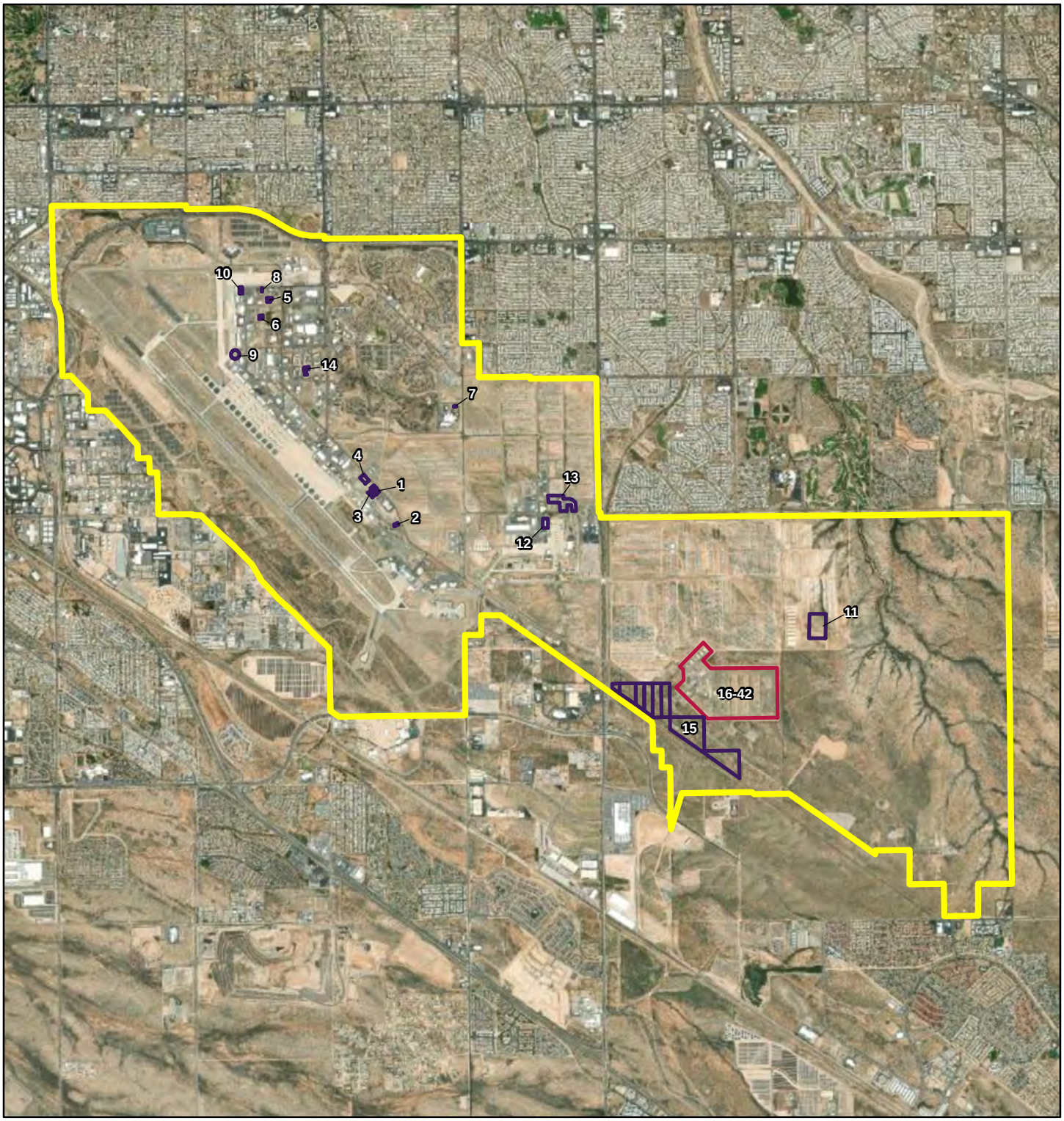


FIGURE 2-1
Locations of Installation Development Projects

IDP Projects

Installation Boundary

MSA Projects

N

0 1 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

FIGURE 2-2
Installation Development Projects – Flightline and Main Base Districts

IDP Projects (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

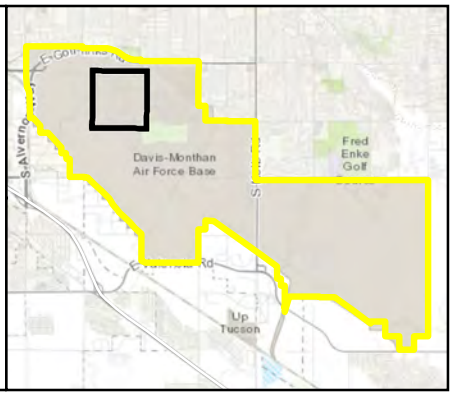


FIGURE 2-3
Installation Development Projects - Main Base District, AMARG Operations Area, Rescue Group Campus

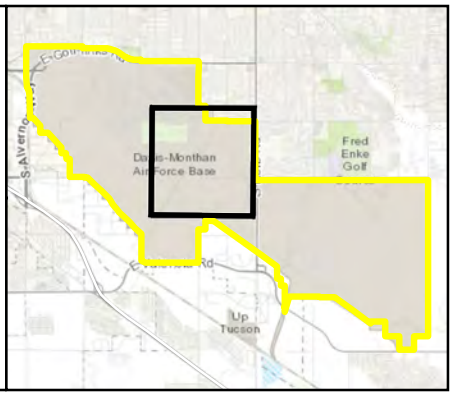
Installation Boundary

IDP Projects (Project #)

N

0 0.4 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



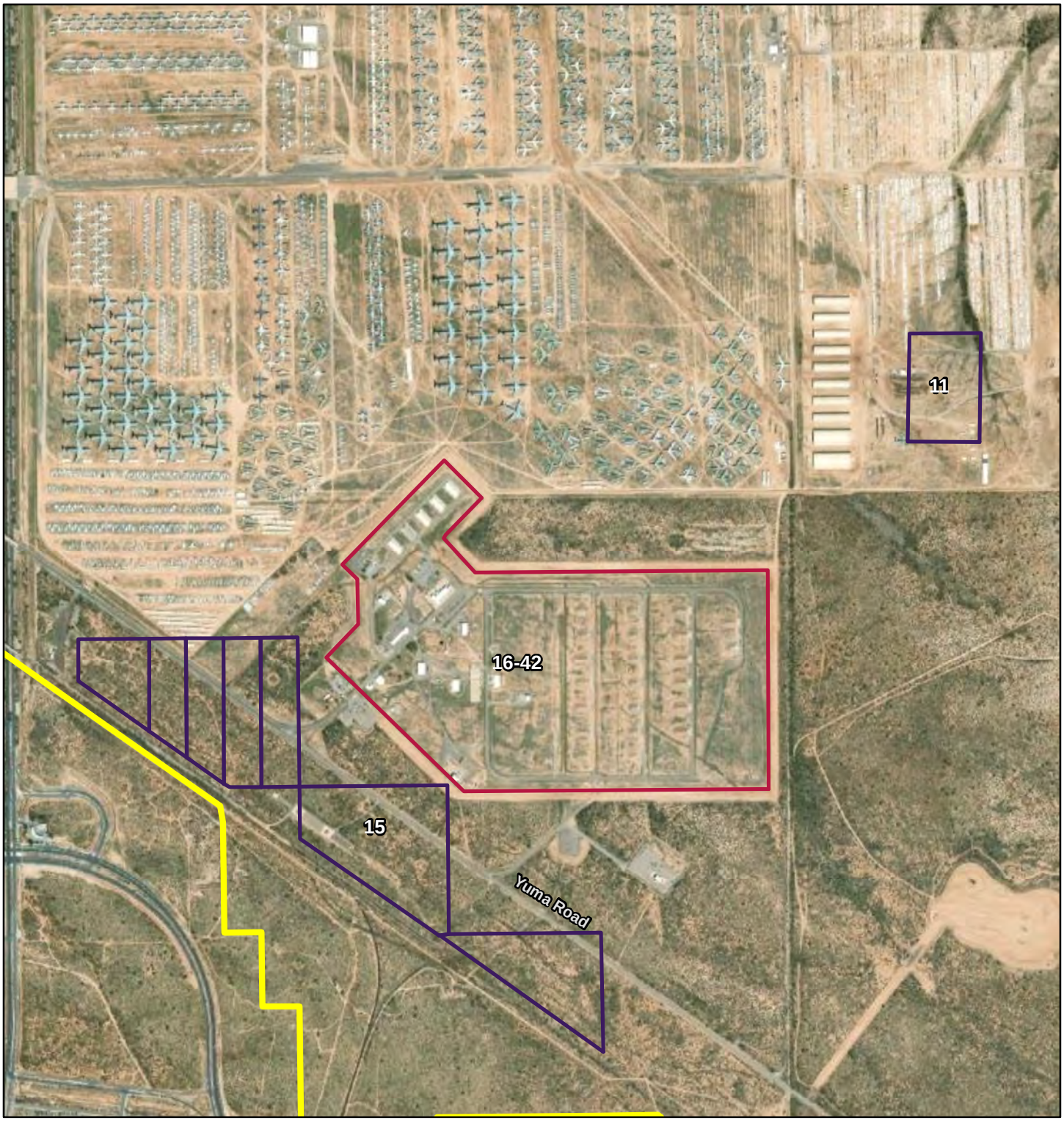


FIGURE 2-4
Installation Development Projects – AMARG Storage Area, Flightline District, Munitions Storage Area

Installation Boundary

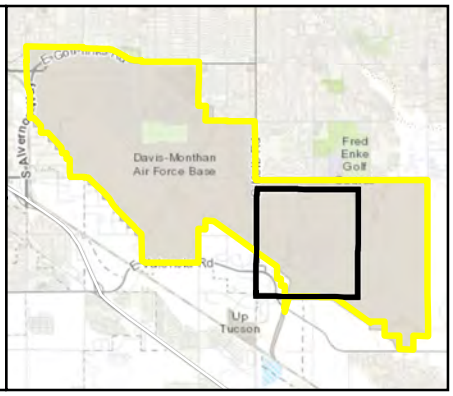
IDP Projects (Project #)

MSA Projects (Project #)

N

0 0.4 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



2.2 SELECTION STANDARDS FOR ALTERNATIVE SCREENING

In accordance with 32 CFR § 989.8(c), selection standards were developed to establish a means for determining the reasonableness of an alternative and whether an alternative should be carried forward for further analysis in the EA. Consistent with 32 CFR § 989.8(c), the following selection standards meet the purpose of and need for the Proposed Action and were used to identify reasonable alternatives for analysis in the EA. The supporting alternatives must:

- remedy facilities and infrastructure deficiencies in order to adequately support current and future strategic missions;
- be consistent with land use requirements, force protection, and planning concepts as defined in the CPP, ADPs, and other Air Force guidance;
- minimize operational inefficiencies and promote sustainable development; and
- provide and promote quality-of-life environments on Davis-Monthan AFB.

2.3 ALTERNATIVES

Each of the proposed projects associated with the Rescue Group Campus, Flightline District Plan, AFRC FOCUS, and AMARG District Plan, as well as the proposed dormitory construction and acquisition of out parcels, would occur under all action alternatives (**Table 2-2**). The proposed projects in these areas were determined to meet the Air Force's purpose of and need for action, and no other reasonable alternatives were identified for these projects during the planning process. Each of the action alternatives differs only in the level of development proposed for the MSA (**Table 2-2**). **Figures 2-5–2-8** at the end of this section identify the locations of the projects under Alternatives 1–4 for the MSA, respectively.

2.3.1 Alternative 1

Alternative 1 would include five projects (Projects 1–5) to provide the Rescue Squadrons (RQSs) the needed space, which is currently deficient, and to consolidate RQS-occupied space currently distributed across Davis-Monthan AFB. The Communications Squadron would be relocated outside the Flightline District (Project 6) to a new building in the Main Base District to address the squadron's existing deficient facilities and to open valuable space along the flightline. Four projects identified in the AFRC FOCUS, Projects 7–10, would be constructed to support the facility needs of the 943 Aerospace Medical Squadron and 943 Maintenance Squadron. Three projects in the AMARG Planning District (Projects 11–13) would be constructed under Alternative 1 to support the AMARG needs for updated and consolidated facilities and expansion for long-term storage of the ST/STE. Alternative 1 would also include the dormitory project (Project 14) proposed in the Main Base District and identified in the Dormitory Master Plan, to address the shortage of living space for unaccompanied enlisted personnel at Davis-Monthan AFB. The acquisition of eight tracts of contiguous private land inside Davis-Monthan AFB located along Yuma Road near the MSA (Project 15) through a purchase agreement would be implemented under Alternative 1 to eliminate private in-holdings within the Base and eliminate annual lease agreement payments.

Under Alternative 1, all deficiencies in the MSA facilities and the operational configuration would be addressed (Projects 16–40). Alternative 1 would also address quality-of-life issues associated with the interior of buildings in the MSA and working conditions in the harsh desert environment outdoors. Alternative 1 represents an "optimization" of the MSA based on input from Davis-Monthan AFB stakeholders, including the experience of Airmen working in the MSA. Under Alternative 1, the layout of the proposed projects in the MSA would differ compared to Alternatives 2–4.

A new loading dock area would be constructed inside the secured area in the southeast corner of the MSA, replacing the existing loading dock outside the fenced area, which currently requires use of mobile ramps for loading and unloading. Enhancements made to lighting for night operations would improve safety, and paving the pedestrian pathways would improve facility access during monsoon rains. Implementation of Alternative 1 would achieve the planning goal of segregating the 355 MUNS administration, operational (i.e., working with munitions), and weapons storage functions and maintain appropriate QD arcs that do not

impact Yuma Road. This would be accomplished by constructing a new headquarters building and guard house outside the secured area and constructing separate buildings for chaff/flare, conventional munitions, precision guided missiles (PGMs), and an inspection building for munitions, allowing these operations to be performed concurrently. In the MSA, a new Box Type F ECM, three new multi-bay aboveground magazines (AGMs), a new explosives storage pad for HD 1.1 explosives, and a similar pad for storage of inert materials would improve the munitions storage capability. In addition, widening the doors by replacing the headwall on the old weapons storage igloos would eliminate safety concerns of maneuvering larger, modern munitions through the existing narrow, 8-foot-wide doors.

2.3.2 Alternative 2

The projects listed under Alternative 1 associated with the Rescue Group Campus, Flightline District Plan, AFRC FOCUS, AMARG District Plan, and the proposed dormitory construction and acquisition of out parcels would occur under Alternative 2.

Under Alternative 2, implementation of projects in the MSA would represent a “transformation” of the MSA and would address many, but not all, needs of the MSA. Under Alternative 2, construction of the new guard house outside the gate (Project 36), which would allow for easier control and management of visitors and personnel into the secured area, would not be built. Existing Building 184 inside the gate would be retained for gate access control and would not be demolished (Project 37). In addition, renovation of Building 188 for the Line Delivery Flight (Project 38) would not occur; the 355 MUNS personnel in Building 4515 could not be fully removed to Building 188. The new loading dock with a paved pad area for trucks (Project 39) inside the secured area would not be built. Instead, a smaller 2,100-ft^2 loading dock with no pad area (Project 41) would be constructed outside the MSA on the south side. The narrow 8-foot-wide doors on the existing storage igloos (Project 40) would not be replaced. Alternative 2 would achieve many of the same objectives for the MSA as Alternative 1 for the separation of operational functions, but in a slightly different configuration of facilities.

2.3.3 Alternative 3

The projects listed under Alternative 1 associated with the Rescue Group Campus, Flightline District Plan, AFRC FOCUS, AMARG District Plan, and the proposed dormitory construction and acquisition of out parcels would occur under Alternative 3.

Under Alternative 3, implementation of the projects in the MSA would represent an “enhancement” or modernization of the MSA for the current mission but would not address future growth. In addition to the projects listed under Alternative 2 for removal, several additional projects would not occur.

In the storage area, the three new multi-bay AGMs along the northern boundary of the MSA (Project 35) would not be constructed. The multi-cubes currently used for storage in the operations area would not be removed and adjacent Building 265 would not be demolished (Project 32). The explosives storage pad for 1.3/1.4 explosives would not be built on the site of the multi-cubes as in Alternatives 1 and 2, thus reducing the space available for storage of higher-grade (1.1) explosives. The new inspection building for inspection and surveillance of munitions (Project 34) would not be constructed. A new PGM building would not be constructed, and PGM operations would remain in Building 187 (Project 33). Alternative 3 would achieve the segregation of the chaff/flare, conventional munitions, and PGM operations into separate facilities and alleviate issues with incompatible operations in the same building.

2.3.4 Alternative 4

The projects listed under Alternative 1 associated with the Rescue Group Campus, Flightline District Plan, AFRC FOCUS, AMARG District Plan, and the proposed dormitory construction and acquisition of out parcels would occur under Alternative 4.

Under Alternative 4, deficiencies in MSA facilities would be addressed but no significant modernization or mission expansion would occur. In addition to the projects listed under Alternative 3 for removal, several additional projects would not occur.

Alternative 4 would "sustain" operations with minimal investment while addressing several immediate needs of the MSA; however, future mission needs would not be addressed. Alternative 4 would not address all quality-of-life and safety issues created by the harsh desert climate. Additional lighting would be added at the entry point and in the interior of the igloos in the existing storage area (Projects 19 and 20) for night operations and security. Pedestrian pathways throughout the MSA would be covered with gravel instead of pavement (Project 42) to mitigate impacts of monsoon rains. A separate 1,500-ft^2 building for chaff/flare operations would be constructed northwest of existing Building 187 to segregate those operations from other munitions operations (Project 21). A shade structure would be added to the existing MAC pad 11005 and the Holding Area Munition (HAMS) yard (Project 24). An administration building would not be constructed (Project 29), and administrative tasks would continue to be performed in Buildings 184 and 188 inside the secured area and at remote locations (Building 4515 near the HAMS yard).

2.3.5 Alternatives Considered but Eliminated from Further Consideration

Alternative 4 was eliminated from further consideration because the proposed actions do not meet the purpose of and need for development of Davis-Monthan AFB. While providing some minimal improvements in the MSA, Alternative 4 would not sufficiently address the administrative, operational, and storage function deficiencies of the MSA.

2.3.6 Alternatives Retained for Detailed Analysis

Alternatives 1–3 are retained for detailed analysis because each of these alternatives would meet the purpose of and need for development of Davis-Monthan AFB. Projects included in these alternatives were found to meet all selection standards as listed in **Section 2.2**. Each of the projects associated with the Rescue Group Campus, Flightline District Plan, AFRC FOCUS, and AMARG District Plan, as well as the proposed dormitory construction and acquisition of out parcels, would be implemented under Alternatives 1–3. The projects supporting improvements to the MSA under Alternatives 1–3 would address the needs of the MSA with varying levels of sufficiency.

2.3.7 No Action Alternative

Under the No Action Alternative, the Air Force would not implement the proposed IDP projects. Davis-Monthan AFB would continue to operate under current conditions. The facility and infrastructure assets of Davis-Monthan AFB would continue to degrade. In the short term, military training and operations would continue at Davis-Monthan AFB in accordance with the status quo. Over time, the mission support capabilities of the Base would diminish along with its ability to support the future missions and requirements of its tenant activities.

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, as required under the CEQ regulations (40 CFR § 1502.14(d)). The No Action Alternative reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated.

2.4 Summary of Potential Environmental Consequences

This section ends with a table summarizing the potential impacts of the Proposed Action and Alternatives (**Table 2-3**). The summary is based on information discussed in detail in **Chapter 3** of this EA and includes a concise definition of the issues addressed and the potential environmental impacts associated with the Proposed Action and Alternatives.

FIGURE 2-5

MSA Development Projects – Alternative 1

- Installation Boundary
- MSA
- Proposed Facility (Project #)
- Proposed Magazine (Project #)
- Proposed Pavement (Project #)
- Proposed Structure (Project #)
- Renovated Facility (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

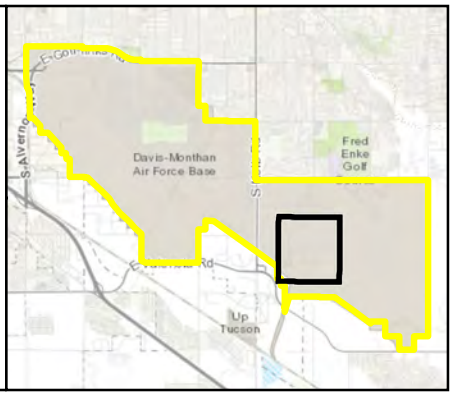


FIGURE 2-6
MSA Development Projects – Alternative 2

- Installation Boundary
- MSA
- Proposed Facility (Project #)
- Proposed Pavement (Project #)
- Proposed Storage (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

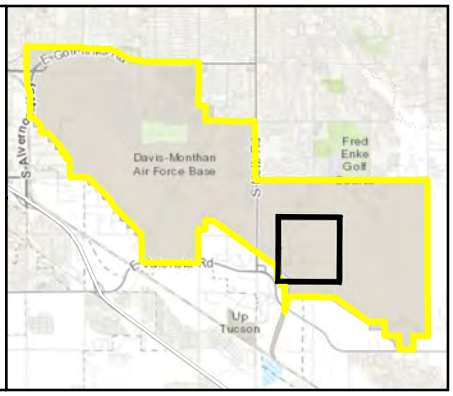


FIGURE 2-7
MSA Development Projects – Alternative 3

Installation Boundary

MSA

Proposed Facility (Project #)

Proposed Pavement (Project #)

Proposed Storage (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

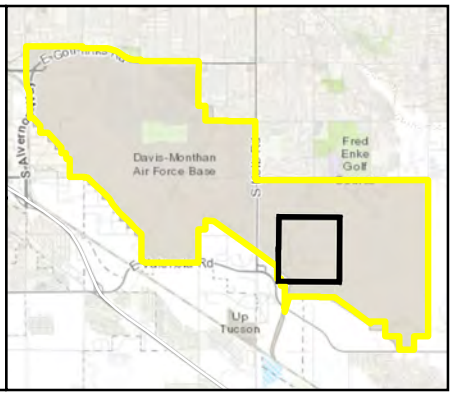


FIGURE 2-8
MSA Development Projects – Alternative 4

Installation Boundary

MSA

Proposed Facility (Project #)

Proposed Pavement (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

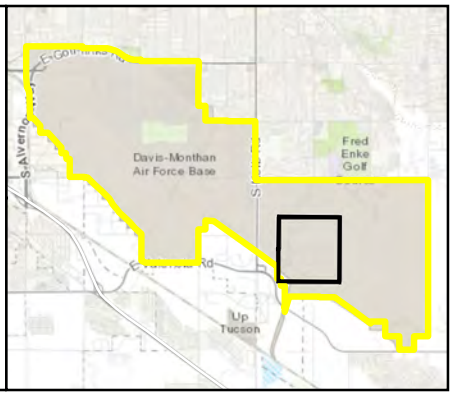


Table 2-3.
Summary of Potential Environmental Consequences

Resource Area	Alternative 1	Alternative 2	Alternative 3	Cumulative Effects	No Action Alternative
Land Use	No changes or new restrictions to existing land use.	No changes or new restrictions to existing land use.	No changes or new restrictions to existing land use.	No significant cumulative effects to land use would occur.	No changes to existing land use.
Earth Resources	Short-term, minor impacts to soils and negligible impacts to topography.	Short-term, minor impacts to soils and negligible impacts to topography.	Short-term, minor impacts to soils and negligible impacts to topography.	No significant cumulative effects to earth resources would occur.	No impacts to earth resources.
Air Quality and Regional Climate	Negligible impacts to air quality and greenhouse gases (GHGs).	Negligible impacts to air quality and GHGs.	Negligible impacts to air quality and GHGs.	No significant cumulative effects to air quality or GHGs would occur.	No impacts would occur to regional air quality or GHG emissions.
Water Resources	Short-term, minor impacts to surface water, negligible impacts to stormwater, and no impacts to groundwater or floodplains.	Short-term, minor impacts to surface water, negligible impacts to stormwater, and no impacts to groundwater or floodplains.	Short-term, minor impacts to surface water, negligible impacts to stormwater, and no impacts to groundwater or floodplains.	No cumulative impacts to surface water, groundwater, or floodplains. Negligible, long-term, cumulative impacts to stormwater runoff.	Water resources would not change from current condition.
Biological Resources	No significant impacts to biological resources. No adverse effects on threatened or endangered species.	No significant impacts to biological resources. No adverse effects on threatened or endangered species.	No significant impacts to biological resources. No adverse effects on threatened or endangered species.	No significant cumulative effects to biological resources would occur.	No significant impacts to biological resources.
Cultural Resources	No significant adverse impacts to cultural resources would occur. Minor beneficial impacts would occur from the acquisition of private land holdings.	No significant adverse impacts to cultural resources would occur. Minor beneficial impacts would occur from the acquisition of private land holdings.	No significant adverse impacts to cultural resources would occur. Minor beneficial impacts would occur from the acquisition of private land holdings.	No significant cumulative effects to cultural resources would occur.	Cultural resources would not change from current condition.
Noise	Short-term, minor noise impacts would occur near individual projects. No long-term impact to the noise environment.	Short-term, minor noise impacts would occur near individual projects. No long-term impact to the noise environment.	Short-term, minor noise impacts would occur near individual projects. No long-term impact to the noise environment.	No cumulative impact to the noise environment.	No significant impacts to noise.
Hazardous Materials and Wastes	No impacts to hazardous materials and wastes or ERP sites. Short-term, minor impacts during removal of and long-term, minor impacts from	No impacts to hazardous materials and wastes or ERP sites. Short-term, minor impacts during removal of and long-term, minor impacts from	No impacts to hazardous materials and wastes or ERP sites. Short-term, minor impacts during removal of and long-term, minor impacts from	No cumulative effects from hazardous materials or to hazardous waste streams would occur. Beneficial impacts from	No change to hazardous materials and wastes, contaminated sites, and toxic substances. Buildings with asbestos-containing material and

Resource Area	Alternative 1	Alternative 2	Alternative 3	Cumulative Effects	No Action Alternative
	removing asbestos-containing material and lead-based paint.	removing asbestos-containing material and lead-based paint.	removing asbestos-containing material and lead-based paint.	the removal asbestos-containing material and lead-based paint would be cumulative with other similar actions.	lead-based paint would remain in the workplace.
Infrastructure, including Transportation and Utilities	Short-term, negligible impacts to traffic during construction. Beneficial improvements to pavements and parking areas. Improved pedestrian connectivity and entry into the MSA. No significant impacts to utility usage or services.	Short-term, negligible impacts to traffic during construction. Beneficial improvements to pavements and parking areas. Improved pedestrian connectivity into the MSA but no improvement to access entry to the MSA. No significant impacts to utility usage or services.	Short-term, negligible impacts to traffic during construction. Beneficial improvements to pavements and parking areas. Improved pedestrian connectivity into the MSA but no improvement to access entry to the MSA. No significant impacts to utility usage or services.	Negligible cumulative impacts to demand for utility usage or service. Beneficial impacts to access entry (Alternative 1) and pedestrian paths in the MSA would be cumulative with other actions to improve Base connectivity.	No impacts to local traffic or utilities.
Safety and Occupational Health	Temporary, negligible, adverse impacts to ground safety during construction. Long-term, beneficial impacts to ground safety from improvements in buildings, outside work areas, and lighting. Long-term, beneficial impacts to explosives safety with improvements in the MSA.	Temporary, negligible, adverse impacts to ground safety during construction. Long-term, beneficial impacts to ground safety from improvements in buildings, outside work areas, and lighting. Long-term, beneficial impacts to explosives safety with improvements in the MSA except for the retrofitting of the ECMs.	Temporary, negligible, adverse impacts to ground safety during construction. Long-term, beneficial impacts to ground safety from improvements in buildings, outside work areas, and lighting. Long-term, beneficial impacts to explosives safety with improvements in the MSA except for the retrofitting of the ECMs.	Beneficial impacts to explosive safety in the MSA would be cumulative with other actions to improve explosive safety. Beneficial cumulative effects to ground safety would occur with other actions to improve pedestrian safety, lighting, security, and climate-controlled facilities. No cumulative impact of construction safety hazards.	No significant impacts to ground or explosive safety.
Socioeconomics	No significant adverse impacts to socioeconomics. Beneficial impacts to available on Base housing.	No significant adverse impacts to socioeconomics. Beneficial impacts to available on Base housing.	No significant adverse impacts to socioeconomics. Beneficial impacts to available on Base housing.	No significant adverse cumulative effects on socioeconomics. Beneficial cumulative impacts to available housing on Base.	No change to socioeconomic conditions.
Environmental Justice and Protection of Children	No disproportionate and adverse impacts to CEJCs or youth populations.	No disproportionate and adverse impacts to CEJCs or youth populations.	No disproportionate and adverse impacts to CEJCs or youth populations.	No significant cumulative effects to CEJCs or youth populations.	No change to minority, low-income, or youth populations.

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CHAPTER 3 EXISTING CONDITIONS AND ENVIRONMENTAL CONSEQUENCES

3.1 FRAMEWORK FOR ANALYSIS

To provide a framework for the analyses in this EA, the Air Force defined a study area specific to each resource or sub-resource area. Referred to as a Region of Influence (ROI), these areas delineate a boundary where possible effects from the considered alternatives would have a reasonable likelihood to occur. Beyond these ROIs, potential adverse effects on resources would not be anticipated. For the purposes of analysis, potential effects are described as follows:

- **Beneficial –** positive effects that improve or enhance resource conditions
- **Adverse –** negative or harmful results
- **Negligible –** adverse effects likely to occur but at levels not readily observable by evaluation
- **Minor –** observable, measurable, tangible adverse effects qualified as below one or more significance threshold(s)
- **Moderate –** tangible effects that are readily apparent, qualified as below one or more significance threshold(s)
- **Significant –** obvious, observable, verifiable adverse effects qualified as above one or more significance threshold(s); not mitigable to below significance

When relevant to the analyses in this EA, potential effects are further defined as direct or indirect; short- or long-term; and temporary, intermittent, or permanent.

To determine the potential for "significant" effects under the Proposed Action, the Air Force defined impact thresholds to support the analyses in this EA. 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 Proposed Action in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB. **Table 3-1** summarizes past, present, and reasonably foreseeable planned actions at Davis-Monthan AFB considered in the cumulative effects evaluation.

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

Name	Description	Timeframe	Approximate Distance from Base
Federal Projects			
Davis-Monthan AFB MSA Improvements	Renovation of Building 183 and new MAC pad with overhead shade protection	1 year	On Davis-Monthan AFB in the MSA
Davis-Monthan Fourth-Generation Missions regional Realignment EA	ACC realignment of Nellis AFB close air support and rescue missions to Davis-Monthan AFB.	Active NEPA (timeframe 2–5 years)	On Davis-Monthan AFB
Basing AFSOC units at Davis-Monthan AFB	Several AFSOC units based at Davis-Monthan AFB	5-10 years	On Davis-Monthan AFB
Non-Federal Projects			
Valencia Crossing Commercial Development	Commercial development of 30 acres (7 lots) at the intersection of Valencia Crossing Drive and Valencia Road	1–2 years	Approximately 1 mile from Davis-Monthan AFB fence line

ACC = Air Combat Command; AFB = Air Force Base; AFSOC = Air Force Special Operations Command; MAC = Munitions Assembly Conveyor; MSA = Munitions Storage Area; NEPA = National Environmental Policy Act

3.2 RESOURCES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

CEQ regulations state that federal agencies should "identify and eliminate from detailed study the issues which are not significant, or which have been covered by prior environmental review" (40 CFR § 1501.9(f)(1)). Accordingly, the Air Force considered but eliminated from further analysis the following environmental resources:

- **Visual Resources –** Visual resources were eliminated from detailed analysis for the Davis-Monthan AFB because facility construction would occur entirely within the Installation and be consistent with existing visual landscapes.
- **Airspace Management and Use** – Airspace management and use were eliminated from detailed analysis because none of the proposed activities would directly impact airspace or flight operations. The proposed projects would occur within the Installation.

3.3 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

The Air Force considered Davis-Monthan AFB and its environs as the ROI for each environmental resource. None of the projects under the Proposed Action Alternatives would occur outside the boundaries of Davis-Monthan AFB. The following resources were carried forward for analysis: land use; air quality; earth, water, biological, and cultural resources; noise; hazardous materials and waste; infrastructure, transportation, and utilities; safety; socioeconomics; and environmental justice and protection of children.

3.4 LAND USE

3.4.1 Definition of Resources

Land use is the natural or developed condition of a given parcel of land or area and the type of functions and structures it supports. Land use designations vary by jurisdiction, but common terms include residential, commercial, industrial, agricultural, and recreation/open space. Land use is typically guided and regulated by management plans, policies, regulations, and ordinances that determine the type and extent of land use allowable in specific areas, including specially designated land uses or environmental conservation lands.

The ROI for land use is Davis-Monthan AFB.

3.4.2 Existing Conditions

Davis-Monthan AFB is located in Pima County at the southeast corner of the city of Tucson, Arizona. The Base is approximately 10,700 acres in size, of which 54 percent is developed, 45 percent is undeveloped,[2] and 1 percent is under easement and maintained by Pima County (Davis-Monthan AFB, 2020c).

The Base is home to the AFMC's 309th AMARG, the aircraft boneyard for all excess military, US Government aircraft, and aerospace vehicles. Davis-Monthan AFB is divided into six planning districts, further divided into subdistricts (as noted within parenthesis): Flightline (Operations/Industrial and Airfield); Main Base (North and South); Public-Private Housing; AMARG (AMARG Operations and AMARG Aircraft Storage); and Munitions and Ranges (Munitions and Ranges). The largest of these districts is the Flightline District, which includes aircraft operations and maintenance, the runway, taxiways, aprons, and aircraft parking and hangar areas.

The Installation is bounded by residential development to the north and east of the Base, heavy and light industrial development to the west, and largely undeveloped land to the south. There are two residential

[2] Undeveloped land may have constraints that prevent development for Davis-Monthan AFB mission use. These constraints may include environmental issues, safety restrictions, and land or watershed characteristics. Constraints are identified through the CPP process.

communities, Eastside and Terre Del Sol, located to the north of the Installation and two, Littletown and Drexel-Alvernon, located to the south.

The explosive safety quantity distance (ESQD) arcs established for existing operations, maintenance, and storage of munitions in the MSA define minimum safety distances that extend beyond the MSA to protect facilities, Air Force personnel, and traffic routes. Within these minimum distance arcs, certain types of land use and activities may be restricted or limited.

3.4.3 Environmental Consequences

3.4.3.1 Evaluation Criteria

The Air Force defines a significant effect on or from land use within the ROI as one or both of the following:

- land use that would discontinue or substantially change existing or adjacent land use; and
- land use that would be inconsistent with applicable management plans, policies, regulations, and ordinances.

3.4.3.2 Proposed Action - Alternative 1

Under Alternative 1, all 40 proposed projects would occur within the existing boundaries of the Installation. Projects would occur on land designated under five different land use categories: Air Operations Maintenance, Housing–Unaccompanied, Administrative, Industrial, and Airfield Clearance (**Figure 3-1**). The projects would occur within four different Planning Districts: Flightline, Main Base, AMARG, and the Munitions and Ranges. All projects under Alternative 1 would occur under compatible land use.

Projects 1–12 would occur solely within the boundaries of one compatible land use category and land use would remain unchanged. Three projects, Projects 13, 14, and 15, would occur within the boundaries of two compatible land use categories. Project 13, consolidating the Mission Support Center, would occur within both Industrial and Administrative land use categories. Project 14, constructing a dormitory, would occur within both Housing–Unaccompanied and Administrative land uses. Project 15, purchasing private-party parcels, would occur within Airfield Clearance and Industrial land uses adjacent to the MSA. Although parcels proposed for purchase under Project 15 are privately held, they lie within the current Installation boundaries. The purchase of the private parcels would not change the land use because the parcels are located within the ESQD arcs for the MSA; therefore, no facilities or structures may be located on the parcels.

Projects 16–40 would be compatible with the existing defined land use. Projects 16–26 and 28–40 would occur in the MSA in an area designated for Air Operations Maintenance land use. Project 27 would include improvements to the HAMS, which is located in the AMARG District and is classified as Industrial land use. Projects 16–40 and their proposed configuration (i.e., location within the MSA) would not affect the existing defined ESQD arcs surrounding the MSA (Davis-Monthan AFB, 2022). The configuration of the explosive storage pads would be designed to comply with the existing ESQD arcs that currently encroach on the AMARG area to the north and on Yuma Road to the southwest; the ESQD arcs would be unchanged under Alternative 1.

3.4.3.3 Proposed Action – Alternative 2

Under Alternative 2, 36 proposed projects would occur. Projects 1–35 would be the same as Alternative 1 and would not affect existing land use, as discussed in Section 3.4.3.2. Under Alternative 2, Project 41 would be implemented instead of Project 39 and would be constructed in a different location and configuration south of the MSA security fence. Project 41, an elevated, open-truck munitions loading dock with a sunshade canopy, would occur within Airfield Clearance land use in the Munitions and Range District and would be compatible with the existing land use. The existing ESQD arcs surrounding the MSA would remain unchanged.

