

1 **Draft**
2 **Environmental Assessment**
3 **Fourth-Generation Missions Regional Realignment**
4 **Davis-Monthan Air Force Base, Arizona**

5 **October 2023**



6
7 **United States Air Force**
8 **355th Wing**
9 **Davis-Monthan Air Force Base, Arizona**



10

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. 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 Personal home addresses and phone numbers will not be published in the EA.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

ACCESSIBILITY NOTICE

This document is compliant with Section 508 of the Rehabilitation Act. This allows assistive technology to be used to obtain the available information from the document. Due to the nature of graphics, figures, tables, and images occurring in the document, accessibility is limited to a descriptive title for each item.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35

COVER SHEET
Draft Environmental Assessment for
Fourth-Generation Missions Regional Realignment
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
- d. *Point-of-Contact:* Kevin Wakefield, EIAP Program Manager, 3775 South Fifth Street, Davis-Monthan AFB, AZ 85707-3012, kevin.wakefield.1@us.af.mil

Abstract:

The Air Force is proposing to relocate the following fourth-generation missions from Nellis AFB, Nevada, to Davis-Monthan AFB, Arizona:

- 66th Weapons Squadron (66 WPS)
- A-10 Operational Test (OT) portion of the 422nd Test and Evaluation Squadron (422 TES)
- 66th Rescue Squadron (66 RQS)
- 58th Rescue Squadron (58 RQS)
- 34th Weapons Squadron (34 WPS)
- 88th Test and Evaluation Squadron (88 TES)

In order to create capacity at Davis-Monthan AFB to accept the aforementioned missions, the Air Force proposes to take the following actions with units already stationed at Davis-Monthan AFB:

- Inactivate the 354th Fighter Squadron (354 FS) and retire assigned A-10C aircraft.
- Downsize the 357th Fighter Squadron (357 FS) and retire some of their A-10 aircraft.

The A-10 OT portion of the 422 TES would transition in 2024. The HH-60 Weapons Instructor Course and Test and combat-coded units, to include the 88 TES, 66 RQS, 58 RQS, 79th Rescue Generation Squadron (RGS), 55 RGS, and the 34 WPS, would move beginning in 2025.

There are several other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base located at the Tucson International Airport (Arizona).

Under the Proposed Action, day sorties would change from a total of 11,739 to 11,906, an increase of 167 sorties. Night sorties would change from a total of 2,272 to 3,206, an increase of 934 sorties. The Proposed Action also would involve construction of five facilities. The primary special use airspace to be utilized by the 355 WG would be the Barry M. Goldwater Range. The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas also would be utilized for training.

This page intentionally left blank

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOURTH-GENERATION REGIONAL REALIGNMENT – DAVIS-MONTHAN AFB

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 *United States Code* (USC) § 4321 et seq.; Council on Environmental Quality (CEQ) regulations at 40 *Code of Federal Regulations* (CFR) Parts 1500–1508; and 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*, the United States (US) Air Force (Air Force) prepared the attached Environmental Assessment (EA) to address the potential environmental consequences associated with relocation of a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller training, and Guardian Angel operations to Davis-Monthan AFB, Arizona. In addition, the EA evaluated the assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

Purpose and Need

Davis-Monthan Restructure

The purpose of moving the fourth-generation (4th Gen) A-10 and HH-60 aircraft squadrons from Nellis AFB is to free up Base and range capacity at the Nevada Test and Training Range necessary to test and train warfighters in fifth-generation (5th Gen) aircraft and allow personnel recovery units to take advantage of the synergy provided by co-locating with other rescue units. The Proposed Action would improve 5th Gen and beyond test, training, and tactics development capabilities at Nellis AFB to keep pace with Air Force mission requirements, evolving technology, and enemy capabilities. Nellis AFB has reached maximum capacity and space must be freed up to beddown 5th Gen missions.

The action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity. The infrastructure available at Nellis AFB does not meet current or future mission needs and is operating at or beyond capacity.

Beddown Civil Air Patrol Cessna 182

The purpose of the beddown of the CAP Cessna 182 is to provide better training and to increase operations missions that the CAP conducts in support of the Air Force.

The Air Force partnership with the CAP encompasses a variety of mission sets that directly benefit the Air Force. The beddown of CAP aircraft at Davis-Monthan AFB is needed to improve communications, interaction between the CAP and Air Force, and execution of a number of these missions.

Relocate RC-26B Operations

The purpose of the relocation of RC-26B operations is to create space for a potential increase in F-16 training based at the 162nd Wing (162 WG) at the Morris ANGB and to consolidate 214 Attack Group assets and operations in a common location.

The ANG anticipates a large-scale increase in international F-16 training based at the 162 WG at Morris ANGB. A single RC-26B aircraft needs to be relocated to make room for F-16-specific ramp realignments and improvements that are incompatible with continued RC-26 operations. In 2017, responsibility for the RC-26 organization was transferred from the 162nd Operations Group at Morris ANGB to the 214th Attack Group (214 ATKG), a subordinate unit to the 162 WG that is a tenant on Davis-Monthan AFB. Relocating the RC-26 aircraft and associated manpower to Davis-Monthan AFB in existing Total Force Training Center facilities would also serve to consolidate 214 ATKG assets and operations in a common location.

Description of Proposed Action and Alternatives

The Air Force is proposing to relocate the following 4th Gen missions from Nellis AFB, Nevada, to Davis-Monthan AFB, Arizona:

- 66th Weapons Squadron (66 WPS)
- A-10 Operational Test (OT) portion of the 422nd Test and Evaluation Squadron (422 TES)
- 66th Rescue Squadron (66 RQS)
- 58th Rescue Squadron (58 RQS)
- 34th Weapons Squadron (34 WPS)
- 88th Test and Evaluation Squadron (88 TES)

In order to create capacity at Davis-Monthan AFB to accept the aforementioned missions, the Air Force proposes to take the following actions with units already stationed at Davis-Monthan AFB:

- Inactivate the 354th Fighter Squadron (354 FS) and retire assigned A-10C aircraft.
- Downsize the 357th Fighter Squadron (357 FS) and retire some of their A-10 aircraft.

The A-10 OT portion of the 422 TES would transition in 2024. The HH-60 Weapons Instructor Course and Test and combat-coded units, to include the 88 TES, 66 RQS, 58 RQS, 79th Rescue Generation Squadron (RGS), 55 RGS, and the 34 WPS, would move beginning in 2025.

There are several other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two CAP Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris ANGB located at the Tucson International Airport (Arizona).

Under the Proposed Action, day sorties would change from a total of 11,739 to 11,906, an increase of 167 sorties. Night sorties would change from a total of 2,272 to 3,206, an increase of 934 sorties. The Proposed Action also would involve construction of five facilities. The primary special use airspace (SUA) to be utilized by the 355 WG would be the Barry M. Goldwater Range. The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) would also be utilized for training.

No Action Alternative

Analysis of the No Action Alternative provides a benchmark, enabling decision-makers to compare the magnitude of the potential environmental effects of the Proposed Action. NEPA requires an EA to analyze the No Action Alternative. No action means that an action would not take place at this time, and the resulting environmental effects from taking no action would be compared with the effects of deciding to move forward with the proposed activity. No action for this EA reflects the status quo, where no additional aircraft assets would be transferred to, retired from, or reallocated at Davis-Monthan AFB.

Summary of Findings

Potentially affected environmental resources were identified through communications with state and federal agencies and review of past environmental documentation. Specific environmental resources with the potential for environmental consequences include airspace management and use; noise; safety; air quality; biological, water, and cultural resources; geology and soils; land use; socioeconomics; environmental justice and protection of children; hazardous materials and wastes, toxic substances, and contaminated sites; and infrastructure, transportation, and utilities.

Airspace Management and Use

The Proposed Action would result in an increase in airfield operations from 39,122 to an estimated 42,997 total airfield operations. The increase of 3,875 operations, or 9 percent, would be due to the addition of Base-assigned aircraft. Operations would still require air traffic control services by Davis-Monthan Tower and Tucson Approach for departure, pattern work, and arrival services.

Aircraft would continue to operate within the existing SUA but would increase SUA utilization by 10.9 percent, or 1,101 total annual sorties. Since scheduling deconfliction is already being done within the 355 WG, an increase of 1,101 annual SUA operations would not be expected to cause a significant impact. Additionally, these aircraft would be spread across all the various SUA, which would reduce airspace saturation. Therefore, no significant airspace impacts would be expected to occur with implementation of Proposed Action.

Noise

A total of 1,101 acres would be exposed to a Day-Night Average Sound Level of 65 decibels (dB DNL) or greater, 117 of those acres would be located outside the Installation boundary. Under the Proposed Action, there would be an overall decrease of acreage outside of the Installation boundary exposed to 65 dB DNL. Approximately 7 additional acres on Installation would be newly exposed to noise levels of 75 dB DNL.

Under the Proposed Action, A-10 operations within the SUA would increase by approximately 2 percent and HH-60 operations within the airspace would increase by approximately 31 percent. A 2-percent increase in A-10 operations corresponds to an imperceptible increase to noise under the airspaces. A 31-percent increase in HH-60 operations corresponds to approximately a 2-dB Onset-Rate Adjusted DNL increase to noise under the airspaces. However, other aircraft using these airspaces also contributes to the overall noise level. HH-60 aircraft are among the least loud of the aircraft using these airspaces, so the increase in noise level due to the increase in HH-60 operations likely would be imperceptible against the background of noise from other jet aircraft (e.g., F-16, F-35) operations within the airspaces.

The noise level increases that would occur due to the Proposed Action would be expected to be minor to imperceptible.

Safety

Negligible, temporary, adverse impacts on ground safety would be expected under the Proposed Action. Davis-Monthan AFB would require new construction, which could expose personnel to risks from heavy equipment operation, hazardous materials, and potentially noisy and confined environments. To minimize health and safety risks, contractors would be required to maintain site-specific health and safety programs that follow all applicable regulations. Davis-Monthan AFB personnel would review these programs prior to work beginning to ensure contractors take appropriate measures to reduce the potential health and safety risks. Current operational processes and procedures would continue.

No facilities/activities with explosive safety quantity-distance arcs at Davis-Monthan AFB would be impacted with implementation of the Proposed Action, including the Munitions Storage Area, the Explosive Ordnance Demolition area, the alert hangar and apron, combat aircraft parking areas, hot cargo pad, aircraft explosives cargo area, the Aerospace Maintenance and Regeneration Group's Explosive Ordnance Disposal area, and the ammunition shipping/inspection/storage facilities. Therefore, no impacts to explosives safety would be anticipated to occur with implementation of the Proposed Action.

No changes to existing accident potential zones or clean zones would be required with implementation of the Proposed Action. The number of sorties would increase minimally; therefore, implementation of the Proposed Action would not increase the safety risk to these or other off-Base areas. Davis-Monthan AFB would continue to work with communities and developers to apply the Air Installations Compatible Use Zones guidelines. Therefore, no impacts to ground safety would be anticipated to occur with implementation of the Proposed Action.

Air Quality

No significant effects to air quality would be expected to result from implementation of the Proposed Action. The estimated total annual emissions of the Proposed Action would not exceed the *de minimis* or Prevention of Significant Deterioration permitting thresholds for any criteria pollutant or precursor. The proposed net changes in criteria pollutants and/or precursors would be less than the indicator of significance

threshold of 100 tons per year for all of the pollutants. Therefore, it is unlikely these increases would cause significant impacts.

While emissions for all pollutants would increase with implementation of the Proposed Alternative, the net changes would be less than the *de minimis* thresholds in all of the counties in which low-altitude flight and operations would occur. Because the emissions associated with the Proposed Action would be below the General Conformity *de minimis* thresholds, the requirements of the General Conformity Rule are not applicable, as documented in the detailed air conformity analysis performed for this EA and available in the Project Administrative Record.

Biological Resources

The areas designated for construction activities under the Proposed Action have limited suitable habitat for wildlife. The developed portion of Davis-Monthan AFB, in which the projects proposed would be located, supports relatively common wildlife species such as small mammals. No federally listed threatened or endangered species have been observed on Davis-Monthan AFB, nor does critical habitat exist within Davis-Monthan AFB.

Impacts to biological resources occurring under the SUA that would be utilized under the Proposed Action could result from overflights and associated noise, the use of munitions and flares, and bird-aircraft collisions. No sonic booms would occur due to the Proposed Action. Wildlife, especially avian species, utilizing the surrounding undeveloped areas underneath the SUA for foraging and breeding would normally be sensitive to increased noise impacts from military aircraft. Although there is variability in responses across species, many birds and wildlife have the ability to habituate to noise and movement from military aircraft (Grubb et al., 2013), and military aircraft operations have been ongoing at Davis-Monthan AFB for decades and are now part of the natural noise environment.

Under the Proposed Action, chaff and flares would be used over the Barry M. Goldwater Range and Ruby Fuzzy MOAs. To minimize the potential for flares to ignite vegetation, flares would be employed at an altitude that prevents the flares from impacting the ground or structures. Chaff and flares would be used in compliance with the 355 WG Inflight Guide. Chaff and flare usage would be consistent with existing usage, and impacts would be negligible.

Water Resources

Approximately 7 acres of soil would be disturbed during construction activities under the Proposed Action. 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 the Proposed Action would have the potential to disturb up to 7 acres of ground surface, Davis-Monthan AFB would be required to obtain a Construction Activity General Permit (CGP) under its 2016 General Permit with the Arizona Department of Air Quality (ADEQ), which regulates the Base's stormwater outfalls. This permit requires various controls and best management practices (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 associated with the Proposed Action would be anticipated to be short term and minor.

Under the Proposed Action, 391,000 square feet of new, impervious surface area would be added to the Base as a result of the construction of new facilities. This increase in impervious surface area would be anticipated to result in a minor, long-term increase in stormwater runoff at Davis-Monthan AFB.

Construction-related activities would create the potential for contaminants, mainly fuel, to leach or discharge to the Tucson Basin Aquifer. The Air Force contractor would follow BMPs designed to prevent polluted stormwater runoff, as well as BMPs to manage pollution prevention outlined in the ADEQ CGP, to minimize the potential of chemicals entering the aquifer. Therefore, the Proposed Action would be anticipated to have negligible, short-term, indirect impacts on groundwater.

Geology and Soils

The Proposed Action would involve the construction of five projects and disturb a total of 391,000 square feet of soil. Construction occurring under the Proposed Action would involve earthwork, including excavation, backfilling, and compacting of soils or fill materials on and immediately adjacent to the project sites. These activities would expose soils and increase their susceptibility to water and wind erosion. Inclement weather (e.g., rain or wind) would have the potential to increase the probability and severity of these potential effects.

Geology – The underlying geology of the area would not change under the Proposed Action. No direct or indirect impacts to geology would be anticipated to occur with implementation of the Proposed Action.

Topography – None of the projects under the Proposed Action would occur in areas that necessitate 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 the siting of a structure. After placing and compacting reuse or fill soils, superficial soils would be graded to conform to local topography to maintain efficient drainage. Therefore, short-term, negligible impacts to topography would be anticipated to occur with implementation of the Proposed Action.

Soils – All construction projects implemented under the Proposed Action would involve soil-disturbing activities in areas consisting of Mohave soils and urban land, which is well drained and has a moderate potential for erosion (see **Figure 3-5** in the EA) (Davis-Monthan AFB, 2021). Slopes within the areas proposed for construction range from 1 to 8 percent, with a medium runoff potential. All project sites under the Proposed Action are generally suitable for development; however, the Air Force would validate soil conditions at each site prior to construction to address any limiting factors by management or design.

Under the Proposed Action, potential adverse effects on soils, including soil loss, contamination, and structural alteration, would be managed at an individual project level. When implementation of a project would disturb 1 or more acre of land, the construction contractor would obtain and comply with a CGP under the ADEQ-administered Arizona Pollutant Discharge Elimination System (AZPDES) program (see **Section 3.9** in the EA). The CGP would require the preparation and implementation of a site-specific Stormwater Pollution Prevention Plan prior to construction, including 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 United Facilities Criteria 3-210-10 (as amended 2016) and Section 438 of the Energy Information Security Act (see **Section 3.9.3.2** of the EA) to minimize impacts to soil resources. With proper implementation of BMPs and adherence to relevant permitting, adverse impacts to soils resulting from the Proposed Action would be anticipated to be short term and minor.

Land Use

No significant adverse effects to land use would be expected to result from implementation of the Proposed Action. Under the Proposed Action, construction of new facilities would occur within the existing boundaries of the Installation. Proposed construction locations would be on land designated as either open space or aircraft maintenance operations. Proposed construction that would occur on land designated open space would be sited along the existing flight line and adjacent to other existing facilities. New construction activities would continue to be designed to meet the land use needs of the Base.

Under the Proposed Action, there would be an overall decrease of 7 acres in the total area exposed to noise levels of 65 dB DNL or greater outside of the Installation boundary. Existing land use under the

Proposed Action would remain generally unchanged. No impacts to land use on Base or outside of the boundary of the Installation would be anticipated.

Socioeconomics

No significant effects to socioeconomics would be expected to result from implementation of the Proposed Action Alternatives. The 646 additional military, contract, and civilian personnel would represent a 4.6-percent increase in the total persons permanently assigned to and working at Davis-Monthan AFB, where approximately 14,000 military and civilian personnel are currently employed. A 4.6-percent increase would not have an impact on the availability of employment in the region; personnel relocating would already be employed by the Air Force and would not compete for currently available positions that could be filled by the local workforce; however, it is possible that military dependents could join the local workforce.

The construction of new facilities would result in a temporary increase of 20–50 construction personnel, depending on the number of projects occurring simultaneously; any temporary increase would have a negligible beneficial impact on the socioeconomic condition on the region. Because there would be no permanent increase in military, contract, or civilian personnel, there would be no need for additional housing. Therefore, no adverse impacts on employment, housing, or educational resources would occur under the Proposed Action Alternatives.

Environmental Justice and the Protection of Children

No significant effects to environmental justice populations and protection of children would be expected to result from implementation of the Proposed Action. Impacts to residents living outside Davis-Monthan AFB would not occur because the proposed activities are wholly contained within the Base. Under the Proposed Action, there would be an overall decrease of acreage outside of the Installation boundary exposed to 65 dB DNL. No off-Base schools or childcare facilities would be exposed to DNL of 65 dB or greater at Davis-Monthan AFB. Additionally, no hospitals, parks, or libraries would be exposed to DNL of 65 dB or greater. Therefore, there would be no disproportionate impacts to minority, low-income, or youth populations.

Cultural Resources

No significant effects to cultural resources would be expected to result from implementation of the Proposed Action.

Archaeological Sites – Under the Proposed Action, five new buildings including two helicopter simulators, would be constructed on the Installation. The two helicopter simulators would be constructed to the east and west of Building 4382. The 58 RQS facility would be constructed just east of Building 4868, and the two 88 TES buildings would be constructed northeast of the runway. There are archaeological sites located within the 800-meter indirect Area of Potential Effect (APE) for all the proposed new construction. These sites are not eligible for listing in the National Register of Historic Places (NRHP), and all construction would occur on land that has been disturbed from past and ongoing mission activities.

Historic Architectural Properties – No demolition or renovation activities would be implemented under the Proposed Action. No buildings listed or eligible for listing on the NRHP are located within the direct or indirect APE for the Proposed Action; the construction of the five proposed facilities on the Installation would not be expected to have an impact on historic properties.

No impacts to historic properties under the SUA would be expected. No supersonic flights would be included as part of the Proposed Action and the increase in overall noise would be negligible.

Traditional Cultural Properties – No sacred sites, human remains, associated grave goods, unassociated grave goods, sacred objects, or objects of cultural patrimony have been identified on Davis-Monthan AFB. The Proposed Action would not impact archaeological sites, historic properties, or Native American resources.

The Proposed Action would not be expected to result in impacts on traditional cultural properties (TCPs). Mount Graham, located within the Outlaw/Jackal/Morenci MOAs is a TCP according to the Apache Tribes of Arizona, and the Air Force would continue to avoid overflights of this resource.

Hazardous Materials and Wastes, Toxic Substances, and Contaminated Sites

No significant effects to hazardous materials (HAZMAT) and wastes would be expected to result from implementation of the Proposed Action Alternatives.

Implementation of the Proposed Action at Davis-Monthan AFB would not add any new HAZMAT that would exceed the Base's current hazardous waste processes. Existing procedures for the centralized management of the storage, distribution, use, reuse, recycling, and disposal of HAZMAT through the Base Hazardous Materials Storage Facility are adequate to accommodate the changes anticipated under the Proposed Action. Construction waste would only be generated from the new construction projects; no demolition or renovation activities are proposed. No construction activities would occur within identified Environmental Restoration Program sites; therefore, there would be no impacts to those sites.

Infrastructure, Transportation, and Utilities

No significant adverse effects to infrastructure, transportation, or utilities would be expected to result from implementation of the Proposed Action Alternatives.

Transportation – Under the Proposed Action, personnel on the Installation would increase. Increased truck traffic and construction workers commuting to the Installation during periods of construction would be expected to cause temporary increases in demand and increased congestion on local roads. At project sites, temporary lane closures would be expected during construction activities. The on-Base transportation network is sufficient to handle the existing traffic volume.

Electricity and Natural Gas – The Proposed Action would have no long-term impacts to either the electrical or natural gas supply systems. Any potential short-term disruptions to electrical or natural gas service within project areas during construction activities would be mitigated during project planning.

Potable Water Supply – Short-term, negligible, adverse impacts on the potable water supply system would be expected to occur during construction while 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.

Solid Waste – Short-term, minor, adverse impacts on solid waste management would have the potential to occur due to construction projects under the Proposed Action. Based on US Environmental Protection Agency guidance on estimating solid waste from construction, the 291,000 square feet of new construction would generate 4.39 pounds per square foot of debris. This equates to approximately 1.3 million pounds of solid waste created as a result of the Proposed Action. 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 Air Force Manual 32-7002, *Environmental Compliance and Pollution Prevention*.

Sanitary and Stormwater – Short-term, negligible, adverse impacts on the sanitary sewer and wastewater treatment systems would have the potential to occur during construction while existing lines are connected to new buildings. Although the operation of the new buildings would increase the demand on the sanitary sewer and wastewater treatment systems in the short term, adverse impacts to the sanitary sewer and wastewater treatment systems in the long term would not be expected, as the current systems have the capacity required to meet new demands.

Cumulative Impacts

The EA considered cumulative impacts that could result from the incremental impact of Proposed Action when added to other past, present, or reasonably foreseeable environmental trends and planned actions on or near Davis-Monthan AFB or associated SUA.

Under the Proposed Action, reasonably foreseeable development plans and projects within and around the Tucson area also would be subject to regulation under the AZPDES permitting program. Depending on the nature and size of development, regulatory compliance measures would be in place to prevent or minimize potential effects on or from geological resources.

When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative effects would be anticipated to occur with implementation of the Proposed Action.

Mitigation

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

Conclusion

Finding of No Significant Impact. After review of the EA prepared in accordance with the requirements of NEPA, CEQ regulations, and 32 CFR Part 989, and which is hereby incorporated by reference, I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment. Accordingly, an Environmental Impact Statement will not be prepared. This decision was made after considering all submitted information, including a review of agency comments submitted during the 30-day public comment period, and considering a full range of practical alternatives that meet project requirements and are within the legal authority of the US Air Force.

TBD

DATE

PROYECTO DE CONCLUSIÓN DE IMPACTO NO SIGNIFICATIVO (FONSI)

REALINEAMIENTO REGIONAL DE CUARTA GENERACIÓN - AFB DAVIS-MONTHAN

De conformidad con las disposiciones de la Ley Nacional de Política Ambiental (NEPA), Título 42 *del Código de los Estados Unidos* (USC) § 4321 y ss.; la normativa del Consejo de Calidad Medioambiental (CEQ), Consejo de Normas de Calidad Ambiental, el título 40 del *Código de Regulaciones Federales* (CFR), §§ 1500–1508; y 32 CFR § 989 del *Proceso de Análisis de Impacto Ambiental de la Fuerza Aérea* (EIAP), la Fuerza Aérea (Air Force) de los Estados Unidos (US) preparó el borrador adjunto de Evaluación Ambiental (EA) para abordar las posibles consecuencias ambientales asociadas a la reubicación de una serie de aeronaves y misiones A-10, aeronaves y misiones HH-60, entrenamiento de Controladores Conjuntos de Ataque Terminal (Joint Terminal Attack Controller) y operaciones de Ángeles de la Guarda a Davis-Monthan AFB, Arizona. Además, la EA evaluó la asignación de dos aeronaves Cessna 182 de la Patrulla Aérea Civil (CAP) y el traslado de una aeronave RC-26B desde la Base de la Guardia Nacional Aérea de Morris (ANGB) situada en el Aeropuerto Internacional de Tucson (Arizona).

Objetivo y Necesidad

Reestructuración de Davis-Monthan

El objetivo de trasladar los escuadrones de aviones A-10 y HH-60 de cuarta generación (4th Gen) desde la base aérea de Nellis es liberar capacidad de la Base y del Campo de Pruebas y Entrenamiento de Nevada necesaria para probar y entrenar a los combatientes en aviones de quinta generación (5th Gen) y permitir que las unidades de recuperación de personal aprovechen la sinergia que proporciona la ubicación conjunta con otras unidades de rescate. La acción propuesta mejoraría las capacidades de desarrollo de pruebas, entrenamiento y tácticas de 5ª generación y posteriores en la base aérea de Nellis para mantener el ritmo de los requisitos de las misiones de la Fuerza Aérea, la evolución de la tecnología y las capacidades del enemigo. Nellis AFB ha alcanzado su capacidad máxima y es necesario liberar espacio para acoger misiones de 5ª Generación.

La acción de reasignar la misión de 4ª Generación es necesaria porque los conjuntos de misiones actuales asignados a la base aérea de Nellis y al Centro de Armamento de la Fuerza Aérea están superando la capacidad de ampliar los recursos y la capacidad. La infraestructura disponible en Nellis AFB no satisface las necesidades actuales o futuras de la misión y está funcionando al límite de su capacidad o por encima de ella.

Establecimiento y Operación del Cessna 182 de la Patrulla Aérea Civil

El objetivo del establecimiento y operación del Cessna 182 de la Patrulla Aérea Civil (CAP, por sus siglas en inglés) es proporcionar un mejor entrenamiento y aumentar las misiones de operaciones que la CAP lleva a cabo en apoyo de la Fuerza Aérea.

La asociación de la Fuerza Aérea con la CAP abarca una serie de misiones que benefician directamente a la Fuerza Aérea. La permanencia de los aviones de la CAP en Davis-Monthan AFB es necesaria para mejorar las comunicaciones, la interacción entre la CAP y la Fuerza Aérea y la ejecución de varias de estas misiones.

Reubicar las Operaciones de RC-26B

El objetivo de la reubicación de las operaciones de RC-26B es crear espacio para un posible aumento del entrenamiento de F-16 con base en el Ala 162 (162 WG) en el Morris ANGB y consolidar los activos y operaciones del Grupo de Ataque 214 en una ubicación común.

La ANG prevé un aumento a gran escala del entrenamiento internacional de F-16 con base en el 162 WG de Morris ANGB. Es necesario reubicar un solo avión RC-26B para hacer sitio a los reajustes y mejoras de la rampa específicos de los F-16 que son incompatibles con la continuación de las operaciones de los RC-26. En 2017, la responsabilidad de la organización RC-26 se transfirió del 162º

Grupo de Operaciones en Morris ANGB al 214º Grupo de Ataque (214 ATKG), una unidad subordinada al 162 WG que es inquilino en Davis-Monthan AFB. La reubicación de la aeronave RC-26 y del personal asociado en la base Davis-Monthan, en las actuales instalaciones del Centro de Entrenamiento de la Fuerza Total, también serviría para consolidar los 214 activos y operaciones del ATKG en una ubicación común.

Descripción de la Acción Propuesta y Alternativas

La Fuerza Aérea propone trasladar las siguientes misiones de 4ª Generación de Nellis AFB, Nevada, a Davis-Monthan AFB, Arizona:

- 66º Escuadrón de Armamento (66 WPS)
- Parte de Pruebas Operativas (OT) A-10 del 422º Escuadrón de Pruebas y Evaluación (422 TES)
- 66º Escuadrón de Rescate (66 RQS)
- 58º Escuadrón de Rescate (58 RQS)
- 34º Escuadrón de Armamento (34 WPS)
- 88º Escuadrón de Pruebas y Evaluación (88 TES)

Con el fin de crear capacidad en Davis-Monthan AFB para aceptar las misiones mencionadas, la Fuerza Aérea propone tomar las siguientes medidas con las unidades ya estacionadas en Davis-Monthan AFB:

- Desactivar el 354º Escuadrón de Cazas (354 FS) y retirar los aviones A-10C asignados.
- Reducir el tamaño del 357º Escuadrón de Cazas (357 FS) y retirar algunos de sus aviones A-10.

La parte del A-10 OT del 422 TES pasaría a ser transitoria en 2024. El Curso de Instructor de Armas y Pruebas del HH-60 y las unidades con código de combate, que incluyen el 88 TES, 66 RQS, 58 RQS, 79º Escuadrón de Generación de Rescate (RGS), 55 RGS y el 34 WPS, se trasladarían a partir de 2025.

Existen otras acciones propuestas en la base Davis-Monthan AFB no relacionadas con los movimientos descritos anteriormente que se están produciendo aproximadamente en los mismos plazos y, por lo tanto, se incluyen en este análisis. Estas acciones consisten en la asignación de dos aeronaves CAP Cessna 182 y la transferencia de una aeronave RC-26B del Morris ANGB ubicado en el Aeropuerto Internacional de Tucson (Arizona).

Con la Acción Propuesta, las salidas diarias pasarían de un total de 11,739 a 11,906, lo que supone un aumento de 167 salidas. Las salidas nocturnas pasarían de un total de 2,272 a 3,206, un aumento de 934 salidas. La Acción Propuesta también implicaría la construcción de cinco instalaciones. El principal espacio aéreo de uso especial (SUA) que utilizaría el 355 WG sería el Barry M. Goldwater Range. Las Zonas de Operaciones Militares (MOA) de Tombstone, Outlaw/Jackal/Morenci y Ruby/Fuzzy también se utilizarían para el entrenamiento.