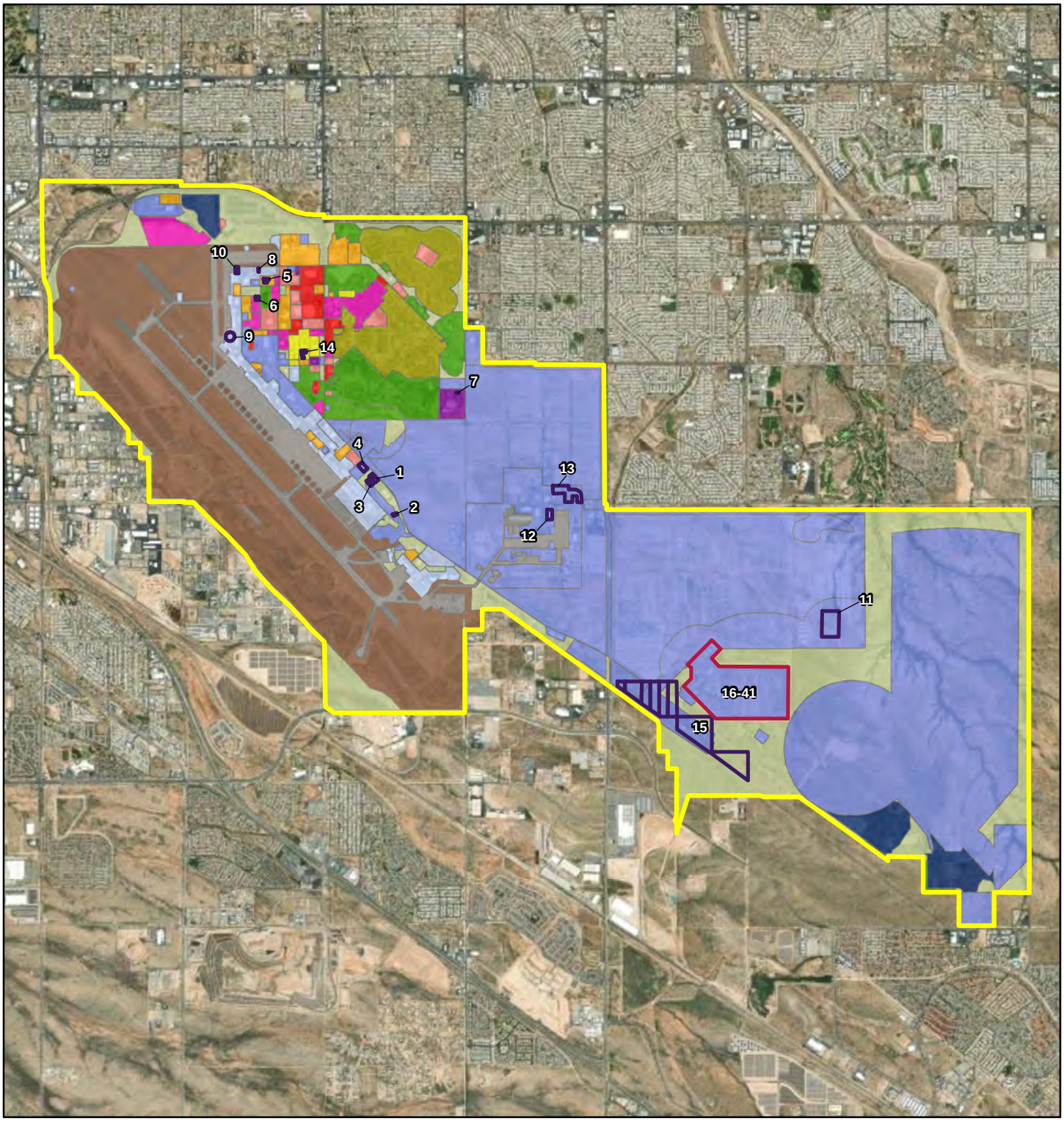

FIGURE 3-1
Land Use

- Proposed Projects
- IDP Projects
- Installation Boundary
- MSA Projects
- Administrative
- Air Operations & Maintenance
- Airfield
- Airfield Pavement
- Community Commercial
- Community Service
- Housing Accompanied
- Housing Unaccompanied
- Industrial
- Medical
- Open Space
- Potential Development Parcel
- Outdoor Recreation
- Training

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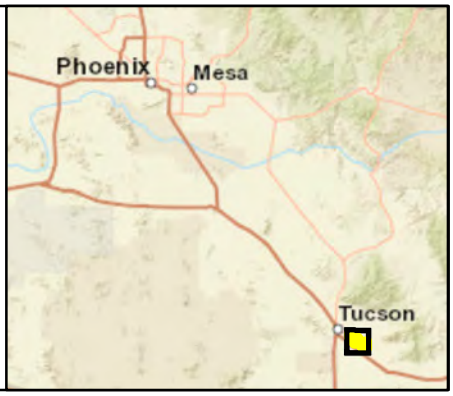
Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



3.4.3.4 Proposed Action – Alternative 3

Under Alternative 3, 32 proposed projects would occur. Projects 1–31 would be the same as Alternative 1, while Project 41 would be the same as Alternative 2. All projects under Alternative 3 would be considered compatible with the existing land use. The existing ESQD arcs surrounding the MSA would remain unchanged.

3.4.3.5 Cumulative Impacts

The Proposed Action Alternatives would not change land use, would be consistent with existing land use, and would not affect future adjacent land use. The proposed developments in the MSA would not change the existing ESQD arcs. Therefore, the existing land use restrictions within the MSA ESQD arcs would remain the same for any past, present, or reasonably foreseeable actions in the vicinity of the MSA. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects to land use would be anticipated to occur with implementation of the Proposed Action.

3.4.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to land use beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.5 EARTH RESOURCES

3.5.1 Definition of the Resource

Earth resources include geology, topography, and soils. Geology refers to the structure and configuration of the earth's surface and subsurface features. Characteristics of geology include geomorphology,[3] subsurface rock types, and structural elements. Topography refers to the shape, height, and position of the land surface. Soil refers to the unconsolidated materials overlying bedrock or other parent material. Soils are defined by their composition, slope, and physical characteristics. Attributes of soil, such as elasticity, load-bearing capacity, shrink-swell potential, and erodibility determine its suitability to support a particular land use.

Prime farmland, as defined by the US Department of Agriculture (USDA) in the *Farmland Protection Policy Act* (7 USC §§ 4201–4209), is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.

The ROI for earth resources is Davis-Monthan AFB.

3.5.2 Existing Conditions

3.5.2.1 Geology

Davis-Monthan AFB is in Arizona within the Tucson Basin, surrounded by the Tucson Mountains approximately 15 miles to the west, the Santa Catalina Mountains approximately 20 miles to the north, the Rincon Mountains approximately 10 miles to the east, and the Santa Rita Mountains approximately 25 miles to the south. These features are located within a larger geological unit known as the Basin and Range

[3] Geomorphology refers to the physical features and processes of landforms and their relation to geologic structures (National Park Service, 2017)

physiographic province, characterized by northwest-to-southeast-trending mountain ranges separated by wide, alluvial basins. The Basin and Range Province extends from west Texas through southern New Mexico; southeastern and northwestern Arizona; northwestern Mexico; Nevada; western Utah; and part of southern California (National Park Service, 2019).

The Base is situated in an intermontane trough formed between the Tucson Mountains and the Rincon, Santa Catalina, and Santa Rita Mountains, all within the Sonoran Desert. The Rincon and Santa Catalina Mountain ranges are geologically a single metamorphic core complex that ranges in elevation from approximately 2,800 feet to 9,100 feet above sea level (Davis-Monthan AFB, 2021b).

The Tucson Mountains are a rugged, strongly dissected mountain ridge carved from uplifted, tilted, and faulted intrusive[4] and extrusive[5] igneous rock, and sediments. Regionally, the oldest rocks are isolated blocks of Paleozoic limestone. Other rock types include rhyolite tuff, early Cretaceous fine-grained siltstones, sandstones, mudstones and granites, and middle Tertiary volcanics and basalts. The mountains are skirted by younger sedimentary and alluvial deposits that range from the late Miocene to Quaternary periods (Davis-Monthan AFB, 2021b).

3.5.2.2 Topography

The terrain on Davis-Monthan AFB is generally flat, sloping downward from southeast to northwest from an elevation of 2,950 feet to 2,550 feet above sea level. The Base has two significant sloping areas: one is a highway cut for Kolb Road; the other is Atterbury Wash, located in the eastern part of the Base. The slopes in these areas constitute constraints to development (Davis-Monthan AFB, 2021b).

3.5.2.3 Soils

Soils present at Davis-Monthan AFB primarily consist of Mohave soils and urban land, followed by Tubac gravely loam, and Pinaleno-Stagecoach complex (**Table 3-2**). Each of these soils is characterized by low-to-moderate slopes, efficient drainage, slight susceptibility to wind and water erosion, and medium runoff potential (Davis-Monthan AFB, 2021b; USDA, 2022). Most soils on Base have been previously disturbed, highly urbanized, or developed and used for military purposes.

Table 3-2.
Soil Types at Davis-Monthan AFB

Map Unit Symbol	Name	Slope	Drainage Rating	Acres in ROI	Percent of ROI
CaA	Cave soils and urban land	0–8%	Well drained	182	1.7
HaA	Hantz loam	0–1%	Well drained	183.2	1.7
MoA	Mohave soils and urban land	1–8%	Well drained	5667	53.7
PiA	Pinaleno-Stagecoach complex	5–16%	Well drained	1140.7	10.8
PiB	Pits, dumps	N/A	N/A	36.1	0.3
SaA	Sahuarita soils, Mohave soils and urban land	1–5%	Well drained	289.6	2.7
TuA	Tubac gravelly loam	1–8%	Well drained	3009.2	28.5
YaA	Yaqui fine sandy loam	1–3%	Well drained	51.1	0.5

Source: USDA, 2022
N/A = not applicable; ROI = region of influence

[4] Intrusive igneous rock was formed by magma cooling deep below the earth's surface over the course of thousands to millions of years (United States Geological Survey (USGS), 2023).
[5] Extrusive igneous rock was formed by magma cooling above or very near the earth's surface almost instantly (USGS, 2023).

3.5.2.4 Prime Farmland

Hantz loam soil found on Davis-Monthan AFB is considered to have the potential to be prime farmland soil if irrigated and either protected from flooding or not frequently flooded during the growing season (USDA, 2023). However, agriculture and irrigation are not current operations at Davis-Monthan AFB and are not planned for future operations. Given Davis-Monthan AFB's historic use for military training, this soil would not be considered prime farmland or warrant future designation under the *Farmland Protection Policy Act*. Therefore, prime farmland is not carried forward for analysis in this EA.

3.5.3 Environmental Consequences

3.5.3.1 Evaluation Criteria

The Air Force defines a significant effect on earth resources within the ROI as one or more of the following:

- substantial alteration of unique or valued geologic or topographic conditions;
- substantial soil erosion, sedimentation, and/or loss of natural function (e.g., compaction); and
- development on soils with characteristics that do not support the intended land use.

3.5.3.2 Proposed Action - Alternative 1

Geology

The underlying geology of Davis-Monthan AFB would not change under the Proposed Action. No direct or indirect impacts to geology would be anticipated to occur with implementation of Alternative 1.

Topography

None of the projects under Alternative 1 would occur in areas that would require large-scale alteration of topography to accommodate construction. Any alteration of ground surfaces would be limited to basic construction activities such as compacting and excavating to prepare the ground for siting of a structure. After placing and compacting reuse or fill soils, superficial soils would be graded to match the local topography or create swales to maintain or improve efficient stormwater drainage, as would occur under Project 16 within the MSA. Therefore, short-term, negligible impacts to topography would be anticipated to occur with implementation of Alternative 1.

Soils

Alternative 1 would disturb approximately 1,231,000 ft^2 of soil due to earthwork in project construction and demolition, including excavation, backfilling, and compacting of soils or fill materials on and immediately adjacent to project sites. These activities would expose soils and increase their susceptibility to water and wind erosion, especially during thunderstorms in the monsoon season. All construction projects implemented under Alternative 1 would involve soil-disturbing activities in areas consisting of Mohave soils, urban land, and Yaqui fine sandy loam (**Figure 3-2**). All project sites under Alternative 1 are generally suitable for development; however, the Air Force would validate soil conditions at each site prior to construction to address any limiting factors.

Under Alternative 1, potential adverse effects on soils, including soil loss, contamination, and structural alteration, would be managed at an individual project level. Projects that would disturb 1 or more acres of land would require a Construction General Permit (CGP) from the ADEQ Arizona Pollution Discharge Elimination System (AZPDES) program. These projects would also require the preparation and implementation of a site-specific stormwater pollution prevention plan (SWPPP) to be reviewed by Base Civil Engineering Squadron personnel prior to construction, which must include Best Management Practices (BMPs) and erosion and sediment control requirements (ADEQ, 2021). Implementation of BMPs would minimize impacts to soil resources, and projects would be designed and implemented in accordance with UFC 3-210-10 (as amended in 2016) and EISA Section 438 to minimize impacts to soil resources. With proper implementation of BMPs and adherence to applicable permits and regulations, adverse impacts to soils under Alternative 1 would be expected to be short term and minor.

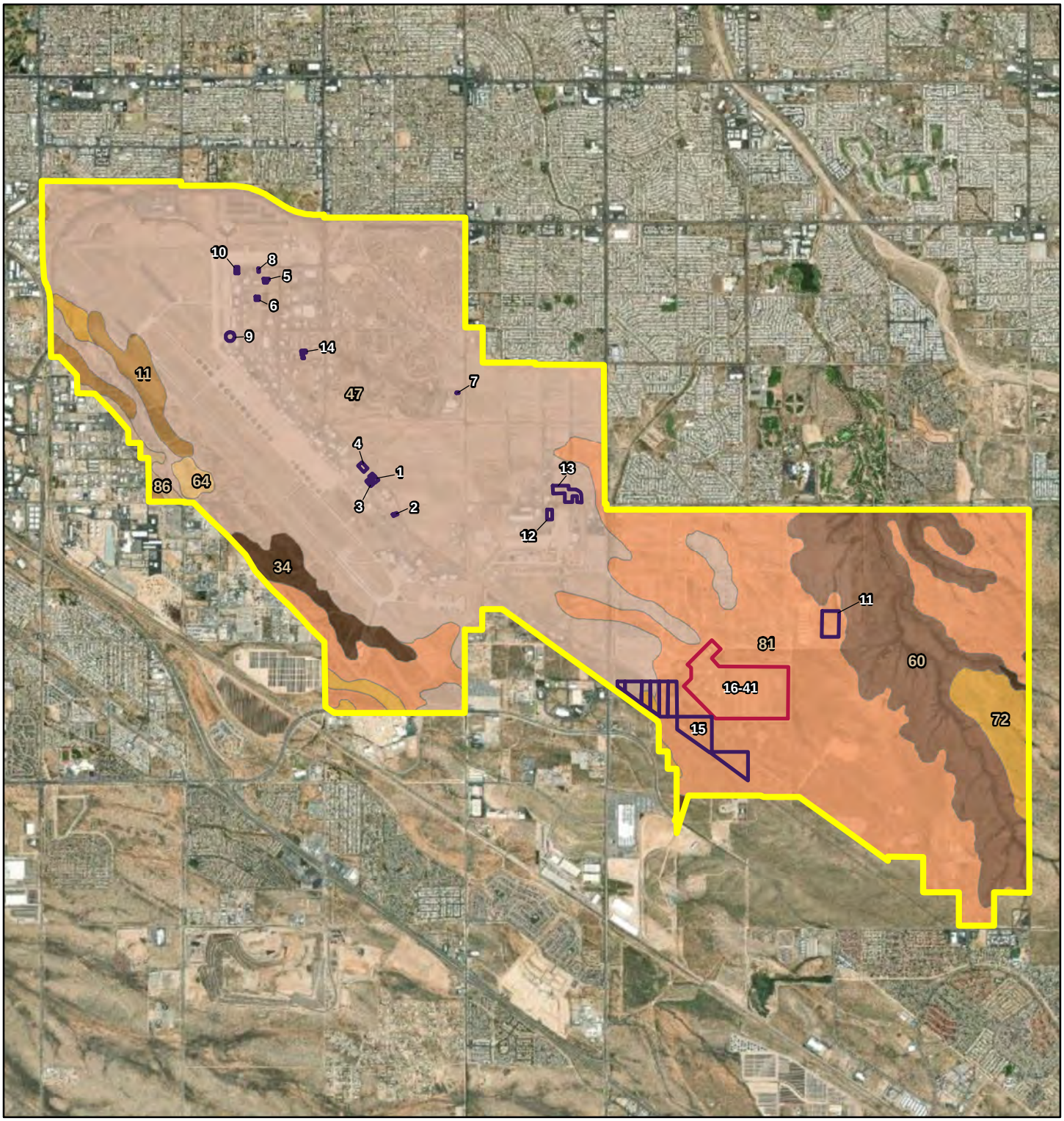


FIGURE 3-2
Soils

- IDP Projects
- Installation Boundary
- MSA Projects
- 11 Cave Soils and Urban Land, 0-8 Percent Slopes
- 34 Hantz Loam, 0-1 Percent Slopes
- 47 Mohave Soils and Urban Land, 1-8 Percent Slopes
- 60 Pinaleno-Stagecoach Complex, 5-16 Percent Slopes
- 64 Pits, Dumps
- 72 Sahuarita Soils, Mohave Soils and Urban Land, 1-5 Percent Slopes
- 81 Yaqui Fine Sandy Loam, 1-3 Percent Slopes
- 86 Tubac Gravelly Loam, 1-8 Percent Slopes

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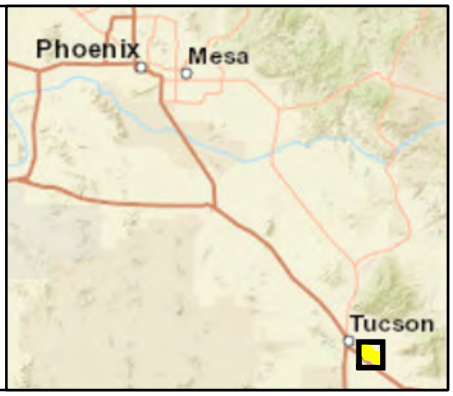
0 1 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



3.5.3.3 Proposed Action – Alternative 2

Geology

As with Alternative 1, there would be no direct or indirect impacts to geology under Alternative 2.

Topography

Impacts to topography under Alternative 2 would be the same as Alternative 1.

Soils

Impacts to soils under Alternative 2 would be similar to those under Alternative 1. Alternative 2 would disturb approximately 1,190,000 ft^2 of soil, or approximately 42,000 ft^2 less than Alternative 1. Construction and demolition activities would expose soils and increase their susceptibility to water and wind erosion, especially during thunderstorms in the monsoon season. With proper implementation of BMPs and adherence to applicable permits and regulations, adverse impacts to soils from Alternative 2 would be expected to be short term and minor.

3.5.3.4 *Proposed Action – Alternative 3*

Geology

As with Alternative 1, there would be no direct or indirect impacts to geology under Alternative 3.

Topography

Impacts to topography under Alternative 3 would be the same as Alternative 1.

Soils

Impacts to soils under Alternative 3 would be similar to those under Alternative 1. Alternative 3 would disturb approximately 1,086,800 ft^2 of soil, or approximately 144,000 ft^2 less than Alternative 1 and 103,000 ft^2 less than Alternative 2.

3.5.3.5 Cumulative Impacts

The Proposed Action Alternatives would have no or negligible adverse impacts to geology and topography at Davis-Monthan AFB. Potential impacts to soils would be expected to be short term and would be limited to the construction period and until post-construction landscaping is complete. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects to earth resources would be expected to occur with implementation of the Proposed Action.

3.5.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to earth resources beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.6 AIR QUALITY AND REGIONAL CLIMATE

3.6.1 Definition of the Resource

Air pollution affects human health and may cause environmental damage to vegetation, crops, waterbodies, and animals. It creates haze or smog that reduces visibility in national parks and cities and interferes with aviation. To reduce air pollution and improve air quality, Congress passed the CAA and its amendments in 1970 and 1990, which set regulatory limits on air pollutants to help ensure basic health and environmental protection from air pollution.

The 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). Davis-Monthan AFB is located in Pima County within the Pima Intrastate Air Quality Control Region (40 CFR § 81.269), which serves as the ROI.

3.6.1.1 Criteria Pollutants

In accordance with CAA requirements, air quality in each region is measured by the concentration of various pollutants in the atmosphere. Measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu g/m^3$).

The CAA directed the USEPA to develop, implement, and enforce environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, the USEPA developed numerical concentration-based standards (i.e., NAAQS) for pollutants that have been determined to impact human health and the environment and established both primary and secondary NAAQS under the provisions of the CAA (**Table 3-3**). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources in addition to maintaining visibility standards.

Ozone is not emitted directly into the air but is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants, or "ozone precursors." These ozone precursors consist primarily of nitrogen oxides and volatile organic compounds that are directly emitted from a wide range of emission sources. For this reason, regulatory agencies limit atmospheric ozone concentrations by controlling volatile organic compound pollutants (also identified as reactive organic gases) and nitrogen oxides.

3.6.1.2 Greenhouse Gases

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions are generated by natural processes and human activities. The accumulation of GHGs in the atmosphere helps regulate the earth's temperature and contributes to global climate change. GHGs include water vapor, carbon dioxide, methane, nitrous oxide, ozone, and several hydrocarbons and chlorofluorocarbons. Each GHG has an estimated global warming potential, which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the earth's surface. The global warming potential of a particular gas provides a relative basis for calculating its carbon dioxide-equivalent (CO_2e) or the amount of CO_2e to the emissions of that gas. Carbon dioxide has a global warming potential of 1 and is therefore the standard by which all other GHGs are measured. The GHGs are multiplied by their global warming potential, and the resulting values are added together to estimate the total CO_2e.

The USEPA regulates GHG primarily through a permitting program known as the GHG Tailoring Rule. This rule applies to GHG emissions from larger stationary sources. Additionally, the USEPA promulgated a rule for large GHG emission stationary sources, fuel and industrial gas suppliers, and carbon dioxide injection sites if they emit 25,000 metric tons or more of CO_2e per year (40 CFR § 98.2(a)(2)).

Table 3-3.
National Ambient Air Quality Standards

Pollutant	Primary/ Secondary[a,b]	Averaging Time	Level[c]	Form
Carbon monoxide	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead	Primary and secondary	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
Nitrogen dioxide	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb	Annual Mean
Ozone	primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle pollution ($PM_{2.5}$)	primary	1 year	12 µg/m^3	annual mean, averaged over 3 years
	secondary	1 year	15 µg/m^3	annual mean, averaged over 3 years
	primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
Particle pollution (PM_{10})	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur dioxide	primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: USEPA, 2023

µg/m^3 = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; $PM_{2.5}$ = 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; ppb = parts per billion; ppm = parts per million; USEPA = US Environmental Protection Agency

Notes:

a. Primary Standards: the levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the USEPA.
b. Secondary Standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
c. Concentrations are expressed first in units in which they were promulgated.
   (1) In areas designated nonattainment for the lead standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m^3 as a calendar quarter average) also remain in effect.
   (2) The level of the annual nitrogen dioxide standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
   (3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) ozone standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) ozone standards.
   (4) The previous sulfur dioxide standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous sulfur dioxide standards or is not meeting the requirements of a state implementation plan call under the previous sulfur dioxide standards (40 CFR § 50.4(3)). A state implementation plan call is a USEPA action requiring a state to resubmit all or part of its state implementation plan to demonstrate attainment of the required NAAQS.

3.6.1.3 Operating Permits

The State of Arizona has adopted the federal NAAQS. Pursuant to Title 18 of the *Arizona Administrative Code*, Chapter 2 (18 AAC 2), the ADEQ administers a permit program for stationary source emissions generated at federal facilities. Permitting requirements for federal owners and operators are largely based on a "potential to emit," defined as the maximum capacity of a stationary source to emit any air pollutant

under its physical and operational design or configuration. Calculations are used to determine whether a federal facility is defined as a "major source" under the CAA requiring a Title V Operating Permit; however, some "non-major" or "minor source" federal owners or operators are subject to permit-by-rule requirements. Permits-by-rule authorize stationary source emissions for individual or specific operations. Title V is a federal program designed to standardize air quality permits and the permitting process for major sources of emissions across the country and requires the USEPA to establish a national operating permit program. USEPA defines a major source as a facility that emits or has the potential to emit any criteria pollutant or hazardous air pollutant at levels equal to or greater than the major source thresholds. The major source threshold for criteria pollutants may vary depending on the attainment status (e.g., marginal, serious, extreme) of the geographic area and the criteria or hazardous air pollutant in which the facility is located.

ADEQ's delegated authority under the CAA extends to mobile emissions generated in Arizona. Pursuant to 18 AAC 2, fugitive dust generated by construction or demolition involving 1 acre or more of land requires, at a minimum, two dust-control measures, including the use of water (or other suitable oil or chemical application) for dust suppression and measures to prevent airborne particulate matter during sandblasting or similar operations.

3.6.2 Existing Conditions

The area of Pima County where Davis-Monthan AFB is located is designated as in attainment for all criteria pollutants. Pima County as a whole is in attainment for all of the NAAQS, with the exception of the Rillito PM_{10} nonattainment area just northwest of Tucson; the Ajo PM_{10} and sulfur dioxide maintenance areas, approximately 100 miles west of Davis-Monthan AFB; and a small area designated as maintenance for sulfur dioxide in the northeast area of Pima County, near San Manuel, which is an extension of the Pinal County sulfur dioxide maintenance area. The PM_{10} area designations are the result of drought and local winds that have sporadically resulted in elevated PM_{10} levels, making meteorological conditions conducive to dust entrainment. From 2019 to 2021, the Rillito planning area averaged an estimated 6.1 annual exceedances of the PM_{10} NAAQS (USEPA, 2022c). The sulfur dioxide areas were designated as the result of copper smelter emissions; in both areas, the smelters have long ceased operations (USEPA, 2003, 2008).

Davis-Monthan AFB is considered a "major source" contributor for air pollution and maintains an ADEQ Title V Operating Permit, which requires monitoring emissions and reporting the findings. Additionally, Davis-Monthan AFB currently maintains six separate Class II Air Quality permits and one Class II/III Air Quality Permit issued by the Pima County Department of Environmental Quality Air Program. Class II permits are issued to sources subject to a standard, limitation, or other requirement under the Standards of Performance for New Stationary Sources or Hazardous Air Pollution regulations. Class III permits are issued to cover any stationary source that has the potential to emit, without controls, significant quantities of regulated air pollutants, any stationary rotating machinery rated at more than 325 brake horsepower, and/or fuel-burning equipment with a sustained fire rate of more than 1 million British thermal units per hour for more than 8 hours.

3.6.2.1 Air Emission Sources at Davis-Monthan AFB

The Davis-Monthan AFB GHG report lists the following air emission sources that contribute to the total emissions reported at the end of each calendar year (Proffitt, 2022):

- Internal combustion sources: emergency generators (diesel fuel) and general-purpose generators (diesel fuel);
- Jet engine testing;
- External combustion sources: boilers, heaters, spray booth heaters, and bake-off ovens;
- Fire training;
- Munitions;
- Open burn/open detonation; and
- Ozone-depleting chemicals.

3.6.2.2 Regional Climate

The regional climate of the Tucson area is an arid desert climate with mild winters, hot summers, and low precipitation. The climate at Davis-Monthan AFB is characterized by warm-to-hot spring, summer, and early fall temperatures (National Oceanic and Atmospheric Administration [NOAA], 2022). The average July high temperature is 100.2 degrees Fahrenheit (°F) while the average low temperature is 76.2°F. Average temperatures in spring, summer, and fall are 68.1°F (April), 88.2°F (July), and 72.6°F (October), respectively. Winter temperatures tend to be mild; December is the coolest month of the year, with an average daily high temperature of 65.5°F and an average minimum temperature of 40.5°F.

Precipitation in Tucson occurs almost entirely in the form of rain. Tucson normally receives about 10.61 inches of precipitation annually, but extended periods of drought have been recorded (NOAA, 2023). Precipitation follows a bimodal pattern with seasonal peaks in winter and summer. Winter rains occur primarily in December, January, and February with an annual average of 0.96, 0.84 and 0.84 inches, respectively. Winter rains originate from frontal systems that begin in the Pacific Ocean and move eastward across Arizona. They are generally quite widespread and characterized by gentle rainfall. Summer rains result from moisture moving into Arizona 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. Monsoon season typically occurs from June through September. July is normally the wettest month of the year with an average of 2.21 inches of rain.

3.6.3 Environmental Consequences

3.6.3.1 Evaluation Criteria

General Conformity applies to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual *de minimis* thresholds identified in the General Conformity Rule, a formal conformity determination of that action is required.

When the ROI is in attainment for all NAAQS, the Prevention of Significant Deterioration (PSD) value is used as a threshold for all criteria pollutants other than lead. Due to the toxicity of lead, the use of the 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 is used instead. A PSD value is not used for CO_2e; however, it is still listed within the Air Force's Air Conformity Applicability Model (ACAM) to show that it is below the GHG Tailoring Rule of 25,000 metric tons per year. The following thresholds are applicable for the Proposed Action and Alternatives:

- 250 tons per year PSD value for ozone precursors (volatile organic compounds and nitrogen oxides), carbon monoxide, sulfur dioxide, PM_{10}, $PM_{2.5,}$ and precursor ammonia.
- 25 tons per year *de minimis* value for lead.

3.6.3.2 Methodology

The methodology for estimating air quality impacts presented in this EA is derived from Air Force Manual (AFMAN) 32-7002, *Environmental Compliance and Pollution Prevention* (February 2020). 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 (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 ACAM, which models emissions based on the inputs and estimates air emissions for each specific criteria and precursor pollutant, as defined in the NAAQS. The calculated emissions 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 the Proposed Action Alternatives 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 B** to this EA.

ACAM modeling for the Proposed Action Alternatives assumes that construction, demolition, and renovation project activities involve an estimated area of paving, grading, construction, and demolition activities. The paving and demolition areas were estimated based on the square footage of the existing and proposed structures. The construction and grading areas are assumed to be greater than the existing structures to allow for construction area accessibility, utilities improvements, and laydown storage. For purposes of modeling, the demolition, grading, paving, and construction activities were spread out over a 5-year estimated project schedule (i.e., FY 2024–2028).

3.6.3.3 Proposed Action - Alternative 1

Table 3-4 summarizes the estimated emissions obtained from the ACAM analysis annualized over the implementation of Alternative 1. The highest annual emissions for Alternative 1 would be anticipated to occur during FY 2028. For all criteria pollutants, the expected emissions under Alternative 1 would be negligible in comparison to the applicable conformity threshold. Davis-Monthan AFB would use water or other surfactants, as necessary, to control potential fugitive dust at construction and demolition sites and minimize airborne particulate matter.

Table 3-5 represents "steady-state" emissions, which measure the net annual emissions that would be expected to continue in perpetuity after construction is completed. Steady-state emissions would occur from heating the new buildings and would be negligible in comparison to the applicable threshold.

Table 3-4.
Air Emissions and Annual PSD Thresholds, Pima County – Alternative 1

Pollutant	Action Emissions (ton/yr)					GENERAL CONFORMITY	
	2024	2025	2026	2027	2028	Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	2.702	2.729	2.767	2.805	2.843	250	No
Nitrogen oxides	2.155	2.747	3.440	4.132	4.825	250	No
Carbon monoxide	2.453	3.015	3.597	4.179	4.761	250	No
Sulfur oxides	0.008	0.012	0.017	0.021	0.025	250	No
PM_{10}	5.249	5.295	5.348	5.401	5.453	250	No
$PM_{2.5}$	0.107	0.153	0.205	0.258	0.311	250	No
Lead	0.000	0.000	0.000	0.000	0.000	25	No
Ammonia	0.003	0.003	0.003	0.003	0.003	250	No
Carbon dioxide-equivalent	1277.0	2109.1	2943.0	3776.8	4610.6	N/A	N/A

N/A = not applicable; $PM_{2.5}$ = 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 3-5.
Steady-State Air Emissions and Annual PSD Thresholds, Pima County – Alternative 1

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.190	250	No
Nitrogen oxides	3.463	250	No
Carbon monoxide	2.909	250	No
Sulfur oxides	0.021	250	No
PM_{10}	0.263	250	No
$PM_{2.5}$	0.263	250	No
Lead	0.000	25	No
Ammonia	0.000	250	No
Carbon dioxide-equivalent	4169.2	N/A	N/A

N/A = not applicable; $PM_{2.5}$ = 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

3.6.3.4 Proposed Action – Alternative 2

Table 3-6 summarizes the estimated emissions from the ACAM analysis annualized over the implementation of Alternative 2. All annual air emissions would fall below the applicable general conformity thresholds and would be considered negligible impacts. Davis-Monthan AFB would use water or other surfactants as necessary to control potential fugitive dust at construction and demolition sites and minimize airborne particulate matter.

Table 3-7 represents "steady-state" emissions under Alternative 2. As with Alternative 1, the steady-state emissions under Alternative 2 would occur from heating the new buildings and would be negligible in comparison to the applicable threshold.

Table 3-6.
Air Emissions and Annual PSD Thresholds, Pima County – Alternative 2

Pollutant	Action Emissions (ton/yr)					GENERAL CONFORMITY	
	2024	2025	2026	2027	2028	Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	2.683	2.709	2.747	2.785	2.823	250	No
Nitrogen oxides	2.134	2.724	3.412	4.101	4.790	250	No
Carbon monoxide	2.430	2.990	3.568	4.147	4.725	250	No
Sulfur oxides	0.008	0.012	0.016	0.021	0.025	250	No
PM_{10}	5.232	5.278	5.331	5.383	5.435	250	No
$PM_{2.5}$	0.105	0.151	0.204	0.256	0.308	250	No
Lead	0.000	0.000	0.000	0.000	0.000	25	No
Ammonia	0.003	0.003	0.003	0.003	0.003	250	No
Carbon dioxide-equivalent	1268.6	2095.9	2924.9	3753.9	4583.0	N/A	N/A

N/A = not applicable; $PM_{2.5}$ = 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 3-7.
Steady-State Air Emissions and Annual PSD Thresholds, Pima County – Alternative 2

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.189	250	No
Nitrogen oxides	3.443	250	No
Carbon monoxide	2.892	250	No
Sulfur oxides	0.021	250	No
PM_{10}	0.262	250	No
$PM_{2.5}$	0.262	250	No
Lead	0.000	25	No
Ammonia	0.000	250	No
Carbon dioxide-equivalent	4145.2	N/A	N/A

N/A = not applicable; $PM_{2.5}$ = 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

Under Alternative 2, air emissions and impacts to air quality would be negligible and similar to those under Alternative 1.

3.6.3.5 Proposed Action – Alternative 3

Table 3-8 summarizes the estimated emissions from the ACAM analysis annualized over the course of implementation of Alternative 3. All annual air emissions would fall below the applicable general conformity thresholds and would be considered negligible impacts. Davis-Monthan AFB would use water and other

surfactants as necessary to control potential fugitive dust at construction and demolition sites and minimize airborne particulate matter.

Table 3-9 represents "steady-state" emissions under Alternative 3. As with Alternative 1, the steady-state emissions would occur from heating the new buildings and would be negligible in comparison to the applicable threshold.

Table 3-8.
Air Emissions and Annual PSD Thresholds, Pima County – Alternative 3

Pollutant	Action Emissions (ton/yr)					GENERAL CONFORMITY	
	2024	2025	2026	2027	2028	Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	2.586	2.614	2.654	2.694	2.734	250	No
Nitrogen oxides	2.164	2.790	3.515	4.241	4.966	250	No
Carbon monoxide	2.457	3.047	3.657	4.266	4.875	250	No
Sulfur oxides	0.008	0.013	0.017	0.021	0.026	250	No
PM_{10}	4.973	5.021	5.077	5.132	5.187	250	No
$PM_{2.5}$	0.108	0.157	0.212	0.267	0.322	250	No
Lead	0.000	0.000	0.000	0.000	0.000	25	No
Ammonia	0.003	0.003	0.003	0.003	0.003	250	No
Carbon dioxide-equivalent	1309.2	2180.8	3054.0	3927.2	4800.4	N/A	N/A

N/A = not applicable; $PM_{2.5}$ = 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 3-9.
Steady-State Air Emissions and Annual PSD Thresholds, Pima County – Alternative 3

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (yes or no)
Volatile organic compound	0.199	250	No
Nitrogen oxides	3.627	250	No
Carbon monoxide	3.046	250	No
Sulfur oxides	0.022	250	No
PM_{10}	0.276	250	No
$PM_{2.5}$	0.276	250	No
Lead	0.000	25	No
Ammonia	0.000	250	No
Carbon dioxide-equivalent	4366.1	N/A	N/A

N/A = not applicable; $PM_{2.5}$ = 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

Under Alternative 3, air emissions and impacts to air quality would be negligible and similar to those under Alternative 1.

3.6.3.6 Cumulative Effects

Air emissions associated with construction and demolition activities under the Proposed Action Alternatives would be short term (limited to the construction period) and negligible. The estimated long-term, steady-state air emissions would be far below threshold values. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects to air quality would be anticipated to occur with implementation of the Proposed Action.

3.6.3.7 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to air quality beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.7 WATER RESOURCES

3.7.1 Definition of the Resource

Water resource include surface water such as lakes, ponds, rivers, streams, impoundments, and wetlands; groundwater; stormwater; and floodplains. Water resources are vulnerable to contamination and quality degradation. The CWA set the national policy objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA provides the authority to establish water quality standards, control discharges into surface and subsurface waters (including groundwater), develop waste treatment management plans and practices, and issue permits for discharges. A National Pollutant Discharge Elimination System (NPDES) permit under Section 402 of the CWA is required for discharges into navigable waters. The USEPA oversees the issuance of NPDES permits at federal facilities as well as water quality regulations (Section 401 of the CWA) for both surface and groundwater.

The ROI for water resources is Davis-Monthan AFB and the Santa Cruz River and Rillito Creek watersheds.

3.7.2 Existing Conditions

3.7.2.1 Surface Water

Davis-Monthan AFB is intersected by the border of the Upper Santa Cruz and Rillito Creek watersheds (Davis-Monthan AFB, 2021b). Patano Wash, a major tributary of the Rillito River, is located 3.5 miles northeast of the Base. Atterbury Wash, the primary drainage of the eastern part of the Base, drains into Patano Wash; Julian Wash, a drainage of the western portion of the Base, flows northwest into the Santa Cruz River (Davis-Monthan AFB, 2021). Surface water resources at Davis-Monthan AFB include intermittent and ephemeral streams, floodplains, and several small ponds. Streams on Base include Kinnison Wash and Atterbury Wash, which drain the east side of the Base and eventually flow into the Rillito River, as well as a network of 17 sections and branches of unnamed streams. There are no perennial drainages within the boundaries of Davis-Monthan AFB. The low level and irregularity of rainfall results in erratic and potentially erosive flows in the local drainages. The Julian, Kinnison, and Atterbury washes are classified as intermittent, meaning they contain flowing water only at certain times of the year when provided by groundwater supply. The unnamed streams are classified as ephemeral, meaning they contain flowing water only during and immediately after precipitation events (Davis-Monthan AFB 2021; USEPA, 2023). Atterbury Wash and Julian Wash, along with several of the unnamed ephemeral streams present on Base, are classified as a Water of the US and are therefore protected under the CWA (Davis-Monthan AFB, 2021b).

3.7.2.2 Stormwater

High stormwater discharge at Davis-Monthan AFB occurs primarily during the Southwest desert monsoon season from June through September. Precipitation during the monsoon typically occurs from intense thunderstorms that provide high volumes of rainfall in a short time causing flooding and stormwater runoff, which generally travels northeast on Davis-Monthan AFB into 12 different drainage areas. Stormwater is then directed into three large underground collection pipes and discharged to various waterbodies in the city of Tucson via 16 outfalls. Stormwater flooding is a concern in the administration area of the MSA near the Entry Control Point (ECP) (e.g., Buildings 183, 184, and 188) and near the septic system outside the

MSA security fence (Davis-Monthan AFB, 2022). The lack of developed pedestrian paths in the MSA also makes access to facilities difficult and unsafe following monsoon thunderstorms and subsequent flooding.

Davis-Monthan AFB has an NPDES permit to discharge untreated rainwater collected in the dike area of its bulk fuel storage facility to the natural storm drainage system (Davis-Monthan AFB, 2018b). None of the receiving waters associated with Davis-Monthan AFB's stormwater outfalls is listed as impaired; however, Lakeside Lake was included on Arizona's 2022 Not Attaining Waters list due to levels of ammonia-nitrogen, chlorophyll-A, nitrogen, and phosphorus, as well as low levels of dissolved oxygen and a high pH (ADEQ, 2023). No discharges associated with Base activities that cause or contribute to exceedance of an applicable surface water quality standard have been identified, and benchmark monitoring of specific outfalls is conducted in accordance with the NPDES permit (Davis-Monthan AFB, 2018b).

3.7.2.3 Groundwater

The primary source of water for Davis-Monthan AFB is the Tucson Basin Aquifer, which is the uppermost aquifer in the area occupied by the Base, located at approximately 400 feet below land surface (Tucson Water, 2018). The Base operates 11 wells that pump groundwater from the Tinaja Beds and the Fort Lowell Formation of the aquifer (Davis-Monthan AFB, 2021b) for human consumption.

Water in the Tucson Basin Aquifer meets or exceeds federal and state requirements for drinking water, although the City of Tucson sources most of its drinking water from the Colorado River via the Central Arizona Project Canal (Tucson Water, 2021), which terminates approximately 19 miles southwest of the Installation. The City of Tucson continuously monitors the Tucson Basin Aquifer for per- and polyfluoroalkyl substances (PFAS), industrial chemicals, and pesticides, as well as other microbial, organic, nonorganic, radioactive, and chemical contaminants (Tucson Water, 2021).

3.7.2.4 Floodplains

Atterbury Wash, which drains the eastern portion of Davis-Monthan AFB, is located in an area categorized as Zone D, "Areas in which Flood Hazards are Undetermined." A recent study of floodplains associated with Julian, Kinnison, and Atterbury washes indicated the probable existence of a 100-year floodplain associated with Atterbury Wash where it passes through a southeastern portion of the Installation (Davis-Monthan AFB, 2021b).

3.7.2.5 Wetlands

There are no wetlands on Davis-Monthan AFB (Davis-Monthan AFB, 2021b); therefore, wetlands is not carried forward for analysis in this EA.

3.7.3 Environmental Consequences

3.7.3.1 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.

3.7.3.2 Proposed Action – Alternative 1

Surface Water

Impacts to surface water, such as localized increases in stormwater runoff volume and intensity, can result from clearing and grading land and moving soil. Under the Proposed Action, new impervious surfaces would be created, potentially introducing pollutants into construction areas. However, in accordance with UFC 3-210-10, *Low Impact Development (LID)* (as amended, 2020) and EISA Section 438, any increase in surface water runoff as a result of the Proposed Action would be attenuated through the use of temporary and/or permanent drainage management features (e.g., use of porous materials, directing runoff to permeable areas, and use of detention basins to release runoff over time). The integration of LID concepts incorporates site design and stormwater management principles to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Prior to construction, the contractor would be required to obtain coverage under an AZPDES CGP by filing a Notice of Intent with ADEQ and prepare a site-specific SWPPP to manage stormwater discharges during and after construction until the area is revegetated. Upon revegetation, the contractor would file a Notice of Termination with ADEQ to terminate permit coverage. The Air Force would specify compliance with the stormwater discharge permit. Strict adherence to the SWPPP and the management actions identified for each construction site would reduce potential impacts to surface water resources.

Approximately 29 acres of soil would be disturbed during construction activities under Alternative 1. Construction activities would take place on previously disturbed land adjacent to existing buildings and infrastructure. No activities associated with the Proposed Action would occur within or intersect any surface waters. However, these activities would have the potential to increase erosion and sedimentation of nearby surface waters during construction and for a brief period after due to temporary disturbance of soils.

As Alternative 1 would have the potential to disturb up to 29 acres of ground surface, Davis-Monthan AFB would be required to obtain a CGP under its 2016 General Permit, which regulates the Base's stormwater outfalls. This permit requires various controls and BMPs to reduce impacts on surface water through pollution prevention and includes sedimentation and erosion controls, soil stabilization, and pollutant management. These BMPs would be implemented to prevent sediments and other pollutants from potentially entering nearby surface waters via Davis-Monthan AFB's stormwater conveyance system. Therefore, impacts to surface water resources on Davis-Monthan AFB from ground-disturbing activities under Alternative 1 would be anticipated to be short term and minor.

Stormwater

The proposed projects under Alternative 1 would create approximately 920,000 ft^2 of new impervious surface area from construction of new facilities and paved surfaces and would disturb approximately 1,270,000 ft^2 of soil. Approximately two-thirds of this added area would occur with construction of Project 11, a 600,000 ft^2 warehouse proposed in the AMARG Planning District to store ST/STE materials. The remaining 320,000 ft^2 of impervious surface would be distributed across Davis-Monthan AFB among individual projects. The Project 11 site is intersected by a branch of Atterbury Wash and is east of a branch of Kinnison Wash that runs along the eastern boundary of the MSA and through the AMARG Planning District. Projects 1 and 4 are adjacent (opposite side of Yuma Street) to a portion of an unnamed stormwater channel approximately 0.2 mile in length.

Due to the predictable timing of the monsoon season, potential impacts from stormwater and flash flooding carrying sediments or contaminates into nearby waterbodies would be managed during project planning. Proposed projects under Alternative 1 would disturb approximately 29 acres of land, which would require land and control measures for stormwater runoff at construction sites. These measures include implementing any NPDES permit requirements such as in a CGP, adhering to the Davis-Monthan AFB SWPPP, and creating site-specific plans for each construction site. Additionally, BMPs would be implemented, such as the use of structural controls (e.g., silt fences and erosion control mats), and continued monitoring and routine inspection of the handling and storage of presumed pollutants that have the potential to pollute stormwater runoff, including but not limited to pesticides, construction trash, and

sediment (Davis-Monthan AFB, 2018b). With strict adherence to applicable permits and management plans and implementation of BMPs identified for each construction site, as well as usage of appropriate site planning and erosion/sedimentation management techniques, impacts to stormwater from construction activities under Alternative 1 would be anticipated to be short term and negligible.

In accordance with UFC 3-210-10 and EISA Section 438, any increase in stormwater runoff as a result of the Proposed Action would be minimized through the use of temporary and/or permanent drainage management features (e.g., use of porous materials, directing runoff to permeable areas, and use of detention basins to release runoff over time). LID uses site design and stormwater management principles to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts from increased impervious surface area. Project 16 would address existing problems in the MSA with flooding using LID solutions to improve stormwater drainage, such as widening swales and modifying landscape forms to better channel stormwater. Improvements to pedestrian paths would improve accessibility of facilities following stormwater events. Use of LID principles around new construction would help mitigate both potential flooding of new facilities and runoff created by new facilities. These projects would create long-term, beneficial impacts to the stormwater environment on the Installation.

Groundwater

Construction activities would create the potential for contaminants, mainly from fuel leaks, to leach into the Tucson Basin Aquifer. Contractors would be required to follow BMPs designed to prevent leaks and polluted stormwater runoff, as well as BMPs to manage pollution prevention as outlined in the ADEQ CGP to minimize the potential of chemicals entering the aquifer. With these measures in place, long-term adverse impacts to groundwater resources would not be anticipated to occur under Alternative 1.

Floodplains

No projects under Alternative 1 would occur within the probable 100-year floodplain associated with Atterbury Wash (**Figure 3-3**). The nearest activity to the probable floodplain under Alternative 1 would be Project 11, which would be located approximately 620 feet west of its edge. Therefore, there would be no impacts to floodplains under Alternative 1.

3.7.3.3 Proposed Action – Alternative 2

Surface Water

Impacts to surface waters under Alternative 2 would be the same as Alternative 1.

Stormwater

Impacts to stormwater under Alternative 2 would be similar to those under Alternative 1; however the projects proposed under Alternative 2 would add approximately 897,000 ft^2 of new impervious surface area to Davis-Monthan AFB, which would be approximately 23,000 fewer square feet than under Alternative 1. Contractor requirements and the use of appropriate BMPs would be the same as under Alternative 1, but the potential for impact would be less under Alternative 2 due to the smaller amount of added impervious surface area. Impacts to stormwater under Alternative 2 would be short term and negligible.

Groundwater

Potential impacts to groundwater resources under Alternative 2 would be the same as Alternative 1.

Floodplains

As with Alternative 1, no impacts to floodplains would occur under Alternative 2.

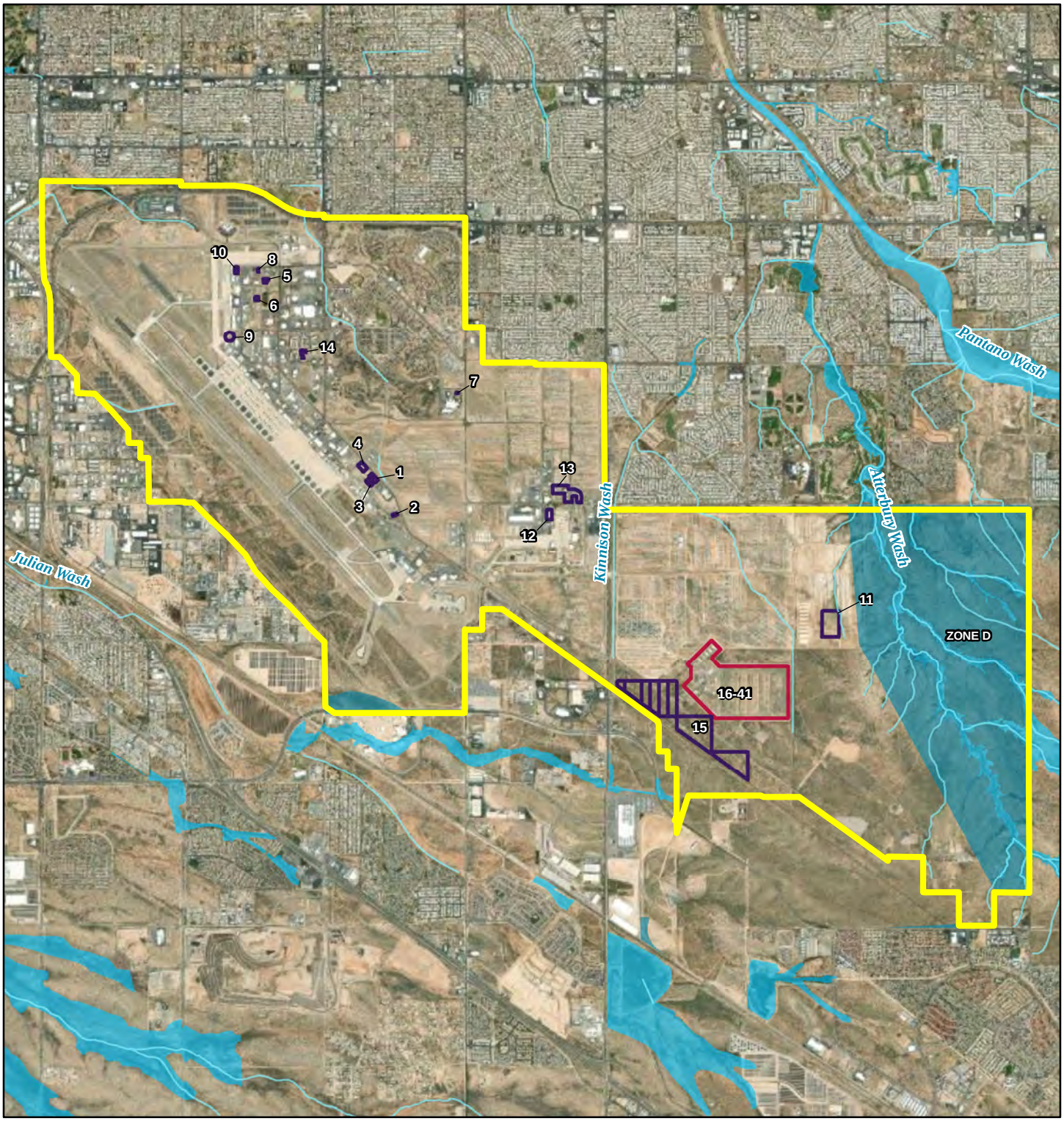


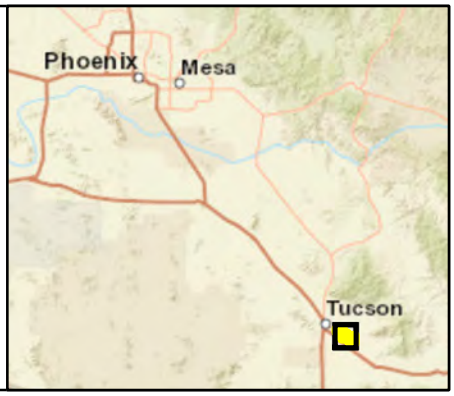
FIGURE 3-3
Floodplains

- Streams
- IDP Projects
- Installation Boundary
- MSA Projects
- Zone A (100-Year Floodplain)
- Zone D (Probable100-Year Floodplain)

N

0 1 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



3.7.3.4 Proposed Action – Alternative 3

Surface Water

Potential impacts to surface waters under Alternative 3 would be similar to Alternative 1.

Stormwater

Impacts to stormwater under Alternative 3 would be similar to Alternative 1. The proposed projects under Alternative 3 would add approximately 850,000 ft^2 of new impervious surface area to Davis-Monthan AFB, which would be approximately 70,000 fewer ft^2 than the amount added under Alternative 1 and 47,000 ft^2 fewer than under Alternative 2. Contractor requirements and the use of appropriate BMPs would be the same as under Alternative 1, but the potential for impact would be less under Alternative 3 due to the smaller amount of added impervious surface area.

Groundwater

Potential impacts to groundwater resources under Alternative 3 would be the same as Alternative 1.

Floodplains

As with Alternative 1, no impacts to floodplains would occur under Alternative 3.

3.7.3.5 Cumulative Impacts

The Proposed Action Alternatives would result in negligible adverse impacts to surface water and groundwater; none of the projects would occur in a floodplain. The Proposed Action Alternatives would have minor cumulative impacts on stormwater runoff from impervious surfaces in conjunction with other reasonably foreseeable development projects on Davis-Monthan AFB that would create additional impervious surfaces. However, implementation of BMPs during construction and several projects within the MSA would mitigate the effects of any additional stormwater runoff on sedimentation or flooding issues. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects to water resources would be anticipated to occur with implementation of the Proposed Action. The long-term cumulative effects of Proposed Action on stormwater runoff would be expected to be negligible.

3.7.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to water resources beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.8 BIOLOGICAL RESOURCES

3.8.1 Definition of the Resource

Biological resources include native and invasive plants and animals; sensitive and protected floral and faunal species; and the associated habitats, such as wetlands, forests, grasslands, cliffs, and caves in which they exist. Habitat can be defined as the resources and conditions in an area that support a defined suite of organisms. This section provides a description of the primary federal statutes that form the regulatory framework for the evaluation of biological resources.

The ROI for biological resources is Davis-Monthan AFB.

3.8.1.1 Endangered Species Act

The ESA established protection for threatened and endangered species and the ecosystems upon which they depend. Sensitive and protected biological resources include plant and animal species listed as threatened, endangered, or special status by USFWS. The ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species. Under the ESA, an "endangered species" is defined as any species in danger of extinction throughout all, or a large portion, of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. USFWS maintains a list of candidate species under evaluation for possible listing as threatened or endangered under the ESA. Although candidate species receive no statutory protection under the ESA, USFWS has advised government agencies, industry, and the public that these species are at risk and may warrant protection in the future under the ESA.

3.8.1.2 Migratory Bird Treaty Act

The MBTA makes it unlawful for anyone to take migratory birds or their parts, nests, or eggs unless permitted to do so by regulations. Per the MBTA, "take" is defined as "pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR § 10.12). Birds protected under the MBTA include nearly all species in the US except for non-native/human-introduced species and some game birds.

EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, requires all federal agencies undertaking activities that may negatively impact migratory birds to follow a prescribed set of actions to further implement MBTA. EO 13186 directs federal agencies to develop a Memorandum of Understanding with USFWS that promotes the conservation of migratory birds.

The *National Defense Authorization Act for Fiscal Year 2003* (Public Law 107-314, 116 Stat. 2458) provided the Secretary of the Interior the authority to prescribe regulations to exempt the Armed Forces from the incidental take of migratory birds during authorized military readiness activities. Congress defined military readiness activities as all training and operations of the US Armed Forces that relate to combat and the adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use. Further, in October of 2012, the Authorization of Take Incidental to Military Readiness Activities was published in the *Federal Register* (50 CFR § 21.15), authorizing incidental take during military readiness activities unless such activities may result in significant adverse effects on a population of a migratory bird species.

In December 2017, the US Department of the Interior issued M-Opinion 37050, *The Migratory Bird Treaty Act Does Not Prohibit Incidental Take*, which concluded that the take of migratory birds from an activity is not prohibited by the MBTA when the purpose of that activity is not the take of a migratory birds, eggs, or nests. On 11 August 2020, the US District Court, Southern District of New York, vacated M-37050. Thus, incidental take of migratory birds is again prohibited. The interpretation of the MBTA remains in flux, and additional court proceedings are expected.

3.8.1.3 Bald and Golden Eagle Protection Act

The *Bald and Golden Eagle Protection Act of 1940* (16 USC §§ 668–668d) (BGEPA) prohibits actions to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or egg thereof." Further, the BGEPA defines "take" as:

> [P]ursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.

The BGEPA defines "disturb" as:

> [T]o agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle, a decrease in productivity by substantially interfering with the eagle's normal breeding, feeding or

sheltering behavior, or nest abandonment by substantially interfering with the eagle's normal breeding, feeding, or sheltering behavior.

The BGEPA also prohibits activities around an active or inactive nest site that could result in disturbance to returning eagles.

3.8.1.4 Aquatic Resources

Aquatic resources are habitats that contain either permanent or sufficient temporary water to support plant or wildlife species that require water or hydric soils for at least part of their life cycle.

3.8.1.5 Invasive Species

Invasive species are non-native species whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health. EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, requires federal agencies to identify actions that may affect invasive species; use relevant programs to prevent introductions of invasive species; detect, respond, and control such species; monitor invasive species populations; and provide for restoration of native species. Invasive species damage native habitat and impede management by outcompeting native species.

3.8.2 Existing Conditions

3.8.2.1 Vegetation

Geographically, Davis-Monthan AFB falls within the Tucson Basin and is located in the Sonoran Desert, which is part of the Tropical-Subtropical Desertlands climatic zone (Brown, 1982). The Tucson Basin falls at the eastern edge of the Arizona Upland Subdivision of the Sonoran Desert scrub Biotic Community, and is adjacent to the Semi-desert Grassland biome to the east and the Lower Colorado River Valley Subdivision of the Sonoran Desert to the west (Davis-Monthan AFB, 2021b).

Of the Base's 10,550 acres of land, approximately 6,653 acres have been altered by human activities (e.g., buildings, roads, airfields, and yards) and are considered developed, improved, and semi-improved areas. The remaining 3,897 acres are unimproved areas of native Sonoran Desert vegetation, although some areas contain non-native invasive species such as buffelgrass (*Pennisetum ciliare*) and fountain grass (*Pennisetum sp.*) (Davis-Monthan AFB, 2021b, 2023). Native vegetation on Davis-Monthan AFB occurs in the southeast part of the Base in the area surrounding Atterbury Wash and along the southwest side of the airfield. Three primary native plant communities and a fourth community defined by a greater present of prickly pear (*O. engelmannii*) and cholla (*Cylindropuntia sp.*) cactuses have been identified on the Base.

The Sonoran Desert xeri-Riparian community occurs in the more mesic drainage areas of Davis-Monthan AFB and includes desert willow (*Chilopsis linearis*), mesquite (*Prosopis* sp.), catclaw (*Acacia greggii*), seepwillow (*Baccharis salicifolia*), and palo verde (*Parkinsonia microphylla, P. florid*). Three plant communities occur in the drier upland areas. A Lower Colorado River Valley Subdivision community is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Other common species in this plant community include burrowbush (*Hymenoclea monogyra*), seepwillow (*Baccharis salicifolia*), Anderson lycium (*Lycium andersonii*), and catclaw (Acacia greggii). The Arizona Upland Subdivision community, often referred to as Paloverde-Cacti Desert, contains more arboreal (i.e., tree-like) species and contains foothill palo verde, creosote bush, saguaro (*Carnegia gigantea*), ocotillo (*Fouquieria splendens*), barrel cactus (*Echinocactus wislizenii*), chainfruit cholla (*Cylindropuntia fulgida*), and staghorn cholla (*C. vericolor*). A prickly pear-cholla-mixed shrub plant community also has been identified on Davis-Monthan AFB. This plant community contains creosote bush and palo verde but with prickly pear and cholla cacti. In some areas, an understory of the invasive buffelgrass is common.

In the developed, improved, and semi-improved areas of Davis-Monthan AFB, the vegetation is typically mown grassland (non-irrigated) such as in the AMARG District, along roadways, and around the airfield. Irrigated grass areas are limited to recreational fields. Desert landscaping is used throughout the Base and

includes native Sonoran Desert species such as palo verde, mesquite, creosote bush, and a variety of cactus species, including saguaros.

3.8.2.2 Wildlife

Native fauna at Davis-Monthan AFB consists of species adapted for survival in the hot, dry environment and is typical of the Sonoran Desert ecosystem. The diversity of habitat available on Davis-Monthan AFB provides opportunities for some species and restricts others, depending on their capability and propensity to tolerate human activities. Although developed areas limit the amount of native habitat available to wildlife, the residential, grassy, and landscaped areas offer water, which attracts and supports a wide range of avifauna, rodents, insects, and those species that prey upon them. Warehouses, large enclosures, and open aircraft in the storage areas can be attractive to bat and bird species, as well as bobcats and coyotes. Rodents burrow in open areas as well as beneath shrubs and rocks; resident and migratory avian species nest or roost in cacti, shrubs, and trees. The undeveloped areas surrounding Atterbury Wash is a hot spot for local faunal species diversity due to the presence of seasonal water, the greater cover and density of native vegetation, and less human activity. Surveys have documented a wide variety of wildlife species (Davis-Monthan AFB, 2021b). Common mammals include coyote (*Canis latrans*), bobcat (*Felis rufus*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail, Merriams kangaroo rat (*Dipodomys merriami*), and the round tailed ground squirrel (*Xerospermophilus tereticaudus*). More than 50 birds have been identified on the Base, and common species include Gambel's quail (*Callipepla gambelii*), roadrunner (*Geococcyx californianus*), mourning dove (*Zenaida macroura*), cactus wren (*Campylorhynchus brunneicapillus*), and black-throated sparrow (*Amphispiza bilineata*). Common reptile species found in the area include the collared lizard (*Crotaphytus* sp.), desert spiny lizard (*Sceloporus magister*), greater earless lizard (*Cophosaurus texanus*), ornate tree lizard (*Urosaurus ornatus*), regal horned lizard (*Phrynosoma solare*), tiger whiptail (*Aspidoscelis tigris*), western banded gecko (*Coleonyx variegatus*), coachwhip (*Coluber flagellum*), gopher snake (*Pituophis catenifer*), and the Mojave rattlesnake (*Crotalus scutulatus*). Invertebrates, including insects and spiders, are likely diverse across the Installation, as they are common in the Sonoran Desert (Davis-Monthan AFB, 2021b).

3.8.2.3 Threatened or Endangered Species and Other Protected Species

Surveys for endangered, threatened, candidate, and other protected species and their habitats have been performed within the Installation boundaries. No federally listed threatened or endangered species have been observed on Davis-Monthan AFB, nor does critical habitat exist within Davis-Monthan AFB (Davis-Monthan AFB, 2021b). The Installation manages protected species proactively to prevent potential listings as well as conserve species that are legally protected or of concern at the state or federal level. Whenever practicable within the constraints of the military mission, Davis-Monthan AFB will avoid/minimize impacts to the species and manage their habitats found on Base.

Threatened or Endangered Species

The Monarch butterfly is a candidate species being considered for protection under the ESA. Monarch butterflies feed on nectar from many flower species but breed only where there are milkweeds (*Asclepias* spp.). Most of the land within the ROI is developed and unlikely to provide significant habitat to Monarch butterflies (Davis-Monthan AFB, 2021b). In addition, milkweeds are unlikely to occur in undeveloped native vegetation.

The Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) is listed as endangered and could potentially occur on Davis-Monthan AFB. The cactus does occur at several localities several miles from the Base (Davis-Monthan AFB, 2021b). However, surveys for the cactus were conducted by Arizona Game and Fish Department (AZGFD) in 1990, on 400 acres in 2009, and again in 2015 in undeveloped areas. No Pima pineapple cacti were found.

The cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) is protected under the MBTA but was recently proposed for listing as threatened under the ESA by the USFWS (86 FR 72547; 22 December 2021).The cactus ferruginous pygmy-owl has not been observed on Davis-Monthan AFB but the thickets

of palo verde trees, mesquite, and saguaro cactus in and surrounding Atterbury Wash are potential suitable habitat. The cactus ferruginous pygmy-owl frequently nests in existing cavities in saguaro cacti.

Migratory Birds

Avian surveys have documented over 50 species of birds on Davis-Monthan AFB, many of which are protected under the MBTA (see **Section 3.8.1.2**). Migratory bird species are most likely to occur in the undeveloped areas of the Base. Even though the developed areas of Davis-Month AFB have been fragmented into small habitat patches, decreasing the quality of habitat available to migratory birds, landscaping, available water, buildings, and stored aircraft provide or create potential nesting and roosting habitat for birds. The Cooper's hawk (*Accipiter cooperii*) typically occurs in wooded and riparian areas and hunts birds and small mammals. It has adapted to urban areas and nests on Davis-Monthan AFB in both developed and undeveloped areas. There are active great horned owl (*Bubo virginianus*) nests on the Base. Habitat for this species includes woodlands, canyons, stream sides, and deserts. There are historic nests in the AMARG District, including an old nest in the eastern part of the Base. Other possible nests are on or near the firing range.

Several migratory birds, also listed by AZGFD as Species of Greatest Conservation Need (SGCN), occur on Davis-Monthan AFB. These include the ferruginous hawk (*Buteo regalis*), American peregrine falcon (*Falco peregrinus anatum*), western burrowing owl (*Athene cunicularia ssp. Hypugaea*), and Swainson's hawk (*Buteo swainsoni*).

The western burrowing owl nests in burrows in open areas and prefers open plains, prairies, and fields. It is often seen by day standing on the ground and on fence posts. Burrowing owls do not dig burrows but rely on existing burrows created by other animals or artificial burrows created for them. Burrowing owls tend to use the same burrows over the course of multiple years as well as satellite burrows. There are approximately 50 active burrows on the Base each year in open areas of the developed portion of the Base, including the airfield. Davis-Monthan AFB coordinates with the AZGFD to monitor the burrowing owl.

Ferruginous hawks have been recorded during raptor surveys but are expected to occur only as migrants and winter residents. Marginal roosting and foraging habitat exist on the Base with the open fields in the AMARG area. Similarly, the peregrine falcons also occur as a spring and fall migrant, potentially preying on concentrations of rock doves (pigeons) (*Columbia livia*) on Base.

Swainson's hawks prefer prairies, rangeland, desert, and brush areas. The species breeds in western North America and migrates to Argentina for the winter. The hawks build platform nests of branches and twigs and often reuse nests from previous seasons (up to 50-percent reuse). Minor disturbances in the vicinity of nests have occasionally led to nest abandonment (Ehrlich, 1988). Since 1997, one to two pairs have nested per year on the Base (Davis-Monthan AFB, 2021b).

Bald and golden eagles also are protected under the BGEPA. Neither species occurs on Davis-Monthan AFB and suitable habitat does not occur on Base.

Arizona Species of Greatest Conservation Need

AZGFD identifies SGCN in its state wildlife action plan (AZGFD, 2022). SGCN are considered vulnerable to future population declines or have experienced population declines and warrant special management attention. The list of SGCN includes species protected by the ESA, MBTA, or the BGEPA, as well as species that have no or limited regulatory protection. Davis-Monthan AFB has identified those SGCN that could potentially occur on or in the vicinity of the Base (Davis-Monthan AFB, 2021b) (**Table 3-10)**. The criteria for listing plants as a SGCN include being listed under the ESA, being highly safe guarded, or being salvage restricted under the *Arizona Native Plant Law* (Arizona Administrative Code Title 3, Article 11). Birds listed as SGCN are discussed above. SGCN that might occur in the vicinity of the Davis-Monthan AFB but have not been observed on the Base are not discussed. A description of those species can be found in the Davis-Monthan AFB *Integrated Natural Resource Management Plan* (Davis-Monthan AFB, 2021b).

Table 3-10.
Arizona Species of Greatest Conservation Need with the Potential to Occur within or near Davis-Monthan AFB

Common Name	Scientific Name	State SGCN Tier Level/ Status[a]	Known Occurrence on Davis-Monthan AFB
Mammals			
California leaf-nosed bat	*Macrotus californicus*	2	No
Mexican long-tongued bat	*Choeronycteris mexicana*	2	No
Spotted bat	*Euderma maculatum*	2	No
Western red bat	*Lasiurus blossevillii*	2	Yes
Western yellow bat	*Lasiurus xanthinus*	2	No, but likely
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	1	No
Cave myotis	*Myotis velifer*	2	No, but likely
Birds			
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	1	Potential migratory
Western burrowing owl	*Athene cunicularia ssp. Hypugaea*)	2	Yes
Ferruginous hawk	*Buteo regalis*	2	Yes
American peregrine falcon	*Falco peregrinus anatum*	1	Yes
Swainson's hawk	*Buteo swainsoni*	2	Yes
Reptiles			
Sonoran desert tortoise	*Gopherus morafkai*	1	No
Gila monster	*Heloderma suspectum*	1	No
Tucson shovel-nosed snake	*Chionactis occipitalis klauberi*	3[b]	No
Plants			
Saguaro	*Carnegiea gigantea*	Arizona Native Plant Law	Yes, as a planted ornamental
Needle-spined pineapple cactus	*Echinomastus erectocentrus var. erectocentrus*	ADA salvage restricted	No

Sources: Davis-Monthan AFB, 2021b; AZGFD, 2022
ADA = Arizona Department of Agriculture; AZGFD = Arizona Game and Fish Department; SGCN = Species of Greatest Conservation Need; T&E = threatened and endangered
Notes:
a Tier 1 = T&E species, former T&E species, species with conservation agreements or closed season species; Tier 2 = deemed vulnerable but does not meet Tier 1 criteria; Tier 3 = unknown status and does not meet Tier 2 criteria, more information needed
b AZGFD lists *Chionactis occipitalis* as a Tier 3 SGCN, but not the *klauberi* sub-species.

Of the bat species listed as SGCN, the western red bat (*Lasiurus blossevillii*) is one of 12 bat species confirmed to occur on Davis-Monthan AFB during acoustical surveys. It most likely occurs on Base from May through September. The western red bat's preferred habitat includes riparian and wooded areas with roost trees approximately 40 feet or taller. Although no wooded areas occur on Base, palm trees may provide roost sites.

None of the three reptile SGCN is known to occur on Davis-Monthan AFB. The AZGFD does not list the Tucson shovel-nosed snake sub-species as a SGCN, but only lists the full species of western or Mohave shovel-nosed snake (*Chionactis occipitalis*) as a Tier 3 SGCN (AZGFD, 2022).

The saguaro (*Carnegiea gigantea*), a columnar tree-like cactus species, is protected under the *Arizona Native Plant Law*. Saguaros occur on well-drained soils, flats, and desert slopes, especially rocky slopes. The species can reach heights of up to 50 feet. On Davis-Monthan AFB, saguaros occur at a low density, but occur both in developed areas as landscape plants and naturally in undeveloped areas.

3.8.2.4 Aquatic Resources

A 1996 survey identified 141,349 linear feet and 9.49 acres of CWA-protected waters of the US on Davis-Monthan AFB (Air Force, 1996). The CWA-protected habitats on Davis-Monthan AFB are all ephemeral

drainages; there are no perennial drainages on Davis-Monthan AFB. Several channelized ephemeral drainages carry runoff from the developed portions of the Base and exit via underground or open drainage systems. Jurisdictional boundaries were defined as the ordinary high-water mark indicated by shelving, scouring, vegetation zonation, and debris. No jurisdictional wetlands were identified during the 1996 survey. Atterbury Wash is the primary ephemeral drainage on the undeveloped portion of the Base.

3.8.2.5 Invasive Species

The primary pest management concern on Davis-Monthan AFB is the persistent spread of the invasive non-native buffelgrass. Invasive species of secondary concern include fountain grass (*Pennisetum* sp.) and Lehmann's lovegrass (*Eragrostis lehmanniana*). Establishment of non-native grasses has created areas on Davis-Monthan AFB that are much more prone to wildfires.

3.8.3 Environmental Consequences

3.8.3.1 Evaluation Criteria

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 Alternatives negatively affect 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 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 the USFWS that the Proposed Action either would or would not jeopardize the continual existence of a species.

3.8.3.2 Proposed Action – Alternative 1

Vegetation

The areas designated for construction and demolition activities under Alternative 1 are disturbed, developed, or maintained in mown herbaceous vegetation. Because no native vegetation would be disturbed and minimal vegetation clearing would occur under Alternative 1, no significant impacts to vegetation would be expected.

Wildlife

Wildlife management on Davis-Monthan AFB focuses on maintaining existing habitat and ensuring the viability of existing populations. Clearing or mechanical disturbance of native desert vegetation would not occur during project construction under Alternative 1. Project sites in the developed portion of Davis-Monthan AFB, such as the Flightline District, Main Base area, and Rescue Group Campus area, have limited wildlife habitat and support only common wildlife species adapted to human activity. Open areas of the AMARG District and MSA may support limited populations of small mammals, raptors, and bird species adapted to open areas. Project areas would be surveyed prior to construction or demolition of buildings. No significant impacts to wildlife and wildlife habitat would be expected to occur under Alternative 1.

Threatened or Endangered Species and Other Protected Species

No federally listed threatened or endangered species have been observed on Davis-Monthan AFB, nor does critical habitat exist within Davis-Monthan AFB. Alternative 1 would not adversely affect any threatened or endangered species or their habitat. The Air Force has determined that Alternative 1 would have "no adverse effects" on threatened or endangered species.

Migratory birds and several SGCN have the potential to occur on Davis-Monthan AFB. The western burrowing owl nests in burrows in open areas throughout Davis-Monthan AFB. Several other raptor species are known to occur on the Base either as seasonal migrants or nesting residents. In coordination with Davis-Monthan AFB environmental staff, construction and demolition sites would be surveyed for the presence of SGCN, migratory bird nests, and roosting bats before work began. Appropriate mitigations such as protecting any active nests, burrows, or roost sites or implementing construction during the non-nesting or roosting season would protect any SGCN or protected wildlife species found within construction sites. With implementation of pre-construction surveys and mitigation measures, no significant impacts to SGCN, bats, or migratory birds would be expected to occur under Alternative 1.