Alternativa de No Acción

El análisis de la Alternativa de No Acción proporciona un punto de referencia que permite a los responsables de la toma de decisiones comparar la magnitud de los posibles efectos ambientales de la Acción Propuesta. La NEPA exige que la EA analice la Alternativa de No Acción. No actuar significa que una acción no tendría lugar en este momento, y los efectos medioambientales resultantes de no actuar se compararían con los efectos de decidir seguir adelante con la actividad propuesta. Ninguna acción para este EA refleja el status quo, en el que no se transferirían, retirarían ni reasignarían activos aeronáuticos adicionales en la Base Davis-Monthan.

Resumen de los Resultados

Los recursos ambientales potencialmente afectados se identificaron mediante comunicaciones con organismos estatales y federales y el examen de la documentación medioambiental anterior. Entre los recursos ambientales específicos con posibles consecuencias ambientales se incluyen la gestión y el uso del espacio aéreo; el ruido; la seguridad; la calidad del aire; los recursos biológicos, hídricos y culturales; la geología y los suelos; el uso del suelo; la socioeconomía; la justicia ambiental y la protección de los niños; los materiales y residuos peligrosos, las sustancias tóxicas y los lugares contaminados; y las infraestructuras, el transporte y los servicios públicos.

Gestión y Uso del Espacio Aéreo

La Acción Propuesta daría lugar a un aumento de las operaciones de aeródromo de 39,122 a un total estimado de 42,997 operaciones de aeródromo. El aumento de 3,875 operaciones, un 9%, se debería a la incorporación de aeronaves asignadas a la Base. Las operaciones seguirían requiriendo los servicios de control de tráfico aéreo de la Torre Davis-Monthan y de Tucson Approach para los servicios de salida, patrón y llegada.

Las aeronaves seguirían operando dentro del SUA existente, pero aumentaría la utilización del SUA en un 10.9%, o 1,101 salidas anuales totales. Dado que la desconflicción de la programación ya se realiza en el GT 355, no se espera que un aumento de 1,101 operaciones SUA anuales cause un impacto significativo. Además, estas aeronaves se repartirían entre los distintos SUA, lo que reduciría la saturación del espacio aéreo. Por lo tanto, no se espera que se produzcan impactos significativos en el espacio aéreo con la implementación de la Acción Propuesta.

Ruido

Un total de 1,101 acres estarían expuestos a un Nivel Sonoro Medio Día-Noche de 65 decibelios (dB DNL) o superior, 117 de esos acres estarían situados fuera de los límites de la Instalación. Con la Acción Propuesta, se produciría una disminución global de la superficie en acres fuera de los límites de la instalación expuesta a 65 dB DNL. Aproximadamente 7 acres adicionales en la Instalación estarían expuestos por primera vez a niveles de ruido de 75 dB DNL.

Con la Acción Propuesta, las operaciones de A-10 dentro del SUA aumentarían aproximadamente un 2% y las operaciones de HH-60 dentro del espacio aéreo aumentarían aproximadamente un 31%. Un aumento del 2% de las operaciones de los A-10 corresponde a un aumento imperceptible del ruido bajo los espacios aéreos. Un aumento del 31% en las operaciones del HH-60 corresponde aproximadamente a un aumento del DNL ajustado a la tasa de inicio de 2 dB en el ruido bajo los espacios aéreos. Sin embargo, otras aeronaves que utilizan estos espacios aéreos también contribuyen al nivel general de ruido. Los aviones HH-60 se encuentran entre los menos ruidosos de los aviones que utilizan estos espacios aéreos, por lo que el aumento del nivel de ruido debido al aumento de las operaciones de HH-60 probablemente sería imperceptible frente al ruido de fondo de las operaciones de otros aviones a reacción (por ejemplo, F-16, F-35) dentro de los espacios aéreos.

El aumento del nivel de ruido que se produciría debido a la Acción Propuesta sería de menor importancia a imperceptible.

Protección

En el marco de la Acción Propuesta, se prevén efectos adversos insignificantes y temporales sobre la seguridad en tierra. Davis-Monthan AFB requeriría nuevas construcciones, que podrían exponer al personal a riesgos derivados del funcionamiento de equipos pesados, materiales peligrosos y entornos potencialmente ruidosos y confinados. Para minimizar los riesgos para la salud y la seguridad, los contratistas deberán mantener programas de salud y seguridad específicos para cada emplazamiento que cumplan toda la normativa aplicable. El personal de Davis-Monthan AFB revisaría estos programas antes del inicio de los trabajos para garantizar que los contratistas toman las medidas adecuadas para

reducir los posibles riesgos para la salud y la seguridad. Se mantendrían los procesos y procedimientos operativos actuales.

Ninguna instalación/actividad con arcos de distancia de cantidad de seguridad de explosivos en la base Davis-Monthan AFB se vería afectada por la ejecución de la Acción Propuesta, incluida el Área de Almacenamiento de Municiones, el Área de Demolición de Artefactos Explosivos, el hangar y la plataforma de alerta, las áreas de estacionamiento de aeronaves de combate, la plataforma de carga en caliente, el área de carga de explosivos de aeronaves, el área de eliminación de Artefactos Explosivos del Grupo de Mantenimiento y Regeneración Aeroespacial y las instalaciones de envío/inspección/almacenamiento de municiones. Por lo tanto, no se prevé que la ejecución de la Acción Propuesta afecte a la seguridad de los explosivos.

No sería necesario modificar las zonas potenciales de accidente ni las zonas limpias existentes con la ejecución de la Acción Propuesta. El número de salidas aumentaría mínimamente; por lo tanto, la ejecución de la Acción Propuesta no aumentaría el riesgo para la seguridad de estas u otras zonas fuera de la Base. Davis-Monthan AFB seguiría trabajando con las comunidades y los promotores para aplicar las directrices de las Zonas de Uso Compatible de las Instalaciones Aéreas. Por lo tanto, no se prevé que la ejecución de la Acción Propuesta afecte a la seguridad en tierra.

Calidad del Aire

No se esperan efectos significativos sobre la calidad del aire como resultado de la ejecución de la Acción Propuesta. Las emisiones anuales totales estimadas de la Acción Propuesta no superarían los umbrales *de minimis* o de permiso de Prevención del Deterioro Significativo para ningún contaminante o precursor de criterios. Los cambios netos propuestos en el criterio de contaminantes y/o precursores serían inferiores al indicador de umbral de significación de 100 toneladas anuales para todos los contaminantes. Por lo tanto, es poco probable que estos aumentos causen impactos significativos.

Aunque las emisiones de todos los contaminantes aumentarían con la aplicación de la Alternativa Propuesta, los cambios netos serían inferiores a los umbrales *de minimis* en todos los condados en los que se realizarían vuelos y operaciones a baja altitud. Dado que las emisiones asociadas a la acción propuesta estarían por debajo de los umbrales *de minimis* de conformidad general, no son aplicables los requisitos de la Norma de Conformidad General, como se documenta en el análisis detallado de conformidad del aire realizado para esta EA y disponible en el Registro Administrativo del Proyecto.

Recursos Biológicos

Las zonas designadas para las actividades de construcción en el marco de la Acción Propuesta tienen un hábitat adecuado limitado para la vida silvestre. La parte urbanizada de Davis-Monthan AFB, en la que se ubicarían los proyectos propuestos, alberga especies de fauna relativamente comunes, como pequeños mamíferos. No se han observado en la base Davis-Monthan AFB especies amenazadas o en peligro de extinción incluidas en la lista federal, ni existe hábitat crítico dentro de la base Davis-Monthan AFB.

Los impactos sobre los recursos biológicos presentes en el SUA que se utilizaría en el marco de la Acción Propuesta podrían derivarse de los sobrevuelos y el ruido asociado, el uso de municiones y bengalas y las colisiones entre aves y aeronaves. No se producirían estampidos sónicos debido a la Acción Propuesta. La fauna silvestre, especialmente las especies aviares, que utilizan las zonas no urbanizadas circundantes bajo el SUA para alimentarse y reproducirse serían normalmente sensibles al aumento del impacto acústico de las aeronaves militares. Aunque existe variabilidad en las respuestas de las distintas especies, muchas aves y animales silvestres tienen la capacidad de habituarse al ruido y al movimiento de las aeronaves militares (Grubb et al., 2013), y las operaciones de las aeronaves militares se han llevado a cabo en la base Davis-Monthan AFB durante décadas y ahora forman parte del entorno acústico natural.

En el marco de la Acción Propuesta, se utilizarían chaff (tiras reflectantes) y bengalas sobre los MOA Barry M. Goldwater Range y Ruby Fuzzy. Para minimizar la posibilidad de que las bengalas incendien la vegetación, se emplearían a una altitud que impida que impacten contra el suelo o las estructuras. El chaff y las bengalas se utilizarán de conformidad con la Guía de Vuelo 355 WG. El uso de chaff y antorchas sería coherente con el uso existente, y los impactos serían insignificantes.

Recursos Hídricos

Aproximadamente 7 acres de suelo serían perturbados durante las actividades de construcción bajo la Acción Propuesta. Las actividades de construcción tendrían lugar en terrenos previamente alterados adyacentes a edificios e infraestructuras existentes. No se realizaría ninguna actividad relacionada con la Acción Propuesta dentro de las aguas superficiales ni en su intersección. Sin embargo, estas actividades podrían aumentar la erosión y la sedimentación de las aguas superficiales cercanas durante la construcción y durante un breve período posterior debido a la alteración temporal de los suelos.

Dado que la Acción Propuesta podría alterar hasta 7 acres de superficie terrestre, la base Davis-Monthan AFB tendría que obtener un Permiso General para Actividades de Construcción (CGP) en virtud de su Permiso General de 2016 con el Departamento de Calidad del Aire de Arizona (ADEQ), que regula los emisarios de aguas pluviales de la base. Este permiso exige diversos controles y mejores prácticas de gerencia (MTG) para reducir el impacto en las aguas superficiales mediante la prevención de la contaminación e incluye controles de la sedimentación y la erosión, la estabilización del suelo y manejo de los contaminantes. Estas BMP se implementarían para evitar que los sedimentos y otros contaminantes entren potencialmente en las aguas superficiales cercanas a través del sistema de transporte de aguas pluviales de Davis-Monthan AFB. Por lo tanto, se prevé que los impactos en los recursos hídricos superficiales de la base Davis-Monthan derivados de las actividades de alteración del suelo asociadas a la Acción Propuesta sean de corta duración y menores.

En virtud de la Acción Propuesta, se añadirían 391,000 pies cuadrados de nueva superficie impermeable a la Base como resultado de la construcción de nuevas instalaciones. Se prevé que este aumento de la superficie impermeable provoque un aumento menor a largo plazo de la escorrentía de aguas pluviales en la base Davis-Monthan.

Las actividades relacionadas con la construcción crearían la posibilidad de que los contaminantes, principalmente el combustible, se filtraran o vertieran en el acuífero de la cuenca de Tucson. El contratista de la Fuerza Aérea seguiría las BMP diseñadas para evitar la escorrentía de aguas pluviales contaminadas, así como las BMP para manejar la prevención de la contaminación descritas en la CGP de la ADEQ, para minimizar el potencial de entrada de sustancias químicas en el acuífero. Por lo tanto, se prevé que la acción propuesta tenga un impacto indirecto insignificante a corto plazo sobre las aguas subterráneas.

Geología y Suelos

La Acción Propuesta implicaría la construcción de cinco proyectos y alteraría un total de 391,000 pies cuadrados de suelo. Las obras de construcción que se realicen en el marco de la Acción Propuesta implicarían movimientos de tierras, incluida la excavación, el relleno y la compactación de suelos o materiales de relleno en los emplazamientos del proyecto e inmediatamente adyacentes. Estas actividades expondrían los suelos y aumentarían su susceptibilidad a la erosión hídrica y eólica. Las inclemencias meteorológicas (por ejemplo, lluvia o viento) podrían aumentar la probabilidad y la gravedad de estos posibles efectos.

Geología - La geología subyacente de la zona no cambiaría con la Acción Propuesta. No se prevé ningún impacto directo o indirecto sobre la geología con la ejecución de la Acción Propuesta.

Topografía - Ninguno de los proyectos de la Acción Propuesta se llevaría a cabo en zonas que requirieran una alteración a gran escala de la topografía para acomodar la construcción. Cualquier alteración de la superficie del suelo se limitaría a actividades básicas de construcción como la

compactación y la excavación para preparar el terreno para el emplazamiento de una estructura. Después de colocar y compactar los suelos de reutilización o relleno, los suelos superficiales se nivelarían para ajustarse a la topografía local y mantener un drenaje eficaz. Por lo tanto, se prevé que la ejecución de la Acción Propuesta tenga un impacto insignificante a corto plazo sobre la topografía.

Suelos - Todos los proyectos de construcción implementados bajo la Acción Propuesta implicarían actividades de perturbación del suelo en áreas que consisten en suelos Mohave y tierra urbana, que está bien drenada y tiene un potencial moderado de erosión (ver **Figura 3-5** en la EA) (Davis-Monthan AFB, 2021). Las pendientes en las zonas propuestas para la construcción oscilan entre el 1% y el 8%, con un potencial de escorrentía medio. Todos los emplazamientos del proyecto en el marco de la acción propuesta son, en general, aptos para el desarrollo; no obstante, la Fuerza Aérea validaría las condiciones del suelo en cada emplazamiento antes de la construcción para abordar cualquier factor limitante mediante la gestión o el diseño.

En el marco de la Acción Propuesta, los posibles efectos adversos sobre los suelos, incluida la pérdida de suelo, la contaminación y la alteración estructural, se manejarían a nivel de proyecto individual. Cuando la ejecución de un proyecto altere 1 acre o más de terreno, el contratista de la construcción obtendrá y cumplirá una CGP en virtud del programa del Sistema de Eliminación de Descargas Contaminantes de Arizona (AZPDES) administrado por la ADEQ (véase el **apartado 3.9** de la EA). El CGP exigiría la preparación y aplicación de un Plan de Prevención de la Contaminación de las Aguas Pluviales específico para el emplazamiento antes de la construcción, incluidos los requisitos de BMP y de control de la erosión y los sedimentos (ADEQ, 2021). La implementación de las BMP minimizaría los impactos en los recursos del suelo, y los proyectos se diseñarían e implementarían de acuerdo con los Criterios de Instalaciones Unidas 3-210-10 (modificados en 2016) y la Sección 438 de la Ley de Seguridad de la Información Energética (véase la **Sección 3.9.3.2** de la EA) para minimizar los impactos en los recursos del suelo. Con la aplicación adecuada de las BMP y el cumplimiento de los permisos pertinentes, se prevé que los impactos adversos en los suelos resultantes de la Acción Propuesta sean menores y a corto plazo.

Uso del Suelo

No se esperan efectos adversos significativos sobre el uso del suelo como resultado de la ejecución de la Acción Propuesta. En el marco de la Acción Propuesta, la construcción de nuevas instalaciones tendría lugar dentro de los límites actuales de la Instalación. Los lugares de construcción propuestos estarían en terrenos designados como espacios abiertos u operaciones de mantenimiento de aeronaves. La construcción propuesta que tendría lugar en terreno designado espacio abierto se situaría a lo largo de la línea de vuelo existente y junto a otras instalaciones existentes. Las nuevas actividades de construcción seguirían diseñándose para satisfacer las necesidades de uso del suelo de la Base.

Con la Acción Propuesta, se produciría una disminución global de 7 acres en la superficie total expuesta a niveles de ruido de 65 dB DNL o superiores fuera de los límites de la instalación. El uso actual del suelo con la Acción Propuesta permanecería en general sin cambios. No se prevé ningún impacto sobre el uso del suelo en la Base o fuera de los límites de la Instalación.

Socioeconomía

No se esperan efectos significativos sobre la socioeconomía como resultado de la aplicación de las Alternativas de Acción Propuestas. Los 646 miembros adicionales del personal militar, por contrato y civil representarían un aumento del 4,6% del total de personas asignadas permanentemente y que trabajan en la base Davis-Monthan, donde actualmente trabajan unos 14,000 militares y civiles. Un aumento del 4,6% no repercutiría en la disponibilidad de empleo en la región; el personal que se trasladará ya estaría empleado por la Fuerza Aérea y no competiría por los puestos actualmente disponibles que podrían ser cubiertos por la mano de obra local; sin embargo, es posible que los dependientes de los militares se puedan incorporar a la mano de obra local.

La construcción de nuevas instalaciones daría lugar a un aumento temporal de entre 20 y 50 trabajadores de la construcción, en función del número de proyectos que se realicen simultáneamente; este aumento temporal tendría un impacto beneficioso insignificante en las condiciones socioeconómicas de la región. Dado que no se produciría un aumento permanente del personal militar, contratado o civil, no habría necesidad de viviendas adicionales. Por lo tanto, no se produciría ningún impacto adverso sobre el empleo, la vivienda o los recursos educativos con las alternativas de acción propuestas.

Justicia Ambiental y Protección de la Infancia

No se esperan efectos significativos para las poblaciones de justicia ambiental y la protección de los niños como resultado de la implementación de la Acción Propuesta. No se producirían impactos sobre los residentes que viven fuera de la Base Davis-Monthan porque las actividades propuestas están totalmente contenidas dentro de la Base. Con la Acción Propuesta, se produciría una disminución global de la superficie en acres fuera de los límites de la instalación expuesta a 65 dB DNL. Ninguna escuela o guardería fuera de la base estaría expuesta a un DNL de 65 dB o superior en la base Davis-Monthan. Además, ningún hospital, parque o biblioteca estaría expuesto a un DNL de 65 dB o superior. Por lo tanto, no habría impactos desproporcionados en las poblaciones minoritarias, de bajos ingresos o jóvenes.

Recursos Culturales

No se esperan efectos significativos sobre los recursos culturales como resultado de la implementación de la Acción Propuesta.

Yacimientos Arqueológicos - En el marco de la Acción Propuesta, se construirían en la Instalación cinco edificios nuevos, incluidos dos simuladores de helicópteros. Los dos simuladores de helicóptero se construirían al este y al oeste del edificio 4382. La instalación 58 RQS se construiría justo al este del edificio 4868, y los dos edificios 88 TES se construirían al noreste de la pista. Hay yacimientos arqueológicos situados dentro del Área de Efecto Potencial (APE) indirecta de 800 metros para todas las nuevas construcciones propuestas. Estos lugares no reúnen los requisitos para ser incluidos en el Registro Nacional de Lugares Históricos (NRHP), y toda la construcción se realizaría en terrenos que han sido perturbados por actividades pasadas y actuales de la misión.

Propiedades Arquitectónicas Históricas - No se realizarían actividades de demolición o renovación en el marco de la Acción Propuesta. En el APE directo o indirecto de la acción propuesta no se encuentra ningún edificio incluido o que reúna los requisitos para ser incluido en el NRHP; no se espera que la construcción de las cinco instalaciones propuestas en la instalación tenga un impacto en las propiedades históricas.

No se prevén impactos en los bienes históricos en el marco del SUA. No se incluirían vuelos supersónicos como parte de la Acción Propuesta y el aumento del ruido global sería insignificante.

Bienes Culturales Tradicionales - No se han identificado sitios sagrados, restos humanos, tumbas asociadas, tumbas no asociadas, objetos sagrados ni objetos de patrimonio cultural en la base Davis-Monthan. La Acción Propuesta no afectaría a yacimientos arqueológicos, propiedades históricas o recursos de los Nativos Americanos.

No es de esperar que la Acción Propuesta provoque impactos en los bienes culturales tradicionales (PCT). El Monte Graham, situado dentro de los MOA de Outlaw/Jackal/Morenci es un TCP según las Tribus Apache de Arizona, y la Fuerza Aérea seguiría evitando los sobrevuelos de este recurso.

Materiales y Residuos Peligrosos, Sustancias Tóxicas y Lugares Contaminados

No se esperan efectos significativos sobre los materiales peligrosos (HAZMAT) y los residuos como resultado de la implementación de las Alternativas de Acción Propuestas.

La implantación de la Acción Propuesta en la Base Davis-Monthan no añadiría ninguna nueva HAZMAT que excediera los procesos actuales de residuos peligrosos de la Base. Los procedimientos existentes para el manejo centralizado del almacenamiento, distribución, uso, reutilización, reciclaje y eliminación de HAZMAT a través del Almacén de Materiales Peligrosos de la Base son adecuados para acomodar los cambios previstos bajo la Acción Propuesta. Los residuos de la construcción sólo se generarían a partir de los nuevos proyectos de construcción; no se proponen actividades de demolición o renovación. No se llevarían a cabo actividades de construcción dentro de los lugares identificados en el Programa de Restauración Ambiental; por lo tanto, no habría impactos en esos lugares.

Infraestructuras, Transporte y Servicios Públicos

No se esperan efectos adversos significativos para la infraestructura, el transporte o los servicios públicos como resultado de la implementación de las Alternativas de Acción Propuestas.

Transporte - Con la Acción Propuesta, aumentaría el personal en la Instalación. El aumento del tráfico de camiones y de trabajadores de la construcción que se desplazan a la Instalación durante los periodos de construcción provocaría un aumento temporal de la demanda y una mayor congestión en las carreteras locales. En los emplazamientos del proyecto, sería previsible el cierre temporal de carriles durante las actividades de construcción. La red de transporte de la Base es suficiente para soportar el volumen de tráfico existente.

Electricidad y Gas Natural - La Acción Propuesta no tendría repercusiones a largo plazo en los sistemas de suministro eléctrico o de gas natural. Cualquier posible interrupción a corto plazo del servicio eléctrico o de gas natural en las zonas del proyecto durante las actividades de construcción se mitigaría durante la planificación del proyecto.

Suministro de Agua Potable - A corto plazo, los impactos adversos insignificantes en el sistema de suministro de agua potable se espera que se produzcan durante la construcción, mientras que las líneas de agua existentes están conectados a los nuevos edificios. No se prevén efectos adversos a largo plazo, ya que los cambios en la demanda serían mínimos y el sistema de abastecimiento de agua potable tiene capacidad para satisfacer nuevas demandas.

Residuos Sólidos - A corto plazo, los impactos adversos menores en el manejo de residuos sólidos tendrían el potencial de ocurrir debido a los proyectos de construcción bajo la Acción Propuesta. Según las directrices de la Agencia de Protección del Medio Ambiente de EE.UU. para calcular los residuos sólidos de la construcción, los 291,000 pies cuadrados de nueva construcción generarían 4.39 libras por pie cuadrado de escombros. Esto equivale a aproximadamente 1.3 millones de libras de residuos sólidos creados como resultado de la Acción Propuesta. Los contratistas estarían obligados a cumplir la normativa federal, estatal y local para la recogida y eliminación de los residuos sólidos generados en el marco de la Acción Propuesta, y todos los residuos sólidos generados se recogerían y transportarían fuera de la Base para su eliminación o reciclaje de conformidad con el Manual 32-7002 de la Fuerza Aérea, *Cumplimiento de la Normativa Ambiental y Prevención de la Contaminación*.

Saneamiento y Aguas Pluviales - Durante la construcción podría producirse un impacto adverso insignificante a corto plazo en los sistemas de alcantarillado sanitario y de tratamiento de aguas residuales, mientras se conectan las líneas existentes a los nuevos edificios. Aunque el funcionamiento de los nuevos edificios aumentaría la demanda de los sistemas de alcantarillado sanitario y tratamiento de aguas residuales a corto plazo, no se esperarían impactos adversos en los sistemas de alcantarillado sanitario y tratamiento de aguas residuales a largo plazo, ya que los sistemas actuales tienen la capacidad necesaria para satisfacer las nuevas demandas.

Impactos Acumulados

La EA consideró los impactos acumulativos que podrían resultar del impacto incremental de la Acción Propuesta cuando se suman a otras tendencias ambientales pasadas, presentes o razonablemente previsibles y acciones planificadas en o cerca de Davis-Monthan AFB o SUA asociado.

Bajo la Acción Propuesta, los planes y proyectos de desarrollo razonablemente previsibles dentro y alrededor del área de Tucson también estarían sujetos a regulación bajo el programa de permisos AZPDES. Dependiendo de la naturaleza y el tamaño del desarrollo, se establecerían medidas de cumplimiento normativo para prevenir o minimizar los efectos potenciales sobre o de los recursos geológicos.

Si se consideran conjuntamente con otras tendencias ambientales pasadas, presentes y razonablemente previsibles y con las acciones planificadas en la base Davis-Monthan AFB, no se prevé que se produzcan efectos acumulativos significativos con la ejecución de la Acción Propuesta.

Mitigación

El análisis de la EA llegó a la conclusión de que la Acción Propuesta no tendría impactos ambientales significativos; por lo tanto, no se requieren medidas de mitigación. Las BMP se describen y recomiendan en la EA cuando procede.

Conclusión

Declaración de Impacto No Significativo. Tras revisar la EA preparada de conformidad con los requisitos de la NEPA, la normativa CEQ y 32 CFR Parte 989, y que se incorpora por la presente por referencia, he determinado que la Acción propuesta no tendría un impacto significativo en la calidad del entorno humano o natural. Por consiguiente, no se elaborará una Declaración de Impacto Ambiental. Esta decisión se tomó después de considerar toda la información presentada, incluida una revisión de los comentarios de las agencias presentados durante el período de comentarios públicos de 30 días, y de considerar una gama completa de alternativas prácticas que cumplen los requisitos del proyecto y están dentro de la autoridad legal de la Fuerza Aérea de los EE.UU..

TBD

FECHA

TABLE OF CONTENTS

1

2 **CHAPTER 1 PURPOSE AND NEED FOR ACTION 1-1**

3 1.1 INTRODUCTION 1-1

4 1.2 BACKGROUND 1-1

5 1.3 PURPOSE AND NEED FOR THE ACTION 1-3

6 1.3.1 *Davis-Monthan Restructure* 1-3

7 1.3.2 *Beddown Civil Air Patrol Cessna 182* 1-3

8 1.3.3 *Relocate RC-26B Operations* 1-3

9 1.4 SCOPE OF THE ENVIRONMENTAL ANALYSIS 1-3

10 1.5 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION 1-4

11 1.5.1 *Government to Government Consultation* 1-4

12 1.5.2 *Agency Consultations and Coordination* 1-5

13 1.6 PUBLIC AND AGENCY REVIEW OF ENVIRONMENTAL ASSESSMENT 1-5

14 1.7 APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS 1-6

15 **CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES 2-1**

16 2.1 OVERVIEW OF THE PROPOSED ACTION 2-1

17 2.2 PROPOSED ACTION AT DAVIS-MONTHAN AFB 2-3

18 2.2.1 *66th Weapons Squadron* 2-3

19 2.2.2 *422nd Test and Evaluation Squadron* 2-4

20 2.2.3 *66th Rescue Squadron* 2-5

21 2.2.4 *58th Rescue Squadron* 2-8

22 2.2.5 *34th Weapons Squadron* 2-8

23 2.2.6 *88th Test and Evaluation Squadron* 2-8

24 2.2.7 *354th Fighter Squadron* 2-9

25 2.2.8 *357th Fighter Squadron* 2-9

26 2.2.9 *Beddown Civil Air Patrol Cessna 182* 2-9

27 2.2.10 *Relocate RC-26B Operations* 2-9

28 2.3 AIRSPACE USE 2-10

29 2.3.1 *Combined Weapons Changes in Special Use Airspace/Ranges* 2-10

30 2.3.2 *Combined Defensive Countermeasure Changes in Special Use Airspace/Ranges* 2-10

31 2.4 SELECTION STANDARDS 2-12

32 2.4.1 *66th Weapons Squadron* 2-12

33 2.4.2 *422nd Test and Evaluation Squadron* 2-12

34 2.4.3 *66th Rescue Squadron* 2-13

35 2.4.4 *58th Rescue Squadron* 2-13

36 2.4.5 *34th Weapons Squadron* 2-13

37 2.4.6 *88th Test and Evaluation Squadron* 2-13

38 2.5 SCREENING OF ALTERNATIVES 2-14

39 2.6 ALTERNATIVE ACTIONS ELIMINATED FROM FURTHER CONSIDERATION 2-15

40 2.7 DETAILED DESCRIPTION OF THE SELECTED ALTERNATIVES 2-15

41 2.7.1 *Preferred Alternative* 2-15

42 2.7.2 *No Action Alternative* 2-16

43 2.8 SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES 2-16

44 **CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-1**

45 3.1 FRAMEWORK FOR ANALYSIS 3-1

46 3.2 RESOURCES ELIMINATED FROM DETAILED ANALYSIS 3-1

47 3.3 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS 3-1

48 3.4 AIRSPACE MANAGEMENT AND USE 3-3

49 3.4.1 *Definition of the Resource* 3-3

50 3.4.2 *Existing Conditions – Davis-Monthan AFB* 3-3

51 3.4.3 *Existing Condition – Special Use Airspace* 3-4

52 3.4.4 *Environmental Consequences* 3-5

53 3.5 NOISE 3-7

54 3.5.1 *Definition of the Resource* 3-7

55 3.5.2 *Existing Conditions- Davis-Monthan AFB* 3-8

1	3.5.3	Existing Conditions – Special Use Airspace	3-10
2	3.5.4	Environmental Consequences	3-11
3	3.6	SAFETY	3-16
4	3.6.1	Definition of the Resource	3-16
5	3.6.2	Existing Conditions	3-16
6	3.6.3	Environmental Consequences	3-20
7	3.7	AIR QUALITY	3-21
8	3.7.1	Definition of the Resource	3-21
9	3.7.2	Regional Climate	3-25
10	3.7.3	Existing Conditions – Davis-Monthan AFB	3-25
11	3.7.4	Existing Conditions – Special Use Airspace	3-26
12	3.7.5	Environmental Consequences	3-27
13	3.8	BIOLOGICAL RESOURCES	3-35
14	3.8.1	Definition of the Resource	3-35
15	3.8.2	Existing Conditions – Davis-Monthan AFB	3-37
16	3.8.3	Existing Conditions – Special Use Airspace	3-41
17	3.8.4	Environmental Consequences	3-42
18	3.9	WATER RESOURCES	3-44
19	3.9.1	Definition of the Resource	3-44
20	3.9.2	Existing Conditions	3-44
21	3.9.3	Environmental Consequences	3-47
22	3.10	GEOLOGY AND SOILS	3-49
23	3.10.1	Definition of the Resource	3-49
24	3.10.2	Existing Conditions	3-49
25	3.10.3	Environmental Consequences	3-50
26	3.11	LAND USE	3-53
27	3.11.1	Definition of Resources	3-53
28	3.11.2	Existing Conditions	3-53
29	3.11.3	Environmental Consequences	3-53
30	3.12	SOCIOECONOMICS	3-55
31	3.12.1	Definition of the Resource	3-55
32	3.12.2	Existing Conditions	3-55
33	3.12.3	Environmental Consequences	3-57
34	3.13	ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN	3-59
35	3.13.1	Definition of the Resource	3-59
36	3.13.2	Existing Conditions	3-59
37	3.13.3	Environmental Consequences	3-60
38	3.14	CULTURAL RESOURCES	3-61
39	3.14.1	Definition of the Resource	3-61
40	3.14.2	Existing Conditions – Davis-Monthan AFB	3-62
41	3.14.3	Existing Conditions – Special Use Airspace	3-64
42	3.14.4	Environmental Consequences	3-64
43	3.15	HAZARDOUS MATERIALS AND WASTES, TOXIC SUBSTANCES, AND CONTAMINATED SITES	3-66
44	3.15.1	Definition of the Resource	3-66
45	3.15.2	Existing Conditions	3-67
46	3.15.3	Environmental Consequences	3-67
47	3.16	INFRASTRUCTURE, TRANSPORTATION, AND UTILITIES	3-68
48	3.16.1	Definition of Resource	3-68
49	3.16.2	Existing Conditions	3-69
50	3.16.3	Environmental Consequences	3-70
51	CHAPTER 4	LIST OF PREPARERS	4-1
52	4.1	GOVERNMENT CONTRIBUTORS	4-2
53	CHAPTER 5	REFERENCES	5-1