Aquatic Resources

No aquatic resources occur in proximity to the construction and demolition sites under Alternative 1; therefore, no impacts to aquatic resources would occur.

Invasive Species

Soil disturbance during construction would create potential sites for establishment of invasive species. However, most of these sites would be occupied by new buildings or hardscape (e.g., parking lots) and surrounded by maintained landscaping, thus preventing establishment of invasive species. BMPs, such as checking construction sites for presence of invasive plants, mechanically or chemically treating any invasive plants found, avoiding areas of invasive plants, and thoroughly cleaning and inspecting equipment and work clothing for weed seeds before moving off site would decrease the probability of spreading seeds of invasive species throughout the Installation. With implementation of the BMPs, significant impacts to invasive species would not be expected to occur under Alternative 1.

3.8.3.3 Proposed Action – Alternative 2

The areas designated for construction activities under Alternative 2 would be similar to Alternative 1. Fewer projects would be developed in the MSA, but the area of new buildings and impervious surface would be comparable to Alternative 1; however, the amount of new impervious surface would be about one-half acre less under Alternative 2. Therefore, the expected impacts to biological resources would be the same as Alternative 1. Alternative 2 would have no adverse effect on threatened or endangered species or their habitat.

3.8.3.4 Proposed Action – Alternative 3

The areas designated for construction activities under Alternative 3 would be similar to those under Alternative 1. The area of new buildings under Alternative 3 would be comparable to Alternative 1; however, the total amount of new impervious surfaces under Alternative 3 would be approximately 1.6 acres less than Alternative 1 because of less construction in the MSA. Impacts to biological resources under Alternative 3 would be similar to impacts under Alternative 1. Alternative 3 would have no adverse effect on threatened or endangered species or their habitat.

3.8.3.5 Cumulative Effects

The Proposed Action Alternatives would not result in adverse impacts to protected species, native vegetation, or wildlife habitat. Because no significant impacts to biological resources would be expected to occur under the Proposed Action, when considered in conjunction with other past, present, and reasonably foreseeable future environmental trends and planned actions at Davis-Monthan AFB, no significant

cumulative effects to biological resources would be anticipated to occur with implementation of the Proposed Action. Future actions at Davis-Monthan AFB would require additional Section 7 consultation with the USFWS to evaluate impacts to threatened and endangered species.

3.8.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to biological resources beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.9 CULTURAL RESOURCES

3.9.1 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 1960*, 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), and the NHPA 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)).

Cultural resources include the following subcategories:

- Archaeological (i.e., prehistoric or historic sites where human activity has left physical evidence of that activity, but no structures remain standing);
- Architectural (i.e., buildings, structures, groups of structures, or designed landscapes that are of historic or aesthetic significance); and
- Traditional Cultural Properties (TCPs) (resources of traditional, religious, or cultural significance to American Indian tribes).

Significant cultural resources are those listed on the National Register of Historic Places (NRHP) or determined to be eligible for listing. To be eligible for the NRHP, properties must be 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 criteria for evaluation:

1. Associated with events that have made a significant contribution to the broad patterns of our history (Criterion A);
2. Associated with the lives of persons significant in our past (Criterion B);
3. Embody distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or
4. Have yielded or be likely to yield information important in prehistory or history (Criterion D).

Properties that are less than 50 years old can be considered eligible for the NRHP under criteria consideration G if they possess exceptional historical importance. Those properties must also retain historic integrity and meet at least one of the four NRHP criteria (Criteria A, B, C, or D). The term "historic property" refers to National Historic Landmarks, NRHP-listed, and NRHP-eligible cultural resources.

For cultural resources analyses, the ROI is defined by the Area of Potential Effect (APE). The APE is defined as the "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist," (36 CFR § 800.16(d)) and thereby diminish their historic integrity. The direct and indirect APE for this EA is 50 meters and 800 meters around each project location, respectively. For the purposes of this EA, project locations are defined as the buildings identified for activities under the Proposed Action.

3.9.2 Existing Conditions

3.9.2.1 Archaeological Sites

Approximately 20 archaeological sites have been identified at the Davis-Monthan AFB Main Base through intensive pedestrian surveys, testing, and data recovery projects (Davis-Monthan AFB, 2021c). The predicted highest potential for archaeological sites is in the Atterbury Wash system, located in the eastern portion of the Installation.

An intensive cultural resources survey was conducted from 14 February 2017 to 9 June 2017, which included 3,180 acres and a site assessment of 25 previously recorded archaeological sites at Davis-Monthan AFB. Forty-three isolated occurrences were recorded within the survey area. An isolated occurrence is an artifact or feature that does not qualify as an archaeological site and generally consists of a single artifact, an individual feature, or widely dispersed artifact scatters of extremely low density (Statistical Research, 2017).

3.9.2.2 Historic Architectural Properties

Davis-Monthan AFB manages 433 buildings constructed prior to 1991. A total of 39 structures were determined eligible for NRHP listing and are managed as such for all future undertakings. These eligible architectural resources consist of 11 buildings in the MSA, Hangar 8030, 27 structures that are part of the Titan Missile Complex, and Titan Missile Site 12 (Davis-Monthan AFB, 2021c). However, eligible buildings in the MSA qualify for the Program Comment for World War II and Cold War Era Ammunitions Storage Facilities issued by the Advisory Council on Historic Preservation (ACHP) dated 18 August 2006, making them ineligible for NRHP listing (ACHP, 2006). As shown in **Figures 3-4** and **3-5**, no NRHP-listed or -eligible buildings are located within the direct or indirect APE for the Proposed Action Alternatives.

3.9.2.3 Traditional Cultural Properties

TCPs may include traditionally used plants and animals, trails, and certain geographic areas. Types of resources that have been specifically identified in recent studies include, but are not limited to, rock art sites; "power" rocks and locations; medicine areas; and landscape features such as specific peaks or ranges, hot springs, meadows, valleys, and caves. No TCPs, sacred sites, human remains, associated grave goods, unassociated grave goods, sacred objects, or objects of cultural patrimony have been identified or recovered at Davis-Monthan AFB.

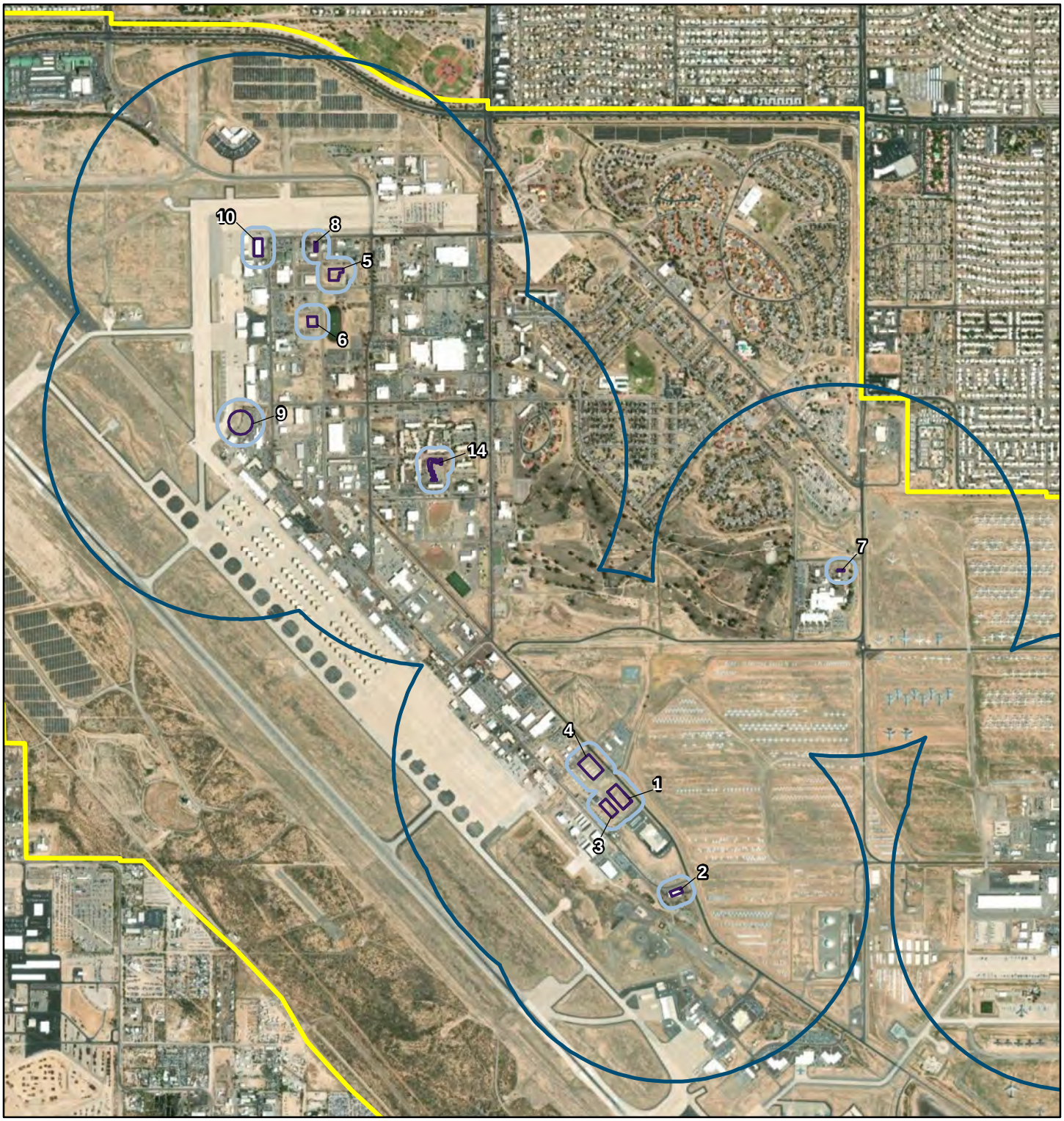


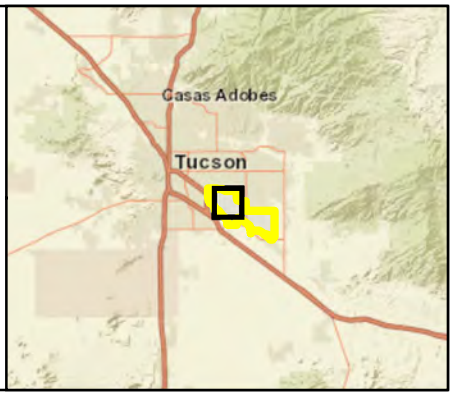
FIGURE 3-4
Cultural Resources - IDP Projects #1-10 & #14

Direct APE (50 m)
Installation Boundary
IDP Projects
Historic Structure
Indirect APE (800 m)

N

0 0.25 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



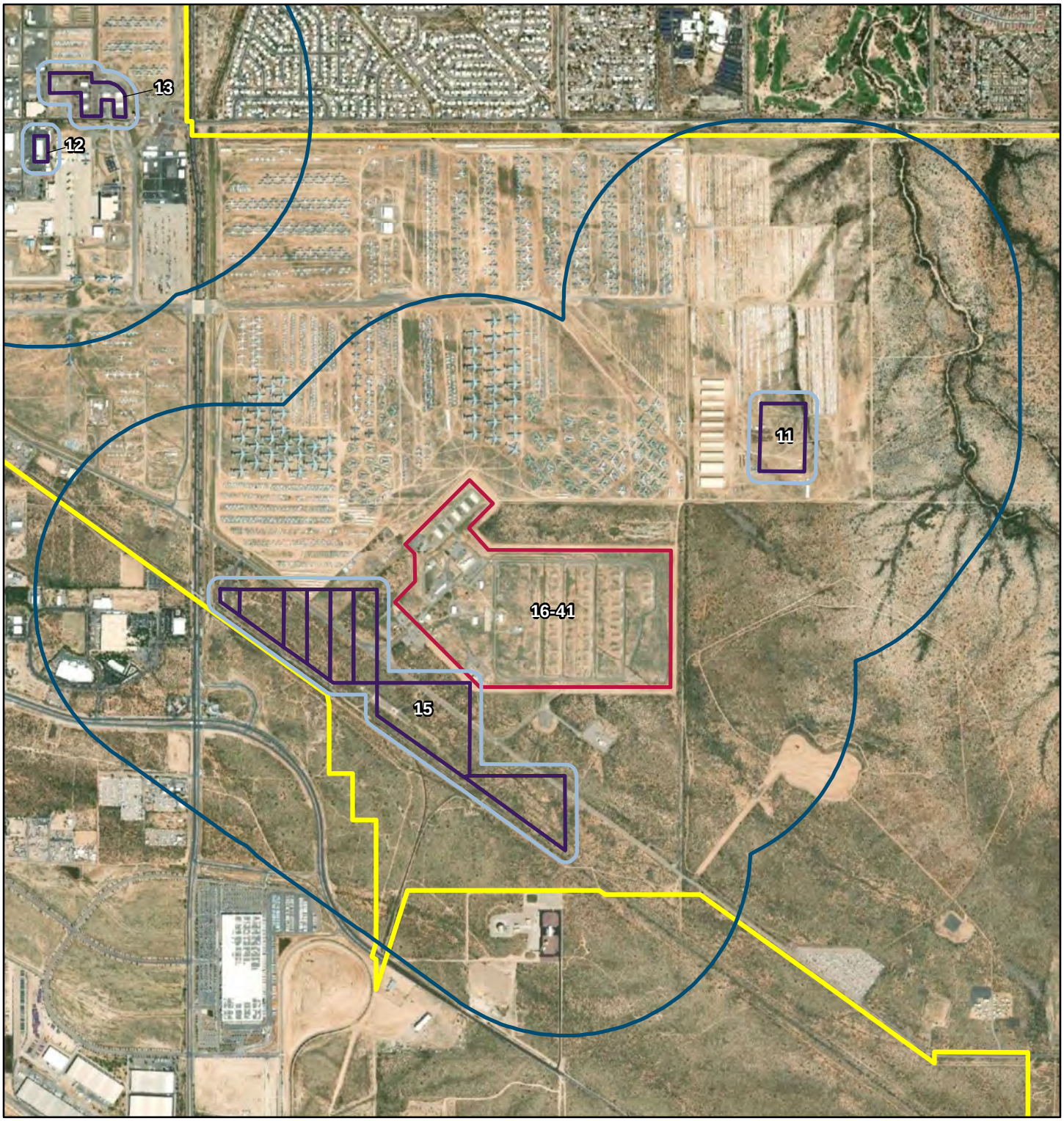


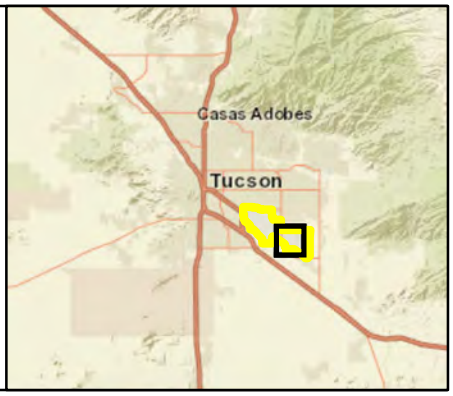
FIGURE 3-5
Cultural Resources – MSA Projects and IDP Projects #11–13 & #5

Direct APE (50 m)
IDP Projects
Indirect APE (800 m)
Installation Boundary
MSA Projects

N

0 0.25 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



3.9.3 Environmental Consequences

3.9.3.1 Evaluation Criteria

Adverse impacts on cultural resources would occur if the Proposed Action results in the following:

- physically altering, damaging, or destroying all or part of a resource;
- altering characteristics of the surrounding environment that contribute to the resource's significance;
- introducing visual or audible elements that are out of character with the property or alter its setting;
- neglecting the resource to the extent that it deteriorates or is destroyed; or
- the sale, transfer, or lease of the property out of agency ownership (or control) without adequate 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 an NRHP-listed, -eligible, or potentially eligible resource or potentially impacts TCPs.

3.9.3.2 Proposed Action – Alternative 1

Archaeological Sites

Under Alternative 1, 40 projects would occur on the Installation. All the projects have archaeological sites identified within the indirect APE. Projects 1, 2, 4, and 15 have archaeological sites within the direct APE (**Table 3-11**); Project 1 is located within approximately 35 meters of Site AZ BB:13:908, US Army Dump No.1, which has been determined to be ineligible for listing on the NRHP. Project 4 would involve the construction of a Guardian Angel Preservation of the Force and Family (POTFF) Facility, which is located within the footprint of Site AZ BB:13:908. However, because this site has been determined to be ineligible for listing on the NRHP, impacts to archaeological resources would not occur from either Project 1 or 4. Project 2 is adjacent (25 meters) to Site AZ BB:13:827, a railroad spur constructed in 1952 as part of the Davis-Monthan railroad. The tracks and ties have been removed and the site retains little integrity and is not eligible for listing on the NRHP.

Table 3-11
Archaeological Sites within the Direct APE (50 meters) of Proposed Projects

Archaeological Site ID	Size (acres)	Site Description	Associated IDP Project	Status
AZ BB:13:908	6.48	US Army Dump No. 1	1 and 4	Not eligible
AZ BB:13:827	2.1	Davis-Monthan railroad spur	2	Not eligible
AZ BB:13:898	0.03	Individual trash-disposal event	15	Not eligible
AZ BB:13:900	23.51	Multi-component prehistoric and historical-period artifact scatter	15	Recommended eligible
AZ BB:13:901	0.04	Individual trash-disposal event	15	Not eligible
AZ BB:13:902	0.05	Individual trash-disposal event	15	Not eligible
AZ BB:13:903	0.49	Multiple trash-disposal events	15	Not eligible
AZ BB:13:904	0.03	Railroad trash-disposal pile	15	Not eligible
AZ BB:13:912	9.47	Multi-component railroad and roadway trash, railroad and utility demolition	15	Not eligible
AZ BB:13:920	1.28	Transportation, road from Tucson to Pantano	15	Not eligible
AZ BB:13:923	0.65	Unnamed dirt road	15	Not eligible
AZ BB:13:930	1.25	Historical-period fence line near railroad	15	Not eligible
AZ Z:2:40	1.06	Southern Pacific railroad segment	15	Eligible individually

Eleven archaeological sites occur on or within 50 meters of Project 15. However, Project 15 would involve the purchase of privately held land within the boundaries of the Installation and no ground disturbance would occur. In addition, portions of Project 15 are within the ESQD arcs of the MSA, further restricting potential future activities. Minor beneficial impacts to cultural resources could occur with implementation of Project 15, as the parcels on which these archaeological sites exist would be brought within the Installation's ownership, allowing for more consistent management of cultural resources. In the event of an unanticipated discovery of an archaeological resource during demolition or construction, ground-disturbing activities would be suspended, and a cultural resources meeting would be convened to determine if an Unanticipated Discovery Plan should be developed and implemented.

Historic Architectural Properties

Under Alternative 1, Project 32 would demolish buildings in the MSA, including Building 187 and multi-cube storage units 270, 275, and 280. Buildings 187, 270, 275, and 280 are not eligible for historic preservation because they qualify for the Program Comment for World War II and Cold War Era Ammunitions Storage Facilities issued by ACHP (ACHP, 2006). The proposed projects under Alternative 1 would not have an impact on historic properties (Davis-Monthan AFB, 2012).

Traditional Cultural Properties

No impacts would occur under Alternative 1 because TCPs, sacred sites, human remains, associated grave goods, unassociated grave goods, sacred objects, or objects of cultural patrimony have not been identified or recovered on Davis-Monthan AFB.

3.9.3.3 Proposed Action – Alternative 2

Archaeological Sites

Under Alternative 2, 36 projects would occur on the Installation. All the projects have archaeological sites identified within the indirect APE. Projects 1, 2, 4, and 15 have archaeological sites within the direct APE(see **Table 3-11**). Archaeological sites are located directly within the proposed footprint for Projects 4 and 15. Project 4 would involve the construction of a Guardian Angel POTFF Facility. Site AZ BB:13:908, US Army Dump No. 1, which is located within the proposed footprint of Project 4, has been determined ineligible for listing on the NRHP; therefore, impacts to archaeological resources would not occur. Project 2 is adjacent (25 meters) to Site AZ BB:13:827, a railroad spur constructed in 1952 as part of the Davis-Monthan railroad. The tracks and ties have been removed and the site retains little integrity and is not eligible for listing on the NRHP. Project 15 would involve the purchase of privately held land within the boundaries of the Installation and no ground disturbance would occur. Minor beneficial impacts to cultural resources could occur with implementation of Project 15, as the parcels on which these archaeological sites exist would be brought within the Installation's ownership, allowing for more consistent management of cultural resources. No impacts to archaeological sites are expected under Alternative 2.

Historic Architectural Properties

Under Alternative 2, Project 32 would demolish buildings in the MSA, including Building 187 and multi-cube storage units 270, 275, and 280. Buildings 187, 270, 275, and 280 are not eligible for historic preservation because they qualify for the Program Comment for World War II and Cold War Era Ammunitions Storage Facilities issued by ACHP (ACHP, 2006). The proposed projects under Alternative 2 would not have an impact on historic properties (Davis-Monthan AFB, 2012).

Traditional Cultural Properties

No impacts would occur under Alternative 2 because TCPs, sacred sites, human remains, associated grave goods, unassociated grave goods, sacred objects, or objects of cultural patrimony have not been identified or recovered on Davis-Monthan AFB.

3.9.3.4 Proposed Action – Alternative 3

Archaeological Sites

Under Alternative 3, 33 projects would occur on the Installation. All the projects have archaeological sites identified within the indirect APE. Projects 1, 2, 4, and 15 have archaeological sites within the direct APE (see **Table 3-11**). Archaeological sites are located directly within the proposed footprint for Projects 4 and 15. Project 4 would involve the construction of a Guardian Angel POTFF Facility. Site AZ BB:13:908, US Army Dump No. 1, which is located within the proposed footprint of Project 4, has been determined ineligible for listing on the NRHP; therefore, impacts to archaeological resources would not occur. Project 2 is adjacent (25 meters) to Site AZ BB:13:827, a railroad spur constructed in 1952 as part of the Davis-Monthan railroad. The tracks and ties have been removed and the site retains little integrity and is not eligible for listing on the NRHP. Project 15 would involve the purchase of privately held land within the boundaries of the Installation and no ground disturbance would occur. Minor beneficial impacts to cultural resources could occur with implementation of Project 15, as the parcels on which these archaeological sites exist would be brought within the Installation's ownership, allowing for more consistent management of cultural resources. No impacts to archaeological sites are expected under Alternative 3..

Historic Architectural Properties

No projects under Alternative 3 would have the potential to impact historic properties.

Traditional Cultural Properties

No impacts would occur under Alternative 3 because TCPs, sacred sites, human remains, associated grave goods, unassociated grave goods, sacred objects, or objects of cultural patrimony have not been identified or recovered on Davis-Monthan AFB.

3.9.3.5 Cumulative Impacts

The Proposed Action Alternatives would not result in adverse impacts to cultural resources. Minor beneficial impacts to cultural resources could occur with implementation of Project 15, as the parcels on which these archaeological sites exist would be brought within the Installation's ownership, allowing for more consistent management of cultural resources. When considered in conjunction with the other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects to cultural resources would be expected to occur with implementation of the Proposed Action.

3.9.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to cultural resources beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient to meet current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.10 NOISE

3.10.1 Definition of the Resource

Sound is a physical phenomenon consisting of minute vibrations exhibited as waves, measured in frequency and amplitude, which travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. Noise is generally described as unwanted sound. Unwanted sound can be based on objective effects (such as hearing loss or damage to structures) or subjective judgments (community annoyance). Noise analysis thus requires assessing a combination of physical measurement of sound, physical and physiological effects, and psycho- and socio-acoustic effects. The response of

different individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise, its appropriateness in the setting, the time of day, the type of activity during which the noise occurs, and the sensitivity of the individual. Noise may also affect wildlife through disruption of nesting, foraging, migration, and other life-cycle activities.

The ROI for noise is the Davis-Monthan AFB and local environs around the Base.

Noise Metrics

Noise and sound levels are expressed in logarithmic units measured by decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech equates to a sound level of approximately 60 dB, sound levels above 120 dB begin to be felt inside the human ear as discomfort, and sound levels between 130 and 140 dB are felt as pain (Berglund and Lindvall, 1995). To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted to de-emphasize very low and very high frequencies to better replicate human sensitivity and is denoted as an A-weighted decibel (dBA). All sound levels presented in this document are in units dBA unless otherwise noted.

In accordance with DoD guidelines and standard practice for environmental impact analysis documents, the noise analysis herein uses the Day-Night Average Sound Level (DNL) and the Onset-Rate Adjusted DNL. DNL is a cumulative measure of multiple flight and engine maintenance activities throughout an average year.

3.10.2 Existing Conditions

The predominant noise sources at Davis-Monthan AFB are aircraft and industrial operations on the airfield. Construction, ground support equipment along the runway, and vehicular traffic also contribute to the noise environment, though are generally transitory and provide a negligible contribution to the overall average noise level at Davis-Monthan AFB.

Davis-Monthan AFB generates approximately 64,842 based aircraft flight operations per year and receives approximately 3,806 transient flight operations per year. In addition to A-10 and HH-60 aircraft, the C-130, F-16, and many kinds of transient aircraft fly at Davis-Monthan AFB. For this EA, aircraft operations and their associated noise are used only as an indicator of overall consistent noise levels on Base.

Figure 3-6 shows the DNL noise contours from 65 to 85 dBA in 5-dBA increments for the existing conditions at Davis-Monthan AFB in relationship to the location of the Proposed Action projects and the location of potential sensitive noise receptors (i.e., points of interest). Noise generated from aircraft operations at Davis-Monthan AFB occurs within the airfield and extends to cover areas to the northwest and southeast of the airfield. The DNL noise levels at each point of interest under the existing conditions are listed in **Table 3-12**; values range from 45 to 62 dBA DNL. These values are all below the DoD threshold of 65 dBA DNL for recommendations for noise-sensitive land uses.

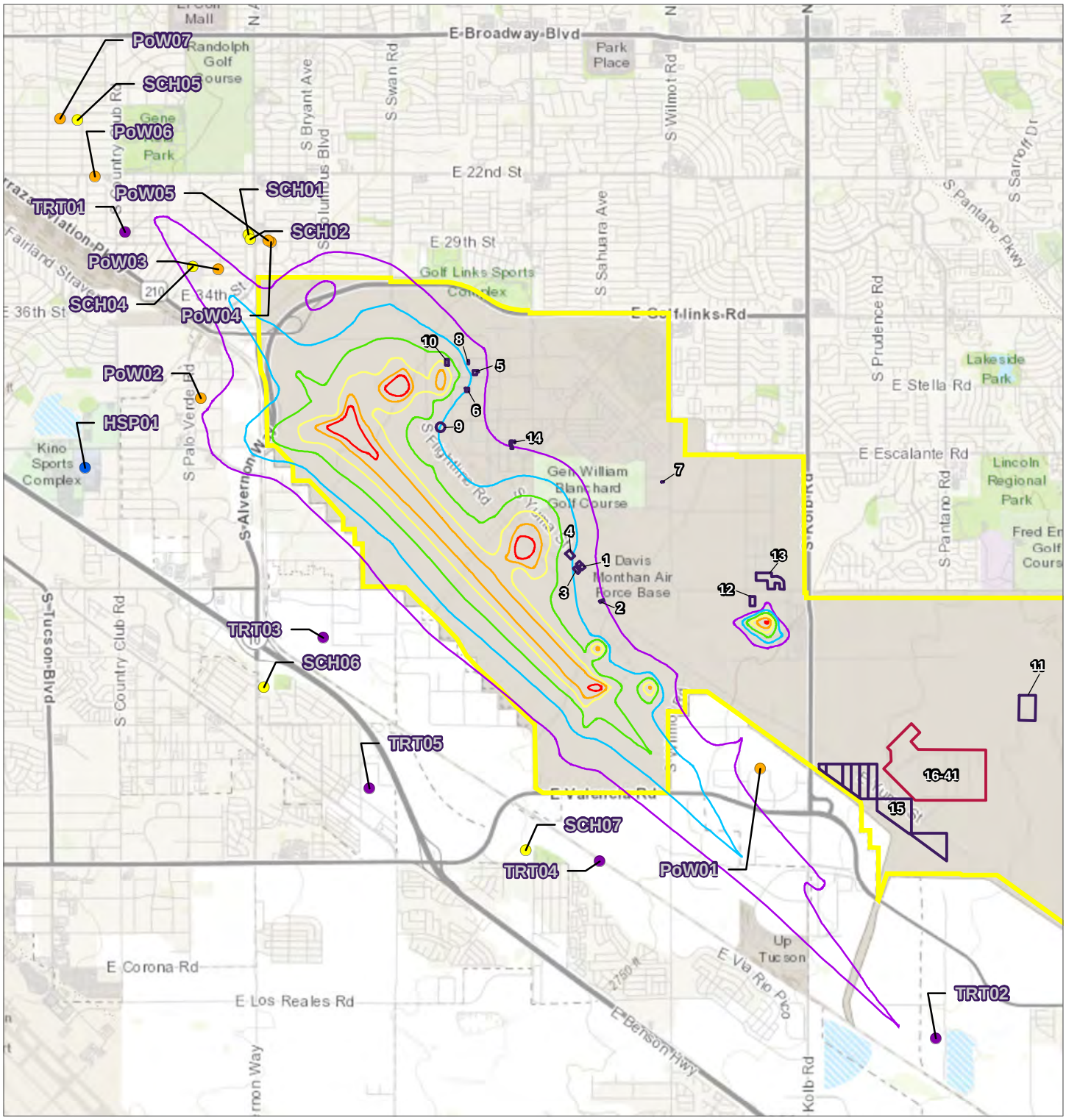


FIGURE 3-6
Baseline Day-Night Average Sound Level

Baseline Noise Contours DNL (dBA)

60 65 70 75 80 85

Census Tract Center
Hospital
Place of Worship
School

IDP Projects
Installation Boundary
MSA Projects

N

0 1 Mile

Coordinate System: WGS 1984 UTM Zone 12N

Table 3-12.
Baseline Points of Interest Noise Exposure

Map ID	Point Type	Named Point of Interest	Baseline DNL (dBA)
HSP01	Hospital	University Physicians Hospital – Kino	54
SCH01	School	Children Reaching for the Sky Preparatory	56
SCH02	School	Future Investment Middle School	56
SCH03	School	Julia Keen Elementary School	62
SCH04	School	Robison Elementary School	56
SCH05	School	Los Ninos Elementary School	45
SCH06	School	Craycroft Elementary School	49
TRT01	Census Tract center	Census Tract 20	56
TRT02	Census Tract center	Census Tract 40.73	56
TRT03	Census Tract center	Census Tract 41.18 BlkGrp 1	51
TRT04	Census Tract center	Census Tract 41.18 BlkGrp 3	52
TRT05	Census Tract center	Census Tract 41.12 BlkGrp 1	46
PoW01	Place of worship	Our Savior Lutheran Church	58
PoW02	Place of worship	The Church of Jesus Christ of Latter-Day Saints Employment Center	58
PoW03	Place of worship	Ideal Missionary Baptist Church	62
PoW04	Place of worship	Word In Season Christian Center	55
PoW05	Place of worship	Rccg Glory Tabernacle	55
PoW06	Place of worship	Potters House	56
PoW07	Place of worship	First Free Will Baptist Church	56
PoW02	Place of worship	The Church of Jesus Christ of Latter-Day Saints Employment Center	54

dBA = A-weighted decibel; DNL = Day-Night Average Sound Level; ID = Identification

3.10.3 Environmental Consequences

The noise assessment examines how the Proposed Action would impact the existing noise environment on or in the vicinity of the Installation. An adverse impact to noise would comprise significant increases to noise exposure levels due to the implementation of the action. For this EA, impacts are assessed by comparing Proposed Action noise exposure levels to those of the No Action Alternative, which is consistent with the existing conditions defined as the baseline.

3.10.3.1 Evaluation Criteria

When evaluating noise effects, several aspects are examined:

- the degree to which noise levels generated by the Proposed Action would be higher than the ambient noise levels;
- the degree to which there would be hearing loss and/or annoyance; and
- the proximity of noise-sensitive receptors (e.g., residences, schools, hospitals, parks) to the noise source.

3.10.3.2 Proposed Action – Alternative 1

Alternative 1 would cause short-term, localized noise impacts during individual construction, demolition, and renovation projects. Alternative 1 would include 40 construction projects, some of which would include demolition of existing buildings. However, these projects would be short term, implemented over time, and distributed throughout Davis-Monthan AFB, and therefore would not significantly contribute to the long-term baseline noise environment. Sound would be generated from construction equipment and traffic. Sound levels of typical construction equipment are listed in **Table 3-13**. However, the equipment would be operated intermittently during construction, and potential noise impacts would be short term and limited to

daylight hours during the construction period. Sound typically attenuates at approximately 6 dBA per every doubling of the distance from the sound source. The presence of existing buildings also would help attenuate the sound level. Sound from construction would be confined solely to the Base and would be localized around each project location. The primary noise receptors would be Air Force personnel and civilians that work or live on Base near individual construction projects. Short-term noise impacts would be experienced by occupants of the dormitory area during the construction of Project 14 (dormitory for unaccompanied Airmen). On Base, residential houses are sufficiently distant (greater than or equal to 1,250 feet) from any project site for construction sound to attenuate to 60 to 70 dBA or lower. Many of the projects associated with the MSA and AMARG are in more remote locations of the Base where fewer potential noise receptors exist. None of the off-Base sensitive noise receptors (see **Table 3-12**) would be affected by project construction sound because of the distance and existing sound levels from airfield operations.

Table 3-13
Peak Sound Pressure Level of Construction Equipment from 50 Feet

Equipment	Sound Pressure Level (dBA)
Bulldozer	95
Scraper	94
Front Loader	94
Backhoe	92
Grader	91
Crane	86

Source: Reagan and Grant, 1977
dBA = A-weighted decibel

3.10.3.3 Proposed Action – Alternative 2

Potential noise impacts under Alternative 2 would be expected to be similar to Alternative 1. Alternative 2 would include fewer construction projects in the MSA but would include the same projects in the other planning districts as Alternative 1. Because noise impacts would be associated with individual projects that occur overall time, differences in noise impacts between Alternative 1 and Alternative 2 would be undiscernible.

3.10.3.4 Proposed Action – Alternative 3

Alternative 3 would involve fewer construction and demolition projects in the MSA than Alternatives 1 and 2 but would include the same construction projects in the other planning districts. The potential noise impacts associated with individual projects under Alternative 3 would be expected to be similar to Alternatives 1 and 2.

3.10.3.5 Cumulative Impacts

Because the potential noise impacts associated with the Proposed Action Alternatives would be short term (i.e., limited to the construction period) and localized at individual construction projects, noise impacts would not contribute permanently to cumulative noise impacts when considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB. No significant cumulative effects on the existing noise environment would be anticipated to occur under implementation of the Proposed Action.

3.10.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to noise levels beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would

remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.11 HAZARDOUS MATERIALS AND WASTES

3.11.1 Definition of the Resource

CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) and Toxic Substances Control Act (as implemented by 40 CFR Part 761), defines hazardous materials (HAZMAT) as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that might pose a substantial threat to human health or the environment. The Occupational Safety and Health Administration (OSHA) is responsible for the enforcement and implementation of federal laws and regulations pertaining to worker health and safety under 29 CFR Part 1910. OSHA also includes the regulation of HAZMAT in the workplace and ensures appropriate training in their handling.

The *Solid Waste Disposal Act*, as amended by RCRA, which was further amended by the *Hazardous and Solid Waste Amendments of 1984*, defines hazardous wastes as any solid, liquid, contained gaseous, or semi-solid waste, or any combination of wastes, that pose a substantial present or potential hazard to human health or the environment. In general, both HAZMAT and hazardous wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, might present substantial danger to public health and welfare or the environment when released or otherwise improperly managed.

Section 311 of the CWA, as amended by the *Oil Pollution Act* (Public Law 101-380), establishes requirements to prevent, prepare for, and respond to oil discharges at specific types of facilities, including military bases. The goal of the *Oil Pollution Act* is to prevent oil from reaching navigable waters and adjoining shorelines, and to contain discharges of oil. The Act requires facilities to develop and implement Spill Prevention Control and Countermeasure (SPCC) plans that establish specific procedures and responsibilities for responding to HAZMAT and petroleum product spills.

Under Air Force Policy Document 32-70, *Environmental Considerations in Air Force Programs and Activities*, the Air Force is committed to performing the following actions:

- cleaning up environmental damage resulting from its past activities,
- meeting all environmental standards applicable to its present operations,
- planning its future activities to minimize environmental impacts,
- responsibly managing the irreplaceable natural and cultural resources it holds in public trust, and
- eliminating pollution from its activities wherever possible.

AFI 32-7044, *Storage Tank Compliance*, implements Air Force Policy Document 32-70 and identifies compliance requirements for underground storage tanks (USTs) and aboveground storage tanks (ASTs), and associated piping, that store petroleum products and hazardous substances. Evaluation of HAZMAT and hazardous wastes focuses on USTs and ASTs as well as the storage, transport, and use of pesticides, fuels, oils, and lubricants. Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of HAZMAT and hazardous wastes can threaten the health and well-being of wildlife species, vegetation, soil systems, and water resources. In the event of HAZMAT or hazardous waste release, the extent of contamination would vary based on the type of soil, topography, weather conditions, and water resources.

AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of HAZMAT throughout the Air Force. It applies to all Air Force personnel who authorize, procure, issue, use, or dispose of HAZMAT, and to those who manage, monitor, or track any of those activities.

Through the Environmental Restoration Program (ERP) initiated in 1980, a sub-component of the Defense ERP that became law under SARA (formerly the Installation Restoration Program), 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 RCRA Corrective Action Program. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, control the migration of contaminants, minimize potential hazards to human health and the environment, and clean up contamination through a series of stages until it is decided that no further remedial action is warranted.

Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be foreclosed where a groundwater contaminant plume remains to complete remediation).

The ROI for HAZMAT and hazardous waste is Davis-Monthan AFB.

3.11.2 Existing Conditions

3.11.2.1 Hazardous Materials and Wastes

Davis-Monthan AFB is classified as a large-quantity generator. ADEQ regulates hazardous waste generated, stored, transported, or disposed of by the Base under authority granted by the USEPA. Typical hazardous wastes generated on Base include flammable solvents, contaminated fuels and lubricants, paint/coating, stripping chemicals, waste oils, blast media, waste paint-related materials, and other miscellaneous wastes.

Hazardous wastes at Davis-Monthan AFB are managed in accordance with its Hazardous Waste Management Plan (Davis-Monthan AFB, 2019a). This plan covers the management of hazardous wastes from the point the material becomes a hazardous waste to the point of ultimate disposal, as required by federal and state laws and regulations. In 2019, the Base generated approximately 45 pounds of hazardous waste, which was disposed of at permitted disposal facilities off Base.

The Davis-Monthan AFB SPCC Plan outlines the procedures to prevent, control, and/or mitigate releases of oil and other petroleum substances (Davis-Monthan AFB, 2018c). The Base made a determination under 40 CFR § 112.20l, as recorded in the "Certification of Applicability of Substantial Harm Criteria," that the Installation does not pose a risk of substantial harm. Therefore, Davis-Monthan AFB does not require a facility response plan (Davis-Monthan AFB, 2018c).

Davis-Monthan AFB has 11 ASTs with capacities greater than 10,000 gallons. These ASTs are located throughout the Installation and are used to store Jet-A, diesel oil, and used oil. The Base also manages 39 USTs. The total Jet-A storage capacity at Davis-Monthan AFB is approximately 8,800,000 gallons (Davis-Monthan AFB, 2018c). The Base receives fuel through a 6-inch commercial pipeline or by commercial tank trucks if the pipeline is inoperative.

3.11.2.2 Asbestos and Lead-Based Paint

A significant number of buildings on Davis-Monthan AFB date from the 1940s through the 1980s, during which time asbestos-containing material (ACM) were commonly used in construction. Nonfriable asbestos is not considered HAZMAT until it is removed or disturbed. The Davis-Monthan AFB Asbestos Management and Operations Plan identifies the need for asbestos management, abatement, and removal, where applicable, when funding is available, or where damage or exposure warrants the need. The Asbestos Management Plan focuses on in-place management of asbestos, meaning, where applicable, ACM can be left in place until there is a need for removal (i.e., due to conditions, renovation, demolition) (Davis-Monthan AFB, 2021d). Conversely, buildings constructed prior to 1970 are likely to contain friable asbestos in building materials. Disruption of these materials causes asbestos to become airborne, producing a risk of inhalation. The Air Force manages asbestos in accordance with AFI 32-1001, *Civil Engineer Operations*, and applicable USEPA regulations (USEPA, 2022a).

OSHA and USEPA have determined that human exposure to lead is an adverse health risk. Sources of exposure to lead are 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 §§ 2051–2090), 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 non-industrial 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.

Building surveys for ACM and LBP have been conducted on Davis-Monthan AFB (Davis-Monthan AFB 2022a, 2022b). The presence of LBP and ACM has been documented in several facilities that would be demolished, removed, or renovated under the Proposed Action (**Table 3-14**). Some of these buildings are exposed to extreme weather conditions, causing accelerated deterioration of the facilities and potentially exposing employees who work in them.

Table 3-14.
Known Presence of ACM and LBP in Buildings to be Demolished or Renovated

Project #	Building #	Action	ACM	LBP	Alternative		
					1	2	3
13	B-7507	Demolition	X		X	X	X
13	B-7513	Demolition	X		X	X	X
13	B-7514	Demolition	X		X	X	X
13	B-7613	Demolition	X		X	X	X
13	B-7708	Demolition	X		X	X	X
13	B-7713	Demolition	X		X	X	X
31	142	Demolition	X	X	X	X	X
31	188	Demolition/Renovation	X		X	X	X
31	190	Demolition		X	X	X	X
32	187	Demolition	X	X	X	X	
32	265	Demolition	X	X	X	X	
32	270	Removal	X		X	X	
32	280	Removal	X		X	X	
32	285	Removal	X		X	X	
32	290	Removal	X		X	X	
37	184	Demolition	X		X		

a Some buildings identified for demolition or removal do not have known ACM or LBP.

3.11.2.3 Radon

The US Surgeon General defines radon as an invisible, odorless, and tasteless gas, with no immediate health symptoms, which comes from the breakdown of naturally occurring uranium inside the earth. Radon that is present in soil can enter a building through small spaces and openings, accumulating in enclosed areas such as basements. USEPA and the US Surgeon General have evaluated the radon potential in the US to organize and assist building code officials in deciding whether radon-resistant features are applicable in new construction. Radon zones evaluate the average indoor radon screening level and can range from 1 (high) to 3 (low). Each zone designation reflects the average short-term radon measurement that can be expected in a building without the implementation of radon control methods.

Pima County is located within Radon Zone 2. This zone has predicted average indoor radon screening levels between 2 and 4 picocuries per liter (USEPA, 2022b). Due to the low probability of radon levels exceeding the USEPA's guidance level of 4 picocuries per liter, radon is not carried forward for analysis in this EA.

3.11.2.4 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are a group of chemical mixtures used as insulators in electrical equipment, such as transformers and fluorescent light ballasts. Chemicals classified as PCBs were widely manufactured and used in the US until they were banned in 1979. The Air Force manages PCBs in accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, as well as under USEPA regulations. The Air Force defines PCBs as any PCB-containing equipment or material, as defined in 40 CFR Part 761, with a concentration of more than 50 parts per million. Buildings constructed prior to 1979, with a dependence on previous uses, potentially contain PCBs in various machinery and wiring. No toxic surveys have identified any PCB-containing machinery or other contamination from PCBs. Should PCBs be found during construction or demolition activities, they would be managed and disposed of properly. The BMP would be to contact the Davis-Monthan AFB Hazardous Waste Manager for more guidance. Because no PCB-containing machinery has been found on the Installation, PCBs are not carried forward for analysis in this EA.

3.11.2.5 Perfluoroalkyl Substances and Aqueous Film Forming Foam

The USEPA has not yet enacted specific regulatory standards for PFAS. However, continued research shows that there are potential human health risks associated with these substances, and regulatory standards are being considered (Air Force Civil Engineer Center [AFCEC], 2023). Aqueous film forming foam (AFFF), which the Air Force began to use in the 1970s to extinguish petroleum-based fires, contains both perfluorooctanoic acid (PFOS) and perfluorooctane sulfonate (PFOA). In August of 2016, the Air Force began phasing out PFOS-based AFFF and other AFFF products and introduced newer, more environmentally friendly formulas. In August of 2017, the Air Force finished the phase-out and completed the new foam delivery (AFCEC, 2023). All Air Force investigation and mitigation work relating to PFOS and PFOA is performed in accordance with CERCLA, applicable state laws, and the USEPA's lifetime drinking water health advisory of 70 parts per trillion (AFCEC, 2023).

Davis-Monthan AFB no longer uses fire-fighting foam containing PFOA and PFOS. In 2016, the Base transitioned from the legacy formula of AFFF that contains no PFOS and only trace amounts of PFOA, and is not used in training activities. In 2019, PFOS and PFOA were detected at 935 parts per trillion and 14,400 parts per trillion at two wells located along the northern boundary of the Base. These wells are not in the vicinity of any of the proposed projects; therefore, PFOS, PFOA, and AFFF are not carried forward for analysis in this EA.

3.11.2.6 Environmental Restoration Program Sites

There are 57 ERP sites at Davis-Monthan AFB, of which 43 are closed, 8 are classified as no further response action planned, and 6 are active (**Figure 3-7**). Environmental response actions at Davis-Monthan AFB are planned and executed under the ERP, consistent with CERCLA, RCRA, and other applicable laws. Davis-Monthan AFB is not listed on the USEPA's National Priorities List.

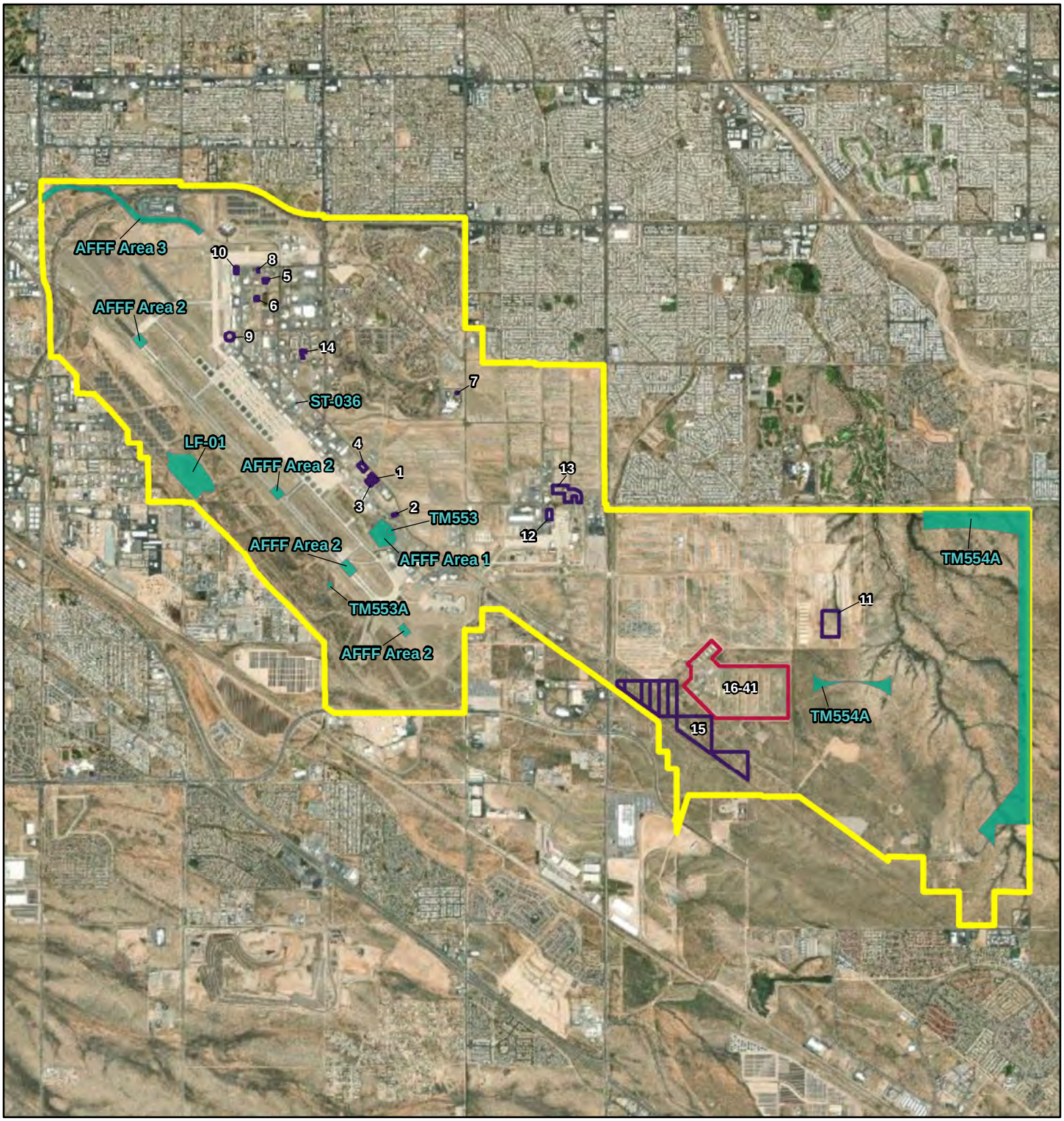


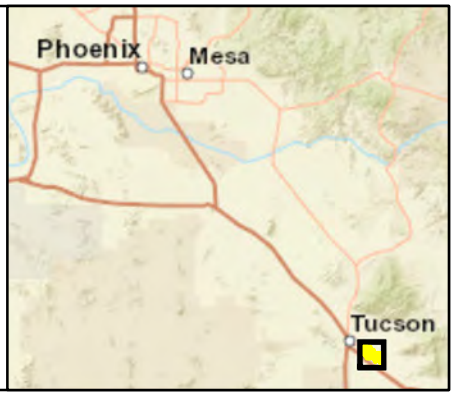
FIGURE 3-7
Environmental Restoration Program Sites

IDP Projects
ERP Sites
Installation Boundary
MSA Projects

N

0 1 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



3.11.3 Environmental Consequences

3.11.3.1 Evaluation Criteria

Impacts on HAZMAT management would be considered adverse if the federal action resulted in non-compliance with applicable federal and state regulations or increased the amounts generated or procured beyond current Davis-Monthan AFB waste management procedures and capacities. Impacts on the ERP would be considered adverse if the federal action disturbed (or created) contaminated sites resulting in negative effects on human health or the environment.

3.11.3.2 Proposed Action – Alternative 1

Hazardous Materials and Wastes

Existing Davis-Monthan AFB plans and procedures would be followed if HAZMAT were generated or found during construction, demolition, or renovation and require disposal. Any generation of hazardous waste would be short term during construction. The proposed projects in the MSA involve reconfiguration of existing operations in new facilities rather than new operations that would generate additional hazardous waste. Therefore, no impacts from the generation and disposal of hazardous waste would be expected to result from Alternative 1.

Asbestos and Lead-Based Paint

Projects 12–14, 31, 32, 37, 38 would include the demolition or renovation of existing facilities that have been found to contain ACM and/or LBP (see **Table 3-14**). Management of ACM and LBP during demolition or renovation would follow established procedures, such as those in the Base Asbestos Management Plan, AFI 32-1001, *Civil Engineer Operations*, and USEPA regulations (USEPA, 2022a). Friable asbestos building materials that could become airborne if disrupted would pose the greatest potential for adverse impacts. Friable asbestos materials are most likely present in buildings constructed prior to 1970. Buildings to be demolished without known sources of ACM and LBP would be re-inspected prior to demolition or renovation. With implementation of existing management practices for handling and disposal of ACM and LBP waste and compliance with USEPA regulations, potential adverse impacts from ACM and LBP would be expected to be short term and minor. Adverse impacts to the environment from potential release of ACM and LBP would be expected to be negligible. Minor, long-term, beneficial impacts would be anticipated to result from the demolition of older buildings because potential ACM and LBP hazards would be permanently removed from the Davis-Monthan AFB work environment.

Environmental Restoration Program Sites

Four of the 6 active ERP sites are located near the airfield and two are east of the MSA (see **Figure 3-7**). Project 2 would occur approximately 0.1 mile northeast of the former fire training area. None of the proposed projects under Alternative 1 would disturb an ERP site and would therefore not impact these sites.

3.11.3.3 Proposed Action – Alternative 2

Hazardous Materials and Wastes

Impacts from the generation and disposal of hazardous waste would be the same as Alternative 1.

Asbestos and Lead-Based Paint

Potential adverse and beneficial impacts from ACM and LBP would be the same as Alternative 1 except that Building 184, which contains known asbestos in the roof mastic (i.e., water proofing) material, would not be demolished.

Environmental Restoration Program Sites

There would be no impacts to or from ERP sites under Alternative 2.

3.11.3.4 Proposed Action – Alternative 3

Hazardous Materials and Wastes

Impacts from the generation and disposal of hazardous waste would be the same as Alternative 1.

Asbestos and Lead-Based Paint

Potential impacts, both adverse and beneficial, from ACM and LBP would be the same as Alternative 1 and 2 for those projects outside of the MSA. Within the MSA, implementation of Alternative 3 would result in the demolition and/or removal of seven fewer buildings containing ACM and/or LBP and six fewer buildings containing ACM and/or LBP as compared to Alternatives 1 and 2, respectively. Therefore, the beneficial impacts associated with the removal of potential ACM and LBP hazards from the work environment would be reduced.

Environmental Restoration Program Sites

There would be no impacts to or from ERP sites under Alternative 3.

3.11.3.5 Cumulative Impacts

When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no cumulative effects from HAZMAT or to hazardous waste streams would occur. Any impacts during the demolition or renovation process would be short term and limited to each construction site. Beneficial impacts associated with the removal of ACM and LBP from demolished or renovated buildings would cumulatively build upon other beneficial impacts from the removal of these materials associated with other past, present, and reasonably foreseeable planned actions at Davis-Monthan AFB.

3.11.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to the production of hazardous waste beyond baseline conditions. Buildings with known ACM and LBP would not be demolished and would remain in the work environment. The ERP sites would continue to be managed according to their existing status and regulations. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.12 INFRASTRUCTURE, INCLUDING TRANSPORTATION AND UTILITIES

3.12.1 Definition of the Resource

Infrastructure consists of the systems and structures that enable a population in a specified area to function. Infrastructure is wholly man-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as developed. Infrastructure components include transportation and utility systems, solid waste management, and sanitary and storm sewers. The availability of infrastructure and its capacity to support more users, including future development of an area, are generally regarded as essential to continued economic growth.

Transportation is defined as the system of roadways, highways, and transit services that provide ingress/egress from or to a particular location, as well as access to regional goods and services. Utilities

include electrical, potable water, sanitary sewage/wastewater, stormwater conveyance, and communications systems. Solid waste management primarily relates to landfill capacity for disposal of non-hazardous solid waste (e.g., construction waste) generated in an area or by a population. Stormwater infrastructure includes the man-made conveyance systems that function in tandem with natural drainages to collect and control the rate of surface runoff during and after a precipitation event. In urbanized areas, stormwater that is not discharged to a waterbody is conveyed to sanitary sewers, systems that collect, move, and treat liquid waste prior to its discharge back into the environment.

The ROI for infrastructure, transportation, and utilities is Davis-Monthan AFB and the external infrastructure components and services relied upon to operate the Base.

3.12.2 Existing Conditions

3.12.2.1 Transportation

Davis-Monthan AFB is located in the southeast of Tucson, Arizona, within Pima County. The nearest highways to the Installation are Interstate 10 (I-10) and I-19. I-10 runs north to south to the west of the Installation and connects traffic to Phoenix, Arizona, while I-19 runs north to south to the southwest of the Base and connects traffic to the US/Mexico border.

Access to the Base is via one of four gates. The main gate is on Craycroft Road with additional gate access on Swan, Wilmot, and Irvington roads. Craycroft Road extends generally north to south through the Main Base and provides the main entry point to the Base. Wilmot Road provides access to the AMARG and the Base hospital. Picacho Street extends east to west and connects with Yuma Street, which runs parallel to the flight line, and Wilmot Road. The proposed RQS facilities and the MSA are located off of Yuma Street, which is a primary transport route for delivering munitions to the HAMS yard or the flightline. Munition transports can only travel 10 to 15 miles per hour, which creates severe safety hazards with personally owned vehicles traveling the same street at much greater speeds (Davis-Monthan AFB, 2022).

The primary mode of transportation on the Base is private automobile. High-use areas such as the Base commissary currently experience parking problems during peak hours. There is no mass transit provided on the Base, but there are nearby bus stops outside of the Base boundaries. The road system on Base is considered sufficient for current and future needs, with only minor maintenance repair expected (Davis-Monthan AFB, 2008). The internal roads in the MSA have very low traffic volumes and are either paved or unpaved. However, the roads are used for hauling munitions and have degraded in many locations. Officially designated pedestrian and bike paths on Base serve the dormitory area. Pedestrian paths connecting facilities in the MSA are unpaved and become muddy and impassable after monsoon thunderstorms.

3.12.2.2 Utilities

Electricity

Tucson Electric Power provides electricity to Davis-Monthan AFB via two separate overhead 46-kilovolt feeder lines. These lines extend from the northeast side of the Installation along Wilmot Road until they enter the sub-station (Davis-Monthan AFB, 2016a). The Base has one 16.4-megawatt, one 6.5-megawatt solar array, and one 25-megavolt ampere (MVA) transformer that distribute power to the Base. The current demand on the Installation's electrical system is approximately 16 MVA of the available 25 MVA. The electrical system capacity is adequate for current and future demand (Davis-Monthan AFB, 2016a).

Natural Gas

Southwest Gas Company provides natural gas via a commercial line that connects to the Base at the northwest and southeast corners of the Installation (Davis-Monthan AFB, 2016a). The system is in excellent condition and the demand on the system is approximately 0.36 million cubic feet per day of the available 3.4 million cubic feet per day (Davis-Monthan AFB, 2016a).

Potable Water

Potable water at Davis-Monthan AFB comes from the Tucson Basin Aquifer. Eight active on-Base wells pump water to a mix of elevated and underground tanks with a capacity of 2.53 million gallons. An additional 10 on-Base wells are available if needed for production. The Installation produces, treats, and distributes its own water for consumption and fire protection. Davis-Monthan AFB can supply a maximum of approximately 4.03 million gallons per day (MGD) to meet peak demands. The current estimated peak demand is 1.6 MGD and the average demand is approximately 1.18 MGD.

The Base has decreased its demand for water by over 25 percent since 2007 because of investment in xeriscaping and water metering. The Installation uses gray water from the Pima County Publicly Owned Treatment Works to irrigate areas where needed to reduce drawdown from the aquifer (Davis-Monthan AFB, 2021b). The water distribution system on the Installation was constructed in the 1950s; however, the distribution system and water pressure are in adequate condition. The active wells are considered to be in good condition and the water system is considered adequate to meet current and future needs (Davis-Monthan AFB, 2016a).

Sanitary Sewage/Wastewater

The sewer system at Davis-Monthan AFB extends east to west through two 15-inch-diameter pipes and connects the northwest corner of the Installation to the Pima County sanitary sewer system. The majority of the sanitary sewer system on Base functions by gravity flow, but the Installation does have five lift stations. The Installation discharges an average of 0.48 MGD of wastewater to Pima County with peak wastewater discharge at 0.72 MGD. The maximum capacity of the discharge connection from the Base to Pima County is 3 MGD. The wastewater system is in adequate condition and has capacity for current and future needs (Davis-Monthan AFB, 2016a).

Solid Waste Management

Non-hazardous solid waste generated at Davis-Monthan AFB is collected by a private contractor for disposal off Base at the City of Tucson Los Reales Landfill, which has adequate capacity to meet current and future needs (City of Tucson, 2022).

3.12.3 Environmental Consequences

3.12.3.1 Evaluation Criteria

The Air Force defines a significant effect on or from infrastructure, transportation, and utilities within the ROI as one or more of the following:

- measurable change or service reduction within the regional transportation network;
- prolonged or repeated interruption of public transportation services regionally;
- prolonged or repeated service disruptions to utility end users; and
- substantial increase in utility demand relative to existing and planned regional uses.

3.12.3.2 Proposed Action – Alternative 1

Transportation

The on-Base transportation network is sufficient to handle the existing traffic volume. The road system has a good foundation and requires only minor maintenance repair on the top surface (Davis-Monthan AFB, 2016a). Upgrades to the transportation system under Alternative 1 would occur primarily through the construction of parking areas as part of new facilities (see **Table 2-2**). Projects 17 and 36 would create upgrades to ECPs and improve security at the MSA, while Project 26 would improve pedestrian connectivity throughout the MSA. Project 18 would repair existing paved roads in the MSA operations area and replace the road surfaces and entrances to the munition storage igloos. Alternative 1 would improve parking and

pedestrian access, the ECP, and roads in the MSA. Increased truck traffic and construction workers commuting to the Installation during periods of construction would be expected to cause temporary increases in congestion on local roads. At project sites, temporary lane closures would be expected during construction activities.

Electricity

Project 19 would provide electrical grounding equipment and interior lighting to igloos to improve safety of operations in the MSA. This project would provide a beneficial impact to the MSA by improving safety and security. Short-term, negligible, adverse impacts on the electrical distribution system through service disruption may occur during the construction of new facilities and demolition of older buildings. Under the Proposed Action, the operation of newly constructed buildings would have the potential to increase electrical demand; however, any increase in electrical usage would be partially offset through demolition of older, less energy-efficient buildings and new, energy-efficient construction consistent with EO 13693, *Planning for Federal Sustainability in the Next Decade*. Net changes in long-term demand would be anticipated to be minimal and within the available capacity of the electrical system.

Natural Gas

There would be no expected impacts to natural gas utilities due to the system's excellent condition and capacity to meet current and future demands.

Potable Water

Short-term, negligible, adverse impacts on the potable water supply system may occur during construction when existing water lines are connected to new buildings. Long-term, adverse impacts would not be expected to occur as changes in demand would be minimal, and the potable water supply system has the capacity to meet new demands.

Sanitary Sewage/Wastewater

The connection of new buildings and removal of older buildings through demolition would result in the beneficial impact of adding new sewer infrastructure and removal of older sewer lines. In the long term, the proposed projects may increase Installation discharges as the new facilities allow mission growth and the addition of staff at Davis-Monthan AFB. However, the current system has the capacity required to meet new demands with current peak discharges being less than one-third of discharge capacity.

Solid Waste Management

Short-term, minor, adverse impacts on solid waste management may occur with construction and demolition projects under the Proposed Action. The USEPA guidance on estimating solid waste from construction and demolition projects indicates that approximately 4.39 pounds (lbs) of debris would be generated for each square foot of construction activity, and approximately 158 lbs/sf would be generated from the demolition of existing facilities; this formula can be applied to the construction of both buildings and impervious surfaces (USEPA, 2009). Using this formula, solid waste generated from all construction and demolition projects under Alternative 1 is estimated to be 2,426 tons and 9,931 tons, respectively. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of solid waste generated under the Proposed Action, and all solid waste generated would be collected and transported off Base for disposal or recycling in accordance with AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*. The City of Tucson landfill used by the Installation has sufficient capacity to accommodate additional waste generated from Alternative 1.

3.12.3.3 Proposed Action – Alternative 2

Transportation

Beneficial impacts to parking and improvements to roads in the MSA under Alternative 2 would be the same as Alternative 1 except for Projects 36 and 38, which would not be implemented under Alternative 2. Therefore, beneficial impacts from the improvement of the ECP to the MSA under Project 36 would not be

realized. There would be 13,239 ft^2 less of parking space constructed on Base than Alternative 1, as Project 38 in the MSA would not be implemented.

Electricity

Impacts to electric utility services would be expected to be the same as Alternative 1. Net changes in long-term demand would be anticipated to be minimal and within the capacity of the electrical service on Base.

Natural Gas

There would be no expected impacts to natural gas utilities due to the system's excellent condition and capacity to meet current and future demands.

Potable Water

Alternative 2 would have the same short-term, negligible impacts to the potable water supply as Alternative 1 and changes in demand would be minimal. The potable water supply system has the capacity required to meet new demands.

Sanitary Sewage/Wastewater

The potential impacts to the sanitary/wastewater system under Alternative 2 would be the same as Alternative 1. There would be no additional projects specific to the sanitary sewer system under Alternative 2.

Solid Waste Management

Under Alternative 2, solid waste generated from all construction and demolition projects under the Proposed Action is estimated at 2,330 tons and 10,094 tons, respectively. The City of Tucson landfill has adequate capacity to meet current and future mission needs. The proposed projects under Alternative 2 would not have long-term, adverse impacts to solid waste management.

3.12.3.4 Proposed Action – Alternative 3

Transportation

Beneficial impacts to parking and road improvements in the MSA under Alternative 3 would be the same as Alternatives 1 and 2. Project 36, improvements to the MSA ECP, and Project 38, which would construct additional parking, would not occur under Alternative 3, similar to Alternative 2.

Electricity

Impacts to electric utility services would be expected to the same as Alternative 1. Net changes in long-term demand would be anticipated to be minimal and within the capacity of the electrical service on Base.

Natural Gas

There would be no expected impacts to natural gas utilities due to the system's excellent condition and capacity to meet current and future demands.

Potable Water

Alternative 3 would have the same short-term, negligible impacts to the potable water supply as Alternative 1 and changes in demand would be minimal. The potable water supply system has the capacity required to meet new demands.

Sanitary Sewage/Wastewater

The potential impacts to the sanitary/wastewater system under Alternative 3 would be the same as Alternative 1. There would be no additional projects under Alternative 3 specific to the sanitary sewer system.

Solid Waste Management

Under Alternative 3, solid waste generated from all construction and demolition projects under the Proposed Action is estimated to be 2,193 tons and 6,931 tons, respectively. The City of Tucson landfill has adequate capacity to meet current and future mission needs. The proposed projects under Alternative 3 would not have long-term, adverse impacts to solid waste management.

3.12.3.5 Cumulative Impacts

The minimal increase in demand for utilities (i.e., electricity, natural gas, sanitary waste discharge, and solid waste disposal) would have negligible cumulative impacts with the other past, present, and reasonably foreseeable environmental planned actions at Davis-Monthan AFB that may create similar increases in utility demand. Beneficial impacts associated with improvements to the ECPs and pedestrian paths would cumulatively build upon other beneficial impacts associated with other past, present, and reasonably foreseeable planned actions at Davis-Monthan AFB that have the potential to improve connectivity and enhance quality of life.

3.12.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur. Issues with parking space, poor pedestrian access, and outdated pavement in the MSA would not be addressed. There would be no changes to the utility infrastructure beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.13 SAFETY AND OCCUPATIONAL HEALTH

3.13.1 Definition of the Resource

This section discusses safety and occupational health concerns associated with ground and explosives activities. Ground safety 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 (CZ) and Accident Potential Zones (APZs) around the airfield restrict the public's exposure to areas where there is a higher accident potential. Ground safety also includes construction and demolition activities for removal for older facilities and construction of new facilities. Explosives safety relates to the management and safe use of ordnance and munitions.

The ROI for safety and occupational health includes Davis-Monthan AFB and areas immediately adjacent to the Base where ground and explosives safety concerns may occur.

3.13.2 Existing Conditions

3.13.2.1 Ground Safety

Ground safety includes ground and industrial operations and motor vehicle use. Ground mishaps can occur from the use of equipment or materials and from construction, demolition, and maintenance functions.

Ongoing Air Force safety programs covering industrial activities, operation of motor vehicles and other equipment, and everyday operations are continuously refined as new activities and new information becomes available. All Aircrew receive regular safety training to keep the chances of mishaps as low as possible. The Davis-Monthan AFB Contractor's Environmental Guide contains information on safety issues that may be encountered during construction, renovation, demolition, and maintenance projects (Davis-Monthan AFB, 2019b).

To ensure public safety regarding flight operations, the Air Force has established areas of restricted development. These areas are within the APZ for aircraft and consist of the CZ, APZ I, and APZ II. The Proposed Action Alternatives would occur entirely outside of the CZ and APZs; therefore, ground safety with respect to flight operations is not carried forward for analysis in this EA.

3.13.2.2 Explosives Safety

Aircraft and weapon munitions include ammunition, propellants (solid and liquid), pyrotechnics, warheads, explosives devices, and chemical agent substances and associated components that present real or potential hazards to life, property, or the environment. Defense Explosive Safety Regulation 6055.09_Air Force Manual 91-201 (DESR6055.09_AFMAN) 91-201, *Explosives Safety Standards*, defines the guidance and procedures dealing with munition storage and handling.

Facilities/activities with ESQD arcs at Davis-Monthan AFB include the MSA, the Explosive Ordnance Demolition area, the alert hangar and apron, combat aircraft parking areas, hot cargo pad, aircraft explosives cargo area, the arm/de-arm aprons on the airfield, the AMARG's Explosive Ordnance Disposal area, and ammunition shipping/inspection/storage facilities. The distances for ESQD arcs are determined by the type and quantity of explosive material to be stored. Within these ESQD arcs, activities and development are either restricted or prohibited altogether to ensure personnel safety and to minimize potential for damage to other facilities in the event of an accident.

All munitions are stored and maintained in the MSA within facilities sited in compliance with the allowable types and amounts of explosives. All storage and handling of munitions are carried out by trained and qualified Munitions Flight personnel and in accordance with Air Force-approved technical orders. The ESQD arcs for the MSA overlap with southern parts of the AMARG storage area. Work in this area is performed on a limited basis under a Memorandum of Agreement by AMARG (Davis-Monthan AFB, 2022). The ESQD arc for the minimum distance required to protect public traffic routes extends beyond Yuma Street on the southwest side of the MSA.

3.13.3 Environmental Consequences

Under 40 CFR § 989.27, the EIAP for an action must assess direct and indirect impacts of the proposed action and alternatives on the safety and health of Air Force employees and others at a work site. Air Force Policy Directive 91-2, *Safety Programs,* is implemented by AFI 91-202, *The US Air Force Mishap Prevention Program*, which manages risks to protect Air Force personnel from occupational deaths, injuries, or illnesses and minimize loss of Air Force resources. These standards apply to all Air Force activities; adherence to the Air Force's Mishap Prevention Program ensures Air Force workplaces meet federal safety and health requirements.

3.13.3.1 Evaluation Criteria

Safety-related impacts from a proposed activity 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 Alternatives resulted in Air Force OSHA 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 results in the following:

- 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 the Base is not prepared or does not have adequate management and response plans in place.

3.13.3.2 Proposed Action – Alternative 1

Ground Safety

Potential negligible, temporary, adverse impacts to ground safety would be expected under Alternative 1 during construction and demolition activities. Construction of new facilities and demolition or renovation of existing facilities would expose Air Force and contractor personnel to safety hazards from heavy equipment operation, HAZMAT, falls, construction equipment, and potentially noisy and confined environments. The safety hazards would be typical of industrial construction projects but would be short term during the construction or demolition of individual buildings. To minimize health and safety risks, contractors would be required to maintain site-specific health and safety programs that follow applicable regulations. Davis-Monthan AFB personnel and contractors would review these programs prior to beginning work to ensure appropriate actions are followed to reduce potential health and safety risks.

Alternative 1 would provide long-term, beneficial impacts to ground safety. Many facilities are currently antiquated, poorly configured, insufficient in space, lacking proper cooling, and contain ACM and/or LBP. Projects 1–13 would alleviate overcrowding of facilities, protect personnel and equipment from intense desert heat by providing climate-controlled environments, and remove antiquated buildings. Projects 16–42 would address a number of safety-related deficiencies in the MSA. Pedestrian access through the MSA would be improved, particularly during the summer monsoon season when pedestrian walkways are prone to flooding, under implementation of Project 26. Lighting for night operations would be improved throughout the MSA under implementation of Projects 19, 20, and 25. Installation of shade structures under Projects 24 and 27 would protect personnel from the intense desert sun and new operation buildings would have comfort cooling. Projects 29 and 36 would improve the security and safety at the MSA ECP by moving administrative functions outside of the MSA security fence and improving the gate access entry and lighting.

Explosives Safety

Under the Proposed Action, several new facilities would be constructed to support Air Force requirements for explosives safety. The current MSA facilities are more than 60 years old and do not meet requirements for personnel safety. Under Alternative 1, the MSA would undergo extensive renovations and new construction to provide better storage solutions for explosives. Specifically, Projects 21–24, 27, 28, 30, 32–35, 39, and 40 would construct munitions and explosives operation buildings, storage pads, and covered magazines while updating existing facilities to include improved shade structures and better access (i.e., wider doors) to store larger, modern munitions in existing ECMs. Safety improvements include separating munition functions into separate climate-controlled facilities to allow concurrent operations for different munition operations. Long-term beneficial impacts to explosives safety would occur under Alternative 1.

3.13.3.3 Proposed Action – Alternative 2

Ground Safety

Projects 1–35 under Alternative 2 would achieve the same beneficial safety impacts as Alternative 1. The projects would alleviate overcrowding of facilities, protect personnel and equipment from intense desert heat by providing climate-controlled environments, and remove antiquated buildings, resulting in long-term, beneficial impacts to ground safety. Negligible, temporary, adverse impacts to human health and safety during construction, demolition, and renovation activities would have the potential to occur under Alternative 2.

Explosives Safety

Projects 21–24, 27, 28, 30, and 32–35 under Alternative 2 would have the same beneficial impacts to explosives safety as Alternative 1. Project 41 would replace Project 39 under Alternative 2; the MSA loading dock would be constructed outside the MSA security fence and would be able to handle 75 percent less HD 1.1 material (5,000 vs. 20,000 lbs) compared to the loading dock under Alternative 1. Most significantly for safety, the 8-foot-wide doors on the existing ECMs would not be widened under Alternative 2. Currently,

many modern munitions narrowly fit through the doors and must be carefully maneuvered, increasing risk to Air Force personnel.

3.13.3.4 Proposed Action – Alternative 3

Ground Safety

Projects 1–31 under Alternative 3 would have the same beneficial impacts to ground safety as Alternative 1 with potential negligible, temporary, adverse impacts to human health and safety during construction, demolition, and renovation activities.

Explosives Safety

Projects 21–24, 27, 28, and 30 under Alternative 3 would have the same beneficial safety impacts as Alternatives 1 and 2. Under Alternative 3 a new PGM Operations Building would not be constructed and these operations would remain in an existing building. As with Alternative 2, Alternative 3 would not include widening the doors on the existing ECMs, and safety concerns with maneuvering large, modern munitions through narrow doors would remain. Additional multi-bay AGMs for storing munitions would not be constructed.