1 **APPENDICES**

- 2 **Appendix A:** Intergovernmental Coordination, Public and Agency Participation
 3 **Appendix B:** Air Quality Analysis Resources, Methodologies and Record of Conformity Applicability
 4

5 **LIST OF FIGURES**

6	Figure 1-1	Regional Overview	1-2
7	Figure 2-1	Proposed Locations of New Construction for the 88 TES, 66 RQS, and 34 WPS under the Proposed Action	2-6
8			
9	Figure 2-2	58 RQS and HH-60 Simulator under the Proposed Action	2-7
10	Figure 3-1	Day-Night Average Sound Level – Baseline Conditions	3-9
11	Figure 3-2	Day-Night Average Sound Level – Proposed Action Comparison	3-13
12	Figure 3-3	Safety Zones	3-19
13	Figure 3-4	Floodplain and Water Resources	3-46
14	Figure 3-5	Soil Units	3-51
15	Figure 3-6	Land Use	3-54
16	Figure 3-7	Cultural Resources	3-63

17

18 **LIST OF TABLES**

19	Table 2-1.	Total Proposed Aircraft Changes at Davis-Monthan AFB	2-2
20	Table 2-2.	Davis-Monthan AFB Personnel Changes	2-2
21	Table 2-3.	Total Sortie Changes at Davis-Monthan AFB ^a	2-3
22	Table 2-4.	66 WPS A-10 Weapons and Defensive Countermeasure Annual Quantities	2-4
23	Table 2-5.	66 WPS JTAC Ordnance Quantities	2-4
24	Table 2-6.	422 TES A-10 Annual Weapons and Defensive Countermeasures Quantities	2-5
25	Table 2-7.	66 RQS Annual Weapons and Defensive Countermeasures	2-5
26	Table 2-8.	34 WPS HH-60G Annual Weapons and Defensive Countermeasures	2-8
27	Table 2-9.	88 TES HH-60W Annual Weapons and Defensive Countermeasures	2-9
28	Table 2-11.	Comparison of Selection Standards for 4th Gen Missions Realignment	2-15
29	Table 2-12.	Summary of Potential Environmental Consequences	2-17
30	Table 3-1.	Past, Present, and Reasonably Foreseeable Environmental Trends and Planned Actions	3-2
31			
32	Table 3-2.	Environmental Resources Analyzed in the Environmental Assessment	3-3
33	Table 3-3.	Baseline Average Annual Operations (A-10 and HH-60) ^a	3-4
34	Table 3-4.	Davis-Monthan Special Use Airspace	3-5
35	Table 3-5.	Baseline Airspace Operations	3-5
36	Table 3-6.	Proposed Action Average Annual Operations (A-10 and HH-60) ^a	3-6
37	Table 3-7.	Proposed Action Airspace Operations	3-6
38	Table 3-8.	Baseline Average Annual Operations (A-10 and HH-60) ^a	3-8
39	Table 3-9.	Baseline Noise Exposure Acreage	3-10
40	Table 3-10.	Baseline Points of Interest Noise Exposure	3-10
41	Table 3-11.	Baseline Airspace Operations	3-11
42	Table 3-12.	Proposed Action Average Annual Operations	3-12
43	Table 3-13.	Proposed Action Noise Exposure Acreage	3-12
44	Table 3-14.	Day-Night Average Sound Level at POIs for Proposed Action	3-14
45	Table 3-15.	Proposed Action Airspace Operations	3-15
46	Table 3-16.	Aircraft Class Mishaps	3-18
47	Table 3-17.	Class A Mishap Rates for Air Force Aircraft	3-18
48	Table 3-18.	Low-Altitude Training Airspace Locations within Air Quality Control Regions	3-22
49	Table 3-19.	National Ambient Air Quality Standards	3-23
50	Table 3-20.	Comparison of Criteria Pollutant Design Values for Pima County to NAAQS	3-26
51	Table 3-21.	Airspace Attainment Status for Davis-Monthan AFB and Low-Altitude Training Airspaces by County ^a	3-27

52

1	Table 3-22.	VOC, CO, NO _x , SO ₂ , and PM _{2.5} Emission Estimates under the Proposed Action, including Proposed Construction Activities and Aircraft Operations at Davis-Monthan AFB	3-29
2			
3			
4	Table 3-23.	General Conformity Applicability Emissions Estimates at Davis-Monthan AFB under the Proposed Action including Proposed Demolition/Construction Activities and Aircraft Operations	3-30
5			
6			
7	Table 3-24.	Emission Estimates for Tombstone MOA Low-Altitude Activities (ton per year)	3-31
8	Table 3-25.	Emission Estimates for Jackal Low MOA Low-Altitude Activities (ton per year)	3-32
9	Table 3-26.	Emission Estimates for Morenci Low-Altitude MOA Activities (ton per year)	3-32
10	Table 3-27.	Emission Estimates for Low-Altitude Fuzzy MOA Activities (ton per year).....	3-33
11	Table 3-28.	Greenhouse Gas Emissions under the Proposed Action	3-34
12	Table 3-30.	Arizona Species of Greatest Conservation Need with the Potential to Occur within or near Davis-Monthan AFB	3-40
13			
14	Table 3-31.	Threatened and Endangered Species Associated with the Special Use Airspace	3-41
15	Table 3-32.	Soil Types Associated with Davis-Monthan AFB	3-50
16	Table 3-33.	Populations in the ROI, Arizona, and the United States (2010–2019)	3-56
17	Table 3-34.	Personnel at Davis-Monthan AFB in 2016.....	3-56
18	Table 3-35.	Housing	3-57
19	Table 3-36.	Total Population and Populations of Concern ^a	3-60
20	Table 3-37.	NRHP-Listed Sites and Native American Reservation Lands Under Training Airspace	3-64
21			
22			

LIST OF ACRONYMS AND ABBREVIATIONS

1		
2	34 WPS	34th Weapons Squadron
3	47 FS	47th Fighter Squadron
4	58 RQS	58th Rescue Squadron
5	66 RQS	66th Rescue Squadron
6	66 WPS	66th Weapons Squadron
7	88 TES	88th Test and Evaluation Squadron
8	162 WG	162nd Wing
9	214 ATKG	214th Attack Group
10	354 FS	354th Fighter Squadron
11	355 WG	355th Wing
12	357 FS	357th Fighter Squadron
13	422 TES	422nd Test and Evaluation Squadron
14	ACC	Air Combat Command
15	AFB	Air Force Base
16	AFRC	Air Force Reserve Command
17	AFSEC	Air Force Safety Center
18	AGL	above ground level
19	Air Force	United States Air Force
20	AFPD	Air Force Policy Directive
21	AMU	Aircraft Maintenance Unit
22	ANG	Air National Guard
23	ANGB	Air National Guard Base
24	APZ	accident potential zone
25	AMARG	Aerospace Maintenance and Regeneration Group
26	ARTCC	Air Route Traffic Control Center
27	AQCR	Air Quality Control Regions
28	AST	above ground storage tank
29	ATC	Air Traffic Control
30	ATCAA	Air Traffic Control-Assigned Airspace
31	AZGFD	Arizona Game and Fish Department
32	AZPDES	Arizona Pollutant Discharge Elimination System
33	BASH	Bird/Wildlife Aircraft Strike Hazard
34	BMGR	Barry M. Goldwater Range
35	BMP	best management practice
36	CAA	Clean Air Act
37	CAP	Civil Air Patrol
38	CEQ	Council on Environmental Quality
39	CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
40	CFR	Code of Federal Regulations
41	CO	carbon monoxide
42	CO ₂ e	carbon dioxide equivalent
43	CONUS	continental United States
44	CSAR	Combat Search and Rescue
45	CT	Census Tract
46	CTF	combined test force
47	CWA	<i>Clean Water Act</i>
48	CZ	clear zone
49	dB	decibel
50	dBA	A-weighted decibel
51	DNL	Day-Night Average Sound Level
52	DoD	United States Department of Defense
53	DoDI	Department of Defense Instruction
54	DOPAA	Description of Proposed Action and Alternatives
55	DZ	drop zone

1	EA	Environmental Assessment
2	EIAP	Environmental Impact Analysis Process
3	EIS	Environmental Impact Statement
4	EISA	<i>Energy Independence and Security Act</i>
5	EO	Executive Order
6	ERP	Environmental Restoration Program
7	ESA	Endangered Species Act
8	ESQD	explosive safety quantity-distance
9	°F	Fahrenheit
10	FG	Fighter group
11	FLTS	flight test squadron
12	FONSI	Finding of No Significant Impact
13	FS	Fighter Squadron
14	FTU	Formal Training Unit
15	FW	Fighter Wing
16	GHG	greenhouse gas
17	HAP	hazardous air pollutants
18	HAZMAT	hazardous materials
19	HLZ	helicopter landing zone
20	I-10	Interstate 10
21	JTAC	Joint Terminal Attack Controller
22	LOLA	live ordnance load area
23	LTO	landing take off cycle
24	MBTA	Migratory Bird Treaty Act
25	MGD	million gallons per day
26	MOA	Military Operations Area
27	MSA	Munitions Storage Area
28	MSL	mean sea level
29	NAAQS	National Ambient Air Quality Standards
30	NEPA	National Environmental Policy Act
31	NHPA	National Historic Preservation Act
32	NRHP	National Register of Historic Places
33	NOA	Notice of Availability
34	NO _x	nitrogen dioxide
35	OT	Operational Test
36	PAA	primary aerospace vehicles authorized
37	PM ₁₀	particulate matter less than or equal to 10 microns in diameter
38	PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter
39	ppb	parts per billion
40	ppm	parts per million
41	Q-D	quantity-distance
42	RCRA	Resource Conservation and Recovery Act
43	ROI	Region of Influence
44	RQS	Rescue Squadron
45	SARA	Superfund Amendments and Reauthorization Act
46	SC-CO ₂	social cost of carbon
47	SGCN	Species of Greatest Conservation Need
48	SHPO	State Historic Preservation Office
49	SUA	Special Use Airspace
50	SO ₂	sulfur dioxide
51	SWPPP	Stormwater Pollution Prevention Plan
52	TACAN	Tactical Air Navigation
53	TCP	Traditional Cultural Property
54	TES	Test and Evaluation Squadron
55	TUSD	Tucson Unified School District
56	UFC	Unified Facilities Criteria

1	US	United States
2	USC	United States Code
3	USCB	United States Census Bureau
4	USEPA	United States Environmental Protection Agency
5	USFWS	United States Fish and Wildlife Service
6	UST	underground storage tank
7	VOC	volatile organic compounds
8	WIC	Weapons Instructor Course
9	WPS	Weapons Squadron

1

This page intentionally left blank

CHAPTER 1 PURPOSE AND NEED FOR ACTION

The United States (US) Air Force (Air Force), Air Combat Command (ACC), prepared this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 *United States Code* [USC] §§ 4321–4317), implemented through the Council on Environmental Quality (CEQ) regulations of 1978 and amended in 2020 (Title 40 *Code of Federal Regulations* [CFR] Parts 1500–1508 [the September 14, 2020, version of CEQ NEPA rules is being used; 85 FR 43304-43376], as modified by the CEQ NEPA implementing regulation revisions that became effective 20 May 2022), and codified at 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*. Other pertinent environmental statutes, regulations, and compliance requirements were also considered during the preparation of this EA and are addressed in relevant sections.

1.1 INTRODUCTION

On 30 June 2021, the Air Force announced plans to make space for a larger than present fighter presence at Nellis Air Force Base (AFB), Nevada, by realigning the Base’s close air support and rescue missions to Davis-Monthan AFB, Arizona. In order to free up capacity to support fifth-generation (5th Gen) aircraft test and training missions at Nellis AFB, the Air Force must relocate some older fourth-generation (4th Gen) force structure.

The Commander, ACC provided the following direction:

- Focus Nellis AFB command on 5th Gen test and training missions.
- Reorient Nellis’ capabilities and capacity for future warfighting testing and training by relocating most 4th Gen missions to other locations.
- Provide options for missions dislocated from Nellis AFB.

After consideration of reasonable alternatives discussed in Sections 2.4 and 2.5 of this EA, the Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB, Arizona.

There are several other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

FIFTH GENERATION (5TH GEN) AIRCRAFT ARE THE NEWEST WEAPONS SYSTEMS SUCH AS THE F-22 AND F-35 FIGHTERS THAT CONTAIN NEW AND ENHANCED LEVELS OF STEALTH PROFILES, SPEED, MANEUVERABILITY, AND ADVANCED AVIONICS AND ATTACK CAPABILITIES.

1.2 BACKGROUND

Davis-Monthan AFB is located 5 miles south-southeast of downtown Tucson, Arizona. It was established in 1925 as Davis-Monthan Landing Field (**Figure 1-1**). The host unit for Davis-Monthan AFB is the 355th Wing (355 WG) assigned to ACC’s Fifteenth Air Force. The Base is best known as the location of the Air Force Materiel Command’s 309th Aerospace Maintenance and Regeneration Group, which provides critical aerospace maintenance and regeneration capabilities for Joint and Allied/Coalition warfighters in support of global operations and agile combat support for a wide range of military operations.

The 355 WG provides A-10 Thunderbolt II close air support to ground forces worldwide. The 355 WG is also a host unit, providing medical, logistical, mission and operational support to all assigned units. The 355 WG and the 924th Fighter Group, a geographically separated unit of the 944th Fighter Wing, also operate the Formal Training Unit (FTU) for the A-10 aircraft, providing initial and recurrent training to all Air Force A-10 pilots, including those in the Air Force Reserve Command (AFRC) and the Air National Guard (ANG).

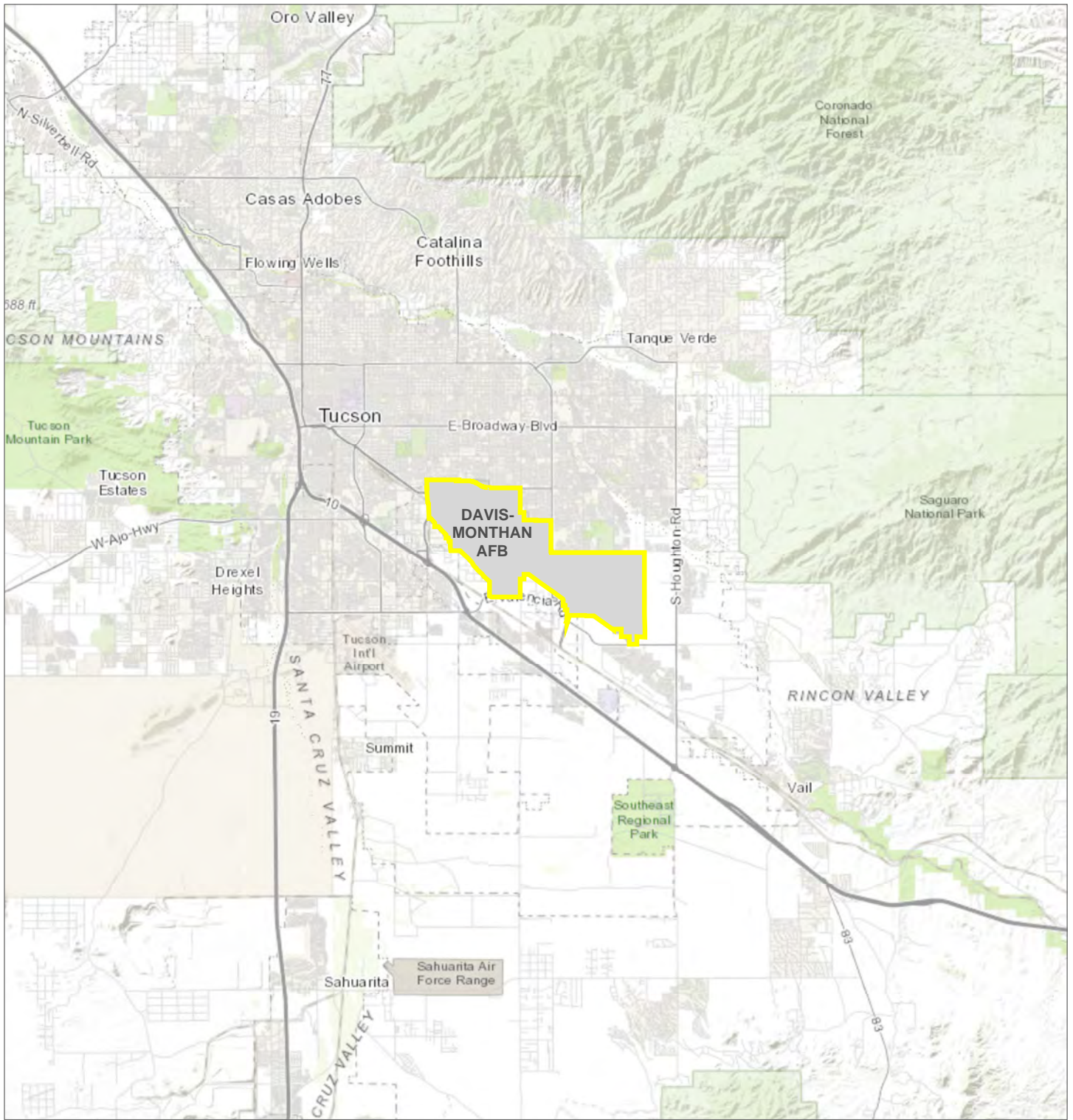



FIGURE 1-1
Regional Overview

 Installation Boundary



Coordinate System: NAD 83 UTM Zone 12N



1 **1.3 PURPOSE AND NEED FOR THE ACTION**

2 **1.3.1 Davis-Monthan Restructure**

3 The purpose of moving the 4th Gen A-10 and HH-60 aircraft squadrons from Nellis AFB is to free up Base
4 and range capacity at the Nevada Test and Training Range necessary to test and train warfighters in 5th
5 Gen aircraft and allow personnel recovery units to take advantage of the synergy provided by co-locating
6 with other rescue units. The Proposed Action would improve 5th Gen and beyond test, training, and tactics
7 development capabilities at Nellis AFB to keep pace with Air Force mission requirements, evolving
8 technology, and enemy capabilities. Nellis AFB has reached maximum capacity and space must be freed
9 up to beddown 5th Gen missions.

10 The action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis
11 AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity. The
12 infrastructure available at Nellis AFB does not meet current or future mission needs and is operating at or
13 beyond capacity.

14 **1.3.2 Beddown Civil Air Patrol Cessna 182**

15 The purpose of the beddown of the CAP Cessna 182 is to provide better training and to increase operations
16 missions that the CAP conducts in support of the Air Force.

17 The Air Force partnership with the CAP encompasses a variety of mission sets that directly benefit the Air
18 Force. The beddown of CAP aircraft at Davis-Monthan AFB is needed to improve communications,
19 interaction between the CAP and Air Force, and execution of a number of these missions.

20 **1.3.3 Relocate RC-26B Operations**

21 The purpose of the relocation of RC-26B operations is to create space for a potential increase in F-16
22 training based at the 162nd Wing (162 WG) at the Morris ANGB and to consolidate 214 Attack Group assets
23 and operations in a common location. The ANG anticipates a large-scale increase in international F-16
24 training based at the 162 WG at Morris ANGB. A single RC-26B aircraft needs to be relocated to make
25 room for F-16-specific ramp realignments and improvements that are incompatible with continued RC-26
26 operations. In 2017, responsibility for the RC-26 organization was transferred from the 162nd Operations
27 Group at Morris ANGB to the 214th Attack Group (214 ATKG), a subordinate unit to the 162 WG that is a
28 tenant on Davis-Monthan AFB. Relocating the RC-26 aircraft and associated manpower to Davis-Monthan
29 AFB in existing Total Force Training Center facilities would also serve to consolidate 214 ATKG assets and
30 operations in a common location.

31 **1.4 SCOPE OF THE ENVIRONMENTAL ANALYSIS**

32 This EA analyzes the potential environmental consequences associated with the Proposed Action and
33 Alternatives. The analysis also addresses facility construction, airspace utilization, and an increase in
34 personnel.

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

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

- 41 • Chapter 1, Purpose and Need for Action, includes an introduction and information on the project
42 location, purpose and need statements; scope of environmental analysis; decision to be made;
43 intergovernmental coordination and public and agency participation; and applicable laws and
44 environmental regulations.

- 1 • Chapter 2, Description of the Proposed Action and Alternatives (DOPAA), includes a description of
2 the Proposed Action, alternative selection standards, screening of alternatives, alternatives
3 eliminated from further consideration, a description of the selected alternatives, summary of
4 potential environmental consequences, and any mitigation and environmental commitments, if
5 required.
- 6 • Chapter 3, Affected Environment and Environmental Consequences, includes a description of the
7 natural and man-made environments within and surrounding Davis-Monthan AFB and the airspace
8 that may be affected by the Proposed Action and Alternatives. This chapter also includes a
9 discussion of direct and indirect impacts.
- 10 • Chapter 4, List of Preparers, provides a list of the preparers of this EA.
- 11 • Chapter 5, References, contains references for studies, data, and other resources used in the
12 preparation of this EA.
- 13 • Appendices, as required, provide relevant correspondence, studies, modeling results, and public
14 review information.

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

20 **1.5 INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION**

21 The EIAP, in compliance with NEPA guidance, includes public and agency review of information pertinent
22 to a proposed action and alternatives. The Air Force's compliance with the requirement for
23 intergovernmental coordination and agency participation begins with the scoping¹ process (40 CFR §
24 1501.9). Accordingly, and per Executive Order (EO) 12372, *Intergovernmental Review of Federal*
25 *Programs*, the Air Force notified federal, state, and local agencies and tribal governments with jurisdiction
26 that could potentially be affected by the Proposed Action and Alternatives via written correspondence
27 throughout development of this EA. A mailing list of the recipients of this correspondence as well as a
28 sample of the outgoing letters and all responses are included in **Appendix A**.

29 **1.5.1 Government to Government Consultation**

30 The *National Historic Preservation Act* (54 USC § 300101, et seq.) (NHPA) and its regulations at 36 CFR
31 Part 800 direct federal agencies to consult with Indian tribes when a proposed action or alternatives may
32 have an effect on tribal lands or on properties of religious and cultural significance to a tribe. Consistent
33 with the NHPA, US Department of Defense Instruction (DoDI) 4710.02, *Interactions with Federally*
34 *Recognized Tribes*, and Air Force Instruction (AFI) 90-2002, *Interactions with Federally Recognized Tribes*,
35 the Air Force has invited federally recognized tribes that are historically affiliated with lands in the vicinity
36 of the Proposed Action and Alternatives to consult on all proposed undertakings that have a potential to
37 affect properties of cultural, historical, or religious significance to the tribes. The tribal consultation process
38 is distinct from NEPA consultation and requires separate notification to all relevant tribes. The timelines for
39 tribal consultation are also distinct from those of the other consultations. The Davis-Monthan AFB point of
40 contact for Indian tribes is the Base Commander. The point of contact for consultation with the Tribal Historic
41 Preservation Officer and the Advisory Council on Historic Preservation is the Davis-Monthan AFB Cultural
42 Resources Manager. A mailing list of the tribal government recipients of this invitation as well as sample of
43 the outgoing tribal government correspondence and all responses are included in **Appendix A**.

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

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) (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 Proposed Action was input into IPaC to obtain an official species list from the USFWS. The list identifies threatened and endangered species and other protected species (e.g., migratory birds) with potential to be affected by the Proposed Action. This information is included in **Appendix 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 appropriate state and local government agencies regarding potential effects from the Proposed Action and Alternatives, as follows:

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

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 newspapers to commence a 30-day public comment period:

- Arizona Daily Star
- Tucson Weekly

The public comment period of the Draft EA and FONSI concludes on 9 January 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 by request and placed at the following local libraries for review:

- Himmel Park Branch Library, 1035 North Treat Avenue
- 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 **1.7 APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS**

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

- 3 • *Clean Water Act* (33 USC § 1251 et seq.) (CWA)
- 4 • *Resource Conservation and Recovery Act* (42 USC § 6901 et seq.) (RCRA)
- 5 • Section 438 of the *Energy Independence and Security Act* (Public Law 110-140) (EISA)
- 6 • *Comprehensive Environmental Response, Compensation, and Liability Act* (42 USC § 9601 et
7 seq.) (CERCLA)
- 8 • *Clean Air Act* (42 USC § 7401 et seq., as amended) (CAA)
- 9 • *Migratory Bird Treaty Act* (16 USC §§ 703–712) (MBTA)
- 10 • *Toxic Substances Control Act* (15 USC § 2601 et seq.)
- 11 • EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-*
12 *Income Populations* (1994)
- 13 • EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997), as
14 amended by EO 13296 (2003)
- 15 • EO 14096, *Revitalizing Our Nation’s Commitment to Environmental Justice for All* (2023)

16

1
2

**Table 2-1.
Total Proposed Aircraft Changes at Davis-Monthan AFB**

Unit	Starting Location	A-10C	HH-60W	Cessna 182	RC-26B
66 WPS	Nellis AFB	+7	N/A	N/A	N/A
422 TES	Nellis AFB	+4	N/A	N/A	N/A
66 RQS	Nellis AFB	N/A	+14	N/A	N/A
58 RQS	Nellis AFB	N/A	N/A	N/A	N/A
34 WPS	Nellis AFB	N/A	+4	N/A	N/A
88 TES	Nellis AFB	N/A	+2	N/A	N/A
354 FS	Davis-Monthan AFB	-18	N/A	N/A	N/A
357 FS	Davis-Monthan AFB	-13	N/A	N/A	N/A
CAP	Davis-Monthan AFB	N/A	N/A	+2	N/A
162 WG	Morris ANGB	N/A	N/A	N/A	+1
Totals		-20	+20	+2	+1

3 AFB = Air Force Base; ANGB = Air National Guard Base; CAP = Civil Air Patrol; FS = Fighter Squadron; N/A = not applicable; RQS
4 = Rescue Squadron; TES = Test and Evaluation Squadron; WG = Wing; WPS = Weapons Squadron

5
6

**Table 2-2.
Davis-Monthan AFB Personnel Changes**

Unit/Function	Officer Full-Time	Officer Part-Time	Enlisted Full-Time	Enlisted Part-Time	Civilian	Total Change from Current Levels
66 WPS	10	N/A	N/A	200	2	212
422 TES	5	N/A	N/A	N/A	4	9
66 RQS	56	N/A	N/A	569	8	633
58 RQS	22	N/A	129	N/A	12	163
34 WPS	13	N/A	N/A	18	2	33
88 TES ^a	20	N/A	37	N/A	31	88
354 FS	-40	N/A	-464	N/A	-1	-505
357 FS	N/A	N/A	N/A	N/A	N/A	0
CAP Cessna 182	N/A	N/A	N/A	N/A	N/A	N/A
RC-26B	6	3	N/A	N/A	4	13
Total Change						+646

7 Notes:

8 a The total number listed for the 88 TES includes the Det 1, 413 FLTS personnel as they are the other half of the CSAR CTF and
9 will have to be moved and be allowed to complete their HH-60 Developmental Test mission. The first number is 88 TES personnel,
10 the second number is Det 1, 413 FLTS personnel, and the third is the total.

11 AFB = Air Force Base; CAP = Civil Air Patrol; CSAR = Combat Search and Rescue; CTF = combined test force; FLTS = flight test
12 squadron; FS = Fighter Squadron; RQS = Rescue Squadron; TES = Test and Evaluation Squadron; WPS = Weapons Squadron

**Table 2-3.
Total Sortie Changes at Davis-Monthan AFB^a**

Unit	Aircraft Type	Current Day Sorties	Current Night Sorties	Current Total Sorties	Proposed Day Sortie	Proposed Night Sortie	Total Proposed Sorties
Davis-Monthan Restructure							
66 WPS	A-10C	N/A	N/A	N/A	861	352	1,213
422 TES	A-10C	N/A	N/A	N/A	400	72	472
66 RQS	HH-60G	N/A	N/A	N/A	550	550	1,100
58 RQS	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34 WPS	HH-60G	N/A	N/A	N/A	224	148	372
88 TES	HH-60G	N/A	N/A	N/A	147	48	195
354 FS	A-10C	3,275	416	3,691	0	0	0
357 FS	A-10C	4,232	928	5,160	4232	928	5160
Subtotals		7,507	1,344	8,851	6,414	2,098	8512
Beddown Civil Air Patrol							
CAP	Cessna 182	-	-	-	720	0	720
Relocate RC-26B Operations							
162 WG	RC-26B	-	-	-	540	180	720
Totals		7,507	1,344	8,851	7,674	2,278	9,952
Net Change		0	0	0	167	934	1,101

Note:

a DAF anticipates that the number of A-10 sorties would start to decrease at some point over the next couple of years, A-10 divestiture plans have not yet been finalized. Therefore, in order to analyze the most impactful scenario, the current number of sorties flown by the 357 FS are carried forward for analysis.

AFB = Air Force Base; CAP = Civil Air Patrol; FS = Fighter Squadron; N/A = not applicable; RQS = Rescue Squadron; TES = Test and Evaluation Squadron; WG = Wing; WPS = Weapons Squadron

2.2 PROPOSED ACTION AT DAVIS-MONTHAN AFB

This section provides a detailed discussion of proposed activities by squadron at Davis-Monthan AFB, providing information on the change in PAA, the change in personnel, and related construction activities.

2.2.1 66th Weapons Squadron

The 66 WPS teaches graduate-level A-10C pilot and JTAC WICs that provide training and weapons and tactics employment to officers of the Combat Air Forces and Mobility Air Forces.

Aircraft transferring to Davis-Monthan AFB would consist of 7 PAA A-10. Personnel transferring to Davis-Monthan AFB would consist of 10 officers, 200 enlisted personnel, and 2 civilians for a total of 212 personnel. The 66 WPS would utilize existing 354 FS facilities at Buildings 4800, 4809, and 4810.

The 66 WPS and the 422 TES functions have a number of live weapons requirements. The number of live ordnance load area (LOLA) aircraft parking spaces currently at Davis-Monthan AFB is inadequate to support the increase in live weapons requirements associated with the beddown of the 7 PAA A-10; up to 14 additional LOLA spaces would need to be constructed. The additional LOLA spaces would be near the present LOLA.

The 66 WPS would fly 1,213 A-10C sorties per year with an average duration of 2 hours for each sortie. The training syllabus requires 861 day sorties and 352 night sorties per year to graduate 12 students per year. A night sortie is defined as takeoff or landing before 7:00 am or after 10:00 pm local time. The entire sortie does not need to occur during those hours; any portion of a sortie occurring during those hours counts as a night sortie.

1 The 66 WPS is responsible for both A-10 and JTAC training. The 66 WPS would utilize air-to-ground
2 munitions and defensive countermeasures during A-10 training and small arms ordnance for JTAC training
3 (**Tables 2-4** and **2-5**).

4 **Table 2-4.**
5 **66 WPS A-10 Weapons and Defensive Countermeasure Annual Quantities**

Weapon or Defensive Countermeasure	Projected Quantity
30-millimeter target practice/high-explosive aircraft cannon ammo	208,800
2.75-inch rocket target practice/white phosphorous	2,349
Laser rocket	99
Illumination rocket	1,566
Joint direct attack munition	80
Laser-guided bomb	107
Cluster bomb unit	64
Air-to-ground missile	58
BDU-33	1,249
M-206 flares	12,000
RR-170 chaff	12,000

6 66 WPS = 66th Weapons Squadron

7 **Table 2-5.**
8 **66 WPS JTAC Ordnance Quantities**

Ordnance Type	Projected Quantity
5.56-millimeter ball ammunition	16,620
5.56-millimeter tracer ammunition	15,720
5.56-millimeter ultimate training munition	4,860
7.62-millimeter ammunition	11,400
9-millimeter ammunition	16,160
Grenade simulator	44
40-millimeter smoke round	126
Smoke grenade	100

9 66 WPS = 66th Weapons Squadron; JTAC = Joint Terminal Attack Controller

10 **2.2.2 422nd Test and Evaluation Squadron**

11 The 422 TES performs operational testing of all fighter aircraft and munitions entering and in operational
12 use by ACC. The 422 TES is a subordinate unit of the 53rd Test and Evaluation Group stationed at Nellis
13 AFB. After a new fighter weapons system completes developmental testing, the mission of the 422 TES is
14 to thoroughly vet the new equipment in a combat representative environment. A variety of aircraft are
15 assigned to the 422 TES, to include A-10, F-15C, F-15E, F-16, F-22A and F-35A. The Air Force proposes
16 to relocate the portion of the 422 TES that supports A-10 OT to Davis-Monthan AFB.

17 Aircraft transferring to Davis-Monthan AFB would consist of four PAA A-10C. Personnel transfers to Davis-
18 Monthan AFB would consist of 5 officers and 4 civilians for a total of 9 personnel.

19 The 422 TES would fly 472 A-10C sorties per year with an average duration of 2 hours for each sortie,
20 including 72 night sorties per year. The 422 TES also would utilize air-to-ground munitions and self-defense
21 countermeasures for A-10 training (**Table 2-6**).

Table 2-6.
422 TES A-10 Annual Weapons and Defensive Countermeasures Quantities

Weapon or Defensive Countermeasure	Projected Quantity
30-millimeter CTG TP PGU-15A	46,000
30-millimeter cartridge 2 HEI	11,500
30-millimeter CTG HEI PGU-13D	11,500
Illumination rocket	350
Joint direct attack munition	46
Laser-guided bomb	34
Cluster bomb unit	36
Air-to-ground missile	48
Heavy-weight inert bomb	160
BDU-33	450
M-206 flares	3000
RR-170 chaff	900
Chaff RR-188	3000

422 TES = 422nd Test and Evaluation Squadron

2.2.3 66th Rescue Squadron

The 66 RQS and the 58 RQS operate jointly as a composite mission. The 66 RQS provides HH-60G aircraft and the 58 RQS provides Guardian Angel pararescue personnel.

The 66 RQS operates the HH-60G Pave Hawk medium-lift Combat Search and Rescue helicopter and provides rapidly deployable, full-spectrum expeditionary personnel recovery vertical lift capabilities to theater commanders worldwide. The 66 RQS tactically employs the HH-60G helicopter and its crew in hostile environments to recover downed aircrew and isolated personnel during day, night, or marginal weather conditions in contested airspace employing skills such as weapons employment, shipboard operations, and aerial refueling. The RQS also conducts military operations including civil search and rescue, disaster relief, international aid, and emergency medical evacuation.

Aircraft transferring to Davis-Monthan AFB would consist of 14 PAA HH-60W. Personnel transfers associated with the aircraft would consist of 56 officers, 569 enlisted personnel, and 8 civilians for a total of 633 personnel.

The 66 RQS would fly 1,100 A-10C sorties per year, of which approximately 550 would occur at night. The 66 RQS would utilize air-to-ground munitions and self-defense countermeasures for HH-60G training (Table 2-7).

Figure 2-1 shows the proposed location of new construction for the 66 RQS on the northern portion of the Base (approximately 100,000 square feet in size). Proposed locations for construction of new helicopter simulator facilities (approximately 13,000 square feet each) are depicted in Figure 2-2.

Table 2-7.
66 RQS Annual Weapons and Defensive Countermeasures

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	297,000 rounds
7.62-millimeter machine gun ammunition	1,587,600 rounds
Chaff	1,920
Flare	4,000

66 RQS = 66th Rescue Squadron

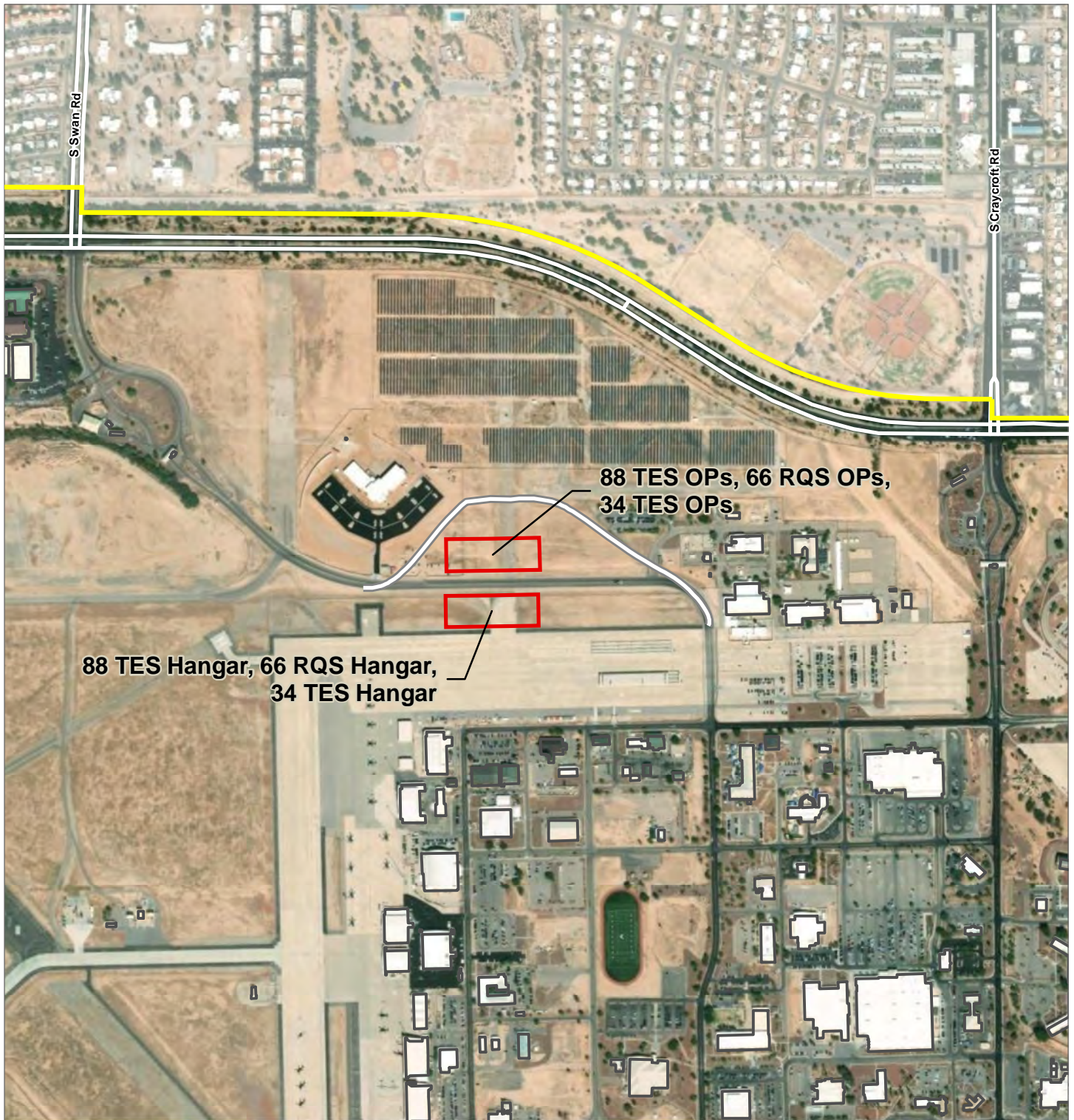


FIGURE 2-1

Proposed Locations of New Construction for the 88 TES, 66 RQS, and 34 WPS under the Proposed Action

— Sunglow Realignment MILCON
 □ Existing Buildings

▭ Installation Boundary
 □ Proposed Projects



0 1,000 Feet

Imagery: ESRI, 2021.
 Coordinate System: NAD 83 UTM Zone 12N





FIGURE 2-2
58 RQS and HH-60 Simulator under the Proposed Action

- Existing Buildings
- Proposed Projects



0 500 Feet

Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



2.2.4 58th Rescue Squadron

The 58 RQS Guardian Angel mission is uniquely designed and dedicated to conduct personnel recovery across the full range of military operations and during all phases of joint, coalition, and combined operations. Its most fundamental mission tasks are: (1) to prepare personnel who may be isolated or become missing while participating in US Government-sanctioned military activities (or missions in uncertain or hostile environments), (2) to conduct recovery operations during peacetime and war, and (3) to lead reintegration operations after a recovery.

Personnel transferring to Davis-Monthan AFB would consist of 22 officers, 129 enlisted personnel, and 12 civilians for a total of 163 personnel. The 58 RQS would require construction of a new facility (approximately 65,000 square feet) near the south end of the aircraft ramp (see **Figure 2-2**).

The 58 RQS has no assigned aircraft and relies upon the 66 RQS and other units to complete its training.

2.2.5 34th Weapons Squadron

The 34 WPS is assigned to the Air Force Weapons School and provides HH-60G and HC-130J instructional flying for air rescue missions. Aircraft transferring to Davis-Monthan AFB would consist of 4 PAA HH-60W; no HC-130J aircraft would be transferred to Davis-Monthan AFB. Personnel transferring to Davis-Monthan AFB would consist of 13 officers, 18 enlisted personnel, and 2 civilians for a total of 33 personnel.

The 34 WPS would require additional munitions facilities and munitions support facilities (see **Figure 2-1**). Proposed locations for construction of new helicopter simulator facilities are depicted in **Figure 2-2**.

As shown in **Table 2-3** above, the 34 WPS would fly 372 HH-60G sorties per year, of which 148 would occur at night. The 34 WPS would utilize air-to-ground munitions and self-defense countermeasures for HH-60G and HC-130J training (**Table 2-8**).

**Table 2-8.
34 WPS HH-60G Annual Weapons and Defensive Countermeasures**

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	198,200 rounds
7.62-millimeter machine gun ammunition	794,800 rounds
HH-60G chaff	4,201
HH-60G flare	2,000
HC-130J chaff	8,400
HC-130J flare	6,720

34 WPS = 34th Weapons Squadron

2.2.6 88th Test and Evaluation Squadron

The 88 TES is part of the Combat Search and Rescue Combined Test Force and is the Air Force's unit responsible for testing, evaluating, and developing tactics for combat, search, and rescue. The 88 TES performs this mission on the HH-60G, HC-130J, and Guardian Angel weapon systems.

Aircraft transferring to Davis-Monthan AFB would consist of 2 PAA HH-60W. Personnel transferring to Davis-Monthan AFB would consist of 20 officers, 37 enlisted personnel, and 31 civilians for a total of 88 personnel.

The 88 TES would require construction of two new facilities (approximately 100,000 square feet for each building) co-located with new construction for the 66 RQS (see **Figure 2-1** above). The 88 TES would fly 195 HH-60G sorties per year, of which approximately 48 would occur at night. The 88 TES would utilize air-to-ground munitions and self-defense countermeasures for HH-60W training (**Table 2-9**).

Table 2-9.
88 TES HH-60W Annual Weapons and Defensive Countermeasures

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	59,200 rounds
7.62-mm machine gun ammunition	151,000 rounds
HH-60W chaff	1,300
HH-60W flare	3,307

2.2.7 354th Fighter Squadron

The 354 FS is an active-duty operational A-10 squadron stationed at Davis-Monthan AFB. The Air Force proposes to inactivate the 354 FS and retire the A-10s assigned to this unit.

Aircraft transferring to the Aircraft Maintenance and Regeneration Center at Davis-Monthan AFB would consist of 18 PAA A-10C. Personnel departing Davis-Monthan AFB would consist of 505 positions.

The inactivation of the 354 FS would result in a decrease of 3,691 A-10C sorties per year. Night flying would decrease by 416 sorties.

2.2.8 357th Fighter Squadron

The 357 FS is an active-duty A-10C FTU stationed at Davis-Monthan AFB. The 357 FS has 21 PAA A-10C assigned. The 357 FS would be reduced from 21 PAA A-10C to 8 PAA A-10C, a reduction of 13 PAA A-10C. A total of 13 PAA A-10 aircraft would depart Davis-Monthan AFB under this action.

There are currently 713 personnel associated with the 357 FS at Davis-Monthan AFB. There would be a reduction of approximately 170 personnel associated with the reduction in aircraft.

2.2.9 Beddown Civil Air Patrol Cessna 182

Two Cessna 182 aircraft would beddown and operate from Davis-Monthan AFB; the aircraft would be parked on the North Ramp (see **Figure 2-1**). Operations would support Cadet Orientation Flights for the CAP, Reserve Officer Training Corps, and Junior Reserve Officer Training Corps. The aircraft would also support search and rescue and disaster relief training and operational missions, counter narcotics operations, and low/slow flying intercept training. No new facilities would be constructed for CAP operations under this Proposed Action; however, there might be associated construction in the future, which would be covered under a separate NEPA analysis.

The Cessna 182 aircraft would fly one to three sorties per day, for a maximum of 720 sorties per year (based on three per day for 240 days per year). All sorties would conclude with a single approach to a full-stop landing. Any pattern work for training and proficiency would be accomplished at satellite airfields in the local area.

2.2.10 Relocate RC-26B Operations

One RC-26B aircraft and associated personnel would be relocated from Morris ANGB to Davis-Monthan AFB. The aircraft would be off-station an average of 30 to 90 days per year supporting law enforcement activities, disaster relief, and national requests. Additional manpower would consist of 10 aircrew (6 full-time, 3 part-time), and 4 full-time contract logistics support/maintenance personnel.

No new facilities would be constructed for relocation of RC-26B operations. Personnel would be located at Building 1711 in the Snowbird Compound.

The RC-26B aircraft would average 2 to 3 sorties per day with approximately 720 sorties per year. Approximately 50 sorties would occur at night.

2.3 AIRSPACE USE

The primary airspace utilized by the 355 WG is the Barry M. Goldwater Range (BMGR). The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB (Figure 2-3). MOAs consist of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from commercial and personal air traffic. Whenever a MOA is being used, nonparticipating flight traffic may be cleared through a MOA if separation can be provided by air traffic control. Otherwise, nonparticipating traffic is rerouted (Federal Aviation Administration [FAA], 2021).

The BMGR was established in 1941 and is located in southwest Arizona along the US-Mexico border. It is located within Maricopa, Pima, and Yuma counties, Arizona, and covers 1,050,000 acres of land and 7,000 square miles of special use airspace (SUA). BMGR supports over 54,000 operations per year. The range offers four manned target complexes, an aerial gunnery range, and three tactical ranges for advanced training scenarios. Electronic combat systems include air combat maneuvering instrumentation for live monitoring and recorded playback debrief, tactical datalink, threat simulation, moving target systems, and a range operations center providing real-time range/airspace access and management.

The total increase in operations under the Proposed Action would be 15,112 sorties flown in the combined airspaces annually (an increase of 1,101 from baseline conditions).

The projected airspace operations also include those flown by other aircraft in support of the 66 WPS A-10C and JTAC WIC. These include operations flown by fixed aircraft to include bombers, electronic warfare and intelligence, surveillance, and reconnaissance aircraft. It also includes support operations flown by rotary wing aircraft.

2.3.1 Combined Weapons Changes in Special Use Airspace/Ranges

The Proposed Action also would result in changes to the quantities of ordnance utilized. Ordnance in this case is defined as any air-to-ground munition such as bombs, missiles, rockets, or aircraft-mounted machine guns or cannons. It also includes ground-to-ground munitions such as rifle, pistol, and machine gun ammunition or grenades.

2.3.2 Combined Defensive Countermeasure Changes in Special Use Airspace/Ranges

Defensive countermeasures are defined as expendable devices used to help protect the aircraft from hostile actions. Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection or attack by enemy air defense systems.

Chaff is an electronic countermeasure designed to reflect radar waves and obscure aircraft, ships, and other equipment from radar tracking sources. Chaff bundles consist of millions of nonhazardous aluminum-coated glass fibers. When ejected from the aircraft, these fibers disperse widely in the air, forming an electromagnetic screen that temporarily hides the aircraft from radar and forms a radar decoy, allowing the aircraft to defensively maneuver or leave the area.

Flares are a principal defensive countermeasure dispensed by military aircraft to avoid detection or attack by enemy air defense systems. Flares are magnesium pellets ejected from military aircraft and provide high-temperature heat sources that act as decoys for heat-seeking weapons targeting the aircraft. These defensive countermeasures are utilized to keep aircraft from being successfully targeted by, or to help aircraft escape from, weapons such as surface-to-air missiles, air-to-air missiles, and anti-aircraft artillery.

Under the Proposed Action, chaff and flares primarily would be used over the BMGR and Ruby Fuzzy MOAs, similar to existing training. To minimize the potential for flares to ignite vegetation, flares would be employed at an altitude that prevents the flares from impacting the ground or structures. Chaff and flares would be used in compliance with the 355 WG Inflight Guide. The 354 and 357 FS currently use chaff and flare within the BMGR and Ruby Fuzzy MOAs. Under the Davis-Monthan restructure discussed in Sections 1.3.1 and 2.2, the overall usage of chaff and flare would remain consistent with existing levels.

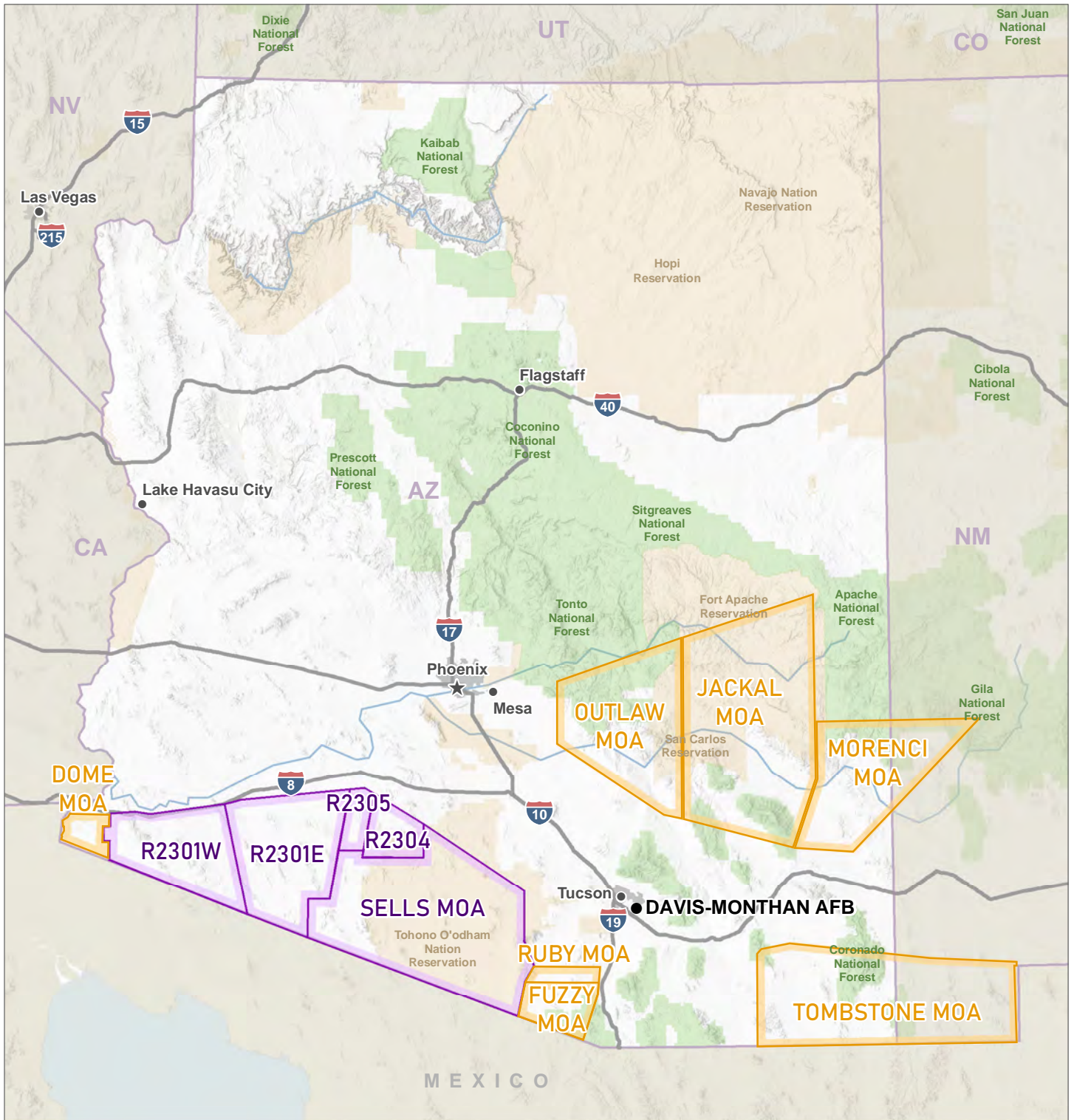


FIGURE 2-3
Special Use Airspace Used by Davis-Monthan AFB

- Barry M. Goldwater Range (BMGR)
- Military Operations Area (MOA)



0 50 Miles

Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



1 **2.4 SELECTION STANDARDS**

2 NEPA and CEQ regulations mandate the consideration of reasonable alternatives to the Proposed Action.
3 “Reasonable alternatives” are those that also could be utilized to meet the purpose of and need for the
4 Proposed Action. Per the requirements of 32 CFR Part 989, selection standards are used to identify
5 alternatives for meeting the purpose of and need for the Air Force action.

6 All of the selection standards for the various portions of the Proposed Action can be summarized as:

- 7 1) Co-location with like mission and/or supporting mission
- 8 2) Facilities – existing or room to build
- 9 3) Airspace and ranges – availability and suitability of SUA and nearby ranges not requiring
- 10 refueling

11 More detailed descriptions of selection standards 1 and 2 are provided for each unit below. Selection
12 standard 3 is consistent across all facets of the Proposed Action.

13 The primary selection standard for the inactivation of the 354 FS and the downsizing of the 357 FS revolves
14 around the retirement of aging A-10s. No other reasonable activity was identified at Davis-Monthan to
15 create capacity both at the Base and the associated airspace.

16 The primary selection standard for the beddown of the CAP Cessna 182 and for the relocation of the RC-
17 26B operations involves the consolidation of the 214 ATKG and CAP assets and operations in a common
18 location. No other reasonable activity was identified for the beddown of the CAP Cessna 182 and for the
19 relocation of the RC-26B operations.

20 **2.4.1 66th Weapons Squadron**

21 The alternatives to the Proposed Action must meet the following selection standards:

- 22 1) Co-locate at an existing continental US (CONUS) A-10 location
- 23 2) Existing and available A-10 and JTAC facilities
 - 24 a. Runway: 8,000-foot minimum
 - 25 b. Hangar: 2 bays for 7 primary aircraft; 12,300 square feet (ft²)
 - 26 c. Office space: eight officers, eight enlisted, two civilian personnel; 3,600 ft²
 - 27 d. Classroom space: 12 students annually (two classes per year with four to six students
 - 28 each), 5,000 ft²

29 **2.4.2 422nd Test and Evaluation Squadron**

30 The alternatives to the Proposed Action must meet the following selection standards:

- 31 1) Co-locate at an existing CONUS A-10 location
- 32 2) Existing and available A-10 and JTAC facilities
 - 33 a. Runway: 8,000-foot minimum
 - 34 b. Hangar: 2 bays for 4 primary aircraft
 - 35 c. Office space: five officers, four civilian personnel

1 **2.4.3 66th Rescue Squadron**

2 The alternatives to the Proposed Action must meet the following selection standards:

- 3 1) Co-locate at an Air Force active-duty CONUS operational HH-60 and HC-130 location
- 4 2) Existing and available HH-60 facilities
 - 5 a. Hangar: 3 bays for 14 primary aircraft; 30,000 ft²
 - 6 b. Apron to support 14 primary aircraft; 48,000 ft²
 - 7 c. One Squad Ops/Aircraft Maintenance Unit (AMU): Squad Ops, 33,000 ft²; AMU,
 - 8 32,000 ft²)

9 **2.4.4 58th Rescue Squadron**

10 The alternatives to the Proposed Action must meet the following selection standards:

- 11 1) Co-locate at an Air Force active-duty CONUS operational HH-60, HC-130, and Guardian Angel
- 12 location
- 13 2) Guardian Angel facilities
 - 14 a. Squadron operations facility: 10,667 ft²
 - 15 b. Preservation of the Force and Family space: 10,631 ft²
 - 16 c. Operations support facilities: 71,601 ft²

17 **2.4.5 34th Weapons Squadron**

18 The alternatives to the Proposed Action must meet the following selection standards:

- 19 1) Co-locate at an Air Force active-duty CONUS operational HH-60, HC-130, and Guardian Angel
- 20 location
- 21 2) Have existing and available HH-60 facilities:
 - 22 a. Hangar: one bay for 4 primary aircraft; 6,500 ft²
 - 23 b. Apron to support 4 primary aircraft: 28,000 ft²
 - 24 c. Office space; 6,600 ft²
 - 25 d. Classroom space for 14 students, 28 students annually

26 **2.4.6 88th Test and Evaluation Squadron**

27 The alternatives to the Proposed Action must meet the following selection standards:

- 28 1) Co-locate at an Air Force active-duty CONUS operational HH-60, HC-130, and Guardian Angel
- 29 location
- 30 2) Have existing and available HH-60/Guardian Angel facilities
 - 31 a. Hangar: one bay for 2 primary aircraft; 6,500 ft²
 - 32 b. Apron to support 2 primary aircraft: 19,000 ft²
 - 33 c. Squadron operations facility: 21,100 ft² (classification up to Top Secret with access to
 - 34 sensitive compartmentalized information)
 - 35 d. Operations support facilities: 26,500 ft²
 - 36 e. Preservation of the Force and Family space: 10,000 ft²

2.5 SCREENING OF ALTERNATIVES

All portions of the Proposed Action have similar selection standards. The Air Force Strategic Basing Process initially considered the actions as independent with different potential locations, especially for the 66 WPS.

- 66 WPS enterprise initially considered:
 - Davis-Monthan AFB, Arizona
 - Fort Wayne ANGB, Indiana
 - Gowen Field (Boise Air Terminal), Idaho
 - Moody AFB, Georgia
 - Selfridge ANGB, Michigan
 - Warfield ANGB (Martin State Airport), Maryland
 - Whiteman AFB, Missouri
- 66 RQS, 58 RQS, and 34 WPS enterprise considered:
 - Davis-Monthan AFB, Arizona
 - Moody AFB, Georgia
- 422 TES and 88 TES enterprise considered:
 - Davis-Monthan AFB, Arizona

The 66 WPS enterprise list was essentially open to all CONUS A-10 bases. There were several screening criteria used to further refine the enterprise list, as follows:

- the ability to build up and load live munitions (such as bombs and rockets), which are required on a number of Weapons School sorties;
- a live weapons employment range that is close enough to be used during a typical sortie duration; and
- a location within 350 nautical miles (nm) of Nellis AFB because the Weapons School class has to fly to Nellis AFB airspace so that each class can participate in Large Force exercises. There would not be air refueling support to get these aircraft to Nellis AFB, so the distance was based on what an A-10 could fly in a single, unrefueled sortie duration.

After a series of tabletop surveys and discussions, the enterprise list was screened and pared down to the following preferred and reasonable alternatives; site surveys were then performed.