3.13.3.5 Cumulative Impacts

When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, the ESQD arcs would remain as currently defined and therefore, would not have adverse cumulative impacts on explosive safety at Davis-Monthan AFB or the surrounding area. Beneficial impacts associated with improvement of explosives safety under projects implemented under the Proposed Action Alternatives would build upon those of other projects undertaken to improve explosives safety within the MSA. Potential health and safety hazards associated with construction and demolition of buildings would be short term and limited to individual projects and would not be cumulative when considered in conjunction with other past, present, and reasonably foreseeable planned actions at Davis-Monthan AFB. Beneficial cumulative effects to ground safety would be anticipated to occur with implementation of the Proposed Action Alternatives, as improved pedestrian safety, lighting, security, and climate control would build upon similar effects that would occur from other past, present, and reasonably foreseeable planned actions at Davis-Monthan AFB.

3.13.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to ground or explosives safety beyond baseline conditions. Many of the facilities more than 60 years old and would continue to pose unsafe working conditions for personnel. Under the No Action Alternative, improvements to the MSA's operations and storage capabilities would not occur, resulting in a lack of adequate storage capacity and climate-controlled facilities. Effects of Arizona's hot desert climate on personnel would not be addressed through adequate comfort cooling and shade. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.14 SOCIOECONOMICS

3.14.1 Definition of the Resource

Socioeconomics is the relationship between economics and social elements, such as population levels and economic activity. There are several factors that can be used as indicators of economic conditions for a geographic area: demographics, median household income, percentage of families living below the poverty level, employment, and housing data. Data on employment identify gross numbers of employees,

employment by industry or trade, and unemployment trends. Data on industrial, commercial, and other sectors of the economy provide baseline information about the economic health of a region. Socioeconomic data are typically presented at county, state, and national levels to characterize baseline socioeconomic conditions in the context of regional, state, and national trends.

The ROI for socioeconomics is Davis-Monthan AFB, the city of Tucson, and Pima County.

3.14.2 Existing Conditions

3.14.2.1 Population

In 2021, the US saw total population growth of approximately 7.5 percent since 2011, a smaller percentage of total growth than the state of Arizona (11.7 percent), but a larger percentage than both Pima County (6.2 percent) and the city of Tucson (3.3 percent). Out of these four geographies, Arizona experienced the highest average annual rate of growth at 1.2 percent (**Table 3-15**). Of Arizona's total population of approximately 7,079,203 people, approximately 14.6 percent reside in Pima County, and 7.6 percent reside in Tucson (United States Census Bureau [USCB], 2023c).

There are nearly 14,000 active-duty military, dependents, Reserve/ANG, civilian, and contract employees associated with Davis-Monthan AFB (**Table 3-16**). Approximately 48.4 percent of active-duty military and their dependents live on Base (Davis-Monthan AFB, 2016b).

Table 3-15.
Populations in the ROI, Arizona, and the United States (2011–2021)

Geographic Area	2011	2021	Average Annual Rate of Growth 2011–2021 (percent)	Total Growth 2011–2021 (percent)
United States	306,603,772	329,725,481	0.8	7.5
Arizona	6,337,373	7,079,203	1.2	11.7
Pima County	974,181	1,035,063	0.6	6.2
City of Tucson	520,981	538,167	0.3	3.3

Source: USCB 2023b, 2023c.
ROI = Region of Influence

Table 3-16.
Personnel at Davis-Monthan AFB in 2016

Personnel	Living On Base	Living Off Base	Totals
Active-duty military	2870	2873	5743
Military dependents	1700	2000	3700
Reserve/Air National Guard	0	1804	1804
Civilian and contract employees	0	2688	2688
Totals	**4,570**	**9,365**	**13,935**

Source: Davis-Monthan AFB, 2016b

3.14.2.2 Employment

The annual average labor force in 2022 in Pima County was 489,775 persons, and the average unemployment rate was 3.8 percent (18,598 unemployed). The unemployment rate for Arizona was the same as that of Pima County. Both rates were slightly higher than the 3.6-percent national average unemployment rate (US Bureau of Labor Statistics, 2023a, 2023b).

Employment in Pima County is dominated by the Government and Government Enterprises sector, followed closely by the Health Care and Social Assistance sector. The Government and Government Enterprises sector accounts for 16.4 percent of employment in Pima County, 11 percent of employment in the state of Arizona, and 12 percent of employment in the US, while the Health Care and Social Assistance sector

accounts for 13.1 percent, 11.3 percent, 11.4 percent of employment in Pima County, Arizona, and the US, respectively (US Bureau of Economic Analysis, 2023a, 2023b, 2023c).

The single largest employer in Pima County in 2021 was the University of Arizona, employing approximately 13,930 people. The second largest employer was the Raytheon Company, a US defense contractor that manufactures weapons and electronics, employing approximately 13,030 people. The Air Force ranked third, employing approximately 12,360 people. The Air Force was also the largest employer within the Government and Government Enterprises sector, while Banner University Medical Center, Tucson Campus, was the largest employer in the Health Care and Social Assistance sector, employing approximately 5,380 persons (Maricopa Association of Governments, 2021).

3.14.2.3 Housing

In 2021, approximately 15.3 percent of Arizona's total housing units were located in Pima County, and approximately 7.9 percent were in the city Tucson (**Table 3-17**). The homeowner vacancy rate in the United States (1.2 percent) was the same as that of Tucson, and the homeowner vacancy rate in Arizona (1.3 percent) was the same as that of Pima County.

The rental vacancy rate in the United States (5.7 percent) was the same as that of Pima County, while the rental vacancy rates in Arizona and Tucson were 5.0 percent and 5.8 percent, respectively. The percentage of homes that were owner-occupied in the US was lower than that of Arizona, but higher than the percentages in both Pima County and Tucson. The percentage of homes that were renter-occupied in the US was higher than that of Arizona, but lower than the percentages in both Pima County and Tucson (USCB, 2023). The median value of homes in the US was $244,900, lower than the median value in Arizona ($265,600), but higher than the median values in both Pima County ($217,700) and Tucson ($177,800) (USCB, 2023a).

Table 3-17.
Housing

Geographic Area	Total Units	Total Vacant Units	Homeowner Vacancy Rate[a] (percent)	Rental Vacancy Rate[b] (percent)	Owner-Occupied (percent)	Renter-Occupied (percent)	Median Value[c]
United States	139,647,020	1,563,6028	1.2	5.7	64.6	35.4	$244,900
Arizona	3,056,890	3,733,33	1.3	5.0	65.8	34.2	$265,600
Pima County	467,191	49,708	1.3	5.7	64.2	35.8	$217,700
City of Tucson	242,525	23,735	1.2	5.8	51.3	48.7	$177,800

Source: USCB, 2023a
Notes:
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.

3.14.2.4 Schools

There are 11 major public-school districts in the Tucson area, the largest of which is the Tucson Unified School District. There are two schools on Davis-Monthan AFB: the Borman Elementary School and the Sonoran Science Academy, a private charter school (tuition-free) that offers classes for grades 6–12. Children associated with Davis-Monthan AFB also have access to Roberts Naylor K–8 school and Palo Verde High school, two school district neighborhood schools. However, they are free to attend any of the public schools in and around Tucson, as Arizona state law allows children to be enrolled in public schools outside of their local area based on available classroom space. There are more than 40 private schools in and around Tucson, as well as a variety of charter schools, magnet schools, alternative and specialized education centers, and virtual learning opportunities. Institutions of higher education in the region include the University of Arizona, the Catholic University of America–Tucson, and Pima Community College, with

Pima Community College offering classes on the Installation. Higher education offered on Base also includes Park University and Embry-Riddle Aeronautical University (DoD, 2023).

3.14.3 Environmental Consequences

3.14.3.1 Evaluation Criteria

Consequences to socioeconomic resources were assessed in terms of the potential impacts on the local economy from implementation of the Proposed Action. The level of impact from expenditures associated with the Proposed Action was assessed in terms of direct impacts on the local economy and related 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 resulted in substantial shifts in population trends or in adverse effects on regional spending and earning patterns, such effects might be considered adverse.

3.14.3.2 Proposed Action – Alternative 1

Population

Under Alternative 1, no additional military personnel or their dependents would be relocated to Davis-Monthan AFB or the surrounding areas. Construction activities associated with this alternative would require the temporary addition of construction personnel; however, no new regional in-migration would occur because there are enough existing construction personnel in Pima County to support those positions. There would be no impacts to population under Alternative 1.

Employment

Local construction personnel would be needed to complete construction actions associated with Alternative 1, which would create a temporary, short-term, beneficial impact on regional employment. No other employment positions would be added or removed under Alternative 1.

Housing

Under Alternative 1, no military personnel or their dependents would be relocated to Davis-Monthan AFB and no projects under this alternative would require military personnel or their dependents to move off Base. Project 14 would improve the existing available housing for unaccompanied Aircrew and would have a beneficial impact on the current housing shortage on the Installation.

Schools

No additional military personnel or their dependents would be relocated to Davis-Monthan AFB or the surrounding areas under Alternative 1. There would be no impacts to educational resources under Alternative 1.

3.14.3.3 Proposed Action – Alternative 2

Population

As with Alternative 1, there would be no impacts to population under Alternative 2.

Employment

Impacts to employment under Alternative 2 would be the same as Alternative 1, with the exception that Alternative 2 includes fewer projects, likely requiring fewer construction personnel.

Housing

As with Alternative 1, the construction of Project 14 would have beneficial impacts on the availability of housing for unaccompanied Airmen.

Schools

As with Alternative 1, there would be no impacts to educational resources under Alternative 2.

3.14.3.4 Proposed Action – Alternative 3

Population

As with Alternatives 1 and 2, there would be no impacts to population under Alternative 3.

Employment

Impacts to employment under Alternative 3 would be the same as Alternative 1, with the exception that Alternative 3 includes fewer projects, likely requiring fewer construction personnel.

Housing

As with Alternatives 1 and 2, the construction of Project 14 would have beneficial impacts on the availability of housing for unaccompanied Airmen.

Schools

As with Alternatives 1 and 2, there would be no impacts to educational resources under Alternative 3.

3.14.3.5 Cumulative Impacts

The Proposed Action Alternatives would not have significant cumulative effects on socioeconomic resources with the exception of housing when considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB. Any potential beneficial impact on employment would be short term and limited to the construction period and would not have cumulative effects. The construction of Project 14 (new dormitory) would have beneficial cumulative impacts on housing because it would provide potential housing in support of other past, present, and reasonably foreseeable planned actions at Davis-Monthan AFB.

3.14.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to socioeconomic conditions beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

3.15 Environmental Justice and Protection of Children

3.15.1 Definition of the Resource

Federal agencies are directed by EOs to address disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to the legacy of racism or other structural or systemic barriers, in communities with environmental justice concerns (CEJCs) and assess environmental health and safety risks to children.

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, pertains to environmental justice issues and relates to various socioeconomic groups and

disproportionate impacts that could be imposed on them. This EO requires that federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. EO 12898 was enacted to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, states that each federal agency "(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks."

EO 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, signed 21 April 2023, builds on and supplements the foundational efforts of EO 12898. It broadens the definition of environmental justice to include income, race, color, national origin, tribal affiliation, or disability. EO 14096 was enacted to strengthen the Federal Government's commitment to deliver environmental justice to all communities in the US via an ambitious approach that utilizes scientific research, high-quality data, and meaningful federal engagement with CEJCs, and that makes use of the tools available to the Federal Government, including enforcement of civil rights and environmental laws.

For the purposes of this analysis, populations that could constitute a CEJC, referred to in this analysis as "populations of concern" are defined as Alaska Natives and American Indians, Asians, Blacks or African-Americans, Native Hawaiians, and Pacific Islanders or persons of Hispanic origin (of any race); low-income populations include persons living below the poverty threshold as determined by the USCB; and youth populations are children under the age of 18 years.

The ROI for environmental justice and the protection of children is Davis-Monthan AFB, the city of Tucson, and Pima County.

3.15.2 Existing Conditions

Approximately 14.6 percent and 7.6 percent of Arizona's population reside in Pima County and Tucson respectively (see **Section 3.14.2.1**). Nationally, approximately 31.8 percent of the population identified its race as one that is a population of concern (**Table 3-18**). Both Arizona (29.6 percent) and Pima County (30.4 percent) have a slightly lower percentage of minorities than the national average, while the city of Tucson (35.2 percent) has a slightly higher percentage (USCB, 2023c). Approximately 18.4 percent of the population in the US identified as Hispanic or Latino in 2021, compared to 31.9 percent in Arizona, 38 percent in Pima County, and 44.6 percent in Tucson.

The percentage of the population living below the poverty level was higher in Pima County (14.6 percent) and Tucson (19 percent) than at either the state or national levels (12.8 percent for both). The percentage of children in each geographic region in 2021 was approximately the same, ranging from 20.7 in the city of Tucson to 22.8 at the state level (USCB 2023c, 2023d) (**Table 3-18**).

Table 3-18.
Total Population and Populations of Concern

Area	Total Population	Percent Minority	Percent Hispanic or Latino[a]	Percent Below Poverty	Percent Youth[b]
United States	329,725,481	31.8	18.4	12.8	22.5
Arizona	7,079,203	29.6	31.9	12.8	22.8
Pima County	1,035,063	30.4	38	14.6	20.8
City of Tucson	538,167	35.2	44.6	19	20.7

Source: USCB 2023c, 2023d
Notes:
a Hispanic and Latino denote a place of origin.
b The US Census Bureau categorizes all people under the age of 18 as "youth"; this EA uses "children" for the same group.

3.15.3 Environmental Consequences

3.15.3.1 Evaluation Criteria

CEJCs and youth populations that could be disproportionately impacted by the Proposed Action are addressed for the ROI and are compared with those populations in Arizona and the US. For further discussion of the specific Native American tribes associated with the ROI, see **Section 3.9** of this EA.

3.15.3.2 Proposed Action – Alternative 1

All proposed projects under Alternative 1 would take place within the boundaries of Davis-Monthan AFB. Additionally, this alternative would not involve relocation of any military personnel or their dependents to the Base or surrounding areas, and no increased demand for potentially limited community resources would occur. Disproportionate and adverse impacts to CEJCs or youth populations would not occur under Alternative 1.

3.15.3.3 Proposed Action – Alternative 2

Under Alternative 2, all proposed projects would take place within the boundaries of Davis-Monthan AFB. There would be no disproportionate and adverse impacts to CEJCs or youth populations under Alternative 2.

3.15.3.4 Proposed Action – Alternative 3

Under Alternative 3, all proposed projects would take place within the boundaries of Davis-Monthan AFB. There would be no disproportionate and adverse impacts to CEJCs, or youth populations under Alternative 3.

3.15.3.5 Cumulative Effects

Because the Proposed Action Alternatives would not have any impacts on CEJCs or youth populations, when considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects to CEJCs or youth populations would be anticipated to occur with implementation of the Proposed Action.

3.15.3.6 No Action Alternative

Under the No Action Alternative, the proposed projects would not occur, and there would be no changes to CEJC or youth populations beyond baseline conditions. Space for equipment and operations of the Guardian Angel squadrons would remain inadequate, facilities in the Flightline and AMARG districts would remain inefficient in meeting current and future needs, space to accommodate unaccompanied enlisted personnel would remain insufficient, and MSA facilities would remain outdated and inefficient to meet current and future mission needs.

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APPENDIX A. INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

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Kathryn Leonard
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DEPARTMENT OF THE AIR FORCE
355TH WING CIVIL ENGINEER SQUADRON (ACC)
DAVIS-MONTHAN AIR FORCE BASE ARIZONA

355 CES/CEI
3775 South Fifth Street
Davis-Monthan AFB, AZ 85707-3012

Regina Romero
Mayor
City of Tucson
201 N. Stone Ave, Suite 6
Tucson AZ 87701

Dear Ms. Romero

The United States Air Force (Air Force) at Davis-Monthan Air Force Base (AFB), Arizona, is preparing an Environmental Assessment (EA) in accordance with the *National Environmental Policy Act* to evaluate the potential impacts of implementing multiple installation development projects on Davis-Monthan AFB. These installation development projects support the Base's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. To consider possible environmental concerns, the Air Force is engaging early with all potentially affected resource agencies as it formulates the undertaking. Accordingly, the Air Force seeks consultation with your office.

The Air Force proposes several projects that would include construction of new facilities; demolition of older, substandard buildings; and acquisition of private land parcels within Davis-Monthan AFB. The Proposed Action includes construction of facilities in the Rescue Group Campus, Flightline District, Main Base District, Aerospace Maintenance and Regeneration Group (AMARG) District, and the Munitions and Range District. Within the AMARG District, 15 facilities also would be demolished and 6 facilities would undergo asbestos abatement.

In addition, the Air Force identified several alternatives for the development of the Munitions Storage Area (MSA) to address facility and operational deficiencies, safety concerns, and quality-of-life issues. The number of new facilities to be constructed or demolished in the MSA would depend on the Action Alternative selected. Further, the Air Force is proposing to acquire several private land parcels within Davis-Monthan AFB through a purchase agreement. All projects would occur within the boundaries of the Davis-Monthan AFB and would not directly involve aircraft operation or airspace management. A comprehensive summary of the Proposed Action and Alternatives is provided in an **Attachment** to this letter.

The EA will assess the potential environmental consequences associated with the Proposed Action and Alternatives. Potential impacts identified during the initial planning stages include effects on land use, geology and soils, air quality; water, and biological, and cultural resources; noise; hazardous materials and wastes; infrastructure, transportation, and utilities; safety; socioeconomics; and environmental justice and protection of children. The EA will examine the cumulative effects when combined with past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan 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 such notification. 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: Mr. Kevin Wakefield
Chief, Environmental
355 CES/CEIE-Environmental Element
3775 South Fifth Street
Davis-Monthan Air Force Base, AZ 85707-3012
Email: kevin.wakefield.1@us.af.mil; Phone: (520) 228-4035

The Air Force appreciates your interest in and support of its military mission at Davis-Monthan AFB. We thank you in advance for your assistance and look forward to your response.

Sincerely,

CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

Attachment:
Summary Description of the Proposed Action and Alternative

DEPARTMENT OF THE AIR FORCE
355TH WING CIVIL ENGINEER SQUADRON (ACC)
DAVIS-MONTHAN AIR FORCE BASE ARIZONA

355 CES/CEI
3775 South Fifth Street
Davis-Monthan AFB, AZ 85707-3012

Jeff Servoss
US Fish and Wildlife Service
Arizona Ecological Services Field Office Tucson
201 North Bonita Ave., Suite 141
Tucson AZ 85745

Dear Mr. Servoss

The United States Air Force (Air Force) at Davis-Monthan Air Force Base (AFB), Arizona, is preparing an Environmental Assessment (EA) in accordance with the *National Environmental Policy Act* to evaluate the potential impacts of implementing multiple installation development projects on Davis-Monthan AFB. These installation development projects support the Base's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. To consider possible environmental concerns, the Air Force is engaging early with all potentially affected resource agencies as it formulates the undertaking. Accordingly, the Air Force seeks imput from your office.

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Davis-Monthan Air Force Base, AZ 85707-3012
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Sincerely,

CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

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Summary Description of the Proposed Action and Alternative

DEPARTMENT OF THE AIR FORCE
355TH WING CIVIL ENGINEER SQUADRON (ACC)
DAVIS-MONTHAN AIR FORCE BASE ARIZONA

355 CES/CEI
3775 South Fifth Street
Davis-Monthan AFB, AZ 85707-3012

Kathryn Leonard
State Historic Preservation Officer
AZ State Historic Preservation Office
1110 W. Washington
Phoenix AZ 85007

Dear Ms. Leonard

The United States Air Force (Air Force) at Davis-Monthan Air Force Base (AFB), Arizona, is preparing an Environmental Assessment (EA) in accordance with the *National Environmental Policy Act* to evaluate the potential impacts of implementing multiple installation development projects on Davis-Monthan AFB. These installation development projects support the Base's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. To consider possible environmental concerns, the Air Force is engaging early with all potentially affected resource agencies as it formulates the undertaking. Accordingly, the Air Force seeks consultation with your office.

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Pursuant to Title 36 *Code of Federal Regulations* Part 800, implementing Section 106 of the *National Historic Preservation Act*, we request your assistance in defining the Area of Potential Effects and identifying any concerns you may have regarding the potential presence of significant cultural resources in the affected area. 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 such notification. Should you have any questions about the project or want to arrange a meeting for consultation, please contact my point of contact via postal mail, email, or telephone listed below. 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.

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The Air Force appreciates your interest in and support of its military mission at Davis-Monthan AFB. We thank you in advance for your assistance and look forward to your response.

Sincerely,

CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

Attachment:
Summary Description of the Proposed Action and Alternatives

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27 July 2023

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Dear Ms. Grant

The United States Air Force (USAF) at Davis-Monthan Air Force Base (AFB) is preparing an Environmental Assessment (EA) in accordance with the *National Environmental Policy Act* to evaluate the potential impacts of implementing multiple installation development projects on Davis-Monthan AFB. These installation development projects support the Base's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. To consider possible environmental concerns, the Air Force is engaging early with all potentially affected Native American tribes as it formulates this undertaking. Accordingly, the Air Force seeks consultation with the San Carlos Apache Tribe of the San Carlos Reservation, Arizona.

The Air Force proposes several projects including construction of new facilities; demolition of older, substandard buildings; and acquisition of private land parcels within Davis-Monthan AFB. The Proposed Action includes the construction of facilities in the Rescue Group Campus, Flightline District, Main Base District, Aerospace Maintenance and Regeneration Group (AMARG) District, and the Munitions and Range District. Within the AMARG District, 15 facilities would also be demolished, and six facilities would undergo asbestos abatement.

In addition, the Air Force identified several alternatives for developing the Munitions Storage Area (MSA) to address facility and operational deficiencies, safety concerns, and quality-of-life issues. The number of new facilities to be constructed or demolished in the MSA would depend on the Action Alternative selected. Further, the Air Force proposes acquiring several private land parcels within Davis-Monthan AFB through a purchase agreement. All projects would occur within the boundaries of the Davis-Monthan AFB and would not directly involve aircraft operation or airspace management. A comprehensive summary of the Proposed Action and Alternatives is provided in an **Attachment** to this letter.

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Pursuant to Section 106 of the *National Historic Preservation Act,* the Air Force seeks to initiate government-to-government consultation on the Proposed Action. The Air Force desires to discuss the proposal in detail with the San Carlos Apache Tribe of the San Carlos Reservation, Arizona, so that we may understand and consider any comments, concerns, and suggestions you may have. We invite you to provide information on any properties of historic, religious, or cultural significance that may be affected by our proposed undertaking. Regardless of whether the San Carlos Apache Tribe of the San Carlos Reservation, Arizona, chooses to consult on this project, the Air Force will comply with the *Native American Graves Protection and Repatriation Act* by informing you of any accidental discovery of archaeological or human remains and consulting on their disposition. Being defined as a federal undertaking, we will be seeking input and inviting other potential consulting parties, such as the Arizona State Historic Preservation Office.

We will 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 such notification. Should you have any questions about the project or want to arrange a meeting for consultation, please contact my point of contact via postal mail, email, or telephone listed below. 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.

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The Air Force appreciates your interest in and support of its military mission at Davis-Monthan AFB. We thank you in advance for your assistance and look forward to your response.

Sincerely

SCOTT C. MILLS, Colonel, USAF
Commander

Attachment:
Summary Description of the Proposed Action and Alternatives

Summary Description of the Proposed Action and Alternatives
Multiple Development Projects
Davis-Monthan Air Force Base, Arizona

CHAPTER 1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

Davis-Monthan Air Force Base (Davis-Monthan AFB) is an Air Combat Command Base located 5 miles south-southeast of downtown Tucson, Arizona. As part of its installation development planning process, Davis-Monthan AFB has prepared an Installation Development Plan (IDP) that describes the Installation's past, present, and future physical state and serves as a guidance document for future facility planning. Davis-Monthan AFB has developed four Area Development Plans (ADPs) to address needs within specific functions or areas of the Base. In addition to the ADPs, a Facilities Operations Capability and Utilization Survey (FOCUS) was performed for the Air Force Reserve Command (AFRC) to evaluate workspace and make recommendations to maximize building efficiency and effective use of space. Davis-Monthan AFB planning uses the Comprehensive Planning Platform (CPP), a digital database system that integrates planning across the Base and includes ADPs and other planning documents. Through the CPP, the Air Force has identified multiple development projects across several planning districts, including the Flightline District, Main Base District (both North and South areas), Aerospace Maintenance and Regeneration Group (AMARG) District, and the Munitions and Range District.

1.2 PURPOSE AND NEED

The purpose of projects identified for installation development under the Proposed Action is to support Davis-Monthan AFB's current and future mission and training requirements by providing facilities that are compliant with current design standards, promote quality of life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. The needs for the projects include a shortage of facility space, substandard buildings, and inefficient use of space that impacts existing and future mission and training requirements.

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Installation development projects included as part of the Proposed Action were selected based on current and future needs at Davis-Monthan AFB identified through the installation planning process, including the IDP and ADPs.

Table 2-1 summarizes the Proposed Action by alternative and the associated square footage of new buildings and earth-covered magazines, pads/paved areas, demolition, renovation, and approximate area of new impervious surfaces (i.e., buildings and paved areas). Most of the net gain in building square footage under all four alternatives would be attributable to the 600,000-square foot AMARG storage warehouse for special tooling/special test equipment, which would account for 68 to 70 percent of the proposed construction square footage.

Table 2-1.
Summary of Alternatives

Alternative	New Buildings/ ECMs (ft^2)	New Pads/Paved Areas (ft^2)	Demolition (ft^2)	Renovation (ft^2)	Net Gain of Building Space (ft^2)	New Impervious Area (ft^2)
1	1,002,441	102,624	125,714	4,020	876,727	920,000
2	1,001,441	60,000	127,764	0	873,677	897,000
3	959,071	40,000	87,729	0	871,342	850,000
4	925,514	40,000	76,484	0	849,030	819,000

ECM = earth-covered magazine; ft^2 = square foot

The proposed projects and a description of the size and extent of the projects identified under each alternative are listed in **Table 2-2**; the proposed locations for the projects are illustrated in **Figures 2-1–2-8**, all presented at the end of this summary.

2.2 ALTERNATIVES

Each of the proposed projects associated with the Rescue Campus, Flightline District Plan, AFRC FOCUS, and AMARG District Plan, as well as the proposed dormitory construction and acquisition of out parcels would occur under all action alternatives (Projects 1–15; see **Table 2-2** and **Figures 2-2–2-4**). The proposed projects in these areas were determined to meet the Air Force's purpose of and need for action, and no other reasonable alternatives were identified for these projects during the planning process. Each of the action alternatives differs only in the level of development proposed for the Munitions Storage Area (MSA). **Figures 2-5–2-8** identify the locations of the projects in the MSA under Alternatives 1–4, respectively.

2.2.1 Alternative 1

Alternative 1 would address all deficiencies in the MSA facilities and the operational configuration (Projects 16–40; **Table 2-2**). Alternative 1 represents an "optimization" of the MSA based on input from Davis-Monthan AFB stakeholders, including the experience of Aircrew working in the MSA. Under Alternative 1, the layout of the proposed projects in the MSA would differ than under Alternatives 2–4 **(Figure 2-5)**.

2.2.2 Alternative 2

Under Alternative 2, implementation of projects in the MSA would represent a "transformation" of the MSA and would address many, but not all, needs of the MSA (Projects 16–35, 41; **Table 2-2**). Alternative 2 would achieve many of the same objectives for the MSA as Alternative 1 for the separation of operational functions, but in a slightly different configuration of facilities (**Figure 2-6**).

2.2.3 Alternative 3

Under Alternative 3, implementation of the projects in the MSA would represent an "enhancement" or modernization of the MSA for the current mission but would not address future growth (Projects 16–31, 41; **Table 2-2**). Alternative 3 would achieve the segregation of the chaff/flare, conventional munitions, and precision guided missile operations into separate facilities and alleviate issues with incompatible operations in the same building **(Figure 2-7)**.

2.2.4 Alternative 4

Alternative 4 would address deficiencies in MSA facilities but no significant modernization or mission expansion would occur (Projects 16–24, 41–42; **Table 2-8** and **Figure 2-8**). Alternative 4 was determined to not meet the purpose of and need for the Air Force in the MSA and is not being carried forward for further analysis in the EA.

2.2.5 No Action Alternative

Under the No Action Alternative, the Air Force would not implement the proposed IDP projects. Davis-Monthan AFB would continue to operate under current conditions. The facility and infrastructure assets of Davis-Monthan AFB would continue to degrade. In the short term, military training and operations would continue at Davis-Monthan AFB in accordance with the status quo. Over time, the mission support capabilities of the Base would diminish along with its ability to support the future missions and requirements of its tenant activities.

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, as required under Council on Environmental Quality regulations (40 CFR § 1502.14(d)). The No Action Alternative reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated.

Table 2-2.
Characteristics of the Proposed Projects by Alternative

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
Rescue Group Campus Plan Projects						
1	Guardian Angel Storage Facility	Construct a 59,879-ft^2 storage and vehicle maintenance facility with reinforced concrete foundation and floor slab, structural-steel frame, standing-seam metal roof system, split-faced block, site improvements, landscaping with landscape establishment irrigation, asphalt pavement and parking, fire detection/protection, and all necessary support for a complete and usable facility.	X	X	X	X
2	Guardian Angel Storage Facility for 306 RQS	Construct a 13,003-ft^2 storage facility for the 306th Rescue Squadron (RQS). This storage facility would be used to protect rolling stock, RQS equipment, and internal airlift/helicopter slingable container units from the intense desert sun. A small section of the storage facility would be climate controlled for the storage of medical supplies and other items that require climate-controlled storage. The rest of the facility would have evaporative coolers to provide summertime cooling; heating is not necessary. The entire storage facility would have a fire suppression system.	X	X	X	X
3	Guardian Angel Preservation of the Force and Family (POTFF) Facility	Construct a 32,172-ft^2 POTFF facility with reinforced concrete foundation and floor slab, structural-steel frame, standing-seam metal roof system, split-faced block, site improvements, landscaping with landscape establishment irrigation, asphalt pavement and parking, fire detection/protection, and all necessary support for a complete and usable facility.	X	X	X	X
4	Guardian Angel Squadron Operations Facility	Construct a 42,998-ft^2 squadron operations facility to support the 48 RQS. The facility would provide space for administrative offices, aircrew flight equipment (AFE), and storage cages for issued gear. The AFE shop would be used for maintenance, repair, and packing of personnel parachutes. The facility would include conference spaces, sensitive compartmented information facility (SCIF) space, offices, and an auditorium.	X	X	X	X
5	Red Flag Rescue Ops Facility	Construct a 47,400-ft^2 squadron operations facility to support the 414th Combat Training Squadron (CTS). The facility would provide space for administrative offices, conference spaces, and SCIF space. This facility would be similar to the 549 CTS Green Flag exercise facility at the Nellis AFB.	X	X	X	X
Flightline District Plan Project						
6	Communications Facility	Construct a new 19,080-ft^2 Communications Squadron headquarters facility to replace the current headquarters facility. The new facility would contain the Communication Squadron Command Section as well as most administrative functions for the Communications Squadron. The facility would also house secure and non-classified internet protocol router network hubs, radio maintenance/control, the Alternate Command Post, and the Alternate Crisis Action Team room.	X	X	X	X

Attachment – DOPAA Summary

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
Air Force Reserve Command FOCUS Projects						
7	Admin & Training Addition to B-415	Construct a 3,358-ft^2 administrative and training addition to B-415 that is compatible with existing structure and architectural scheme (e.g., standing-seam roofing, split-faced block, xeriscaping, anti-terrorism/force protection) and that provides all controls and supporting utilities for a complete and usable facility.	X	X	X	X
8	943 MXS AGE Equipment Staging Facility	Construct a 2,600-ft^2 pre-engineered steel cover/sidewall(s) facility to protect aircraft ground equipment (AGE) from weather and provide shade. The facility would be used for the 943d Maintenance Squadron (MXS) AGE staging (completed/awaiting maintenance) in support of the 943d Rescue Group mission to provide worldwide combat rescue operations. The facility would provide a foundation system designed for static and wind loads and a building system that is architecturally compatible and complementary to the surrounding facilities.	X	X	X	X
9	924 MXS Unscheduled Maintenance Hangar	Construct a 11,000-ft^2 single-bay, fighter (A-10) unscheduled maintenance hangar of the 924th Fighter Group's mission to train and produce qualified A-10 pilots for theater commanders worldwide. The facility would provide reinforced concrete foundation, flooring, access apron, and a bridge crane. The facility construction would comply with local architectural standards/ schemes, Unified Facilities Criteria, and building codes. Site construction would include security, parking lot, lighting, and access pavements and provide all supporting utilities and controls for a complete and usable facility.	X	X	X	X
10	Construct Addition 943 MXS Maintenance Hangar, B1750	Construct a 5,877-ft^2 addition to aircraft maintenance hangar B-1750 to provide glazing protection from debris blown by taxiing/turning aircraft. The facility would include reinforced concrete foundation and floor slabs, standing-seam metal roof, an exterior that is compatible with existing structure, and provide all controls and supporting utilities for a complete and usable facility.	X	X	X	X
Aerospace Maintenance and Regeneration Group (AMARG) District Plan Projects						
11	Tooling/Test Equipment Storage Warehouse	Construct a 600,000-ft^2 high-bay storage facility. AMARG is a US Department of Defense-designated storage facility for special tooling/ special test equipment (ST/STE). Weapon systems require ST/STE stored in a facility to ensure that the assets are not degraded through exposure to natural elements. This project is part of the current Area Development Plan (ADP).	X	X	X	X
12	Consolidated Packaging/ Fabrication Center (AMARG)	Construct a 29,601-ft^2 permanent facility with an aircraft parts packaging and crating shop, reinforced concrete foundations and floor slabs, structural-steel frames, standing-seam metal roof systems, split-faced block, all utilities, site improvements, landscaping with landscape establishment irrigation, asphalt pavement and parking, fire detection/protection, and all necessary supporting facilities for a complete and usable facility. This project would also demolish	X	X	X	X

Attachment – DOPAA Summary

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
		seven facilities: B-7409, B-7427, B-7431, B-7434, B-7435, B-7437, and B-7446.				
13	Consolidated Mission Support Center (AMARG)	Construct a 34,561-ft^2 permanent consolidated Mission Support Center (AMARG) with reinforced concrete foundations and slabs, structural-steel frames, standing-seam metal roof systems, all utilities, site improvements, landscaping, asphalt pavement and parking, fire detection/protection, and all necessary supporting facilities for a complete and usable facility. This project would also involve asbestos abatement of six facilities (B-7507, B-7513, B-7514, B-7613, B-7708, and B-7713) and demolition of eight facilities (B-7403, B-7507, B-7513, B-7514, B-7610, B-7613, B-7708, and B-7713).	X	X	X	X
Other Installation Development Projects						
14	Dormitory (240 PN)	Construct a 20,385-ft^2 dormitory facility to house first-term enlisted Aircrew. Each dorm module would be in Dorms-4-Aircrew configuration, which can accommodate four Aircrew, each with a private bedroom. Additionally, the facility would have one bathroom, a shared kitchen, social space, a community laundry room, storage, and all necessary supporting facilities in accordance with the Air Force's *Unaccompanied Housing Design Guide*. The project would also involve the demolition of B-4219 and B-4221.	X	X	X	X
15	Purchase Private Party Parcels	Purchase approximately 95.97 acres (8 tracts) of contiguous private-party land located within the boundaries of Davis-Monthan AFB.	X	X	X	X
Munitions Storage Area (MSA) Projects						
16	Stormwater Improvements	Use low-impact development solutions to improve stormwater drainage.	X	X	X	X
17	MSA Main Gate Upgrade	Upgrade the MSA entry control point gate to increase security and reduce maintenance requirements.	X	X	X	X
18	Road Improvements	Repair existing paved roads in the operations area and replace the road surfaces and entrances to the igloos in the storage area.	X	X	X	X
19	Install Grounding and Interior Lighting	Provide electrical grounding and interior lighting to igloos to improve safety of operations.	X	X	X	X
20	Lighting Improvements	Add lighting to the MSA entry control point and existing storage for night operations and security.	X	X	X	X
21	Construct Chaff/Flare Operations Building	Construct one stand-alone, single-bay 1,500-ft^2 operations building for chaff and flare buildup. This facility would be designed for up to 3,000 pounds of new Hazard Division (HD) 1.1 material.	X	X	X	X
22	Construct Explosives Storage Pads	Construct one 20,000-ft^2 open explosives holding pad designed for up to 30,000 pounds of new HD 1.1 material.	X	X	X	X
23	Construct Inert Storage Pad	Construct one 20,000-ft^2 open pad for storage of inert materials.	X	X	X	X
24	Shade Structures for Pads	Improve shade structures for the existing Munitions Assembly Conveyor (MAC) pad 11005 and 267 and add shade structure to the Holding Area Munitions (HAMS) yard.	X	X	X	X
25	Lighting Improvements	Add lighting to operations facilities and MAC pads for night operations and security.	X	X	X	
26	Improve Sidewalks/Paths	Improve pedestrian connections throughout the MSA by paving over pedestrian paths.	X	X	X	