- 66 WPS, 66 RQS, 58 RQS, and 34 WPS:
 - Davis-Monthan AFB, Arizona
 - Moody AFB, Georgia
- 422 TES and 88 TES:
 - Davis-Monthan AFB, Arizona

All the ANGB locations did not meet one or all of the enterprise screening criteria. ANG units are usually located on civil airfields and are usually not allowed to build up live munitions or load them up at their location. Only one ANG location, Gowen Field, was possibly close enough to a live range (Utah Test and Training Range). However, students would need to fly to another location, such as Mountain Home AFB, in Idaho, to pick up live munitions to use in the Utah Range, making training impractical. Finally, none of the ANG locations were within the distance criteria of Nellis AFB. Moody AFB and Whiteman AFB were also ruled out for this reason.

Application of the screening criteria to the alternatives is presented in **Table 2-11**.

1
2

**Table 2-11.
Comparison of Selection Standards for 4th Gen Missions Realignment**

Mission	Alternative	Selection Standards		
		Co-location with Like or Supporting Mission	Facilities	Airspace and Ranges
		(1)	(2)	(3)
66 WPS	(1) Davis-Monthan AFB	Yes	Yes	Yes
	(2) Moody AFB	Yes	Yes	No
66 RQS	(1) Davis-Monthan AFB	Yes	Yes	Yes
	(2) Moody AFB	Yes	Yes	No
58 RQS	(1) Davis-Monthan AFB	Yes	Yes	Yes
	(2) Moody AFB	Yes	Yes	No
34 WPS	(1) Davis-Monthan AFB	Yes	Yes	Yes
	(2) Moody AFB	Yes	Yes	No
422 TES	(1) Davis-Monthan AFB	Yes	Yes	Yes
88 TES	(1) Davis-Monthan AFB	Yes	Yes	Yes

3 AFB= Air Force Base; RQS = Rescue Squadron; TES = Test & Evaluation Squadron; WPS = Weapons Squadron

4 **2.6 ALTERNATIVE ACTIONS ELIMINATED FROM FURTHER CONSIDERATION**

5 Moody AFB was considered and eliminated from further consideration because it would not meet the
6 purpose of and need for the action or the selection standards (refer to **Section 2.4**). Further, Moody AFB
7 does not meet selection standard 3 because it is located more than 350 nm from Nellis AFB. This alternative
8 also lacks representative simulated threats and target complexes in the airspace and ranges accessible to
9 Moody AFB to support WIC syllabus training events.

10 **2.7 DETAILED DESCRIPTION OF THE SELECTED ALTERNATIVES**

11 NEPA and the CEQ regulations mandate the consideration of reasonable alternatives to the Proposed
12 Action. “Reasonable alternatives” are those that also could be utilized to meet the purpose of and need for
13 the Proposed Action. The NEPA process is intended to support flexible, informed decision-making; the
14 analysis provided by this EA and feedback from the public and other agencies will inform decisions made
15 about whether, when, and how to execute the Proposed Action.

16 Davis-Monthan AFB Alternative 1 is the Preferred Alternative (as described in **Section 2.1** of this
17 document). Alternative 1 is the only alternative carried forward for further analysis in this EA. Davis-Monthan
18 AFB is the only alternative located within 350 nm of Nellis AFB, which would avoid in-flight refueling
19 requirements.

20 **2.7.1 Preferred Alternative**

21 The Proposed Action as described in **Section 2.1** and summarized below represents the Air Force’s
22 Preferred Alternative. No other alternatives met the purpose of and need for the action or the selection
23 standards.

1 **2.7.1.1 Davis-Monthan Realignment**

2 The Preferred Alternative would relocate the 66 WPS, 422 TES A-10C OT mission, 66 RQS, 58 RQS, 34
3 WPS, and 88 TES from Nellis AFB to Davis-Monthan AFB. This alternative would also inactivate the 354
4 FS and downsize the 357 FS. This alternative would result in a decrease of 20 PAA A-10C aircraft and an
5 increase of 18 HH-60G aircraft at Davis-Monthan AFB.

6 **2.7.1.2 Beddown of Civil Air Patrol**

7 The Preferred Alternative would include the beddown of two Cessna 182. The aircraft would be parked on
8 the Base North Ramp. Operations would support Cadet Orientation Flights for the CAP, Reserve Officer
9 Training Corps, and Junior Reserve Officer Training Corps. The aircraft would also support search and
10 rescue and disaster relief training and operational missions, counter narcotics operations, and low/slow
11 flying intercept training.

12 **2.7.1.3 Relocate RC-26B Operations**

13 The Preferred Alternative would include the relocation of one RC-26B aircraft and associated personnel
14 from Morris ANGB to Davis-Monthan AFB. The aircraft would be off-station an average of 30 to 90 days
15 per year supporting law enforcement activities, disaster relief, and national requests. Additional manpower
16 would consist of 10 aircrew (6 full-time, 4 part-time), 1 full-time administrative support staff, and 3 full-time
17 contract logistics support/maintenance personnel.

18 **2.7.2 No Action Alternative**

19 Analysis of the No Action Alternative provides a benchmark, enabling decision-makers to compare the
20 magnitude of the potential environmental effects of the Proposed Action. NEPA requires an EA to analyze
21 the No Action Alternative. No action means that an action would not take place at this time, and the resulting
22 environmental effects from taking no action would be compared with the effects of deciding to move forward
23 with the proposed activity. No action for this EA reflects the status quo, where no additional aircraft assets
24 would be transferred to, retired from, or reallocated at Davis-Monthan AFB.

25 Under the No Action Alternative, the 4th Gen missions would remain at Nellis AFB, or could be inactivated
26 in place. Even if some missions are inactivated, this would create a capacity issue as 5th Gen missions
27 continue to increase in scope and number.

28 **2.8 SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES**

29 The potential impacts associated with the Proposed Action and the No Action Alternative are summarized
30 in **Table 2-12**. The summary is based on information discussed in detail in **Chapter 3** of this EA and includes
31 a concise definition of the issues addressed and the potential environmental impacts associated with the
32 Proposed Action and No Action Alternative.

1
2

**Table 2-12.
Summary of Potential Environmental Consequences**

Resource Area	Proposed Action	No Action Alternative
Airspace Management and Use	The Proposed Action would result in minimal impacts to the local airspace environment.	No significant impacts to airspace.
Noise	Compared to current conditions, the Proposed Action would result in a slight reduction of noise off Base.	No significant impacts to noise.
Safety	No significant impacts to ground, explosive, or flight safety.	No significant impacts to ground, explosive, or flight safety.
Air Quality	No significant impacts to regional air quality.	No impacts would occur to regional air quality under the No Action Alternative.
Biological Resources	No significant impacts to biological resources.	No significant impacts to biological resources.
Water Resources	No significant impacts to water resources.	Water resources would not change from current condition, and no impacts to water resources would occur.
Soils	No significant impacts to geological resources.	No impacts to geological resources.
Land Use	No changes to existing land use.	No changes to existing land use.
Socioeconomics	No impacts to population, economic environment, employment, housing, or educational resources.	No change to socioeconomic conditions.
Environmental Justice and Protection of Children	No disproportionate impact to minority or low-income populations. No disproportionate impacts to children or elderly.	No change to minority, low-income, or youth populations.
Cultural Resources	No significant impact to historic buildings or archaeological deposits. No known traditional cultural resources or sacred sites are present.	Cultural resources would not change from current condition, and no impacts to cultural resources would be anticipated to occur.
Hazardous Materials and Wastes, Toxic Substances, and Contaminated Sites	No impacts to hazardous waste management. No impacts to asbestos-containing materials and lead-based paint management. No impacts from radon. No impacts to contaminated sites.	No change to hazardous materials and wastes, contaminated sites, and toxic substances.
Infrastructure, Transportation, and Utilities	Minimal impacts to local traffic or utilities.	No impacts to local traffic or utilities.

3

1

This page intentionally left blank

CHAPTER 3 AFFECTED ENVIRONMENT 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.
- **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).
- **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 3.4–3.16**) 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 briefly describes the proposed or planned projects identified for consideration of potential cumulative impacts when combined with the Proposed Action at Davis-Monthan AFB and on a regional scale.

3.2 RESOURCES ELIMINATED FROM DETAILED ANALYSIS

CEQ regulations state that federal agencies shall “identify and eliminate from detailed study the issues which are not significant, or which have been covered by prior environmental review(s)” (40 CFR § 1501.9). Accordingly, the Air Force considered but eliminated from further analysis visual resources because facility construction would occur entirely within the Installation and be consistent with existing visual landscapes. Additional aircraft operations would be similar to those currently conducted so there would be no change in visual resources associated with aircraft operations.

3.3 RESOURCES CARRIED FORWARD FOR DETAILED ANALYSIS

The Air Force considered Davis-Monthan AFB and its environs, as well as the area under the proposed airspace, in determining the ROI for each resource. **Table 3-2** summarizes the environmental resources and their respective ROI(s). As indicated in **Table 3-2**, a number of resource areas would not affect the airspace ROI—water, geology and soils, land use, socioeconomics, hazardous materials and wastes, toxic substances, contaminated sites, infrastructure, transportation, and utilities—and are not described in the baseline airspace ROI description in **Chapter 3** or considered for detailed analysis.

1
2

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

Name	Description	Timeframe	Approximate Distance from Base
Federal Projects			
Permanent Playas Special Use Airspace	Establishment of an SUA in the form of a permanent Playas MOA and Air Traffic Control-Assigned Airspace above Playas, New Mexico.	Activity Ongoing (NEPA review completed)	140 miles from Davis-Monthan AFB
Personal Recovery Training	Personal recovery training for regular Air Force, Army, Navy, and US Marine Corps units; special forces; and other federal and state agencies. The training program involves ground, water, and flight/airspace activities. The Personal Recovery Program is centered out of Davis-Monthan AFB.	Activity Ongoing (NEPA update ongoing)	At Davis-Monthan AFB and Surrounding MOAs
Davis-Monthan Multiple Development Projects EA	Various short-, mid-, and long-term phase area development plan projects at Davis-Monthan AFB, including munitions storage.	Active NEPA (timeframe: 2–5 years)	At Davis-Monthan AFB
492nd Special Operations Wing (SOW) Relocation and Remission at Davis-Monthan AFB	Proposed relocation of the 492 SOW from Hurlburt Field, Florida, to Davis-Monthan AFB and transition from a support wing into a power projection wing. Includes proposed retirement of all A-10 aircraft at Davis-Monthan AFB, including the 357 FS and 47 FS.	Future NEPA (timeframe: 2–5 years)	At Davis-Monthan AFB
Special Use Airspace Optimization	Optimization of 10 existing MOAs used by Aircrews stationed at Davis-Monthan AFB, Luke AFB, and Morris ANGB in Arizona. The MOAs proposed for optimization include Tombstone, Outlaw, Jackal, Reserve, Morenci, Bagdad, Gladden, Sells, Ruby, and Fuzzy.	Active NEPA (timeframe: 3–10 years)	Surrounding MOAs
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 to Davis-Monthan AFB fence line

3 AFB = Air Force Base; ANGB = Air National Guard Base; MOA = Military Operations Area; NEPA = National Environmental Policy
4 Act; SOW = Special Operations Wing; SUA = special use airspace

**Table 3-2.
Environmental Resources Analyzed in the Environmental Assessment**

Resource	Region of Influence: Davis-Monthan AFB and Environs	Region of Influence: BMGR, Outlaw/Jackal/Morenci MOAs, Fuzzy, Ruby 1, and Tombstone MOAs and Environs
Airspace Management and Use	✓	✓
Noise	✓	✓
Safety	✓	✓
Air Quality	✓	✓
Biological Resources	✓	✓
Water Resources	✓	N/A
Geology and Soils	✓	N/A
Land Use	✓	N/A
Socioeconomics	✓	N/A
Environmental Justice and Protection of Children	✓	N/A
Cultural Resources	✓	✓
Hazardous Materials and Wastes, Toxic Substances, and Contaminated Sites	✓	N/A
Infrastructure, Transportation, and Utilities	✓	N/A

AFB = Air Force Base; BMGR = Barry M. Goldwater Range; MOA = Military Operations Area; N/A = not applicable

3.4 AIRSPACE MANAGEMENT AND USE

3.4.1 Definition of the Resource

This resource includes both airspace management and the use of airspace needed to support airfields and their surrounding airspace, as well as the airspace used for military training and other components of the National Airspace System. Issues associated with the Proposed Action focus on the management and use of that system.

Airspace management is defined as the direction, control, and handling of flight operations in the “navigable airspace” that overlies the geopolitical borders of the US and its territories. “Navigable airspace” is airspace above the minimum altitudes of flight prescribed by regulations under 49 USC Subtitle VII, Part A, and includes airspace needed to ensure safety in the takeoff and landing of aircraft (49 USC § 40102). The FAA is responsible for managing national airspace assets through a variety of regulations and procedures. As necessary, the FAA will coordinate with federal (including the Department of Defense [DoD]), state, and local community aviation entities to determine the best use of these assets. All aircraft are subject to FAA regulations. The regulations are based on the types of flying activity, volume of traffic, hazard potential, national security, and other factors.

There are two categories of airspace or airspace areas: regulatory and non-regulatory. Within these two categories, there are four types of airspace—Controlled, Uncontrolled, Special Use, and Other.

The ROI for the Proposed Action includes airspace in and around Davis-Monthan AFB. The ROI also includes airspace associated with the BMGR and the following MOAs: Tombstone, Outlaw, Jackal, Morenci, Ruby, and Fuzzy (see **Table 3-2**).

3.4.2 Existing Conditions – Davis-Monthan AFB

Davis-Monthan AFB is located in and operates out of Tucson, Arizona. The FAA designation for Davis-Monthan AFB is “KDMA.” Davis-Monthan AFB is the ACC’s busiest single runway airfield, Runway 12/30, which has a northwest-to-southeast runway configuration. Air traffic controlling agencies responsible for the safe, orderly, and expeditious flow of air traffic include the Davis-Monthan Tower, Tucson Approach Control, and Albuquerque Center. Davis-Monthan AFB airfield management is operational 24 hours a day, 365 days a year, unless coordinated otherwise through the Installation Commander. Davis-Monthan Tower is

operational Monday through Friday, 5:00 am–12:00 am (local time), and 8:00 am–5:00 pm (local time) on weekends, holidays, and ACC down days. The FAA operates the approach, departure, and enroute control within the Davis-Monthan AFB terminal airspace. Both the Tucson Terminal Radar Approach Control and Albuquerque Center are continuously open to provide air traffic control (ATC) services.

3.4.2.1 Airspace Designation

Davis-Monthan AFB is surrounded by Class C airspace with an inner-core control altitude from ground surface to 5,500 feet mean sea level (MSL) within a 5-nm radius around the airport. Outer-shelf Class C airspace is 5–10 nm from the center of KDMA, with control altitudes between 4,200 and 6,600 feet MSL. The regulations at 14 CFR § 91.130 require two-way communication with ATC prior to entry into Class C airspace. The Class C airspace that surrounds Davis-Monthan AFB is uniquely tailored to also include the Tucson International Airport. Interstate 10 (I-10) is the dividing line between the Base and Tucson International Airport airspace. Davis-Monthan Tower is responsible for all air traffic northeast of I-10 within 5 nm of the airport (ground surface–5, 500 feet MSL)

The airspace between the Davis-Monthan AFB Class C airspace and the various locations where training activities occur (such as SUA) is generally either Class A (at or above 18,000 feet MSL) or Class E (below 18,000 feet MSL). Operation of military aircraft in these areas is the same as civil aircraft; each area has FAA-published rules for use. Military aircraft outside of SUA follow the National Airspace System just like non-military aircraft and are allowed to operate within the rules of each airspace class. While operating in the Class A and Class E airspace, military aircraft are controlled by the same agencies controlling commercial aircraft, and whether following visual flight rules or instrument flight rules, are offered the same levels of control or advisories as appropriate or required.

3.4.2.2 Air Traffic Count

Air traffic is counted or tallied differently from sorties. As previously mentioned, a sortie is one mission from departure carried through to landing. Traffic count is tallied by the number of departures, landings, and patterns. For example, a single A-10 may sometimes conduct a single approach to a full-stop landing. At other times it may conduct one or more approaches that transition to a departure and another approach. This is normally referred to as a closed pattern. A single sortie will contain at least two airfield operations, which consist of one takeoff and one full-stop landing. Each closed pattern counts as two airfield operations which consist of one approach and one departure. Therefore, a single sortie may result in multiple airfield operations. **Table 3-3** summarizes total existing operations for A-10 and HH-60 aircraft at Davis-Monthan AFB.

**Table 3-3.
Baseline Average Annual Operations (A-10 and HH-60)^a**

Aircraft	Departures		Arrivals		Closed Patterns		Total
	Day	Night	Day	Night	Day	Night	
A-10	14,011	0	11,739	2,272	1,948	0	29,970
HH-60	3,076	0	1,538	1,538	3,000	0	9,152
Totals	17,087	0	13,277	3,810	4,948	0	39,122

Note:
a Davis-Monthan AFB averages approximately 68,648 flight operations per year.

3.4.3 Existing Condition – Special Use Airspace

The primary airspace utilized by the 355 WG is the BMGR. The Tombstone, Outlaw/Jackal/Morenci, and Ruby/Fuzzy MOAs are accessible for training within 125 miles of Davis-Monthan AFB (see **Figure 2-3**). **Table 3-4** describes the affected SUA under the Proposed Action. **Table 3-5** provides estimated airspace operations for A-10 and HH-60 aircraft from Davis-Monthan AFB.

1
2

**Table 3-4.
Davis-Monthan Special Use Airspace**

SUA	Description
Barry M. Goldwater Range	The Barry M. Goldwater Range (BMGR), located 37 nm west of Davis-Monthan AFB, has a combination of SUA. The Range is a mix of MOAs and restricted areas and enables the 355 WG to accomplish a vast array of training objectives. Within the Range is the Sells MOA and Restricted Areas (R)-2301, R-2304, and R-2305. The Mexican Flight Information Region (FIR) borders the Range to the south. The BMGR is split at R-2301; the Los Angeles Center (ZLA) Air Route Traffic Control Center (ARTCC) is responsible for the airspace to the west and the Albuquerque Center (ZAB) ARTCC is responsible for the airspace to the east.
Fuzzy/Ruby/Dome MOAs	<p>The Fuzzy and Ruby MOAs are located 26 nm southwest of Davis-Monthan AFB. The Fuzzy MOA ranges from 100 feet above ground level (AGL) to 9,999 feet mean sea level (MSL) and is underneath the Ruby MOA, which contains the block altitudes from 10,000 feet MSL to 17,999 feet MSL. The Ruby MOA extends and creates an overhang to the north of the Fuzzy MOA. Both Fuzzy and Ruby fall within the ZAB ARTCC airspace jurisdiction.</p> <p>The Dome MOA is located to the west of BMGR and about 185 nm west of Davis-Monthan AFB. The Dome MOA is within the ZLA ARTCC airspace and lies above the Yuma International Airport Class D airspace with altitudes from 6,000 feet MSL to 17,999 feet MSL.</p>
Outlaw/Jackal/Morenci MOAs	The Outlaw, Jackal, and Morenci MOAs are located 40 nm to the northeast of Davis-Monthan AFB. These MOAs fall under the ZAB ARTCC area of responsibility. The MOAs range in altitude from 100 feet AGL up to but not including 18,000 feet MSL. Each MOA section offers published activation hours; if the mission hours fall outside the published hours, the MOA hours will be coordinated and activated via a Notice to Air Missions.
Tombstone MOA	The Tombstone MOA is located 53 nm southeast of Davis-Monthan AFB. The Tombstone MOA falls under the ZAB ARTCC area of responsibility and borders the Mexican FIR to the north. The MOA is split into various subsections that range in altitudes from 500 feet AGL up to but not including 18,000 feet MSL. The Douglas International Airport (KDUG) is underneath Tombstone C MOA (14,500–17,999 feet MSL). The airport contains the Douglas VORTAC, which provides navigation to and from the airport to include instrument approach procedures. Route V66 is established using the Douglas VORTAC 286 and 051 radials.

3 AFB = Air Force Base; AGL = above ground level; ARTCC = Air Route Traffic Control Center; BMGR = Barry M. Goldwater Range;
 4 FIR = Flight Information Region; MOA = Military Operations Area; MSL = mean sea level; nm = nautical mile; R- = Restricted Area;
 5 ZAB = Albuquerque Center; ZLA = Los Angeles Center; VORTAC = see footnote on previous page

6
7

**Table 3-5.
Baseline Airspace Operations**

MOA/ATCAA	A-10 (annual operations)	HH-60 (annual operations)
Tombstone	2,400	1,059
Jackal/Outlaw	1,700	750
Morenci/Reserve	700	309
Gladden/Bagdad	20	9
Sells	250	110
Ruby/Fuzzy	1,900	839
Totals	6,970	3,076

8 ATCAA = Air Traffic Control-Assigned Airspace; MOA = Military Operating Area

9 **3.4.4 Environmental Consequences**

10 **3.4.4.1 Evaluation Criteria**

11 The assessment of airspace examines how the Proposed Action and Alternatives would impact airspace.
 12 An adverse impact to airspace might include significantly increasing flight operations at an airfield or
 13 modifying a terminal and/or SUA. Since the Proposed Action would not change controlled airspace or SUA,

1 the analysis in this EA focuses on increases of air traffic. For purposes of analysis, a significant impact is
2 considered an increase in traffic without the regulatory guidance to handle the traffic load.

3 **3.4.4.2 Proposed Action – Davis-Monthan AFB**

4 **Table 3-6** summarizes total proposed operations for A-10 and HH-60 aircraft at Davis-Monthan AFB. The
5 Proposed Action would result in an increase in airfield operations from the current baseline of 39,122 to an
6 estimated 42,997 total airfield operations. The increase of 3,875 operations, or 9 percent, would be due to
7 the addition of Base-assigned aircraft. Operations would still require ATC services by Davis-Monthan Tower
8 and Tucson Approach for departure, pattern work, and arrival services. Additionally, these sorties, when
9 outside Class C airspace, would require routine services from FAA enroute agencies operating and
10 controlling traffic within the National Airspace System.

11 **Table 3-6.**
12 **Proposed Action Average Annual Operations (A-10 and HH-60)^a**

Aircraft	Departures		Arrivals		Closed Patterns		Total
	Day	Night	Day	Night	Day	Night	
A-10	12,005	0	9,725	2,280	1,994	0	26,004
HH-60	4,743	0	2,459	2,284	4,627	0	14,113
Cessna 182	720		720				1,440
RC-26	720		540	180			1,440
Totals	18,188	0	13,444	4,744	6,621	0	42,997

13 Note:
14 a Davis-Monthan AFB averages approximately 68,648 flight operations per year.

15 Davis-Monthan Tower is fully staffed with a minimum of five qualified controllers during the day, Monday
16 through Friday, and four controllers after sunset to accommodate wing flying. The positional break down
17 within the tower cab is sufficient to handle a 9-percent increase in total annual operations. Through various
18 methods, all described within the FAA Joint Order 7110.65Z, "Air Traffic Control," the Proposed Action
19 would not affect safety, separation, or efficiency.

20 **3.4.4.3 Proposed Action – Special Use Airspace**

21 **Table 3-7** provides proposed airspace operations for A-10 and HH-60 aircraft from Davis-Monthan AFB.
22 No new procedures, airspace, or reconfigurations would be needed under the Proposed Action. Aircraft
23 would continue to operate within the existing SUA as described in Section 2.3 but would increase SUA
24 utilization by 10.9 percent, or 1,101 total annual sorties. Since scheduling deconfliction is already being
25 done within the 355 WG, an increase of 1,101 annual SUA operations would not be significant enough to
26 cause an impact. Additionally, these aircraft would be spread across all the various SUA, thus reduce
27 airspace saturation. Therefore, no significant airspace impacts would be expected to occur with
28 implementation of Proposed Action.

29 **Table 3-7.**
30 **Proposed Action Airspace Operations**

MOA/ATCAA	A-10 (annual operations)	HH-60 (annual operations)
Tombstone	2,454	1,383
Jackal/Outlaw	1,739	980
Morenci/Reserve	716	404
Gladden/Bagdad	20	12
Sells	256	144
Ruby/Fuzzy	1,943	1,096
Totals	7,128	4,019

31 ATCAA = Air Traffic Control-Assigned Airspace; MOA = Military Operating Area

1 **3.4.4.4 Cumulative Impacts**

2 As listed in **Table 3-1**, three proposed actions with the potential to impact air quality in and around the ROI
3 are the Arizona Airspace EIS (expected completion 2025), the Personnel Recovery Training Program EA
4 (Air Force, 2020), and the 492nd Special Operations Wing (SOW) Relocation EIS (which is a future project
5 with no analysis performed to date). Each noise analysis, based on airspace usage for a given proposed
6 action, would be built upon the previous baseline of the most recent NEPA document, as was done with
7 this EA. Airspace impacts associated with past actions listed in **Table 3-1** are already included in the
8 existing conditions for airspace, air quality, and noise. The Arizona Airspace EIS is currently ongoing and
9 proposes changes to the size and location of various SUAs. The 492nd SOW Relocation EIS proposes to
10 relocate the 492nd SOW aircraft and personnel to Davis-Monthan AFB and to retire all remaining A-10
11 aircraft at Davis-Monthan AFB, which could change airspace utilization in the surrounding SUA. When
12 considered in conjunction with other past, present, and reasonably foreseeable environmental trends and
13 planned actions at Davis-Monthan AFB, no significant cumulative impacts on airspace would be anticipated
14 to occur with implementation of the Proposed Action.

15 **3.4.4.5 No Action Alternative**

16 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
17 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
18 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
19 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
20 would be no changes to airspace management and use beyond baseline conditions.

21 **3.5 NOISE**

22 **3.5.1 Definition of the Resource**

23 Sound is a physical phenomenon consisting of minute vibrations exhibited as waves, measured in
24 frequency and amplitude, which travel through a medium, such as air or water, and are sensed by the
25 human ear. Sound is all around us. Noise is generally described as unwanted sound. Unwanted sound can
26 be based on objective effects (such as hearing loss or damage to structures) or subjective judgments
27 (community annoyance). Noise analysis thus requires assessing a combination of physical measurement
28 of sound, physical and physiological effects, and psycho- and socio-acoustic effects. The response of
29 different individuals to similar noise events is diverse and influenced by the type of noise, the perceived
30 importance of the noise, its appropriateness in the setting, the time of day, the type of activity during which
31 the noise occurs, and the sensitivity of the individual. Noise may also affect wildlife through disruption of
32 nesting, foraging, migration, and other life-cycle activities.

33 As shown in **Table 3-2**, the ROI for noise is the Davis-Monthan AFB, local environs around the Base, and
34 the associated SUA.

35 **3.5.1.1 Noise Metrics**

36 Noise and sound levels are expressed in logarithmic units measured by decibels (dB). A sound level of 0
37 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening
38 conditions. Normal speech equates to a sound level of approximately 60 dB, sound levels above 120 dB
39 begin to be felt inside the human ear as discomfort, and sound levels between 130 and 140 dB are felt as
40 pain (Berglund and Lindvall, 1995).

41 All sound contains a spectral content, which means the magnitude or level differs by frequency, where
42 frequency is measured in cycles per second, or hertz. To mimic the human ear's non-linear sensitivity and
43 perception of different frequencies of sound, the spectral content is weighted. For example, environmental
44 noise measurements usually employ an "A-weighted" scale, denoted as dBA, that de-emphasizes very low
45 and very high frequencies to better replicate human sensitivity. As is done in many environmental

1 documents, the “A” in dBA is dropped for brevity to refer to A-weighted sound levels. All sound levels
2 presented in this document are A-weighted unless otherwise noted.

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

7 **3.5.2 Existing Conditions- Davis-Monthan AFB**

8 Many components may generate noise and warrant analysis as contributors to the total noise impact. The
9 predominant noise sources at Davis-Monthan AFB consist of aircraft operations and industrial operations
10 of an active airfield. Construction, ground support equipment along the runway, and vehicular traffic all
11 contribute to the noise environment, though these generally are transitory and provide a negligible
12 contribution to the overall average noise level at Davis-Monthan AFB.

13 Wing operations vary year to year; therefore, the flying hour program of record is used for analysis because
14 it presents the condition that accounts for the full environmental impacts possible. The current A-10 flying
15 program equates to 29,970 annual operations² at Davis-Monthan AFB, and the current HH-60 flying
16 program equates to 9,152 annual operations, broken down by departures, arrivals, and closed patterns, as
17 summarized in **Table 3-8**. Davis-Monthan AFB generates approximately 64,842 based aircraft flight
18 operations per year and receives approximately 3,806 transient flight operations per year. In addition to
19 A-10 and HH-60, many kinds of transient aircraft fly at Davis-Monthan AFB, including C-130s and F-16s.

20 **Table 3-8.**
21 **Baseline Average Annual Operations (A-10 and HH-60)^a**

Aircraft	Departures		Arrivals		Closed Patterns		Totals
	Day	Night	Day	Night	Day	Night	
A-10	14,011	0	11,739	2,272	1,948	0	29,970
HH-60	3,076	0	1,538	1,538	3,000	0	9,152
Totals	17,087	0	13,277	3,810	4,948	0	39,122

22 Note:
23 a Davis-Monthan AFB averages approximately 68,648 flight operations per year.

24 **Figure 3-1** shows the DNL noise contours from 65 to 85 dB in 5-dB increments for the existing conditions
25 at Davis-Monthan AFB. Noise generated from aircraft operations at Davis-Monthan AFB occurs within the
26 airfield and extends to cover areas to the northwest and southeast of the airfield.

² One sortie is two operations: one departure and one arrival from the airfield.