Attachment – DOPAA Summary

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
27	Shade Structures for Pads	Improve shade structure at pad 267 and add to the HAMS pad and all new pads. Shade structures would be designed to protect munitions at low sun angles.	X	X	X	
28	Construct Conventional Munitions Operations Building	Construct a 14,000-ft^2 facility as an explosive operating location in which operations pertaining to the manufacture, processing, handling, loading, or assembling of munitions and explosives would be performed. The facility would be designed for up to 3,000 pounds of new HD 1.1 material.	X	X	X	
29	Construct HQ/Admin/ Scheduling Building/Trailer Maintenance	Construct a 9,500-ft^2 headquarters (HQ)/ administration facility that includes planning and scheduling tasks outside the MSA perimeter fence. The facility would include administrative space and trailer maintenance. The project would also release B-4515 back to the 355th Wing.	X	X	X	
30	Construct Box Type F ECM	Construct a 10,057-ft^2 box-type earth-covered magazine (ECM) designed for the storage of larger containerized munitions and missiles. This facility would have three individual 16-foot-wide sliding doors on the headwall and access pavement to connect to the existing roads.	X	X	X	
31	Demolition Projects in Operations Area	Demolish B-142, B-190, and B-188 and MAC pad 11005.	X	X	X	
32	Construct HD 1.3/1.4 Explosives Storage Pad	Construct HD 1.3/1.4 explosives storage pad, demolish B-187 and B-265, and remove multi-cube storage units 270, 275, 280, 285, and 290.	X	X		
33	Construct PGM Operations Building	Construct a 14,000-ft^2 facility as an explosive operating location in which operations pertaining to the transferring and preparation of missiles for operations would be performed. The facility would be designed for up to 2,500 pounds of new HD 1.1 material.	X	X		
34	Construct Inspection Building	Construct a 3,800-ft^2 facility as an explosive operating location in which operations pertaining to the inspection and surveillance of ammunition and explosives would be performed. The facility would be designed for up to 3,000 pounds of new HD 1.1 material.	X	X		
35	Construct Multi-Bay AGMs	Construct three 24-bay multi-bay aboveground magazines along the northern boundary of the existing MSA. Each facility would be 8,190 ft^2 and designed for an aggregate of 3,000 pounds of new HD 1.1 material. An access road would be constructed as part of the project.	X	X		
36	Improve the Entry Control Point (ECP)	Construct a 1,000-ft^2 guard house outside the security fence with gate operated and controlled from within the guard house.	X			
37	Demolish Building at Entry Point	Once improvements of the ECP are complete (see Project 36), demolish B-184.	X			
38	Renovate Building 188	Upon completion of the new HQ building (see Project 29), renovate B-188 for the Line Delivery Flight and add 13,239 ft^2 of pavement for parking and connection to B-236.	X			
39	Loading Dock for Munitions inside the MSA	Construct a 2,100-ft^2 permanent loading dock in the southeast corner of the storage operations area inside of the MSA and a 42,624-ft^2 paved pad for connecting to Storage Unit 172 and maneuvering trucks. This facility would be designed to support 20,000 pounds of new HD 1.1 material.	X			

Attachment – DOPAA Summary

Project #	Project Name	Project Description	Alternative			
			1	2	3	4
40	Widen Igloo Doors	Widen the existing 8-foot-wide doors on the igloo ECMs to allow for larger, modern munitions to safety pass through the doors.	X			
41	Construct MSA Loading Dock	Construct a 2,100-ft^2 facility as an elevated, open truck dock with a sunshade canopy. This facility would be designed for up to 5,000 pounds of new HD 1.1 material and located south of the MSA security fence.		X	X	X
42	Improve Pedestrian Paths	Improve pedestrian connections throughout the MSA by covering the existing pathways with gravel to mitigate the effects of rain during the monsoon season.				X

AFE = aircrew flight equipment; AGE = aircraft ground equipment; AGM = aboveground magazine; AMARG = Aerospace Maintenance and Regeneration Group; B = Building, as in B-187; CTS = Combat Training Squadron; ECM = earth-covered magazine; ECP = Entry Control Point; FOCUS = Facilities Operations Capability and Utilization Survey; ft^2 = square foot/feet; HAMS = Holding Area Munitions; HD = Hazard Division; HQ = headquarters; MAC = Munitions Assembly Conveyor; MSA = Munitions Storage Area; MXS = Maintenance Squadron; PGM = precision guided missile; POTFF = Preservation of the Force and Family; RQS = Rescue Squadron; SCIF = sensitive compartmented information facility

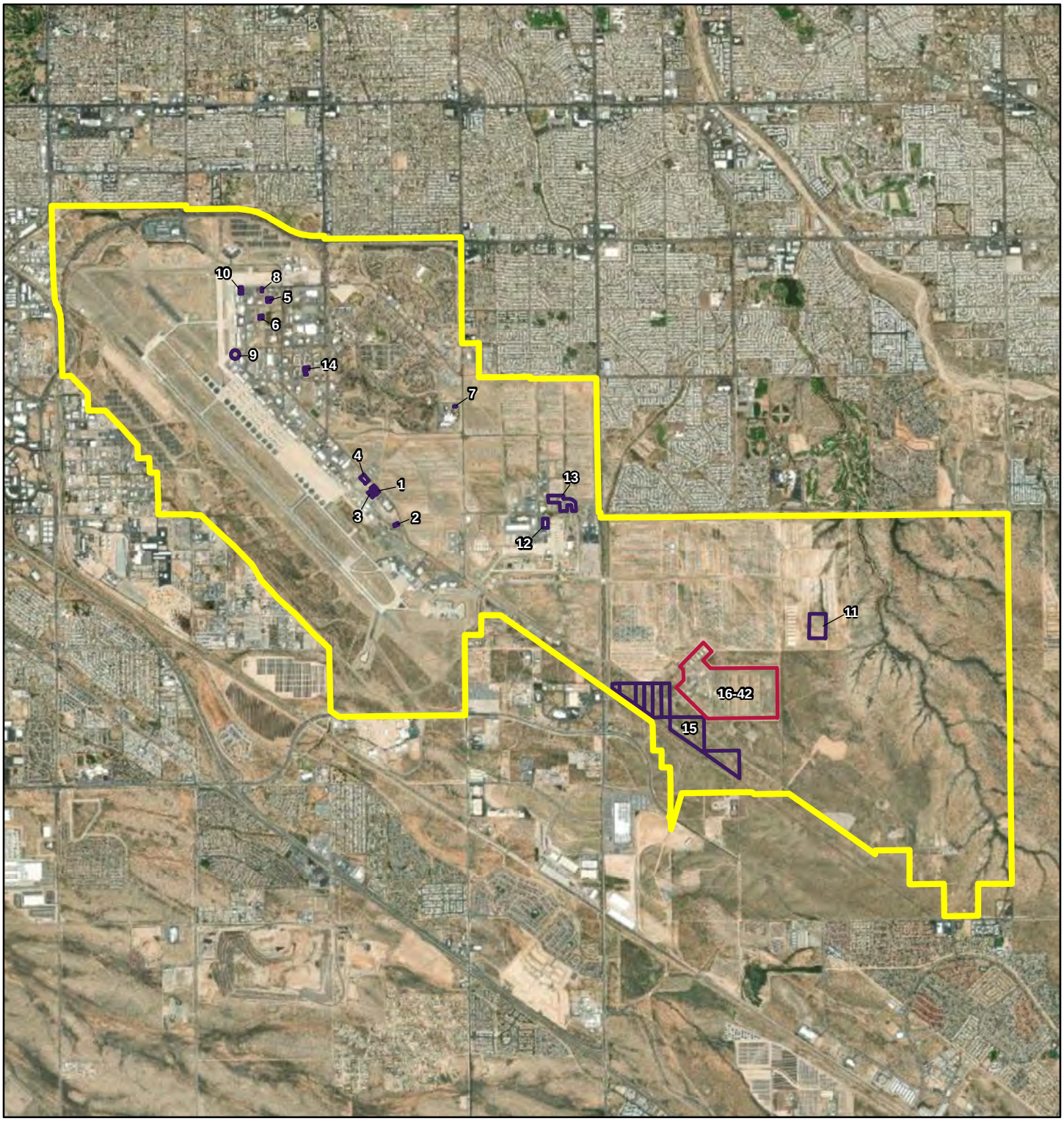


FIGURE 2-1
Locations of Installation Development Projects

IDP Projects

Installation Boundary

MSA Projects

N

0 1 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

FIGURE 2-2
Installation Development Projects – Flightline and Main Base Districts

IDP Projects (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

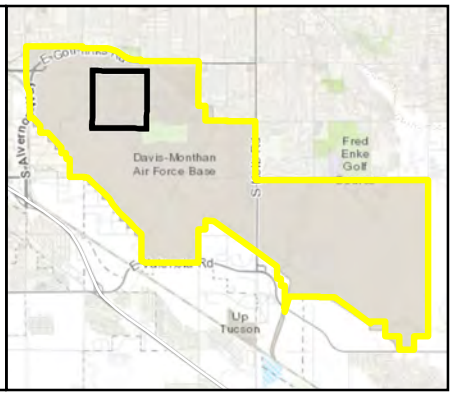


FIGURE 2-3
Installation Development Projects – Main Base District, AMARG Operations Area, Rescue Group Campus

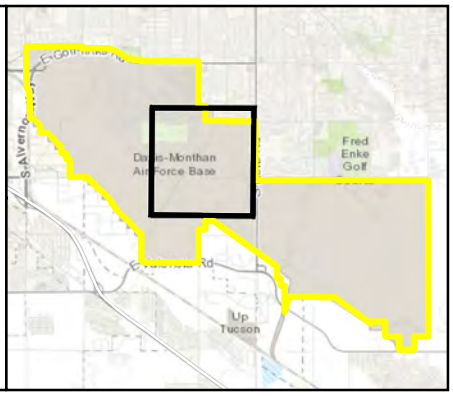
Installation Boundary

IDP Projects (Project #)

N

0 0.4 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



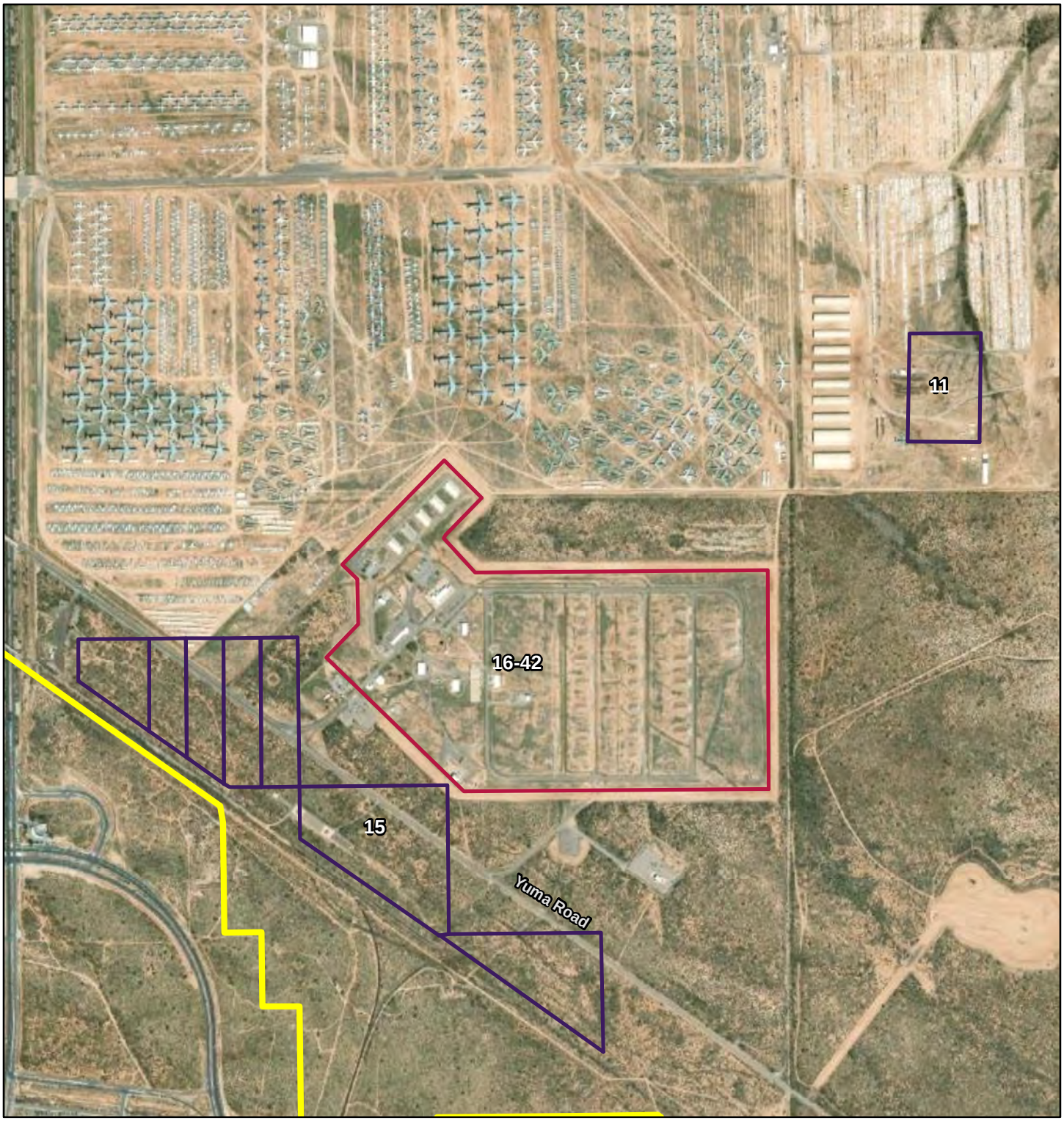


FIGURE 2-4
Installation Development Projects – AMARG Storage Area, Flightline District, Munitions Storage Area

Installation Boundary

IDP Projects (Project #)

MSA Projects (Project #)

N

0 0.4 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

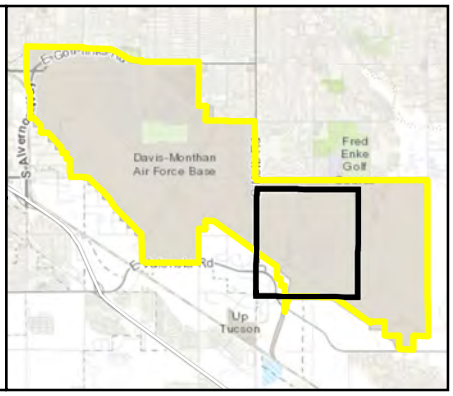


FIGURE 2-5

MSA Development Projects – Alternative 1

- Installation Boundary
- MSA
- Proposed Facility (Project #)
- Proposed Magazine (Project #)
- Proposed Pavement (Project #)
- Proposed Structure (Project #)
- Renovated Facility (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

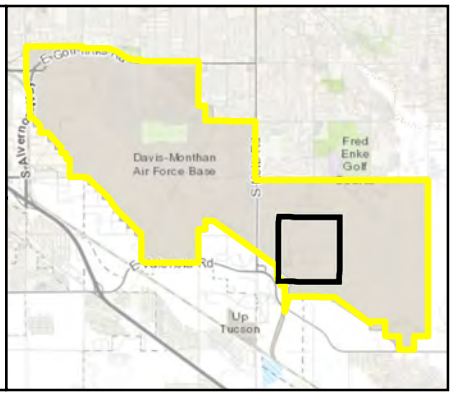


FIGURE 2-6
MSA Development Projects – Alternative 2

- Installation Boundary
- MSA
- Proposed Facility (Project #)
- Proposed Pavement (Project #)
- Proposed Storage (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

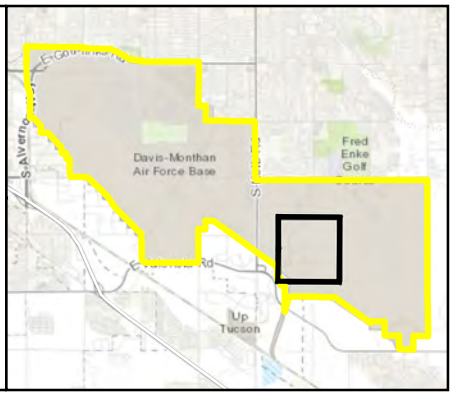


FIGURE 2-7
MSA Development Projects – Alternative 3

Installation Boundary
MSA
Proposed Facility (Project #)
Proposed Pavement (Project #)
Proposed Storage (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N

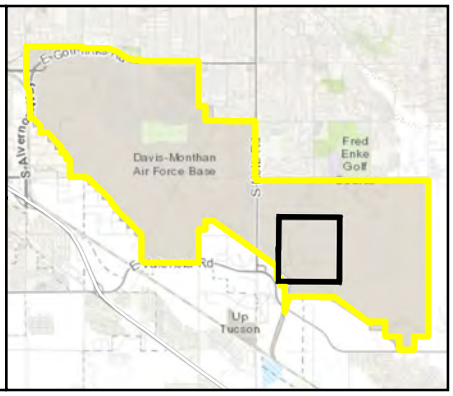


FIGURE 2-8
MSA Development Projects – Alternative 4

Installation Boundary

MSA

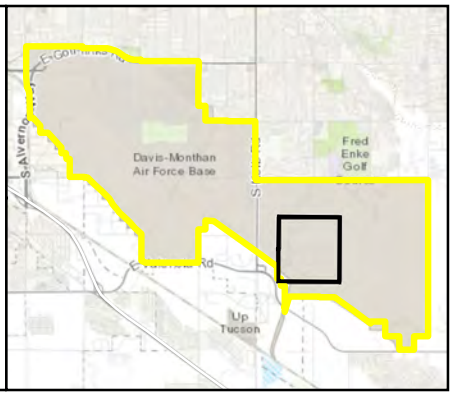
Proposed Facility (Project #)

Proposed Pavement (Project #)

N

0 0.2 Mile

Imagery: ESRI, 2021
Coordinate System: WGS 1984 UTM Zone 12N



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White Mountain Apache Tribe

Office of Historic Preservation
PO Box 1032
Fort Apache, AZ 85926
Ph: (928) 338-3033 Fax: (928) 338-6055

-

To: Scott C. Mills, Colonel, USAF Commander

Date: August 04, 2023

Re: *Davis-Monthan AFB proposed construction of multiple development projects*

……

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; July 27, 2023. In regards to this, please refer to the following statement(s) below.

Thank you for allowing the White Mountain Apache tribe the opportunity to review and respond to the above proposed construction of multiple development projects to support the Base's current and future mission and training requirements at the Davis-Monthan Air Force Base, Arizona.

Please be advised, we have reviewed the consultation letter and the information provided, we have reviewed the information provided and determined the proposed project plans will have a ***"No Adverse Effect"*** to the tribe's traditional cultural properties and/or historic properties.

Thank you for the continued tribal engagement and consultation, and collaborations in protecting and preserving places of cultural and historical importance.

Sincerely,

Mark Altaha

White Mountain Apache Tribe – THPO
Historic Preservation Office

Received from Tribal Admin 08/10/23 VN

E-mailed 09/06/23 VN (initial & date)

Scanned 09/06/23 VN (initial & date)

SAN CARLOS APACHE TRIBE
Historic Preservation & Archaeology Department
P.O. Box 0
San Carlos Arizona 85550
Tel. (928) 475-5797, apachevern@yahoo.com

Tribal Consultation Response Letter

Date: August 10, 2023

Contact Name: Scott C. Mills (520) 228-4035/kevin.wakefield.1@us.af.mil

Company: Department of the Air Force – Davis Monthan

Address: 3775 S. 5th St. Davis-Monthan Air Force Base 85707-3012

Project Name/#: Environmental Assessment for multiple installation development projects on Davis-Monthan AFB

Dear Sir or Madam:

Under Section 106 and 110 of the National Historic Preservation Act, we are replying to the above referenced project. Please see the appropriate marked circle, including the signatures of Vernelda Grant, Tribal Historic Preservation Officer (THPO), and the concurrence of the Chairman of the San Carlos Apache Tribe:

- O **NO INTEREST/NO FURTHER CONSULTATION/NO FUTURE UPDATES**
  We defer to the Tribe located nearest to the project area.
- ⊗ **CONCURRENCE WITH REPORT FINDINGS & THANK YOU** for consulting w/ the Tribe
- O **REQUEST ADDITIONAL INFORMATION**
  I require additional information in order to provide a finding of effect for this proposed undertaking, i.e. Project description ___ Map ___ Photos ___ Other _____
- O **NO EFFECT**
  I have determined that there are no properties of religious and cultural significance to the San Carlos Apache Tribe that are listed on the National Register within the area of potential effect or that the proposed project will have no effect on any such properties that may be present.
- ⊗ **NO ADVERSE EFFECT**
  Properties of cultural and religious significance within the area of effect have been identified that are eligible for listing in the National Register for which there would be no adverse effect as a result of the proposed project.
- O **ADVERSE EFFECT**
  I have identified properties of cultural and religious significance within the area of potential effect that are eligible for listing in the National Register. I believe the proposed project would cause an adverse effect on these properties. Please contact the THPO for further discussion.

We were taught traditionally not to disturb the natural world in a significant way, and that to do so may cause harm to oneself or one's family. Apache resources can be best protected by managing the land to be as natural as it was in pre-1870s settlement times. Please contact the THPO, if there is a change in any portion of the project, especially if Apache cultural resources are found at any phase of planning and construction. Thank you for contacting the San Carlos Apache Tribe, your time and effort is greatly appreciated.

DIRECTOR/THPO: _____ 08/29/23
Vernelda J. Grant, Tribal Historic Preservation Officer — Date

CONCURRENCE: _____ 9/5/23
Terry Rambler, Tribal Chairman — Date

From: Chris Coder <ccoder@yan-tribe.org>
Sent: Monday, August 14, 2023 1:29 PM
To: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE <kevin.wakefield.1@us.af.mil>
Cc: Yavapai Culture <YavapaiCulture@yan-tribe.org>; christopher coder <ccinkachinaland@gmail.com>
Subject: [Non-DoD Source] Davis-Monthan EA/YAN reply

Hi Kevin,
Thanx for the information regarding the preparation of the EA.
Please be informed the Yavapai-Apache Nation (YAN) of Camp Verde has NO comments or concerns in conjunction with this work. If you require further clarification do not hesitate to email me.

Culturally yours,
Chris Coder/Archaeologist/YAN

From: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE
To: Chris Coder
Cc: Yavapai Culture; christopher coder; LONG, BARBARA E CIV USAF ACC 355 CES/CEI; WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE; Ronald Green
Subject: RE: Davis-Monthan EA/YAN reply
Date: Monday, August 14, 2023 1:36:24 PM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thanks Chris for the response. MS. Barbara Long has taken over the position of Cultural Resources Manager at Davis-Monthan AFB. I will continue help Barbara in the future.

v/r Kevin

Kevin Wakefield, MNRS, GS-13, DAFC
Environmental Section Chief
355 CES/CEIE
3775 South Fifth Street
Davis-Monthan AFB AZ 85707-3012
Email: kevin.wakefield.1@us.af.mil
DSN: 228-7201
Comm: (520) 228-7201

From: Karl Hoerig <khoerig@pascuayaqui-nsn.gov>
Sent: Tuesday, August 22, 2023 11:35 AM
To: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE <kevin.wakefield.1@us.af.mil>
Subject: [Non-DoD Source] DMAFB multiple installation development projects EA

Dear Mr. Wakefield,

Thank you for Colonel Mills' 27 July letter providing information regarding planned installation development projects at DMAFB.

As the EA process proceeds, Pascua Yaqui Tribe is interested in ensuring that no heritage resources/ancestor places that may be within the boundaries of the AFB be adversely affected. If any of the planned projects include new ground disturbance, we would ask that archaeological survey be completed prior to those actions. We would like to continue to consult with the Air Force throughout the EA process and implementation as warranted.

With all best regards,
Karl Hoerig

Karl A. Hoerig, Ph.D.
Tribal Historic Preservation Officer
Pascua Yaqui Tribe
7777 S. Camino Huivisim, Building C
Tucson, AZ 85757
(520) 883-5116
karl.hoerig@pascuayaqui-nsn.gov

From: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE
To: Karl Hoerig
Cc: LONG, BARBARA E CIV USAF ACC 355 CES/CEI; Ronald Green; WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE
Subject: RE: DMAFB multiple installation development projects EA
Date: Monday, August 28, 2023 7:56:20 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you sir for the reply, over 73% of the installation has been surveyed. We have been using SRI Inc to conduct a majority of the surveys. Most of the areas that have not been surveyed currently are locations where buildings, roads, parking lots, and our airfield is located. We also have inadvertent discovery procedures in place that will be implemented if a discovery is made. We will continue to keep you and the Pascua Yaqui Tribe informed throughout the EA process.

Also please be advised that MS. Barbara Long is the new Cultural Resources Manager (CRM) for Davis-Monthan AFB. Se is included in the CC line of the email.

v/r Kevin

Kevin Wakefield, MNRS, GS-13, DAFC
Environmental Section Chief
355 CES/CEIE
3775 South Fifth Street
Davis-Monthan AFB AZ 85707-3012
Email: kevin.wakefield.1@us.af.mil
DSN: 228-7201
Comm: (520) 228-7201

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

Douglas A. Ducey
Governor

Misael Cabrera
Director

August 22, 2023

VIA EMAIL: kevin.wakefield.1@us.af.mil

ATTN: Mr. Kevin Wakefield
Chief, Environmental
355 CES/CEIE-Environmental Element
3775 South Fifth Street
Davis-Monthan Air Force Base, AZ 85707-3012

RE: Subject on implementing multiple installation development projects on Davis-Monthan AFB

To Whom it May Concern:

The Arizona Department of Environmental Quality (ADEQ) appreciates the opportunity to comment on the Department of the Air Force's proposal for implementing multiple installation development projects on Davis-Monthan AFB.

I have circulated your information to the Air Quality, Water Quality and Waste Programs Divisions of ADEQ, and after careful review there are a few comments from our staff:

The locations of the planned projects appear to be outside of active CERCLA sites, but as these projects move forward there may be indirect effects, due to surface grading and work on stormwater conveyances. ADEQ Federal Projects Unit asks that Davis-Monthan review the Base Master Plan and consult with the Air Force Civil Engineer Center to determine any land use restrictions that may be in place from former Site Remediation and insure the planned activities will not affect future PFAS remediation.

This project does not appear to impact the Public Water System. The only comment is that backflow devices need to be installed if there is a potential contamination source from any of the new construction. Also, please take into consideration fire flow needs.

Please copy Edwin Slade, Office of Administrative Counsel at oac@azdeq.gov AND Shanafelt.karen@azdeq.gov and romanoff.natalie@azdeq.gov on all future correspondence and invitations to participate.

If you have any questions or concerns, please feel free to contact me.

Sincerely,

DocuSigned by:
Edwin Slade
C19ECEB333B7458...

Edwin Slade
Administrative Counsel

From:	Erin Davis
To:	Ronald Green; WAKEFIELD, KEVIN L GS-11 USAF ACC 355 CES/CEIE
Cc:	Susan Lawson
Subject:	Re: Proposed Installation Development Projects at Davis-Monthan AFB
Date:	Friday, August 25, 2023 11:13:38 AM
Attachments:	image001.png image002.png image003.png image004.png

You don't often get email from edavis@azstateparks.gov. Learn why this is important

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Dr. Green and Mr. Wakefield,

Thank you for consulting with our office regarding the proposed EA for the undertaking. When defining the APE, please refer to 36 CFR 800.16(d), and
consider not only the direct effects the project footprints would have, but indirect effects such as vibrations from demolition that could affect adjacent historic properties, visual effects from construction of vertical components, and cumulative effects, such as increases in vehicle and pedestrian use in areas of archaeological sensitivity. Any staging areas or new access, and all ground-disturbing locations should be included in the APE.

We recommend consulting with the City of Tucson Historic Preservation Office, the Pima County Cultural Resources and Historic Preservation Division, and Native American tribes who claim ancestral affinity to the area. Please reach out if you need any contact information.

Once the APE has been verbally defined, and all components shown on a map, SHPO will need to know the locations of all cultural resources that have been determined eligible, with SHPO concurrence. We are aware that the AFB contains significant historic properties that have previously been identified. If there are resources that have not been included in consultation with our office, we would be happy to review the AFB's determinations of eligibility through continuing consultation, per 36 CFR 800.4(c)(2). When presenting the information on properties that have previously been determined eligible, with SHPO concurrence, please include the previous SHPO project number.

We look forward to continuing Section 106 consultation on the undertaking. Please don't hesitate to reach out if you have any questions. Our architect, Susan Lawson (cc'd on this email) is available to discuss any questions regarding built environment resources, and I am available to discuss questions regarding any archaeological resources. You may contact either one of us if you have questions about the Section 106 process.

Cheers,

Erin Davis, M.A. (she/her/hers)
Archaeological Compliance Specialist

Note: Please use azshpo@azstateparks.gov to initiate consultation.

State Historic Preservation Office
1110 W. Washington Street, Suite 100
Phoenix, AZ 85007
602.542.7141
edavis@azstateparks.gov

From: Jack Peterson <jpeterson@azda.gov>
Sent: Monday, August 14, 2023 6:41 AM
To: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE <kevin.wakefield.1@us.af.mil>
Cc: Nicolas Acevedo <nacevedo@azda.gov>; Robert Smook <rsmook@azda.gov>; Paul Brierley <pbrierley@azda.gov>; Jeff Grant <jgrant@azda.gov>
Subject: [URL Verdict: Neutral][Non-DoD Source] David Monthan AFB Installation Development EA

Our agency received the plans. From our agency's regulatory purview what you should consider is the Native Plant law.

https://www.azleg.gov/arsDetail/?title=3 - See Chapter 7,

and the corresponding rules:

https://apps.azsos.gov/public_services/Title_03/3-03.pdf - See Article 11.

There are certain requirements relating to notice before clearing land and destruction of native plants or permitting if plants will be moved off property to someone else's.

Jack Peterson
Associate Director, EPSD
602-542-3575
Arizona Department of Agriculture
Environmental and Plant Services Division
mailing: 1802 W. Jackson St., **#78**, Phoenix AZ 85007
physical: 1110 W Washington St, Phoenix, AZ 85007

From:	WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE
To:	Jack Peterson
Cc:	Nicolas Acevedo; Robert Smook; Paul Brierley; Jeff Grant; WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE; LONG, BARBARA E CIV USAF ACC 355 CES/CEI; BREWSTER, CHRISTOPHER L CIV USAF ACC 355 CES/CEIE; Ronald Green
Subject:	RE: [URL Verdict: Neutral][Non-DoD Source] David Monthan AFB Installation Development EA
Date:	Monday, August 14, 2023 7:24:52 AM
Attachments:	Contractor Environmental Guide Oct 21.pdf

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Thank you sir for the response. Davis-Monthan Air Force Base has a Contractor Environmental Guide that provides guidance for all contractors and projects that are being conducted on the installation. Part 3 – Summary of Common Environmental Requirements and Contractor Responsibilities, in paragraph 3.3 provide specific guidance for the protection of native plants and references the Arizona State Statute, Chapter 7. We will continue to insure that the installation is in conformance with the Native Plant Laws. We will also provide your comments to our contractor working on the EA and to insure they are included.

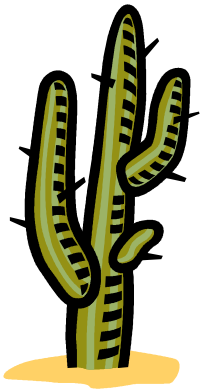
I have also included a copy of our Contractor Environmental Guide.

v/r kevin

Kevin Wakefield, MNRS, GS-13, DAFC
Environmental Section Chief
355 CES/CEIE
3775 South Fifth Street
Davis-Monthan AFB AZ 85707-3012
Email: kevin.wakefield.1@us.af.mil
DSN: 228-7201
Comm: (520) 228-7201

Contractor Environmental Guide

355th Civil Engineer Squadron
Environmental Management Office
3775 South Fifth Street
Davis-Monthan AFB, 85707
Phone 520 228-7201
Fax 520 228-5205



. . .Protection of the environment...

This Environmental Guide is provided to assist civilian contractors in meeting federal, state, and local environmental regulations while working on Davis-Monthan Air Force Base

01 Oct 2021

Guide available for download at

https://imlive.s3.amazonaws.com/Federal%20Government/ID478820655632276374355917055232791522 72/Contractor_Environmental_Guide_(31_May_2018).pdf

October 3, 2023

ATTN: Mr. Kevin Wakefield
Chief, Environmental
355 CES/CEIE-Environmental Element
3775 South Fifth Street
Davis-Monthan Air Force Base, AZ 85707-3012

Electronically submitted to kevin.wakefield.1@us.af.mil

Re: Review of the Davis-Monthan Air Force Base development projects

Dear Mr. Wakefield:

The Arizona Game and Fish Department (Department) reviewed your Project Evaluation Request dated July 27, 2023, and received August 9, 2023, regarding the multiple installation development projects on Davis-Monthan Air Force Base (AFB), which is situated in Tucson, Arizona.

Based on the information provided, the Department offers the following general recommendations:

- The Department's Online Environmental Review Tool report (HGIS-20476; attached) created on October 3, 2023, indicates western burrowing owl, a special status species that is regulated under the Migratory Bird Treaty Act (MBTA), has been recorded in the vicinity of the projects. If suitable habitat for this species is present within or adjacent to the project area, the Department recommends conducting an occupancy survey for western burrowing owls to determine if this species occurs within the project footprint. Guidelines for conducting this survey are found in *Burrowing Owl Project Clearance Guidance for Landowners*[1]. Please note that the survey should be conducted by a surveyor who is certified by the Department or has similar training and qualifications. If an active burrowing owl burrow is detected, please contact the Department and the U.S. Fish and Wildlife Service[2] for direction, in accordance with the Guidelines.
- If proposed ground disturbance (both temporary and permanent) will meet or exceed 0.25 acre in areas with native vegetation, please ensure the project complies with Arizona Native Plant Law regulations[3]. A Native Plant Inventory may need to be conducted to identify, record, and coordinate plant salvage efforts for species that are Protected under

[1] https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/nongame/eagles/BurrowingOwlClearanceProtocol_2009.pdf
[2] https://www.fws.gov/office/arizona-ecological-services/contact-us
[3] https://agriculture.az.gov/plantsproduce/native-plants

GOVERNOR: KATIE HOBBS COMMISSIONERS: CHAIRMAN TODD G. GEILER, PRESCOTT | CLAY HERNANDEZ, TUCSON | MARSHA PETRIE SUE, SCOTTSDALE
JEFF BUCHANAN, PATAGONIA | JAMES E. GOUGHNOUR, PAYSON DIRECTOR: TY E. GRAY DEPUTY DIRECTOR: TOM P. FINLEY

the Arizona Native Plant Law. In addition, the applicable land management agencies should be consulted regarding guidelines for revegetation efforts.

- Please minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. Please review the Arizona Department of Agriculture's website for a list of prohibited and restricted noxious weeds[4] and the Arizona Native Plant Society[5] for recommendations on control methods. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives[6] - a national cloud-based application for tracking and managing invasive species.
- To further limit the spread of non-native, invasive plant species, the Department recommends landscaping with drought-tolerant species that are native to the area. Landscaping with native plants can help support wildlife and pollinator species that inhabit rural and urbanized areas, including the monarch butterfly, which is a candidate for listing under the Endangered Species Act. Visit the Arizona Native Plant Society's website[7] for information on preferred native plants to utilize in landscaping.

The Department appreciates the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with the Review of the Davis-Monthan Air Force Base development projects. If you have any questions regarding this letter, please contact me at (623) 236-7615 and visit our website[8] for additional guidelines.

Sincerely,

Cheri Bouchér

Cheri Bouchér
Project Evaluation Program Specialist, Habitat Branch
Arizona Game and Fish Department

AZGFD #M23-08090839

[4] https://agriculture.az.gov/pestspest-control/agriculture-pests/noxious-weeds
[5] https://aznps.com/invas
[6] https://imap.natureserve.org/imap/services/page/map.html
[7] https://aznps.com/grow-native/
[8] https://live-azgfd-main.pantheonsite.io/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:
Davis-Monthan Air Force Base development projects

Project Description:
multiple installation development projects on Davis-Monthan Air Force Base (AFB)

Project Type:
Military Activities, Development (new buildings, roads, etc.)