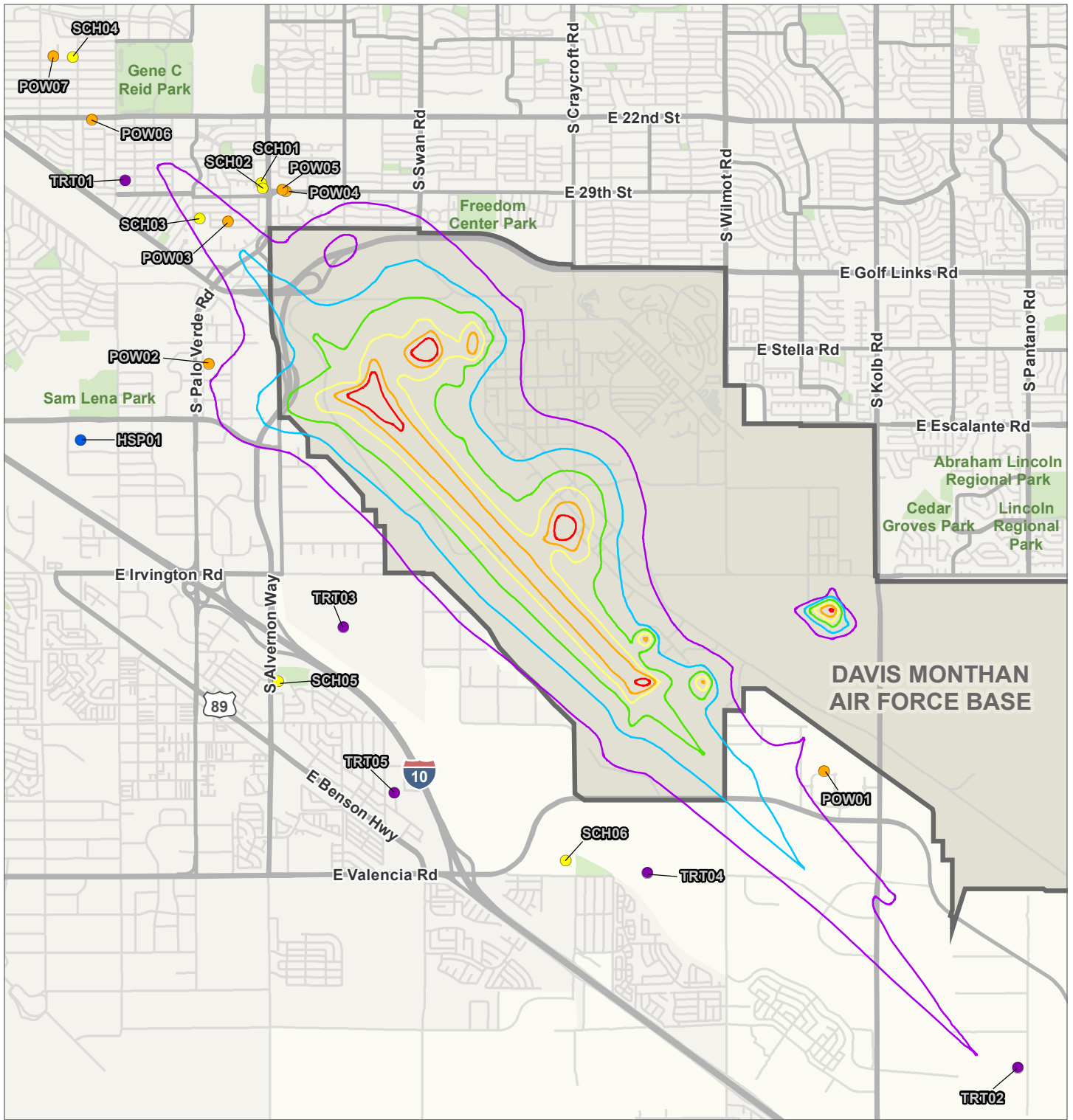


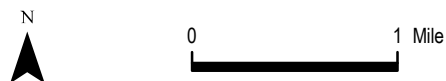
FIGURE 3-1
Day-Night Average Sound Level – Baseline Conditions

Baseline Noise Contours DNL (dBA)

- 60
- 65
- 70
- 75
- 80
- 85

- Census Tract Center
- Hospital
- Place of Worship
- School

Installation Boundary



Coordinate System: NAD 83 UTM Zone 12N

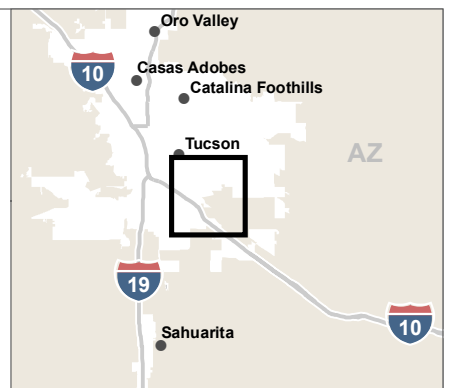


Table 3-9 summarizes the acreage breakdown for DNL noise levels at Davis-Monthan AFB from 65 through 85 dBA in 5-dBA increments. A total of 1,103 acres are exposed to 65 dB DNL or greater noise levels; 123 of those acres are located outside of Davis-Monthan AFB property.

**Table 3-9.
Baseline Noise Exposure Acreage**

DNL (dBA)	Existing Conditions Acreage		
	On Installation	Off Installation	Totals
65+	980	123	1,103
70+	657	N/A	657
75+	385	N/A	385
80+	256	N/A	256
85+	56	N/A	56

dBA = A-weighted decibel; DNL = Day-Night Average Sound Level; N/A = not applicable

Table 3-10 shows the DNL values at each of the points of interest (POIs) under the existing conditions (see **Figure 3-1**). Values range from 45 to 62 dB DNL. These values are all well below the DoD threshold of 65 dB DNL for land use recommendations for noise-sensitive land uses.

**Table 3-10.
Baseline Points of Interest Noise Exposure**

Map ID	Point Type	Named Point of Interest	Baseline DNL (dB)
H01	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
T01	Census Tract Center	Census Tract 20	56
T02	Census Tract Center	Census Tract 40.73	56
T03	Census Tract Center	Census Tract 41.18 BlkGrp 1	51
T04	Census Tract Center	Census Tract 41.18 BlkGrp 3	52
T05	Census Tract Center	Census Tract 41.12 BlkGrp 1	46
W01	Place of Worship	Our Savior Lutheran Church	58
W02	Place of Worship	The Church of Jesus Christ of Latter-Day Saints Employment Center	58
W03	Place of Worship	Ideal Missionary Baptist Church	62
W04	Place of Worship	Word In Season Christian Center	55
W05	Place of Worship	Rccg Glory Tabernacle	55
W06	Place of Worship	Potters House	56
W07	Place of Worship	First Free Will Baptist Church	56
W02	Place of Worship	The Church of Jesus Christ of Latter-Day Saints Employment Center	54

dB = decibel; DNL = Day-Night Average Sound Level; ID = Identification

3.5.3 Existing Conditions – Special Use Airspace

Table 3-11 summarizes the airspaces used by Davis-Monthan AFB A-10 and HH-60 aircraft and their approximate annual operations. Many other aircraft from multiple military installations use the listed MOAs and Air Traffic Control-Assigned Airspace (ATCAAs), such as the F-16 and the F-35.

**Table 3-11.
Baseline Airspace Operations**

MOA/ATCAA	A-10	HH-60
Tombstone	2,400	1,059
Jackal/Outlaw	1,700	750
Morenci/Reserve	700	309
Gladden/Bagdad	20	9
Sells	250	110
Ruby/Fuzzy	1,900	839
Totals	6,970	3,076

ATCAA = Air Traffic Control-Assigned Airspace; MOA = Military Operating Area

3.5.4 Environmental Consequences

The assessment of noise examines how the Proposed Action would impact the noise environment in the vicinity of the Installation and SUA. An adverse impact to noise would comprise significant increases to noise exposure levels at an airfield or SUA. The analysis in this EA assessed potential impacts by comparing Proposed Action noise exposure levels to those of the No Action Alternative.

3.5.4.1 Evaluation Criteria

Airfield Noise

To accomplish the impact analysis, noise modeling using DNL is based on annual average day aircraft operations, which are determined by dividing the total yearly airfield operations by 365 days per year. DNL has two time periods of interest: daytime (7:00 am–10:00 pm) and nighttime (10:00 pm–7:00 am).

Noise modeling was conducted by determining and building each aircraft's flight tracks (paths over the ground) and profiles (which include data such as altitude, airspeed, power settings, and other flight conditions). This information was developed iteratively with a team primarily made up of representatives from the Installation's flying squadrons. These data were combined with information about the numbers of each type of operation by aircraft/track/profile, local climate, ground surrounding the airfield, and similar data related to aircraft engine runs that occur at specific, static locations on the ground (e.g., pre- and post-flight and maintenance activities).

For this analysis, DNL contours of 65 to 85 dB, presented in 5-dB increments, graphically depict the aircraft noise environment (see **Figure 3-1**). Analysts used the NOISEMAP software suite, the DoD-accepted method for representing the overall community noise exposure over time from military and civilian aircraft activity (Air Force Civil Engineer Center, 2023).

Noise exposure is also presented in terms of DNL at representative POIs and on- and off-Installation acreages within each noise contour. The two main purposes of POI analysis are to provide additional information of potential impacts to decision-makers and to allow the public to gain additional insight into how noise levels would change at areas of most interest to them. Based upon this goal, POIs were selected by first compiling a list of schools and healthcare facilities in the vicinity of each airfield. Census tract centroids (the geometric center of each census tract area) provided many additional POI locations most likely to contain nearby noise-sensitive land uses (e.g., residential, daycare, places of worship, nursing homes). The final POI screening involved analyzing the areas surrounding the airfield and primary flight paths to identify noise-sensitive locations most likely to experience elevated aircraft noise that were not already captured by other nearby POIs. The resulting POI locations for this analysis totals 19: 6 schools, 1 healthcare facility, 5 census tract centroids, and 7 places of worship.

Airspace Noise

Noise modeling in the airspace was accomplished by determining the use of each airspace unit and building each aircraft's flight profiles based on the aircraft's configuration (airspeed and power setting) and the amount of time spent at various altitudes throughout the airspace.

Construction Noise

The Proposed Action includes construction projects that would occur within the Installation boundary at Davis-Monthan AFB, generating temporary construction noise. The proposed construction sites would be in areas close to the runways currently exposed to 65 dB DNL or greater. Therefore, the construction activity would not generate significant impacts or warrant additional noise analysis because noise-sensitive locations would not be affected.

3.5.4.2 Proposed Action – Davis-Monthan AFB

The Proposed Action would result in a decrease from 29,270 annual A-10 operations to 26,004 annual A-10 operations; however, nighttime A-10 operations would increase slightly from 2,272 to 2,280. HH-60 annual operations would increase from 9,152 to 14,113. Under the Proposed Action, 1,440 annual Cessna 182 operations and 1,440 annual RC-26 operations would occur at Davis-Monthan AFB. **Table 3-12** summarizes the average annual operations for airframes under the Proposed Action.

**Table 3-12.
Proposed Action Average Annual Operations**

Aircraft	Departures		Arrivals		Closed Patterns		Totals
	Day	Night	Day	Night	Day	Night	
A-10	12,005	0	9,725	2,280	1,994	0	26,004
HH-60	4,743	0	2,459	2,284	4,627	0	14,113
Cessna 182	720	0	720	0	0	0	1,440
RC-26	720	0	540	180	0	0	1,440
Totals	18,188	0	13,444	4,744	6,621	0	42,997

Figure 3-2 shows the DNL noise contours from 65 to 85 dB in 5-dB increments under the Proposed Action. As with baseline conditions, noise generated from aircraft operations at Davis-Monthan AFB would occur primarily within the airfield and would extend to areas to the northwest and southeast of the airfield. Noise contours under the Proposed Action would be only slightly larger than those under baseline conditions.

Table 3-13 lists the acreage breakdown for Davis-Monthan AFB. A total of 1,101 acres would be exposed to 65 dB DNL or greater noise levels, 117 of those acres would be located outside the Installation boundary. Under the Proposed Action, there would be an overall decrease of acreage outside of the Installation boundary exposed to 65 dB DNL. Approximately 7 additional acres on Installation would be newly exposed to noise levels of 75 dB DNL.

**Table 3-13.
Proposed Action Noise Exposure Acreage**

DNL (dBA)	Proposed Action Acreage			Change Relative to Baseline/ No Action		
	On Installation	Off Installation	Total	On Installation	Off Installation	Total
65+	984	117	1,101	5	-7	-2
70+	652	N/A	652	-5	N/A	-5
75+	392	N/A	392	7	N/A	7
80+	253	N/A	253	-3	N/A	-3
85+	55	N/A	55	-1	N/A	-1

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

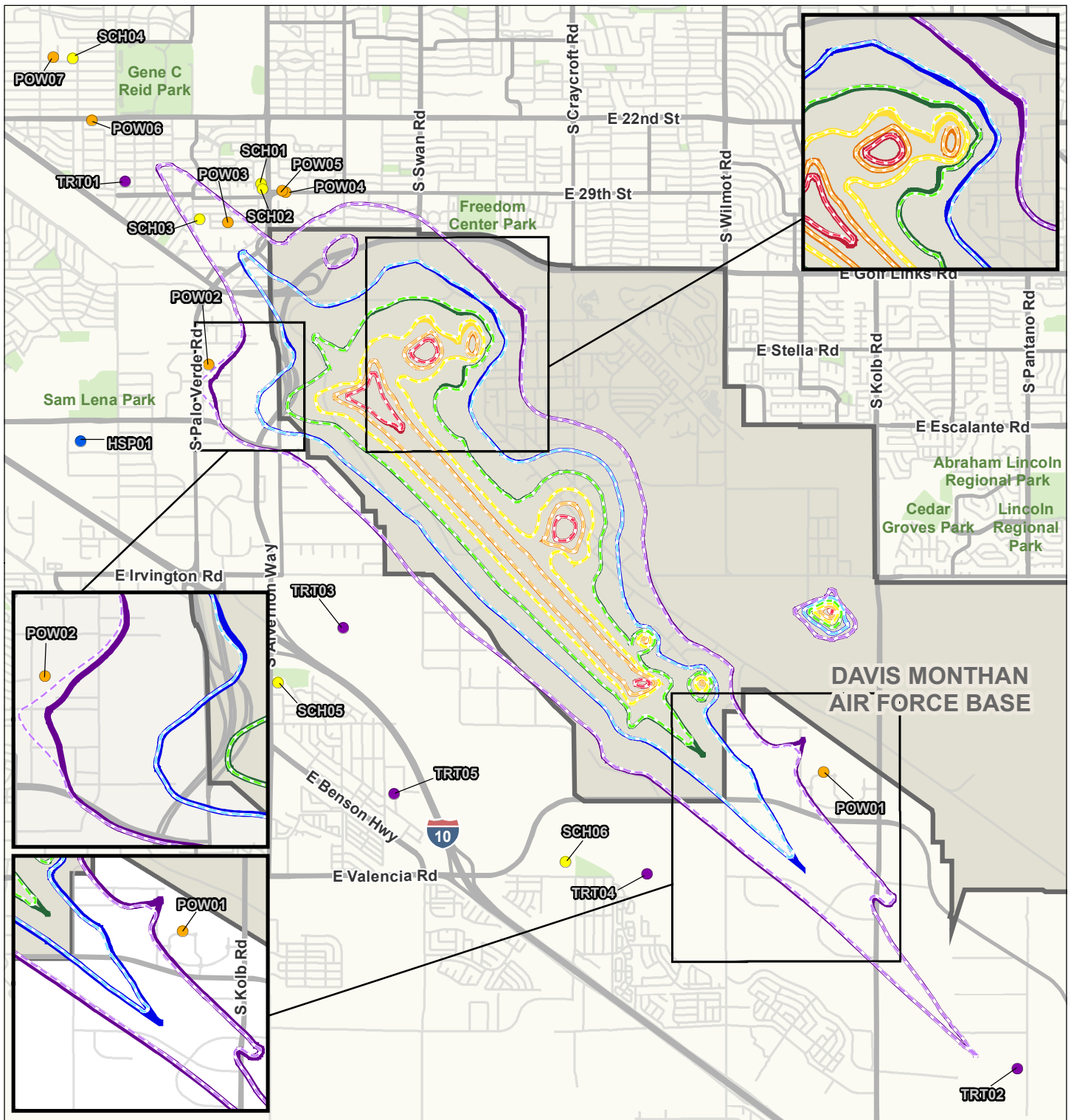
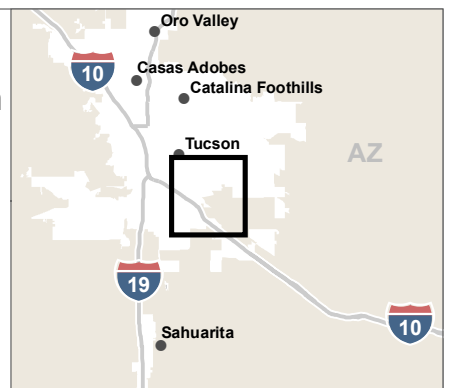


FIGURE 3-2
Day-Night Average Sound Level – Proposed Action Comparison

Baseline Noise Contours DNL (dBA)		Proposed Noise Contours DNL (dBA)		<ul style="list-style-type: none"> ● Census Tract Center ● Hospital ● Place of Worship ● School
60	75	60	75	
65	80	65	80	
70	85	70	85	



Coordinate System: NAD 83 UTM Zone 12N



1 **Table 3-14** summarizes the estimated DNL values at each of the POIs and the net change compared to
 2 baseline conditions. The values would range from 45 to 62 dB DNL, with most of the locations experiencing
 3 no noise increase relative to baseline conditions. Points T01 and W01 would be expected to be exposed to
 4 1 dB DNL less noise under the Proposed Action. Point H01 would be exposed to 2 dB DNL more noise
 5 (increasing from 54 dB DNL to 56 dB DNL) and point W02 would be exposed to 1 dB DNL more noise
 6 (increasing from 58 dB DNL to 59 dB DNL) under the Proposed Action.

7 **Table 3-14.**
 8 **Day-Night Average Sound Level at POIs for Proposed Action**

Map ID	Point Type ^a	Named Point of Interest	Baseline DNL (dB)	Proposed Action DNL (dB)	Increase From Baseline DNL (dB)
H01	Hospital	University Physicians Hospital - Kino	54	56	+2
S01	School	Children Reaching for the Sky Preparatory	56	56	0
S02	School	Future Investment Middle School	56	56	0
S03	School	Julia Keen Elementary School	62	62	0
S04	School	Robison Elementary School	56	56	0
S05	School	Los Ninos Elementary School	45	45	0
S06	School	Craycroft Elementary School	49	49	0
T01	Census Tract Center	Census Tract 20	56	55	-1
T02	Census Tract Center	Census Tract 40.73	56	56	0
T03	Census Tract Center	Census Tract 41.18 BlkGrp 1	51	51	0
T04	Census Tract Center	Census Tract 41.18 BlkGrp 3	52	52	0
T05	Census Tract Center	Census Tract 41.12 BlkGrp 1	46	46	0
W01	Place of Worship	Our Savior Lutheran Church	58	57	-1
W02	Place of Worship	The Church of Jesus Christ of Latter-Day Saints Employment Center	58	59	+1
W03	Place of Worship	Ideal Missionary Baptist Church	62	62	0
W04	Place of Worship	Word In Season Christian Center	55	55	0
W05	Place of Worship	Rccg Glory Tabernacle	55	55	0
W06	Place of Worship	Potters House	56	56	0
W07	Place of Worship	First Free Will Baptist Church	56	56	0

9 dB = decibel; DNL = Day-Night Average Sound Level; ID = Identification; POI = point of interest

10 Note:

11 a The Census Tracts represent neighborhoods surrounding Davis-Monthan AFB where noise-sensitive locations (e.g., residences,
 12 schools, place of worship) are likely to occur.

13 The noise levels that would occur under the Proposed Action would remain well below the threshold at
 14 which noise-sensitive land uses are recommended (65 dB DNL) for aircraft operations, and no noise-
 15 sensitive locations would be subjected to significant increases in noise. Therefore, implementation of the
 16 Proposed Action would result in less than significant long-term impacts to noise in the vicinity of the airfield.

17 **3.5.4.3 Proposed Action – Special Use Airspace**

18 Under the Proposed Action, A-10 operations with airspace would increase by approximately 2 percent and
 19 HH-60 operations with airspace would increase by approximately 31 percent. **Table 3-15** lists the A-10 and
 20 HH-60 airspace operations under the Proposed Action.

**Table 3-15.
Proposed Action Airspace Operations**

MOA/ATCAA	A-10	HH-60
Tombstone	2,454	1,383
Jackal/Outlaw	1,739	980
Morenci/Reserve	716	404
Gladden/Bagdad	20	12
Sells	256	144
Ruby/Fuzzy	1,943	1,096
Totals	7,128	4,019

ATCAA = Air Traffic Control-Assigned Airspace; MOA = Military Operating Area

A 2-percent increase in A-10 operations corresponds to an imperceptible increase to noise under the airspaces. A 31-percent increase in HH-60 operations corresponds to approximately a 2-dB Onset-Rate Adjusted DNL increase to noise under the airspaces. However, other aircraft using these airspaces also contribute to the overall noise level. HH-60 aircraft are among the least loud of the aircraft using these airspaces, so the increase in noise level due to the increase in HH-60 operations likely would be imperceptible against the background of noise from other jet aircraft (e.g., F-16, F-35) operations within the airspaces.

The noise level increases that would occur due to the Proposed Action would be expected to be minor to imperceptible.

3.5.4.4 Cumulative Impacts

Recent proposed actions that involve Davis-Monthan AFB airspace and associated SUA include the Arizona Airspace EIS (expected completion 2025) and the Personnel Recovery Training Program Final EA, (Air Force, 2020). The Arizona Airspace EIS examines expanding low-altitude flight in 10 MOAs overlying Arizona and New Mexico. The number of sorties projected to occur in each MOA would be increased by approximately 10 percent to conservatively account for the fluctuations in training activity. The Personnel Recovery Training Program EA examined training events with low-altitude flight zones in the Fuzzy, Outlaw, Sells Low, and Tombstone MOAs.

As noise levels associated with the Arizona Airspace EIS and the Personnel Recovery Training Program EA would be driven by low-altitude aircraft operations, increases in noise due to the Proposed Action would be expected to be minor to imperceptible when combined with noise from these other actions. Each noise analysis for a future proposed action, including the 492nd SOW Relocation EIS, would be built upon the previous baseline of the most recent NEPA document, as was done with this EA. Estimated increase in noise for a given action would incorporate previous activities at the Base. When considered in conjunction with other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative impacts on noise would be anticipated to occur with implementation of the Proposed Action.

3.5.4.5 No Action Alternative

Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions. The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB would continue to fall short of current or future mission needs and operate at or beyond capacity. There would be no changes to noise beyond baseline conditions.

1 **3.6 SAFETY**

2 **3.6.1 Definition of the Resource**

3 This section discusses safety concerns associated with ground, explosives, and flight activities. Ground
4 safety considers issues associated with ground operations and maintenance activities that support unit
5 operations including arresting gear capability, jet blast/maintenance testing, and safety danger. Aircraft
6 maintenance testing occurs in designated safety zones. Ground safety also considers the safety of
7 personnel and facilities on the ground that may be placed at risk from flight operations in the vicinity of the
8 airfield and in the airspace. Clear Zones (CZ) and Accident Potential Zones (APZs) around the airfield
9 restrict the public's exposure to areas where there is a higher accident potential. Although ground and flight
10 safety are addressed separately, in the immediate vicinity of the runway, risks associated with safety-of-
11 flight issues are interrelated with ground safety concerns.

12 Explosives safety relates to the management and safe use of ordnance and munitions. Flight safety
13 considers aircraft flight risks such as mid-air collision, bird/wildlife aircraft strike hazard (BASH), and inflight
14 emergency. The Air Force has safety procedures and aircraft-specific emergency procedures produced by
15 the original equipment manufacturer of the aircraft.

16 As indicated in **Table 3.2**, the ROI for Safety includes Davis-Monthan AFB and areas immediately adjacent
17 to the Base where ground and explosives safety concerns are described, as well as the airfield and
18 airspace where flight safety is discussed.

19 **3.6.2 Existing Conditions**

20 **3.6.2.1 Ground Safety**

21 Ground safety concerns include several categories, including ground and industrial operations, operational
22 activities, and motor vehicle use. Ground mishaps can occur from the use of equipment or materials and
23 from maintenance functions.

24 Ongoing Air Force safety programs covering industrial activities, operation of motor vehicles and other
25 equipment, and everyday operations are continuously refined as new activities and new information
26 becomes available. All Aircrew receive regular safety training in order to keep the chances of mishaps as
27 low as possible.

28 **3.6.2.2 Explosives Safety**

29 Aircraft munitions include ammunition, propellants (solid and liquid), pyrotechnics, warheads, explosives
30 devices, and chemical agent substances and associated components that present real or potential hazards
31 to life, property, or the environment. Defense Explosive Safety Regulation 6055.09_Air Force Manual 91-
32 201 (DESR6055.09_AFMAN) 91-201, *Explosives Safety Standards*, defines the guidance and procedures
33 dealing with munition storage and handling.

34 Facilities/activities with explosive safety quantity-distance (ESQD) arcs at Davis-Monthan AFB include the
35 Munitions Storage Area (MSA), the Explosive Ordnance Demolition area, the alert hangar and apron,
36 combat aircraft parking areas, hot cargo pad, aircraft explosives cargo area, the arm/de-arm aprons on the
37 airfield, the Aerospace Maintenance and Regeneration Group (AMARG's) Explosive Ordnance Disposal
38 area, and ammunition shipping/inspection/storage facilities.

39 During typical training operations, aircraft are not loaded with high-explosive ordnance. Training munitions
40 usually include captive air-to-air training missiles, countermeasure chaff and flares, and cannon ammunition
41 with inert projectiles. All munitions are stored and maintained in the MSA within facilities sited for the
42 allowable types and amounts of explosives. All storage and handling of munitions are carried out by trained
43 and qualified Munitions Flight personnel and in accordance with Air Force-approved technical orders.

1 **3.6.2.3 Flight Safety**

2 The safety of the public with respect to aircraft operations at Davis-Monthan AFB is a primary concern for
3 the Air Force. In accordance with DoDI 4165.57, *Air Installations Compatible Use Zones*, APZs are
4 established at military airfields to delineate recommended compatible land uses for the protection of people
5 and property on the ground. APZs define the areas of a military airfield that would have the highest potential
6 to be affected if an aircraft mishap were to occur. Air Installations Compatible Use Zones guidelines identify
7 three types of APZs for airfields based on aircraft mishap patterns: CZ, APZ I, and APZ II. The standard Air
8 Force CZ for Class B runways such as Runway 12/30 at Davis-Monthan AFB is a rectangle area that
9 extends 3,000 feet from the end of a runway, is 3,000 feet wide, and identifies the area with the highest
10 probability for mishaps. APZ I, which typically extends 5,000 feet from the end of the CZ, has a lower mishap
11 probability, and APZ II, which typically extends 7,000 feet from the end of APZ I, has the lowest mishap
12 probability of the three zones.

13 As shown in **Figure 3-3**, the CZs are located entirely within Base boundaries. The northern APZ I is
14 approximately 40 percent on Base and 60 percent off Base. The southern APZ I is approximately 20 percent
15 on Base and 80 percent off Base. Both the northern and southern APZs II are almost entirely off Base. The
16 northern APZ I has 24 acres of residential land use, which is incompatible. No other incompatible land use
17 is found in the northern or southern CZs or APZs. Conditionally compatible land uses exist in both the
18 northern and southern APZs.

19 Aircraft flight operations in the MOAs/ATCAs are governed by standard rules of flight. Additionally, in
20 accordance with Davis-Monthan AFB Instruction 11-250, specific procedures applicable to local operations
21 are contained in detailed standard operation procedures that must be followed by all aircrews operating
22 from the Installation.

23 The primary public concern with regard to flight safety is the potential for aircraft accidents. Such mishaps
24 may occur as a result of mid-air collisions, collisions with man-made structures or terrain, weather-related
25 accidents, mechanical failure, pilot error, or bird/wildlife aircraft collisions. Flight risks apply to all aircraft;
26 they are not limited to the military.

27 Aircraft mishaps and their prevention are of paramount concern to the Air Force. The Air Force defines four
28 categories of aircraft mishaps: Classes A, B, C, and D (**Table 3-16**). Class A mishaps are of primary concern
29 because of their potentially catastrophic results.

30 Class A mishaps, the most severe, provide an indicator of aircraft safety. Based on historical data on
31 mishaps at all installations and under all conditions of flight, the military services calculate Class A mishap
32 rates per 100,000 flying hours for each type of aircraft in the inventory to provide the basis for evaluating
33 risks among different aircraft and levels of operations. These mishap rates do not consider combat-related
34 losses. **Table 3-17** shows some sample aircraft types and the mishap rates for the lifetime of the aircraft
35 program, as well as the rate over the last 10-year period (through the last complete fiscal year).

36 Bird-aircraft strikes constitute a safety concern because they can result in damage to aircraft or injury to
37 aircrews or local populations if it results in an aircraft crash. Aircraft may encounter birds at altitudes of
38 Flight Level 300 or higher. However, most birds fly closer to the ground. Over 98 percent of reported bird-
39 aircraft strikes occur below 5,000 feet above ground level (AGL) (Air Force Safety Center [AFSEC], 2018a).
40 Approximately 49 percent of bird-aircraft strikes happen in the airport environment (i.e., climb-out, traffic
41 pattern, approach, and landing), and about 42 percent occur during low-altitude flight training (AFSEC,
42 2018b).

**Table 3-16.
Aircraft Class Mishaps**

Mishap Class	Total Property Damage	Fatality/Injury
A	\$2,000,000 or more and/or aircraft destroyed	Fatality or permanent total disability
B	\$500,000 or more but less than \$2,000,000	Permanent partial disability or three or more persons hospitalized as inpatients
C	\$50,000 or more but less than \$500,000	Nonfatal injury resulting in loss of one or more days from work beyond day/shift when injury occurred
D	\$20,000 or more but less than \$50,000	Recordable injury or illness not otherwise classified as A, B, or C

Source: DoDI 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* (6 June 2011)

**Table 3-17.
Class A Mishap Rates for Air Force Aircraft**

Aircraft	Annual Flight Hours	Year Introduced	Class A Mishap Rate – Lifetime	Class A Mishap Rate – Last 5 Years
A-10	75,265	1972	1.85	0.53
H-60	22,799	1982	3.26	0.88

Source: AFSEC, 2021a, 2021b

While any bird-aircraft strike has the potential to be serious, many result in little or no damage to the aircraft, and only a minute portion result in a Class A mishap. During the years 1985–2014, the Air Force BASH Team documented 108,670 bird-aircraft strikes worldwide (AFSEC, 2018c). Of these, 16 resulted in Class A mishaps where the aircraft was destroyed (AFSEC, 2018d).

Davis-Monthan AFB also maintains an active BASH plan, as required under AFI 91-212, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Program*. This plan is continually updated to address any potential changes in conditions at Davis-Monthan AFB. The goal of the BASH plan is to reduce the likelihood of an aircraft colliding with a bird or other wildlife, thereby causing potentially catastrophic damage to the aircraft or potentially the loss of life of the pilot from the damage. BASH avoidance measures include notices to pilots of bird activity within the area, seasonal notifications during bird migrations, and wildlife management within the airfield environment.

Defensive countermeasures (i.e., chaff and flare) are authorized for use within MOAs to be utilized under the Proposed Action (except for the Tombstone MOA). Chaff are small bundles of fibers that confuse enemy radar, allowing the aircraft to potentially escape a radar-guided weapon. There would be no change in chaff usage under the Proposed Action. Flares are used to create a false heat signature to confuse a heat-seeking weapon. Flare deployment in authorized airspace is governed by regulations that are based on safety and environmental considerations and limitations:

- The Department of Air Force Manual 13-201, *Airspace Management*, establishes practices to decrease disturbances from flight operations and protect the public from the hazards and effects associated with flight operations.
- Air Force Manual (AFMAN)13-212V1, *Range Planning and Operations*, outlines procedures governing weapons range use of flares.
- AFMAN 11-214, *Air Operations Rules and Procedures*, delineates procedures for flare employment.

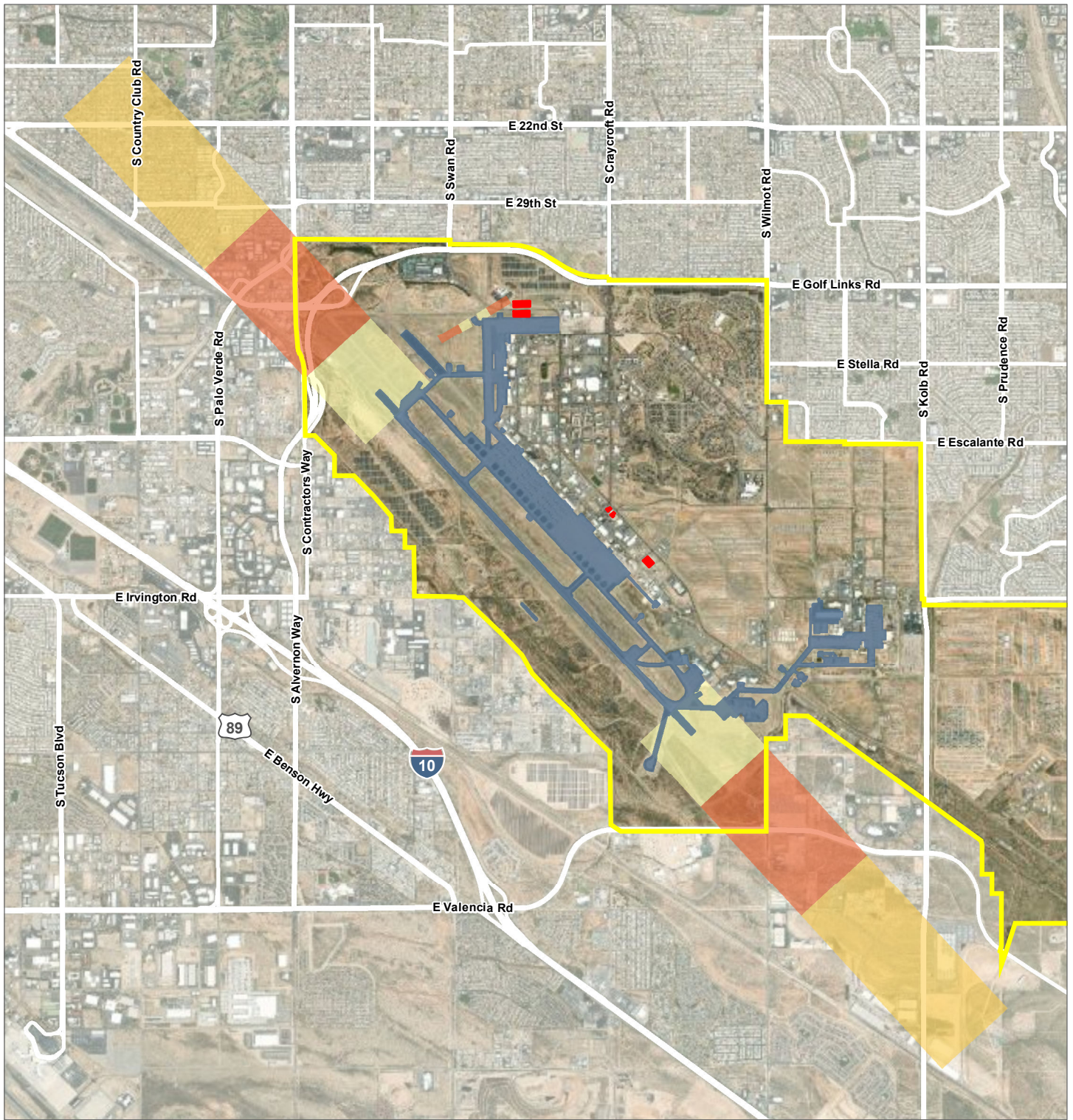
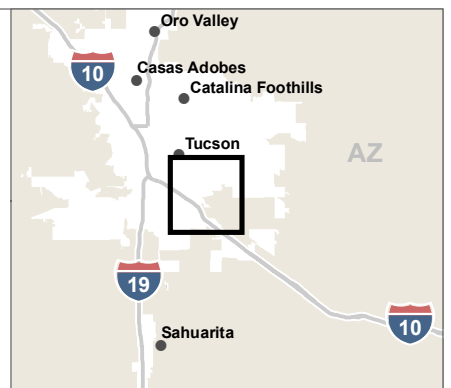


FIGURE 3-3
Safety Zones

- Installation Boundary
- Airfield
- APZ I
- APZ II
- Clear Zone
- Proposed Projects



Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



1 **3.6.3 Environmental Consequences**

2 **3.6.3.1 Evaluation Criteria**

3 Safety-related impacts from a proposed activity are assessed according to the potential to increase or
4 decrease safety risks to personnel, the public, property, or the environment. Adverse impacts related to
5 safety would occur if the Proposed Action and Alternatives result in Air Force Occupational Safety and
6 Health Administration (OSHA) criteria being exceeded or the improper implementation of established or
7 proposed safety measures, creating an unacceptable safety risk to personnel. Adverse impacts would occur
8 if the Proposed Action results in the following:

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

14 **3.6.3.2 Proposed Action – Davis-Monthan AFB and Special Use Airspace**

15 **Ground Safety**

16 Negligible, temporary, adverse impacts on-ground safety would be expected under the Proposed Action.
17 Davis-Monthan AFB would require new construction, which could expose personnel to risks from heavy
18 equipment operation, hazardous materials (HAZMAT), and potentially noisy and confined environments.
19 To minimize health and safety risks, contractors would be required to maintain site-specific health and
20 safety programs that follow all applicable regulations. Davis-Monthan AFB personnel would review these
21 programs prior to work beginning to ensure that contractors take appropriate measures to reduce the
22 potential health and safety risks. Current operational processes and procedures would continue.

23 **Explosives Safety**

24 Under the Proposed Action, the 66 WPS and the 422 TES functions would have a number of live weapons
25 requirements. The number of LOLA aircraft parking spaces currently at Davis-Monthan AFB is inadequate
26 to support the increase of up to 14 additional LOLA needed to support the increase in live weapons
27 requirements. The exact locations of the new LOLA spaces have not been determined but would be near
28 the present LOLA.

29 No facilities/activities with ESQD arcs at Davis-Monthan AFB would be impacted with implementation of
30 the Proposed Action, including the MSA, the Explosive Ordnance Demolition area, the alert hangar and
31 apron, combat aircraft parking areas, hot cargo pad, aircraft explosives cargo area, the AMARG's Explosive
32 Ordnance Disposal area, and the ammunition shipping/inspection/storage facilities. Therefore, no impacts
33 to explosives safety would be anticipated to occur with implementation of the Proposed Action.

34 **Flight Safety**

35 No changes to existing APZs or CZs would be required with implementation of the Proposed Action. The
36 number of sorties would increase minimally; therefore, implementation of the Proposed Action would not
37 increase the safety risk to these or other off-Base areas. Davis-Monthan AFB would continue to work with
38 communities and developers to apply the Air Installations Compatible Use Zones guidelines. Therefore, no
39 impacts to ground safety would be anticipated to occur with implementation of the Proposed Action.

40 The increase in airfield operations that would result from implementation of the Proposed Action would
41 negligibly increase the risk of bird/wildlife aircraft strikes at Davis-Monthan AFB. The BASH plan would
42 remain in place to reduce these risks.

43 The Proposed Action would result in an increase in airfield operations from the current baseline of 39,122
44 to an estimated 42,997 total airfield operations annually. The increase of 3,875 operations, or 9 percent,

1 would be due to the addition of Base-assigned aircraft. The number of A-10 sorties would decrease, while
2 the number of HH-60 sorties would increase. Both aircraft have mishap rates under 1 incident per 100,000
3 sorties. Therefore, no increase in HH-60 or A-10 incidents would be anticipated to occur with
4 implementation of the Proposed Action. Impacts to safety (and associated mishaps) related to the operation
5 of two Cessna 128s and one RC-26B would be negligible with implementation of the Proposed Action.

6 The majority of flight operations for the HH-60 and the A-10 aircraft would be conducted over remote areas;
7 however, in the unlikely event that an aircraft accident occurred, existing response, investigation, and
8 follow-on procedures would be enforced to ensure the health and safety of underlying populations and
9 lands. Implementation of flight safety procedures and compliance with all flight safety requirements would
10 minimize the chances for aircraft mishaps.

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

17 Flare and ordnance deployment in authorized ranges and airspace is governed by a series of regulations
18 based on safety and environmental considerations and limitations. These regulations establish procedures
19 governing the use of flares over ranges, other government-owned and -controlled lands, and non-
20 government-owned or -controlled areas. The frequency of flare use would remain the same with
21 implementation of the Proposed Action. Pilots would only use flares in compliance with existing airspace
22 altitude and seasonal restrictions to ensure fire safety.

23 **3.6.3.3 Cumulative Impacts**

24 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions on and off
25 Davis-Monthan AFB (**Table 3-1**), would not have significant adverse cumulative impacts on explosives
26 safety at Davis-Monthan AFB or the surrounding area because the ESQD arcs would remain as currently
27 defined. Beneficial impacts associated with improvement of explosives safety with implementation of the
28 proposed projects associated with the Davis-Monthan Multiple Development Projects EA would build upon
29 those of other projects undertaken to improve explosives safety within the MSA. Potential health and safety
30 hazards associated with construction of buildings would be short term and limited to individual projects and
31 would not be cumulative when considered in conjunction with other past, present, and reasonably
32 foreseeable planned actions at Davis-Monthan AFB. If future actions increase the number of planes and
33 sorties, as the 492nd SOW Relocation EIS is proposing, flight safety could be impacted proportionally to
34 the increase in operations. Future actions will be evaluated for impacts separately.

35 **3.6.3.4 No Action Alternative**

36 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
37 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
38 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
39 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
40 would be no changes to ground, explosive, or flight safety beyond baseline conditions.

41 **3.7 AIR QUALITY**

42 **3.7.1 Definition of the Resource**

43 Under the CAA and subsequent amendments, the USEPA has divided the country into geographical
44 regions known as Air Quality Control Regions (AQCRs) to evaluate compliance with the National Ambient
45 Air Quality Standards (NAAQS). Davis-Monthan AFB is located in Pima County, Arizona, which is in the
46 Pima Intrastate AQCR (40 CFR § 81.269).

1 As shown in **Table 3-2**, the ROI for air quality is Davis-Monthan AFB and the associated SUA. The training
 2 airspace consists of a number of MOAs and other complexes. These areas, along with the counties they
 3 underlie and the associated AQCRs, can be found in **Table 3-18**. Both the Morenci and Tombstone MOAs
 4 include portions extending into New Mexico.

5 **Table 3-18.**
 6 **Low-Altitude Training Airspace Locations within Air Quality Control Regions**

Airspace Location	County	AQCR
Tombstone MOA	Cochise, Hidalgo (NM)	Southeast Arizona Intrastate AQCR (40 CFR § 81.272) New Mexico Southern Border Intrastate AQCR (40 CFR § 81.99)
Morenci MOA	Greenlee, Graham, Catron (NM)	Southeast Arizona Intrastate AQCR Southwestern Mountains – Augustine Plains Intrastate AQCR (40 CFR § 81.241)
Jackal MOA	Navajo, Apache, Graham, Gila	Northern Arizona Intrastate AQCR (40 CFR § 81.270) Southeast Arizona Intrastate AQCR Central Arizona Intrastate AQCR (40 CFR § 81.271)
Outlaw MOA	Gila, Pinal	Central Arizona Intrastate AQCR
Fuzzy MOA	Santa Cruz, Pima	Southeast Arizona Intrastate AQCR Pima Intrastate AQCR
Ruby MOA	Pima	Pima Intrastate AQCR
Sells MOA	Pima, Maricopa	Pima Intrastate AQCR Maricopa Intrastate AQCR (40 CFR § 81.36)
R2301E	Pima, Maricopa	Pima Intrastate AQCR Maricopa Intrastate AQCR
R2304	Maricopa	Maricopa Intrastate AQCR
R2305	Maricopa	
R2301W	Yuma	Mohave-Yuma Intrastate AQCR (40 CFR § 81.268)
Dome MOA	Yuma	

7 AQCR = air quality control region; CFR = Code of Federal Regulations; MOA = military operations area; NM = New Mexico

8 Greenhouse gas (GHG) emissions would be relevant for all the atmospheric horizon. GHG emissions from
 9 the entire flight path of aircraft are applicable because mixing height is not relevant for these pollutants.
 10 Data on individual sorties are unavailable; however, the average time spent per sortie is available. As a
 11 result, the GHG emission estimates are based on the average time the aircraft spends executing a sortie.

12 **3.7.1.1 Criteria Pollutants**

13 In accordance with CAA requirements, the air quality in each region or area is measured by the
 14 concentration of various pollutants in the atmosphere. Measurements of these “criteria pollutants” in
 15 ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter
 16 ($\mu\text{g}/\text{m}^3$). Regional air quality is a result of the types and quantities of atmospheric pollutants and pollutant
 17 sources in an area as well as surface topography and prevailing meteorological conditions.

18 The CAA directed the USEPA to develop, implement, and enforce environmental regulations that would
 19 ensure clean and healthy ambient air quality. To protect public health and welfare, the USEPA developed
 20 numerical concentration-based standards (i.e., NAAQS) for pollutants that have been determined to impact
 21 human health and the environment and established both primary and secondary NAAQS under the
 22 provisions of the CAA. The primary and secondary NAAQS are presented in **Table 3-19**.

1
2

**Table 3-19.
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 ^d	primary and secondary	Rolling 3-month average	0.15 µg/m ³	Not to be exceeded
Nitrogen dioxide ^e	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 ^f	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 ^g	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

3 Source: [NAAQS Table](#)

4 Notes:

- 5 a Primary Standards: the levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state
6 must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.
- 7 b Secondary Standards: the levels of air quality necessary to protect the public welfare from any known or anticipated adverse
8 effects of a pollutant.
- 9 c Concentrations are expressed first in units in which they were promulgated.
- 10 d In areas designated nonattainment for the lead standards prior to the promulgation of the current (2008) standards, and for which
11 implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous
12 standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.
- 13 e 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
14 comparison to the 1-hour standard level.
- 15 f Final rule signed 1 October 2015, and effective 28 December 2015. The previous (2008) ozone standards are not revoked and
16 remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the
17 prior revoked 1-hour (1979) and 8-hour (1997) ozone standards.
- 18 g The previous sulfur dioxide standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas:
19 (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
20 area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and
21 approved and which is designated nonattainment under the previous sulfur dioxide standards or is not meeting the requirements
22 of a state implementation plan call under the previous sulfur dioxide standards (40 CFR § 50.4(3)). A SIP call is a USEPA action
23 requiring a state to resubmit all or part of its SIP to demonstrate attainment of the required NAAQS.
- 24 µg/m³ = micrograms per cubic meter; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter
25 less than or equal to 10 microns in diameter; ppm = parts per million; ppb = parts per billion

26 For purposes of analyzing potential air quality impacts, this EA considered the volume of air extending up
27 to the mixing height (3,000 feet AGL) and coinciding with the spatial distribution of the ROI. The mixing
28 height is the altitude at which the lower atmosphere will undergo mechanical or turbulent mixing, producing
29 a nearly uniform air mass. The height of the mixing level determines the volume of air within which pollutants
30 can disperse. Mixing heights at any one location or region can vary by the season and time of day, but for
31 air quality applications, mixing height is typically defined as 3,000 feet AGL as an acceptable default value

1 (40 CFR § 93.153(c)(2)(xxii)). Ruby MOA, Sells MOA, R2301E, R2304, R2305, R2301W and Dome MOA
2 do not and are not anticipated to have low-altitude flight training and were not included in the criteria
3 pollutant analysis.

4 The CAA requires General Conformity regulations that are applicable in nonattainment areas, or in
5 designated maintenance areas (attainment areas that were reclassified from a previous nonattainment
6 status and are required to prepare a maintenance plan for air quality). These regulations are designed to
7 ensure that federal actions do not impede local efforts to achieve or maintain attainment with the NAAQS.
8 The General Conformity Rule and the promulgated regulations are found in 40 CFR Part 93, Subpart B,
9 *Determining Conformity of Federal Actions to State or Federal Implementation Plans*. Federal actions are
10 assumed to conform if total indirect and direct project emissions are below *de minimis* levels (40 CFR §
11 93.153). These threshold levels (in tons of pollutant per year) depend upon the nonattainment or
12 maintenance status that USEPA has assigned to an area. Once the net change in nonattainment pollutants
13 is calculated, the results are compared to the *de minimis* thresholds. If the total direct and indirect emissions
14 from the action are below the *de minimis* threshold rates, the emissions are exempt from the provisions of
15 the General Conformity regulations. If the emissions exceed the thresholds, then they are not exempt and
16 must be further evaluated under the General Conformity regulations. Hazardous air pollutants (HAPs) are
17 pollutants for which there are no NAAQS but are still regulated under the federal CAA because of their
18 potentially adverse effects on human health and the environment. Also known as “air toxics,” these
19 pollutants are comprised of a wide array of organic and inorganic compounds. In relation to aviation
20 sources, HAP emissions are present in the exhaust of aircraft (mostly organic HAPs), aircraft auxiliary
21 power units, aerospace ground equipment (AGE) for aircraft, motor vehicle engines and, to a lesser extent,
22 from boilers, fuel facilities, and other stationary sources that may be associated with airfield operations.
23 There are currently no federal regulatory guidelines specific to HAPs emissions from aircraft engines,
24 specifically, and airports, in general. Studies of commercial aircraft have indicated that at engine power
25 conditions substantially higher than approximately 15 to 30 percent thrust, the engine combustion efficiency
26 is close to 100 percent. Measurement of many organic HAPs becomes difficult or impossible because the
27 concentration of HAPs is too small to measure (USEPA/FAA, 2009). Because aircraft operations are the
28 primary emission generating activity for the Proposed Action, HAP emissions are not carried forward in the
29 air quality impact analysis.

30 **3.7.1.2 Greenhouse Gases**

31 GHGs are gases that trap heat in the atmosphere. The potential effects of proposed GHG emissions are
32 by nature global and result in cumulative impacts because most individual anthropogenic sources of GHG
33 emissions are not large enough to have a noticeable effect on climate change. Therefore, the impact of
34 proposed GHG emissions to climate change is discussed in the context of cumulative impacts.

35 EO 14008, *Tackling the Climate Crisis at Home and Abroad* (January 2021), instructs agency heads to
36 prepare Climate Action Plans for their agency operations. The Department of the Air Force published its
37 Climate Action Plan in October 2022 (Air Force, 2022). The plan delineates the goals and actions needed
38 to meet the requirements of EO 14008 and EO 14057, *Catalyzing Clean Energy Industries and Jobs
39 Through Federal Sustainability* (December 2021). The plan identifies the climate change priorities for the
40 Department of the Air Force, including but not limited to:

- 41 • Ensure installation resiliency and adaptability by modernizing infrastructure and facilities;
- 42 • Seamlessly integrate climate and operational considerations throughout processes, plans and
43 decision-making; and
- 44 • Reduce fossil fuel demand of current and future weapon systems to achieve lower GHG emissions.

45 On 9 January 2023, the CEQ published interim guidance to assist in analyzing GHG and climate change
46 effects of proposed actions (88 FR 1196). The guidance explains how agencies should apply NEPA
47 principles and existing best practices to their climate change analysis. The inclusion of this guidance in the
48 evaluation of the Proposed Action’s GHG emissions is included in **Section 3.7.5.4**.

1 **3.7.2 Regional Climate**

2 Arizona, the sixth largest US state, encompasses diverse climates and topography. The deserts in the south
3 are some of the hottest and driest areas of the country, while the higher terrain of the Colorado Plateau in
4 the northeast has a cooler climate, with cold winters and mild summers. Pima County is known for extreme
5 heat in the summer months and mild conditions during the winter. The average high and low temperatures
6 during the summer months at Davis-Monthan AFB range from about 100 to 68 degrees Fahrenheit (°F).
7 The average high and low temperatures during the winter months range from 74 to 39°F. Much of Arizona
8 is characterized as arid to semiarid, with annual average precipitation ranging from less than 4 inches in
9 the southwest to around 40 inches in the White Mountains in the east-central region. Arizona is currently in
10 a long-term drought that has lasted more than 20 years. Long-term droughts raise the risk of wildfires,
11 already a concern for this arid state. In 2011, the Wallow Fire consumed more than 500,000 acres in eastern
12 Arizona, making it the state’s largest wildfire on record (Frankson et al., 2022).

13 **3.7.3 Existing Conditions – Davis-Monthan AFB**

14 Davis-Monthan AFB currently maintains six separate Class II air quality permits and one Class II/III permit
15 issued by the Pima County Department of Environmental Quality Air Program. Class II permits are issued
16 to sources subject to a standard, limitation or other requirement under the Standards of Performance for
17 New Stationary Sources, or HAP regulations. Class III permits are issued to cover any stationary source
18 that has the potential to emit, without controls, significant quantities of regulated air pollutants, any
19 stationary rotating machinery rated at more than 325 brake horsepower, and/or fuel-burning equipment with
20 a sustained fire rate of more than one million British thermal units per hour for more than eight hours. These
21 permits cover stationary source emissions from Installation operations. The permitted stationary sources
22 include fuel storage tanks, loading racks, dispensing equipment, emergency and nonemergency power
23 generators, fire pumps, jet engine test cells, paint spray booths, architectural coating operations, media
24 blasting equipment, degreasers, boilers and heaters, landfill vent and controls, and miscellaneous chemical
25 usage.

26 Mobile source emissions are generated by aircraft, vehicles, equipment, and other sources that move or
27 have the potential to move from place to place. Flying operations that generate emissions include aircraft
28 landings and takeoffs, taxiing from the hangar, returning post-flight, auxiliary power unit operation, and on-
29 ground engine maintenance activities. Vehicle emissions include privately owned vehicles used by workers
30 commuting to the Installation. Equipment emissions come from forklifts, backhoes, tractors, and other onsite
31 construction equipment; AGE used to service aircraft include generators, light carts, compressors, bomb
32 lifts, hydraulic test stands; and other portable equipment required for aircraft operations.

33 The area where Davis-Monthan AFB is located, in the southern portion of Tucson, Arizona, is in attainment
34 for all criteria pollutants (**Table 3-20**). Pima County as a whole is in attainment with all of the NAAQS, with
35 the exception of the Rillito PM₁₀ nonattainment area just northwest of Tucson, the Ajo PM₁₀ and sulfur
36 dioxide maintenance areas, approximately 100 miles west of Davis-Monthan AFB, and a small area
37 designated as maintenance for sulfur dioxide in the northeast area of Pima County, near San Manuel, which
38 is an extension of the Pinal County sulfur dioxide maintenance area. The PM₁₀ area designations are the
39 result of drought and local winds that have sporadically resulted in elevated PM₁₀ levels when
40 meteorological conditions were conducive to dust entrainment. From 2019 to 2021, the Rillito planning area
41 averaged an estimated 6.1 annual exceedances of the PM₁₀ NAAQS (USEPA, 2022). The sulfur dioxide
42 areas were designated as the result of copper smelter emissions; in both areas, the smelters have long
43 ceased operations (USEPA, 2003, 2008).

Table 3-20.
Comparison of Criteria Pollutant Design Values for Pima County to NAAQS

Pollutant	Averaging Time	NAAQS	Pima County Design Value ^a	% NAAQS
Carbon monoxide	1-hr	35 ppm	1.6 ppm	5
	8-hr	9 ppm	0.8 ppm	9
Nitrogen dioxide	Annual	53 ppb	8 ppb	15
	1-hr	100 ppb	37 ppb	37
Ozone	8-hr	0.07 ppm	0.068	97
PM _{2.5}	24-hr	35 µg/m ³	11 µg/m ³	31
	Annual	12 µg/m ³	5.0 µg/m ³	42
PM ₁₀	24-hr	150 µg/m ³	6.1 exceedances (Rillito)	N/A
Sulfur dioxide	1-hr	75 ppb	1 ppb	1

Source: USEPA, 2022

Note:

a A design value is a statistic that describes the air quality status of a given location relative to the level of the NAAQS.

N/A = Not Applicable; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter

The Tucson area was a designated maintenance area for carbon monoxide, but the designation lapsed in 2020 after 20 years of compliance with the NAAQS. The area is currently in attainment for the ozone standard, but has trended toward noncompliance in recent years, as evidenced by the 2021 design value, which is 97 percent of the NAAQS for ozone.

3.7.4 Existing Conditions – Special Use Airspace

The SUA where proposed training would occur covers several Arizona counties, with small portions of the easternmost MOAs extending into New Mexico. **Table 3-21** identifies the attainment status of each of the relevant counties. For these airspaces, the attainment status applies to flight operation emissions that occur at or below the mixing height of 3,000 feet AGL. These locations of low-altitude flight include are noted above in **Table 3-20** and include Tombstone A and B, Jackal Low, Morenci, and Fuzzy MOAs. Because of the large multi-county, multi-state areas covered by the airspaces, counties with nonattainment and/or maintenance designations fall within the ROI.

Ajo, Arizona (Pima County), is distant from Davis-Monthan AFB, and the activities associated with the Proposed Action would be limited to areas north, south, and east of the Installation. Cochise County is in nonattainment for PM₁₀ and a maintenance area for sulfur dioxide. Both areas are near Douglas, Arizona, and thus in proximity of the low-flight components of the Tombstone MOA. Morenci, Arizona (Greenlee County), also is a maintenance area for sulfur dioxide and is within the Tombstone MOA. Nogales, Arizona (Santa Cruz County), is in nonattainment for PM₁₀ and a maintenance area for PM_{2.5} and is within the Fuzzy MOA. San Manuel, Arizona (Pinal County), is a maintenance area for sulfur dioxide, part of which is within the Fuzzy MOA. Other areas in Pinal County are in nonattainment for ozone, PM₁₀, PM_{2.5}, sulfur dioxide, and lead.

Flight in the training airspaces from aircraft originating from Davis-Monthan AFB with time spent below 3,000 feet AGL ranges from 30 percent for A-10s to 100 percent for HH-60s of the total sortie time.

Table 3-21.
Airspace Attainment Status for Davis-Monthan AFB and Low-Altitude Training Airspaces by County^a

County	Base/Airspace	O ₃	CO	NO _x	SO ₂	PM ₁₀	PM _{2.5}	Pb
Pima	Davis-Monthan AFB, ^b Outlaw ^c				A/M	NA & A/M		
Santa Cruz	Fuzzy ^b					NA	A/M	
Cochise	Tombstone ^{b,c}				A/M	NA		
Hidalgo (NM)								
Greenlee	Morenci, ^b Jackal Low, ^b Jackal ^c				A/M			
Graham								
Catron (NM) ^c								
Navajo (Jackal only)	Jackal ^c							
Apache (Jackal only)								
Gila (Outlaw only)	Jackal, Outlaw ^c	NA			NA	NA		NA
Pinal	Jackal Low ^b	NA			NA & A/M	NA	NA	NA

Source: USEPA 2008, 2009a, 2009b, 2023

Notes:

a Gray denotes areas that are in attainment/unclassified; yellow denotes designated nonattainment areas; blue denotes designated maintenance areas; green denotes counties with both nonattainment and maintenance area designations.

b Locations where low-altitude flight (less than 3,000 feet AGL) would occur.

c Locations where proposed expanded low-altitude flight would occur under a separate proposed action and is addressed under Cumulative Impacts.

A/M = attainment/maintenance; CO = carbon monoxide; NO_x = nitrogen dioxide; NA = nonattainment; O₃ = ozone; P = partial county; Pb = lead; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; SO₂ = sulfur dioxide

3.7.5 Environmental Consequences

3.7.5.1 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 Rule, a formal conformity determination is required of that action.

The environmental impact methodology for air quality impacts presented in this EA was derived by utilizing the same operational data as directed by AFMAN 32-7002, *Environmental Compliance and Pollution Prevention* (4 February 2020). The air analysis for aircraft operations factors in the engine types used in the aircraft, the time spent at or below 3,000 feet AGL at specific engine power settings, the emission factors associated with those flight modes, engine maintenance run-ups, and other relevant details. These data are included in the Air Force Air Conformity Applicability Model (ACAM) and in supplemental spreadsheets used for analysis. Construction operations similarly evaluate the operation of construction equipment and other fuel-burning sources as the primary emission sources of that activity. These data, along with information on the affected environment and the proposed and alternative actions, are used to produce a consistent determination of air quality impacts.