Contact Person:
Cheri Boucher

Organization:
Arizona Game and Fish Department

On Behalf Of:
DOD

Project ID:
HGIS-20476

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

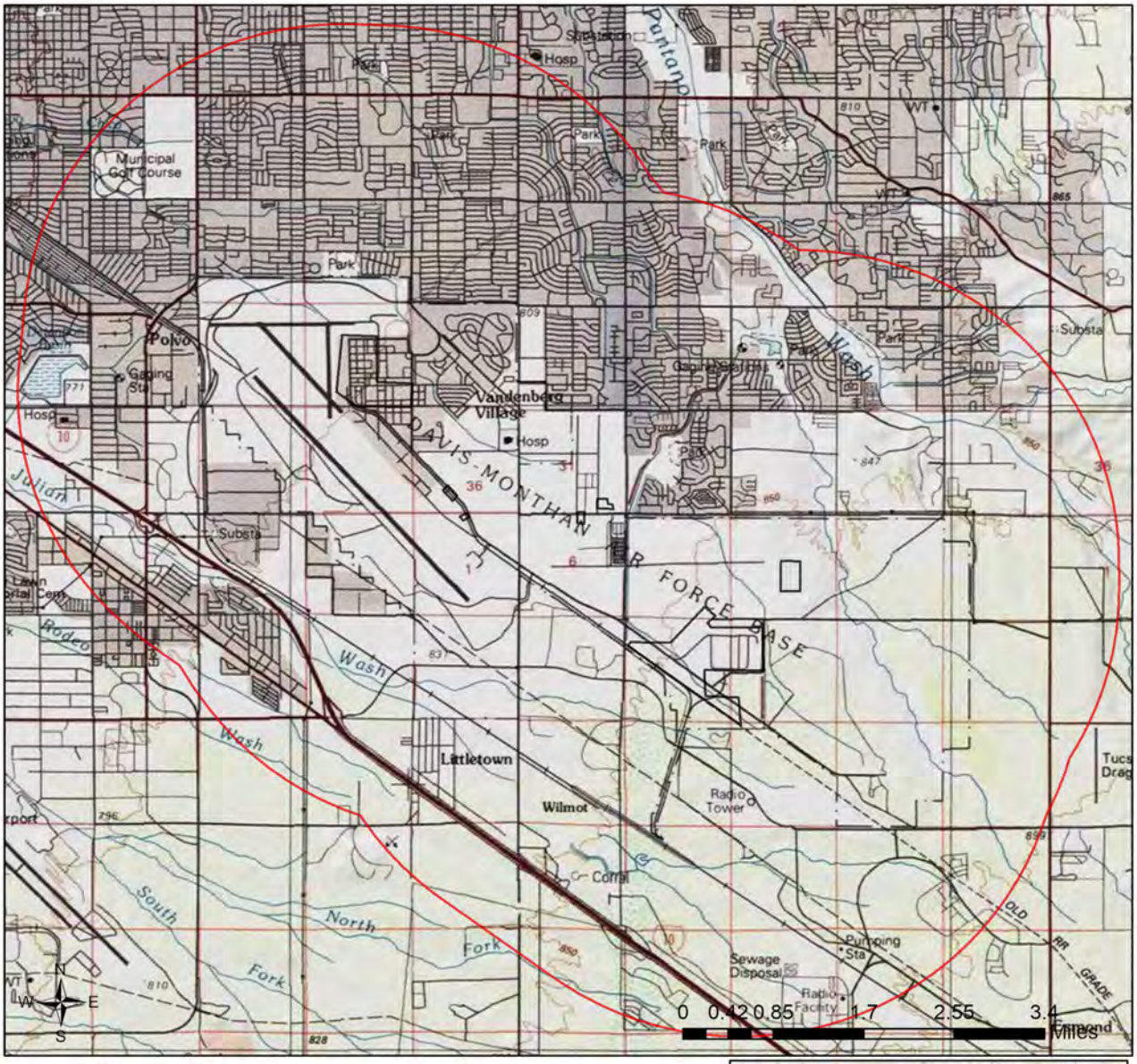
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

Davis-Monthan Air Force Base development projects

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 604.33

Lat/Long (DD): 32.1426 / -110.8295

County(s): Pima

AGFD Region(s): Tucson

Township/Range(s): T14S, R14E; T14S, R15E; T15S, R14E +

USGS Quad(s): TUCSON; TUCSON EAST

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Davis-Monthan Air Force Base development projects

Web Map As Submitted By User

Buffered Project Boundary
Project Boundary

Project Size (acres): 604.33
Lat/Long (DD): 32.1426 / -110.8295
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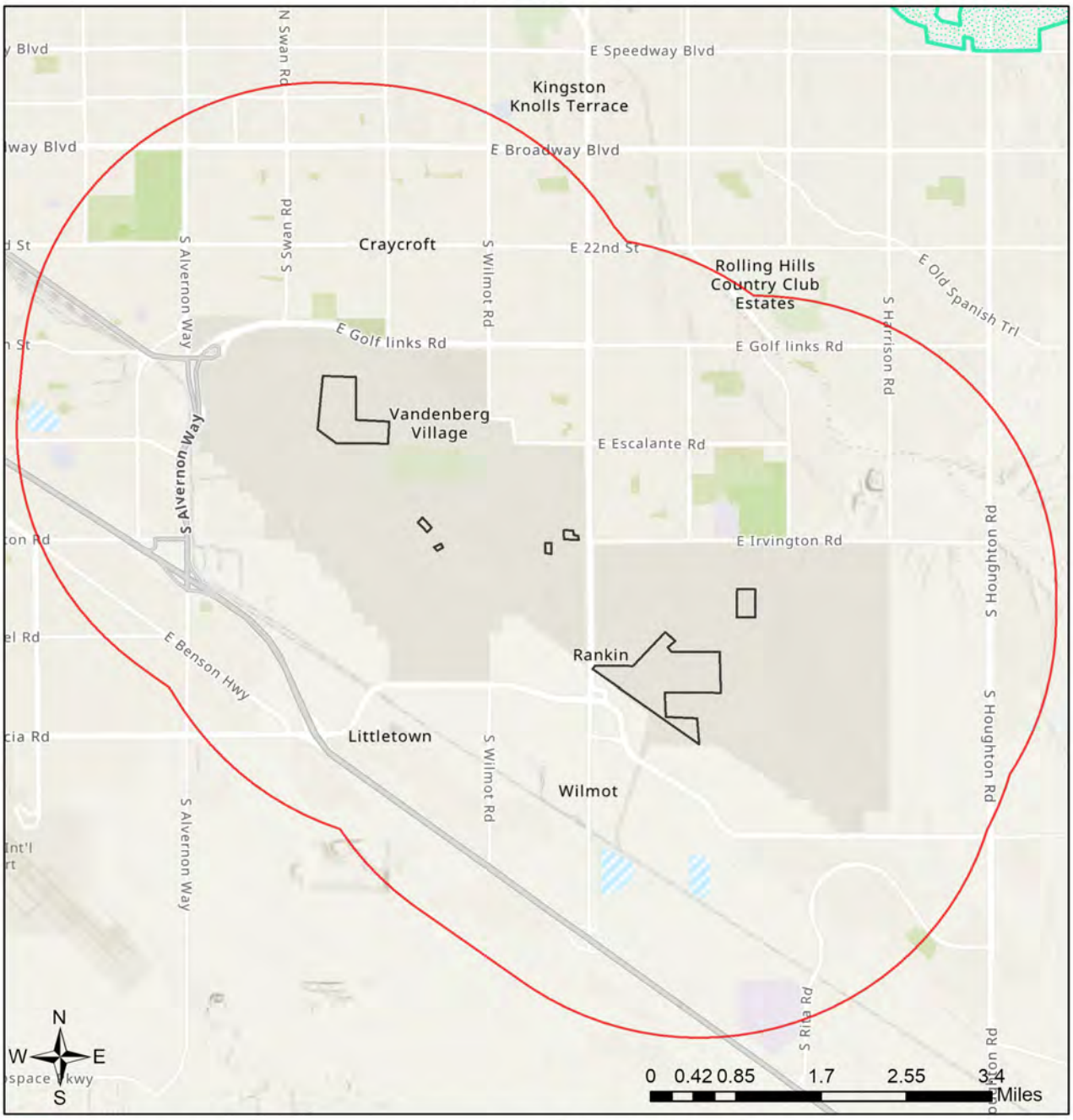
USGS Quad(s): TUCSON; TUCSON EAST

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Davis-Monthan Air Force Base development projects

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 604.33

Lat/Long (DD): 32.1426 / -110.8295

County(s): Pima

AGFD Region(s): Tucson

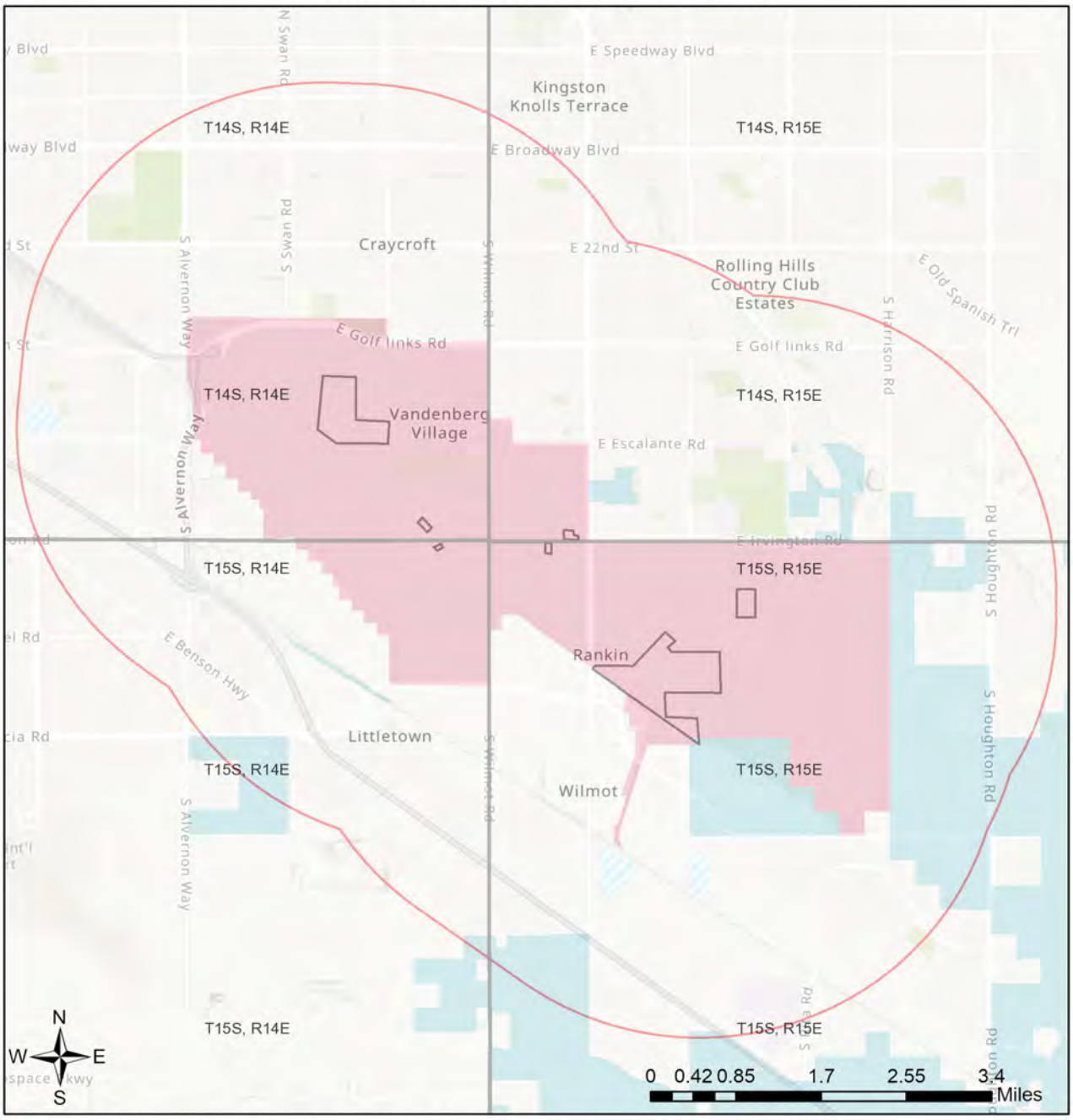
Township/Range(s): T14S, R14E; T14S, R15E; T15S, R14E +

USGS Quad(s): TUCSON; TUCSON EAST

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Davis-Monthan Air Force Base development projects

Township/Ranges and Land Ownership



- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 604.33

Lat/Long (DD): 32.1426 / -110.8295

County(s): Pima

AGFD Region(s): Tucson

Township/Range(s): T14S, R14E; T14S, R15E; T15S, R14E +

USGS Quad(s): TUCSON; TUCSON EAST

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Accipiter gentilis	Northern Goshawk	SC	S	S		2
Aechmophorus occidentalis	Western Grebe					2
Agelaius phoeniceus	Red-winged Blackbird					2
Amphispiza bilineata	Black-throated Sparrow					2
Anthus rubescens	American Pipit					2
Aspidoscelis sonorae	Sonoran Spotted Whiptail					2
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Auriparus flaviceps	Verdin					2
Bat Colony						
Buteo swainsoni	Swainson's Hawk					2
Calamospiza melanocorys	Lark Bunting					2
Callipepla squamata	Scaled Quail					2
Calypte costae	Costa's Hummingbird					2
Campylorhynchus brunneicapillus	Cactus Wren					2
Cardinalis sinuatus	Pyrrhuloxia					2
Catharus guttatus	Hermit Thrush					2
Catharus ustulatus	Swainson's Thrush					2
Charadrius vociferus	Killdeer					2
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		2
Circus hudsonius	Northern Harrier					2
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)	LT	S	S		1
Colaptes chrysoides	Gilded Flicker			S		2
Contopus cooperi	Olive-sided Flycatcher	SC				2
Contopus sordidulus	Western Wood-Pewee					2
Corvus cryptoleucus	Chihuahuan Raven					2
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Danaus plexippus	Monarch	C		S		
Empidonax wrightii	Gray Flycatcher					2
Euphagus cyanocephalus	Brewer's Blackbird					2
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon	SC	S	S		1
Falco sparverius	American Kestrel					2
Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad			S		2
Geothlypis tolmiei	MacGillivray's Warbler					2
Heloderma suspectum	Gila Monster					1
Icterus bullockii	Bullock's Oriole					2
Icterus cucullatus	Hooded Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Lanius ludovicianus	Loggerhead Shrike	SC				2

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Lasiurus xanthinus	Western Yellow Bat		S			2
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC		S		1
Melanerpes uropygialis	Gila Woodpecker					2
Melospiza lincolnii	Lincoln's Sparrow					2
Melozone aberti	Abert's Towhee		S			2
Melozone fusca	Canyon Towhee					2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Parabuteo unicinctus	Harris's Hawk					2
Passerculus sandwichensis	Savannah Sparrow					2
Peucaea carpalis	Rufous-winged Sparrow					2
Phrynosoma solare	Regal Horned Lizard					2
Pooecetes gramineus	Vesper Sparrow					2
Selasphorus platycercus	Broad-tailed Hummingbird					2
Setophaga nigrescens	Black-throated Gray Warbler					2
Spizella breweri	Brewer's Sparrow					2
Tadarida brasiliensis	Brazilian Free-tailed Bat					2
Terrapene ornata luteola	Desert Box Turtle			S		

Note: Status code definitions can be found at https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/.

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Tucson Urban Riparian Linkages	Pima County Wildlife Movement Area - Riparian/Wash					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/state-wildlife-action-plan/state-wildlife-action-plan-status-definitions/.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Ammodramus savannarum perpallidus	Western Grasshopper Sparrow					
Ammospermophilus harrisii	Harris' Antelope Squirrel					
Anthus spragueii	Sprague's Pipit	SC				2
Antrostomus ridgwayi	Buff-collared Nightjar		S			2
Aquila chrysaetos	Golden Eagle			S		2
Asio otus	Long-eared Owl					2
Aspidoscelis sonorae	Sonoran Spotted Whiptail					2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Auriparus flaviceps	Verdin					2
Buteo regalis	Ferruginous Hawk	SC		S		2
Buteo swainsoni	Swainson's Hawk					2
Buteogallus anthracinus	Common Black Hawk					2
Calcarius ornatus	Chestnut-collared Longspur					2
Calypte costae	Costa's Hummingbird					2
Camptostoma imberbe	Northern Beardless-Tyrannulet		S			2
Campylorhynchus brunneicapillus	Cactus Wren					2
Catharus ustulatus	Swainson's Thrush					2
Chaetodipus baileyi	Bailey's Pocket Mouse					2
Charadrius montanus	Mountain Plover	SC				2
Chilomeniscus stramineus	Variable Sandsnake					2
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		2
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)					
Colaptes chrysoides	Gilded Flicker			S		2
Columbina inca	Inca Dove					2
Corvus cryptoleucus	Chihuahuan Raven					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Crotalus tigris	Tiger Rattlesnake					2
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Empidonax wrightii	Gray Flycatcher					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Gastrophryne mazatlanensis	Sinoloan Narrow-mouthed Toad					
Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-owl					
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Heloderma suspectum	Gila Monster					1
Icterus bullockii	Bullock's Oriole					2
Icterus cucullatus	Hooded Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Kinosternon sonoriense sonoriense	Desert Mud Turtle					
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus blossevillii	Western Red Bat		S			2
Lasiurus cinereus	Hoary Bat					2
Lasiurus xanthinus	Western Yellow Bat		S			2
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				1

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Macrotus californicus	California Leaf-nosed Bat	SC		S		2
Megascops kennicottii	Western Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2
Melospiza lincolnii	Lincoln's Sparrow					2
Melozone aberti	Abert's Towhee		S			2
Micrathene whitneyi	Elf Owl					
Micruroides euryxanthus	Sonoran Coralsnake					2
Myadestes townsendi	Townsend's Solitaire					2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Notiosorex cockrumi	Cockrum's Desert Shrew					2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Nyctinomops macrotis	Big Free-tailed Bat	SC				2
Parabuteo unicinctus	Harris's Hawk					2
Passerculus sandwichensis	Savannah Sparrow					2
Perognathus amplus	Arizona Pocket Mouse					2
Peucaea carpalis	Rufous-winged Sparrow					2
Phrynosoma solare	Regal Horned Lizard					2
Phyllorhynchus browni	Saddled Leaf-nosed Snake					2
Pooecetes gramineus	Vesper Sparrow					2
Progne subis hesperia	Desert Purple Martin					
Sigmodon arizonae cienegae	Arizona Cotton Rat					2
Spizella breweri	Brewer's Sparrow					2
Tadarida brasiliensis	Brazilian Free-tailed Bat					
Toxostoma bendirei	Bendire's Thrasher					2
Troglodytes pacificus	Pacific Wren					2

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Military Activities, Development (new buildings, roads, etc.)

Project Type Recommendations:
Fence recommendations will be dependent upon the goals of the fence project and the wildlife species expected to be impacted by the project. General guidelines for ensuring wildlife-friendly fences include: barbless wire on the top and bottom with the maximum fence height 42", minimum height for bottom 16". Modifications to this design may be considered for fencing anticipated to be routinely encountered by elk, bighorn sheep or pronghorn (e.g., Pronghorn fencing would require 18" minimum height on the bottom). Please refer to the Department's Fencing Guidelines located on Wildlife Friendly Guidelines page, which is part of the Wildlife Planning button at https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/.

During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-wildlife-friendly-guidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Consider tower designs and/or modifications that reduce or eliminate impacts to migratory birds (i.e. free standing, minimally lighted structures).

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select “See What’s Here” for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

Project Location and/or Species Recommendations:
Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***. The **County-level Stakeholder Assessments** contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area- Diffuse, Wildlife movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/planning-for-wildlife-identifying-corridors/.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

HDMS records indicate that **Western Burrowing Owls** have been documented within the vicinity of your project area. Please review the western burrowing owl resource page at https://www.azgfd.com/wildlife-conservation/conservation-and-endangered-species-programs/burrowing-owl-management/.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To: August 11, 2023
Project Code: 2023-0116103
Project Name: Environmental Assessment for Multiple Development Projects on Davis-Monthan Air Force Base

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 Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats 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 Federal trust resources and to determine whether projects may affect federally listed 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 the Federal action agency determines that listed species or critical habitat *may be affected* by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and

that may be beneficial, insignificant, or discountable. An effect exists even if only one individual or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https://www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information

about refuge resources, please visit this link or visit https://www.fws.gov/program/national-wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife/planning/projevalprogram/).

We appreciate your concern for threatened and endangered species. 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. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- 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:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2023-0116103

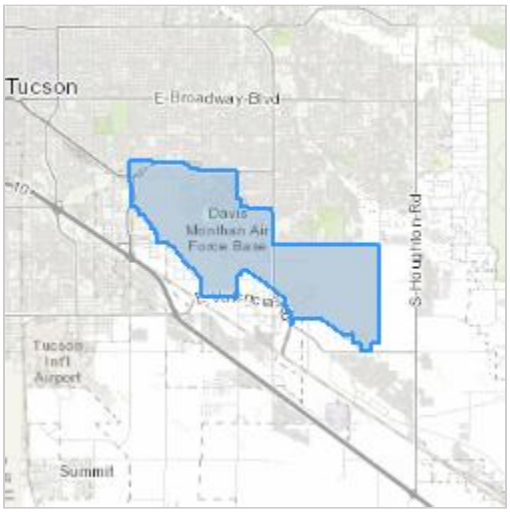
Project Name: Environmental Assessment for Multiple Development Projects on Davis-Monthan Air Force Base

Project Type: Military Development

Project Description: The Air Force is proposing to implement multiple installation development projects within Davis-Monthan AFB to support the Air Force's current and future mission and training requirements. The projects will provide facilities that are compliant with current design standards, promote quality-of-life needs, provide ample space for future mission growth, and promote efficient use of facilities to allow for consolidation of similar functions and squadrons. The projects include buildings in the Rescue Group Campus, Flightline District, Main Base District (both North and South areas), AMARG District, and the Munitions and Range District within the AFB. The projects would result in a net gain of about 875,00 sq. ft. of building space and creation of approximately 900,000 sq. ft. of impervious surface area (i.e., buildings and paved areas). All projects would occur in areas previously developed or modified by previous activities (i.e., no disturbance native vegetation). Projects may be implemented over a 5-year planning period.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@32.1578338,-110.83726460402141,14z



Counties: Pima County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 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.

MAMMALS

NAME	STATUS
Ocelot *Leopardus (=Felis) pardalis*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4474

BIRDS

NAME	STATUS
California Least Tern *Sterna antillarum browni*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8104

Yellow-billed Cuckoo *Coccyzus americanus*	Threatened

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

REPTILES

NAME	STATUS
Sonoyta Mud Turtle *Kinosternon sonoriense longifemorale*	Endangered

There is **final** critical habitat for this species.
Species profile: https://ecos.fws.gov/ecp/species/7276

FISHES

NAME	STATUS
Gila Chub *Gila intermedia*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/51

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

FLOWERING PLANTS

NAME	STATUS
Arizona Eryngo *Eryngium sparganophyllum*	Endangered

Population:
There is **final** critical habitat for this species.
Species profile: https://ecos.fws.gov/ecp/species/10705

Huachuca Water-umbel *Lilaeopsis schaffneriana var. recurva*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1201

Pima Pineapple Cactus *Coryphantha scheeri var. robustispina*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4919

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.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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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)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* 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.	Breeds Oct 15 to Aug 31
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
Gila Woodpecker *Melanerpes uropygialis* 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/5960	Breeds Apr 1 to Aug 31
Gilded Flicker *Colaptes chrysoides* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2960	Breeds May 1 to Aug 10
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
Grace's Warbler *Dendroica graciae* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 20 to Jul 20
Lawrence's Goldfinch *Carduelis 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
Rufous-winged Sparrow *Aimophila carpalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 30
Western Grebe *aechmophorus occidentalis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

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 and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week

months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

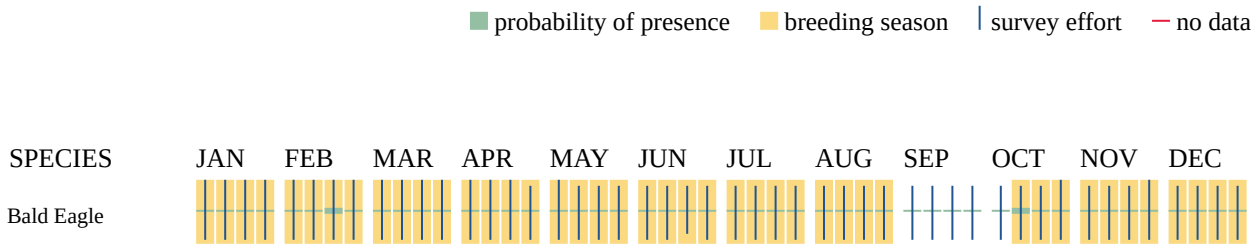
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

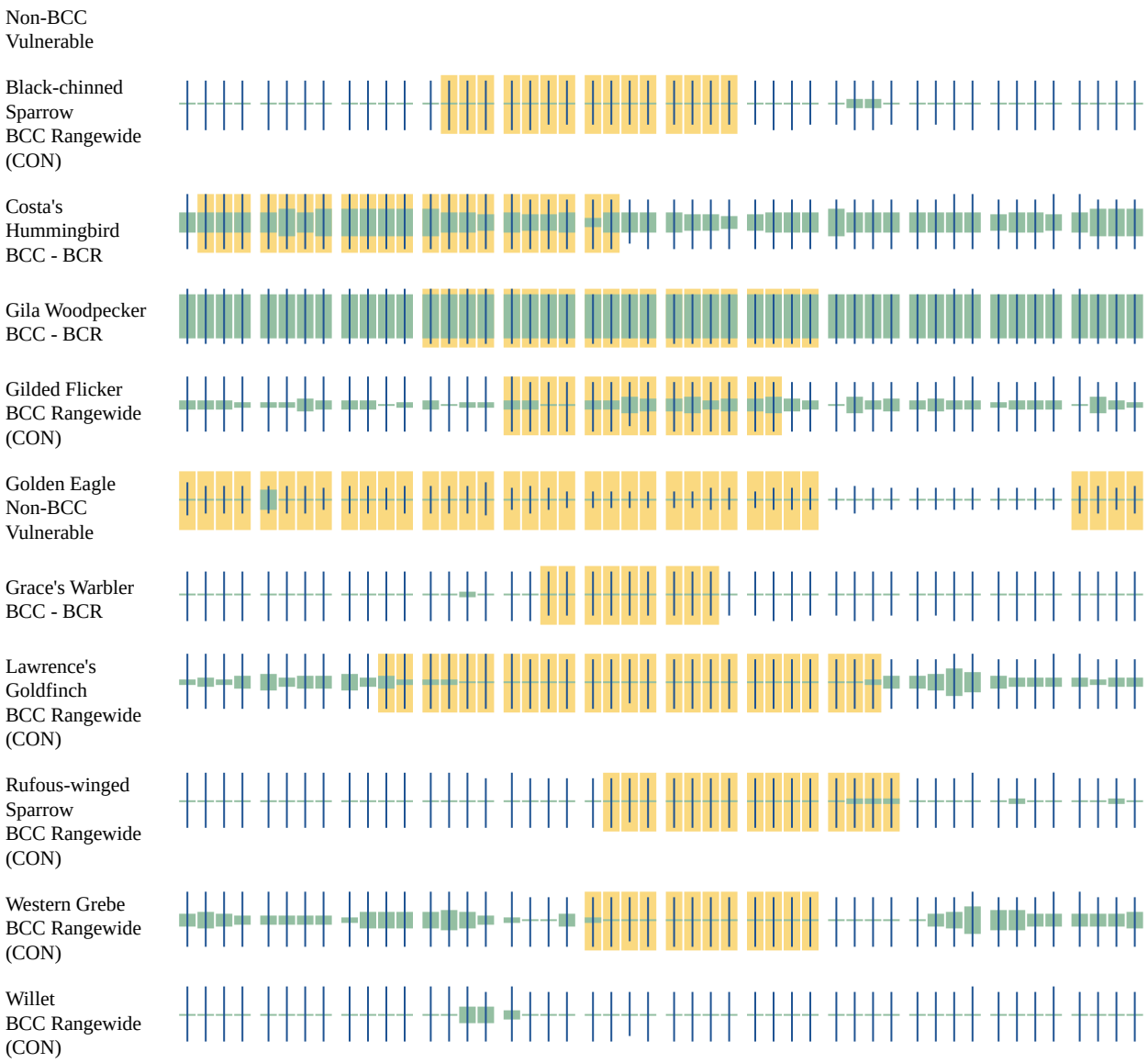
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?
The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?
The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of

certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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

- R4SBA
- R4SBAx
- R4SBC

FRESHWATER POND

- PUBF

IPAC USER CONTACT INFORMATION

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APPENDIX B. AIR CONFORMITY APPLICABILITY MODEL 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 an analysis to assess the potential air quality impact/s associated with the action 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 General Conformity Rule (GCR, 40 CFR 93 Subpart B). This report provides a summary of the ACAM analysis.

a. Action Location:

Base: DAVIS-MONTHAN AFB
State: Arizona
County(s): Pima
Regulatory Area(s): NOT IN A REGULATORY AREA

b. Action Title: DM ADP

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2024

e. Action Description:

Flightline District Plan Project
The construction of the new Communications Squadron headquarters within the Flightline District is needed to provide updated facilities with an efficient layout and space for current and future mission requirements. The Communications Squadron currently operates out of a 1945 hangar building that was converted to administrative space in 1985. The existing building is substandard, nearing end of life condition, and occupies highly desirable land space along the flightline that could be better used for flight operation functions.
AFRC FOCUS Projects
The projects identified in the AFRC FOCUS support the facility needs of the 943d Rescue Group, 924th Fighter Group, 610th Command and Control Squadron, and 720th Security Forces Squadron. Projects proposed in the AFRC FOCUS are needed to provide sufficient space for current and future mission requirements. Presently, the 943d Aerospace Medical Squadron lacks adequate administrative and training space for its facility functions. The 943d Maintenance Squadron needs additional indoor space for storing aircraft ground equipment (AGE); a hangar building for unscheduled maintenance of A-10 fighter aircraft; and administrative, training, and shop space for maintenance of the HH-60 rescue helicopter and training of personnel.
AMARG District Plan Projects
The AMARG serves an important function in maintaining and storing all excess US military aircraft. Projects identified in the AMARG District Plan are needed to consolidate mission functions, improve operational efficiency, and facilitate communications within the organization. Currently, the Mission Support Center operates out of eight separate, substandard buildings. The AMARG packaging and fabrication function needs a consolidated facility; currently, it is served by multiple buildings, several of which are three-sided and open to the harsh desert climate. The Air Force has notified AMARG that any special tooling/special test equipment (ST/STE) requiring long-term storage will be stored at Davis-Monthan AFB. AMARG needs a large storage warehouse for storing the ST/STE, as no facility exists for this purpose.
Other Installation Development Projects
As identified in the Dormitory Master Plan, construction of an additional dormitory is needed because Davis-Monthan AFB has insufficient on-Base housing to accommodate unaccompanied enlisted personnel.
Davis-Monthan AFB proposes to purchase eight tracts of contiguous, privately owned land on the southeast end of Davis-Monthan AFB near the MSA. Because the land parcels are within Davis-Monthan AFB, the private owners cannot access the property. Several parcels overlap the explosive safety quantity distance (QD) arcs for the munition's storage units. Currently, the Air Force continues to pay rent on the land under a lease agreement; however, purchasing the parcels outright would provide cost-savings and ensure appropriate land use of the parcels in perpetuity.
Munitions Storage Area Projects
Projects proposed for the Munitions Storage Area (MSA) under the Proposed Action are needed because the munitions storage facilities at Davis-Monthan AFB were initially constructed more than 60 years ago. Most of

the storage igloos were constructed in the 1950s and do not meet munitions storage requirements, except for Storage Igloo 172, which was constructed in 2008. The older MSA facilities do not meet requirements for personnel quality of life due to lack of indoor cooling, adequate work and administrative space, and adequate rest rooms. The 355th Munitions Squadron (MUNS) Airmen are also outside in extreme weather, particularly during the summer months when Davis-Monthan AFB is exposed to high temperatures and constant sunshine. In addition, testing has revealed that some facilities in the MUNS compound have asbestos and lead paint.
In addition to the existing facilities being antiquated, many of the 355 MUNS facilities are poorly configured for current operations, resulting in inefficient operations and potentially unsafe work conditions. Several MUNS operations cannot be performed concurrently because they are co-located within existing buildings and the operations are incompatible due to safety requirements, resulting in the temporary suspension of some operations. There is no loading dock within the MSA, forcing current loading and unloading of shipments to be performed outside the MSA secured area with mobile ramps. The 355 MUNS has outgrown its administrative facilities, with some administrative and maintenance operations displaced from the MSA. The current administrative facilities are inside the secured MSA, requiring access to secured areas that would otherwise be unnecessary if the functions were separated.
Monsoon rains during the summer often cause localized flooding, creating issues throughout the district (e.g., Building 184 and several storage igloos). There are minimal pedestrian routes that can be used, especially after rainstorms. Pavement within the MSA is old and of poor quality for moving munitions. Finally, the MSA is located on the southeast end of Davis-Monthan AFB and is very dark at night. Current lighting is limited and creates potential safety issues during night munitions operations.

f. Point of Contact:

Name: J. Michael Nied, PE(WI)
Title: Environmental Engineer
Organization: Environmental Assessment Services, LLC
Email: mnied@easbio.com
Phone Number: 608.797.1326

2. Air Impact Analysis:

Based on the attainment status at the action location, the requirements of the General Conformity Rule are:

_____ applicable
__X__ not applicable

Total 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” (i.e., net gain/loss upon action fully implemented) emissions. The ACAM analysis used 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.

“Insignificance Indicators” were used in the analysis to provide an indication of the significance of potential impacts to air quality based on current ambient air quality relative to the National Ambient Air Quality Standards (NAAQSs). These insignificance indicators are the 250 ton/yr Prevention of Significant Deterioration (PSD) major source threshold for actions occurring in areas that are “Clearly Attainment” (i.e., not within 5% of any NAAQS) and the GCR de minimis values (25 ton/yr for lead and 100 ton/yr for all other criteria pollutants) for actions occurring in areas that are “Near Nonattainment” (i.e., within 5% of any 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 pollutant is considered so insignificant that the action will not cause or contribute to an exceedance on one or more NAAQSs. For further detail on insignificance indicators see chapter 4 of the Air Force Air Quality Environmental Impact Analysis Process (EIAP) Guide, Volume II - Advanced Assessments.

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

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

Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.702	100	
NOx	2.155	100	
CO	2.453	250	
SOx	0.008	250	
PM 10	5.249	100	
PM 2.5	0.107	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	1277.0		

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.729	100	
NOx	2.747	100	
CO	3.015	250	
SOx	0.012	250	
PM 10	5.295	100	
PM 2.5	0.153	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	2109.1		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.767	100	
NOx	3.440	100	
CO	3.597	250	
SOx	0.017	250	
PM 10	5.348	100	
PM 2.5	0.205	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	2943.0		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.805	100	
NOx	4.132	100	

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

CO	4.179	250	
SOx	0.021	250	
PM 10	5.401	100	
PM 2.5	0.258	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	3776.8		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.843	100	
NOx	4.825	100	
CO	4.761	250	
SOx	0.025	250	
PM 10	5.453	100	
PM 2.5	0.311	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	4610.6		

2029 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.190	100	
NOx	3.463	100	
CO	2.909	250	
SOx	0.021	250	
PM 10	0.263	100	
PM 2.5	0.263	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	4169.2		

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

_____ _____

J. Michael Nied, PE(WI), Environmental Engineer DATE

AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF AIR ANALYSIS (ROAA) - Alternative 2

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

Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.683	100	
NOx	2.134	100	
CO	2.430	250	
SOx	0.008	250	
PM 10	5.232	100	
PM 2.5	0.105	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	1268.6		

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.709	100	
NOx	2.724	100	
CO	2.990	250	
SOx	0.012	250	
PM 10	5.278	100	
PM 2.5	0.151	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	2095.9		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.747	100	
NOx	3.412	100	
CO	3.568	250	
SOx	0.016	250	
PM 10	5.331	100	
PM 2.5	0.204	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	2924.9		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.785	100	
NOx	4.101	100	

AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF AIR ANALYSIS (ROAA) - Alternative 2

CO	4.147	250	
SOx	0.021	250	
PM 10	5.383	100	
PM 2.5	0.256	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	3753.9		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.823	100	
NOx	4.790	100	
CO	4.725	250	
SOx	0.025	250	
PM 10	5.435	100	
PM 2.5	0.308	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	4583.0		

2029 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.189	100	
NOx	3.443	100	
CO	2.892	250	
SOx	0.021	250	
PM 10	0.262	100	
PM 2.5	0.262	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	4145.2		

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

_____ _____

J. Michael Nied, PE(WI), Environmental Engineer DATE

AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF AIR ANALYSIS (ROAA) - Alternative 3

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

Analysis Summary:

2024

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.586	100	
NOx	2.164	100	
CO	2.457	250	
SOx	0.008	250	
PM 10	4.973	100	
PM 2.5	0.108	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	1309.2		

2025

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.614	100	
NOx	2.790	100	
CO	3.047	250	
SOx	0.013	250	
PM 10	5.021	100	
PM 2.5	0.157	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	2180.8		

2026

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.654	100	
NOx	3.515	100	
CO	3.657	250	
SOx	0.017	250	
PM 10	5.077	100	
PM 2.5	0.212	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	3054.0		

2027

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.694	100	
NOx	4.241	100	

AIR CONFORMITY APPLICABILITY MODEL REPORT RECORD OF AIR ANALYSIS (ROAA) - Alternative 3

CO	4.266	250	
SOx	0.021	250	
PM 10	5.132	100	
PM 2.5	0.267	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	3927.2		

2028

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	2.734	100	
NOx	4.966	100	
CO	4.875	250	
SOx	0.026	250	
PM 10	5.187	100	
PM 2.5	0.322	250	
Pb	0.000	25	No
NH3	0.003	250	
CO2e	4800.4		

2029 - (Steady State)

Pollutant	Action Emissions (ton/yr)	INSIGNIFICANCE INDICATOR	
		Indicator (ton/yr)	Exceedance (Yes or No)
NOT IN A REGULATORY AREA			
VOC	0.199	100	
NOx	3.627	100	
CO	3.046	250	
SOx	0.022	250	
PM 10	0.276	100	
PM 2.5	0.276	250	
Pb	0.000	25	No
NH3	0.000	250	
CO2e	4366.1		

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

_____ _____

J. Michael Nied, PE(WI), Environmental Engineer DATE