ACAM (version 5.0.18b) was used to provide emissions estimates for the A-10, Cessna 182 and RC-26B airfield operations and maintenance activities. HH-60 activities were calculated based on Air Force data. ACAM provides estimated air emissions from proposed federal actions for each specific criteria and precursor pollutant as defined in the NAAQS. For aircraft, operational modes (including taxi/idle [in and out], take off, climb-out, approach, and pattern flight that includes touch and go operations) are used as the basis of the emission estimates. Additionally, data provided by the Installation on additional on-ground airfield activities were incorporated into the emission calculations. Emissions were calculated separately for the Davis-Monthan AFB airfield operations and areas of low-altitude operations away from the airfield and

1 evaluated based on nonattainment/maintenance designations of the locations where the SUA is located.
2 More detailed information on the methodology and approach for quantifying emissions can be found in
3 **Appendix B.**

4 For attainment area criteria pollutants, the project air quality analysis used the USEPA's General Conformity
5 maintenance area *de minimis* threshold of 100 tons per year as an initial indicator of the local significance
6 of potential impacts to air quality. It is important to note that the significance indicator only provides a clue
7 to the potential impacts to air quality. If the intensity of any net emissions increase for the Proposed Action
8 is below 100 tons per year in the context of an attainment criteria pollutant, the indication is the air quality
9 impacts would not be significant for that pollutant.

10 In the case of criteria pollutants for which the ROI does not attain a NAAQS or has been designated a
11 maintenance area for the NAAQS, the analysis compared the net increase in annual direct and indirect
12 emissions to the applicable pollutant *de minimis* threshold(s).

13 **3.7.5.2 Proposed Action – Davis-Monthan AFB**

14 As indicated in **Section 2.1**, the A-10 transition would occur in 2024 and the HH-60 transitions would begin
15 in 2025. During this time, two Cessna 182 CAP aircraft would beddown and operate from Davis-Monthan
16 AFB. Additionally, one RC-26B aircraft would be relocated from Morris ANGB to the Installation. The year
17 2026 is analyzed as the first year of steady state operations upon completion of the Proposed Action.

18 Construction to support these changes would occur from 2023 through 2024. Construction activities would
19 include new hangars, new flight simulators, new Ops buildings, parking, and a road extension to access
20 the Ops buildings. Construction emissions were estimated using developed assumptions and ACAM
21 calculation information.

22 Under the Proposed Action, construction of associated infrastructure would generate temporary emissions.
23 Once aircraft are relocated, the additional flight operations of the A-10C, HH-60W, Cessna 182 and RC-
24 26B aircraft would be implemented. Airspace operations at the SUA Training Airspace would increase with
25 the additional A-10C and HH-60W operations. The airspace analyses conservatively assumed that all low-
26 altitude training operations presented in **Table 2-3 (Section 2.1)** would occur beginning in 2025. Stationary
27 sources that may be added as part of the proposed action could include heaters, boilers, emergency
28 generators and paint spray booths or other maintenance equipment used for aircraft. The exact sources
29 would be identified during the design phases of construction and any sources evaluated for inclusion in the
30 appropriate Installation air permit. Additionally, some increase in the use of engine test cells, which are
31 permitted stationary sources, would be anticipated.

32 Estimated air emissions at Davis-Monthan AFB are provided in **Tables 3-22**. These estimates represent
33 emissions from the proposed aircraft operations, commuters, and the proposed building construction under
34 the Proposed Action (see **Section 2.1**). Lead is not included in the analysis as there would be no air
35 emission sources of lead at Davis-Monthan AFB associated with the Proposed Action. For the criteria
36 pollutant emissions occurring at or near Davis-Monthan AFB, for which nonattainment or maintenance
37 designations do not apply (see **Table 3-20**), the annual emissions have been compared to the 100-ton per
38 year maintenance area General Conformity threshold as a significance indicator.

39 Flight emission estimates include airfield operations; for the HH-60 helicopters, an estimate of cruise
40 emissions within Pima County. The SUA is located in other counties, and so the total cruise emissions
41 occur in both Pima County and adjacent counties. Because it is not known exactly what the percentage of
42 emissions would be in any location, all transit emissions for the HH-60s have conservatively been included
43 in the Pima County totals. They have additionally been included in the transits for each SUA and so serve
44 as the bounding case (most conservative estimate) for all low-altitude transit emissions for the HH-60
45 helicopters.

46 Volatile organic compounds, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM_{2.5} emissions would
47 increase with implementation of the Proposed Action. The proposed net changes would be less than the

1 indicator of significance threshold of 100 tons per year for all of the pollutants. Therefore, it is unlikely these
2 increases would cause significant impacts such as causing NAAQS violations.

3 **Table 3-22.**
4 **VOC, CO, NO_x, SO₂, and PM_{2.5} Emission Estimates under the Proposed Action, including**
5 **Proposed Construction Activities and Aircraft Operations at Davis-Monthan AFB**

Year/Activity	Total Annual Emissions in Tons				
	VOCs	CO	NO _x	SO ₂	PM _{2.5}
2023					
Proposed construction	0.41	0.40	0.29	0.001	0.01
<i>Comparative indicator threshold</i>	100	100	100	100	100
Exceed <i>de minimis</i> threshold?	No	No	No	No	No
2024					
Proposed construction	2.95	3.43	2.20	0.01	0.07
<i>Attainment area significance indicator threshold</i>	100	100	100	100	100
Exceed attainment area significance indicator threshold?	No	No	No	No	No
2026 – steady state (proposed operations)					
A-10C aircraft					
<i>LTOs</i>	11.1	46.5	18.6	3.0	2.1
<i>Closed patterns</i>	0.01	0.02	0.01	0.001	0.01
Subtotal	11.1	46.5	18.6	3.0	2.1
HH-60 aircraft					
<i>LTOs</i>	0.07	12.0	31.7	3.0	6.2
<i>Closed patterns</i>	0.000	1.0	3.5	0.3	0.6
<i>Cruise within Pima County</i>	0.01	1.9	7.6	0.7	1.6
Subtotal	0.1	15.0	42.8	4.1	8.3
RC-26B aircraft					
<i>LTOs</i>	4.3	7.7	32.3	0.7	0.9
Cessna-182 aircraft					
<i>LTOs</i>	0.9	0.7	0.2	0.03	0.1
<i>Stationary source operation – A-10 jet engine test cell</i>	0.3	1.0	0.8	0.1	0.2
<i>Stationary source operation – RC-26B jet engine test cell</i>	0.03	0.03	0.04	0.004	0.01
Total proposed operations/net change	16.7	70.9	94.8	7.9	11.6
<i>Attainment area significance indicator threshold</i>	100	100	100	100	100
Exceed attainment area significance indicator threshold?	No	No	No	No	No

6 AFB = Air Force Base; CO = carbon monoxide; LTO = landing take off cycle; NO_x = nitrogen dioxide; PM_{2.5} = particulate matter less
7 than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide; VOC = volatile organic compound

8 **Table 3-23** compares the estimated emissions of the Proposed Action to the General Conformity *de minimis*
9 threshold for PM₁₀, as part of Pima County is nonattainment for this criteria pollutant in the Rillito planning
10 area directly northwest of Tucson. The Rillito area is close enough to the Installation that flight activities
11 would enter the area, and emissions from flight activities could migrate to the area.

1
2
3

**Table 3-23.
General Conformity Applicability Emissions Estimates at Davis-Monthan AFB under the Proposed
Action including Proposed Demolition/Construction Activities and Aircraft Operations**

Year/Activity	PM ₁₀ (tons per year)
2023	
Proposed construction	0.06
Total proposed operations/net change	
<i>De minimis</i> threshold	100
Exceed <i>de minimis</i> threshold?	No
2024	
Proposed construction	5.2
Total proposed operations/net change	
<i>De minimis</i> threshold	100
Exceed <i>de minimis</i> threshold?	No
2026 – steady state (proposed operations)	
A-10C aircraft	
<i>LTOs</i>	3.0
<i>Closed patterns</i>	0.01
Subtotal	3.0
HH-60 aircraft	
<i>LTOs</i>	6.9
<i>Closed patterns</i>	0.7
<i>Cruise within Pima County</i>	1.7
Subtotal	9.3
RC-26B aircraft	
<i>LTOs</i>	0.9
Cessna-182 aircraft	
<i>LTOs</i>	0.1
Total mobile source proposed operations/net change	13.3
<i>De minimis</i> threshold	100
Exceed <i>de minimis</i> threshold?	No

4 AFB = Air Force Base; LTO = landing take off cycle; PM₁₀ = particulate matter less than or equal to 10 microns in diameter

5 Emissions of PM₁₀ would remain well below the *de minimis* threshold. As a result, the requirements of the
6 General Conformity Rule are not applicable, as documented in the Detail ACAM Report and Record of
7 Conformity Applicability.

8 **3.7.5.3 Proposed Action – Special Use Airspace**

9 Various low-altitude training areas are designated as either nonattainment or maintenance for criteria
10 pollutants. For the General Conformity Applicability Analysis of activities occurring in these areas, the
11 estimated direct and indirect air emissions associated with implementing the Proposed Action were
12 compared to the applicable General Conformity Rule *de minimis* thresholds. These estimates represent
13 emissions from the proposed A-10C and HH-60W aircraft operations at low altitude. The net change
14 between the existing environment and proposed operations is solely additive, as implementation of the
15 Proposed Action would increase activity in every SUA. The increase in ordnance emission estimates for

1 training operations was based on the total annual estimated munitions expended after implementing the
 2 Proposed Action, as the amount of increase compared to existing conditions is not known. The total
 3 emissions for ordnance were subdivided across the SUA based on the percentage increase in sorties
 4 operating in each SUA (**Tables 3-24–27**). Small portions of Tombstone and Morenci MOAs include portions
 5 of Hidalgo and Catron Counties in New Mexico, both of which are in attainment. All emissions in these
 6 MOAs have been conservatively estimated to occur in the much larger Arizona airspace. Data on ordnance
 7 emission factors is incomplete; however, emissions from most of the anticipated ordnance were captured
 8 in the analysis.

9 **Table 3-24.**
 10 **Emission Estimates for Tombstone MOA Low-Altitude Activities (ton per year)**

Tombstone SUA Operations	NO_x	SO₂^a	CO	VOC	PM₁₀^a	PM_{2.5}	Pb	CO_{2e}
A-10C sorties	0.9	0.1	0.2	0.01	0.2	0.2	N/A	284
HH-60 sorties	5.4	0.5	1.3	0.005	1.2	1.1	N/A	1,511
Ordnance	0.4	N/A	2.8	N/A	1.4	0.2	0.03	4.4
Total	6.7	0.6	4.4	0.02	2.8	1.6	0.03	1,799
HH-60 transit emissions to/from Tombstone	4.4	0.4	1.1	0.004	1.0	0.9	N/A	1,247
Tombstone total low-altitude training emissions	11.1	1.0	5.5	0.02	3.8	2.5	0.03	3,047
General Conformity de minimis threshold		100			100			N/A
Attainment area significance indicator threshold	100		100	100		100	25	N/A
Threshold exceedance?	No	No	No	No	No	No	No	N/A

11 Note:

12 a Transit to/from Tombstone MOA and operations in the MOA occur in Pima and Cochise counties and General Conformity applies
 13 to these pollutants.

14 AFB = Air Force Base; CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; MOA = military operations area; N/A = not
 15 applicable; NO_x = nitrogen dioxide; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide;
 16 SUA = special use airspace; VOC = volatile organic compound

**Table 3-25.
Emission Estimates for Jackal Low MOA Low-Altitude Activities (ton per year)**

Jackal Low SUA Operations	NO _x ^a	SO ₂ ^a	CO	VOC ^a	PM ₁₀ ^a	PM _{2.5}	Pb	CO _{2e}
A-10C sorties	0.7	0.1	0.1	0.01	0.2	0.2	N/A	205
HH-60 sorties	3.9	0.4	0.9	0.003	0.9	0.8	N/A	1,087
Ordnance	0.3	N/A	2.0	N/A	1.0	0.2	0.02	3
Total	4.8	0.4	3.1	0.01	2.0	1.1		1,295
HH-60 transit emissions to/from Jackal Low	1.1	0.1	0.3	0.001	0.3	0.2	N/A	315
Total Jackal Low low-altitude training emissions	5.9	0.5	3.4	0.01	2.3	1.3	0.02	1,610
General Conformity de minimis threshold	100	100		100	100	100	25	N/A
Attainment area significance indicator threshold			100					N/A
Threshold exceedance?	No	No	No	No	No	No	No	N/A

Notes:

a Transit to/from Jackal Low MOA and operations in the MOA occur in Pima and Pinal counties and General Conformity applies to these pollutants.

AFB = Air Force Base; CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; MOA = military operations area; N/A = not applicable; Pb = lead; NO_x = nitrogen dioxide; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide; SUA = special use airspace; VOC = volatile organic compound

**Table 3-26.
Emission Estimates for Morenci Low-Altitude MOA Activities (ton per year)**

Morenci SUA Operations	NO _x	SO ₂ ^a	CO	VOC	PM ₁₀ ^a	PM _{2.5}	Pb	CO _{2e}
A-10C sorties	0.3	0.03	0.1	0.003	0.1	0.1	N/A	84
HH-60 Sorties	1.6	0.1	0.4	0.001	0.4	0.3	N/A	443
Ordnance	0.1	N/A	0.8	N/A	0.4	0.1	0.01	1
Total	2.0	0.2	1.3	0.004	0.8	0.5	0.01	528
HH-60 transit emissions to/from Morenci	0.9	0.2	0.2	0.001	0.2	0.2	N/A	241
Total Morenci low-altitude training emissions	2.8	0.3	1.5	0.01	1.0	0.6	0.01	769
General Conformity de minimis Threshold		100			100			N/A
Attainment area significance indicator threshold	100		100	100		100	25	N/A
Threshold exceedance?	No	No	No	No	No	No	No	N/A

Notes:

a Transit to/from Morenci MOA and operations in the MOA occur in Pima and Pinal counties and General Conformity applies to these pollutants.

AFB = Air Force Base; CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; MOA = military operations area; N/A = not applicable; NO_x = nitrogen dioxide; Pb = lead; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide; SUA = special use airspace; VOC = volatile organic compound

**Table 3-27.
Emission Estimates for Low-Altitude Fuzzy MOA Activities (ton per year)**

Fuzzy SUA Operations	NO _x	SO ₂	CO	VOC	PM ₁₀ ^a	PM _{2.5} ^a	Pb	CO _{2e}
A-10C sorties	0.9	0.1	0.2	0.01	0.2	0.2	N/A	258
HH-60 sorties	4.8	0.5	1.2	0.004	1.1	1.0	N/A	1,357
Ordnance	0.3	N/A	2.6	N/A	1.2	0.2	0.03	4
Total	6.0	0.5	4.0	0.01	2.5	1.4	0.03	1,619
HH-60 transit emissions to/from Fuzzy	1.2	0.1	0.30	0.00	0.3	0.2	N/A	344
Total Fuzzy low-altitude training emissions	7.2	0.7	4.3	0.01	2.8	1.6	0.03	1,963
General Conformity <i>de minimis</i> threshold					100	100		N/A
Attainment area significance indicator threshold	100	100	100	100			25	N/A
Threshold exceedance?	No	No	No	No	No	No	No	N/A

Notes:

a Transit to/from Fuzzy MOA and operations in the MOA occur in Pima and Pinal counties and General Conformity applies to these pollutants.

AFB = Air Force Base; CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; MOA = military operations area; N/A = not applicable; NO_x = nitrogen dioxide; Pb = lead; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide; SUA = special use airspace; VOC = volatile organic compound

While emissions for all pollutants would increase with implementation of the Proposed Alternative, the net changes would be less than the *de minimis* thresholds in all of the counties in which low-altitude flight and operations would occur. Because the emissions associated with the Proposed Action are below the General Conformity *de minimis* thresholds, the requirements of the General Conformity Rule, are not applicable, as documented in the Detail ACAM Reports and Record of Conformity Applicability.

Current and reasonably foreseeable projects that may be ongoing in the same timeframe as proposed and alternative actions are listed in **Table 3.1**. Any contribution of the Proposed Action that could, in combination with past, present, and reasonably future activities, contribute to cumulative impacts to air quality would be due to increases in annual volatile organic compounds, nitrogen dioxide, sulfur dioxide, PM₁₀, and/or PM_{2.5} emissions from airfield operations and related activities and flight below the mixing height in the regions where training airspaces are located.

While the Tombstone MOA currently has areas A and B for low-altitude flight, the size of the Tombstone MOA is proposed for expansion to add 10 nm to the northern edge and to lower the altitude for the entire MOA to 100 feet AGL, which is being analyzed under a separate NEPA action. Similarly, the floor of Outlaw and Jackal MOAs would be lowered to 500 feet AGL and the ceiling of Jackal Low MOA would be reduced to 500 feet AGL. The changes to the Tombstone MOA would increase the area where low-altitude flight could occur. Additional low-altitude flight likely would occur in these MOAs as a result of the proposed altitude and geographic boundary changes.

3.7.5.4 Greenhouse Gases and Climate Change

Table 3-28 presents GHG annual emissions under the Proposed Action. The projected steady state annual emissions identified for 2026 represent airfield operations at Davis-Monthan AFB, commuters and airspace transit and flight at the SUA training airspaces. The GHG emissions calculated for aircraft operations include emissions throughout the flight horizon. Detailed information on GHG calculations is included in the introduction to **Appendix B**.

1 Climate change presents a global problem caused by increasing concentrations of GHG emissions. While
 2 climate change results from the incremental addition of GHG emissions from millions of individual sources,
 3 the significance of an individual source alone is impossible to assess on a global scale beyond the overall
 4 need for global GHG emissions reductions to avoid existential global outcomes. It can be useful to evaluate
 5 the GHG emissions not just from an annual perspective, but across the lifetime of the proposed action as
 6 GHG emissions have much longer atmospheric lifetimes than criteria and other air pollutants. Evaluating
 7 the life-cycle emissions provides a fuller picture of the GHG emissions to which the Proposed Action could
 8 contribute to the total atmospheric concentration of GHGs. A period of 20 years was selected based on
 9 most of the aircraft and flight activity, which includes the A-10C and the HH-60W.

10 **Table 3-28.**
 11 **Greenhouse Gas Emissions under the Proposed Action**

Year/Activity	Total Annual Emissions in Tons (CO ₂ e)
2023 – proposed construction	110
2024 – proposed construction	784
2026 – steady state (proposed operations)	
Airfield Ops	22,056
Low-Altitude Transit and Airspace Ops	7,388
High Altitude Transit and Airspace Ops	8,268
Personnel	520
2026 – steady state total	38,232
Estimated life-cycle emissions (steady state over 20 years)	765,530

12 CO₂e = carbon dioxide equivalent

13 Operational energy (aviation fuel and energy to power aircraft) comprises over 80 percent of the Air Force's
 14 energy use. Life-cycle emissions for the Proposed Action assume no changes in operations from 2026 to
 15 2046. However, likely reductions would include reductions in ground mobile source emissions as vehicles
 16 and equipment continue to be electrified, and as the Air Force implements its Climate Action Plan.

17 Reduction of fuel use offers the most significant opportunity to optimize operational capability while
 18 simultaneously reducing GHG emissions. Technological enhancements to achieve this reduction include
 19 but are not limited to aerodynamic advancements, streamlined flight planning, incorporation of drag
 20 reduction technologies onto current platforms, enhanced engine sustainment practices, and increases in
 21 the use of simulation and augmented reality systems. Additionally, the Air Force has instituted an
 22 installations portfolio goal of net-zero emissions by FY 2046 (Air Force, 2022). During the estimated 20-
 23 year life-cycle of the Proposed Action, many activities would be incorporated into the Air Force functions to
 24 reduce GHG emissions across the Air Force assets.

25 As a result of ongoing climate change, Tucson and the surrounding region could experience a continuing
 26 of recent upward trends in average temperatures and extreme heat, an increase in the frequency of wildfire
 27 occurrence and severity, and a decrease in spring precipitation (U.S. Global Change Research Program,
 28 2017).

29 Increases in temperature, increases in wildfires, and a decrease in spring precipitation could interact with
 30 resource areas such as air quality, water resources, and socioeconomics. While Davis-Monthan AFB has
 31 adapted operations to manage temperature changes, exacerbation of climate conditions in the future could
 32 increase the cost of proposed operations and could impede operations during extreme events. Additional
 33 measures could be needed to mitigate such impacts over the operational life expectancy of the Proposed
 34 Action.

1 **3.7.5.5 Cumulative Impacts**

2 As listed in **Table 3-1**, three proposed actions with the potential to impact air quality in and around the ROI
3 are the Arizona Airspace EIS (expected completion 2025), the Personnel Recovery Training Program EA
4 (Air Force, 2020), and the 492nd SOW Relocation EIS (which is a future project with no analysis performed
5 to date).

6 The total NOx emissions increase at Davis-Monthan AFB associated with personnel recovery training and
7 the 4th Gen missions alignment would be estimated to reach 100 tons per year. Given that the area is in
8 near-nonattainment of the ozone NAAQS and NOx are ozone precursors, the combined actions were
9 reviewed to determine the accuracy of the results. The increase in NOx for the Personnel Recovery Training
10 Program is primarily due to the addition of ground vehicle operations at Davis-Monthan AFB. Emissions
11 estimates for this activity were conservatively generated in ACAM using nonroad emission factors typically
12 used for construction. The overall indication for cumulative impacts of NOx is that the realignment action
13 would generate the majority of NOx emissions and the personnel recovery training would add a minor
14 amount of additional emissions, the sum of which approaches 100 tons per year.

15 The total CO emissions increase at Davis-Monthan AFB associated with personnel recovery training and
16 the 4th Gen missions realignment is estimated to reach 102 tons per year. The design value for CO in Pima
17 County for 2021 represents 5 percent of the hourly NAAQS and 9 percent of the 8-hour NAAQS. Given that
18 CO emissions in the County are so low, the additional cumulative quantity would not result in a significant
19 impact such as exceedance of the NAAQS standard for CO.

20 NOx and all other criteria pollutant emissions at Davis-Monthan AFB would be reduced over time as newer
21 engines replace the more inefficient ones captured in the Personnel Recovery Training EA. Additionally,
22 the Air Force-wide commitment to GHG reductions would also positively affect all criteria pollutant
23 emissions as installation use of renewable energy and other initiatives are implemented and increased. As
24 a result, NOx and other emissions at Davis-Monthan AFB would reduce over time, eliminating the likelihood
25 of significant cumulative impacts to regional air quality.

26 In addition to military actions, a small commercial development is planned near Davis-Monthan AFB. The
27 gross area of the proposed development is approximately 30 acres and incorporates seven lots.
28 Construction at this location is anticipated to be temporary and short term. It is unknown what entities may
29 locate in this development, but any air emission sources would be covered under a Pima County
30 Department of Environmental Quality air permit. Emissions from this development, in combination with all
31 direct and indirect emissions sources in the area, would not be anticipated to result in significant air emission
32 impacts.

33 **3.7.5.6 No Action Alternative**

34 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
35 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
36 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
37 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
38 would be no changes to air quality beyond baseline conditions.

39 **3.8 BIOLOGICAL RESOURCES**

40 **3.8.1 Definition of the Resource**

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

1 As shown in **Table 3-2**, the ROI for biological resources is Davis-Monthan AFB and the associated SUA.
2 The ROI for biological resources included in the analysis of primary airspace and primary ranges under the
3 Proposed Action includes eight counties in Arizona and New Mexico: Maricopa, Pinal, Yuma, Pima,
4 Cochise, and Santa Cruz counties, Arizona; Hidalgo and Luna counties, New Mexico.

5 **3.8.1.1 Endangered Species Act**

6 The ESA established protection for threatened and endangered species and the ecosystems upon which
7 they depend. Sensitive and protected biological resources include plant and animal species listed as
8 threatened, endangered, or special status by USFWS. The ESA also allows the designation of geographic
9 areas as critical habitat for threatened or endangered species. Under the ESA, an “endangered species” is
10 defined as any species in danger of extinction throughout all, or a large portion, of its range. A “threatened
11 species” is defined as any species likely to become an endangered species in the foreseeable future.
12 USFWS maintains a list of candidate species under evaluation for possible listing as threatened or
13 endangered under the ESA. Although candidate species receive no statutory protection under the ESA,
14 USFWS encourages cooperative conservation efforts for these species because they are species that may
15 warrant protection in the future under the ESA.

16 **3.8.1.2 Migratory Bird Treaty Act**

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

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

26 The *National Defense Authorization Act for Fiscal Year 2003* (Public Law 107-314, 116 Stat. 2458) provided
27 the Secretary of the Interior the authority to prescribe regulations to exempt the Armed Forces from the
28 incidental take of migratory birds during authorized military readiness activities. Congress defined military
29 readiness activities as all training and operations of the US Armed Forces that relate to combat and the
30 adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation
31 and suitability for combat use. Further, in October of 2012, the Authorization of Take Incidental to Military
32 Readiness Activities was published in the Federal Register (50 CFR § 21.42), authorizing incidental take
33 during military readiness activities unless such activities may result in significant adverse effects on a
34 population of a migratory bird species.

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

41 **3.8.1.3 Bald and Golden Eagle Protection Act**

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

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

1 The BGEPA defines “disturb” as:

2 [T]o agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause,
3 based on the best scientific information available, injury to an eagle, a decrease in
4 productivity by substantially interfering with the eagle’s normal breeding, feeding or
5 sheltering behavior, or nest abandonment by substantially interfering with the eagle’s
6 normal breeding, feeding, or sheltering behavior.

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

9 **3.8.1.4 Invasive Species**

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

16 **3.8.2 Existing Conditions – Davis-Monthan AFB**

17 **3.8.2.1 Vegetation**

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

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

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

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

1 includes native Sonoran Desert species such as paloverde, mesquite, creosote bush, and a variety of
2 cactus species, including saguaros.

3 **3.8.2.2 Wildlife**

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

27 **3.8.2.3 Threatened or Endangered Species and Other Protected Species**

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

35 **Threatened or Endangered Species**

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

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

46 The cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*) is protected under MBTA but was
47 recently proposed for listing as threatened under the ESA by the USFWS (86 FR 72547, December 22,
48 2021). The pygmy owl has not been observed on Davis-Monthan AFB but the thickets of paloverde trees,

1 mesquite, and saguaro cacti in and surrounding Atterbury Wash is potential suitable habitat. The cactus
2 ferruginous pygmy owl frequently nests in existing cavities in saguaro cacti.

3 **Migratory Birds**

4 Avian surveys have documented over 50 species of birds on Davis-Monthan AFB, many of which are
5 protected under the federal MBTA (see **Section 3.8.2.2**). Migratory bird species are most likely to occur in
6 the undeveloped areas of the Base. Even though the developed areas of the ROI have been fragmented
7 into small habitat patches, decreasing the quality of habitat available to migratory birds, landscaping,
8 available water, buildings, and stored aircraft provide or create potential nesting and roosting habitat for
9 birds. The Cooper's hawk (*Accipiter cooperii*) typically occurs in wooded and riparian areas and hunts birds
10 and small mammals. It has adapted to urban areas and nests on Davis-Monthan AFB including developed
11 and undeveloped areas. There are active Great Horned Owl (*Bubo virginianus*) nests on Davis-Monthan
12 AFB. Habitat for this species includes woodlands, canyons, stream sides, and deserts. There are historic
13 nests in the AMARG district, including an old nest in the eastern part of the Base. Other possible nests are
14 on or near the firing range.

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

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

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

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

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

37 **Arizona Species of Greatest Conservation Need**

38 The AZGFD identifies SGCN in its state wildlife action plan, *The Arizona Wildlife Conservation Strategy:*
39 *2022-2032*, based on seven criteria (AZGFD, 2022). SGCN species are considered vulnerable to future
40 population declines or have experienced population declines and warrant special management attention.
41 The list of SGCN species includes species protected by the ESA, MBTA, or the BGEPA, and species that
42 may have no or limited regulatory protection. Davis-Monthan AFB has identified those SGCN species that
43 may potentially occur on or in the vicinity of the Base (Davis-Monthan AFB, 2021a) (**Table 3-30**). The criteria
44 for listing plants as a SGCN include being listed under the ESA or being highly safe guarded or salvage
45 restricted under the Arizona Native Plant Law. Birds listed as SGCN are discussed in the previous section.
46 SGCN that may occur in the vicinity of the Davis-Monthan AFB but have not been observed on the Base
47 are not discussed. A description of those species can be found in the Davis-Monthan AFB *Integrated*
48 *Natural Resource Management Plan* (Davis-Monthan AFB, 2021a).

**Table 3-30.
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	<i>Macrotus californicus</i>	2	No
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	2	No
Spotted bat	<i>Euderma maculatum</i>	2	No
Western red bat	<i>Lasiurus blossevillii</i>	2	Yes
Western yellow bat	<i>Lasiurus xanthinus</i>	2	No, but Likely
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	1	No
Cave myotis	<i>Myotis velifer</i>	2	No, but Likely
Birds			
Cactus ferruginous pygmy owl	<i>Glaucidium brasilianum cactorum</i>	1	Potential migratory
Western burrowing owl	<i>Athene cunicularia ssp. hypugaea</i>	2	Yes
Ferruginous hawk	<i>Buteo regalis</i>	2	Yes
American peregrine falcon	<i>Falco peregrinus anatum</i>	1	Yes
Swainson's hawk	<i>Buteo swainsoni</i>	2	Yes
Reptiles			
Sonoran Desert tortoise	<i>Gopherus morafkai</i>	1	No
Gila monster	<i>Heloderma suspectum</i>	1	No
Tucson shovel-nosed snake	<i>Chionactis occipitalis klauberi</i>	3 ^b	No
Plants			
Saguaro	<i>Carnegiea gigantea</i>	AZ Native Plant Law	Yes, as a planted ornamental
Needle-spined pineapple cactus	<i>Echinomastus erectocentrus var. erectocentrus</i>	ADA salvage restricted	No

Source: Davis-Monthan AFB, 2021a; AZGFD, 2022

a. Tier 1 = T&E species, former T&E species, species with conservation agreements or closed season species; Tier 2 = deemed vulnerable but do not match Tier 1 criteria; Tier 3 = unknown status and do not meet Tier 2 criteria, more information needed

b. AZGFD lists *Chionactis occipitalis* as a Tier 3 SGCN, but not the *klauberi* subspecies.

ADA = Arizona Department of Agriculture; AZGFD = Arizona Game and Fish Department; SGCN = Species of Greatest Conservation Need; T&E = threatened and endangered

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 are known to occur on Davis-Monthan AFB. The AZGFD does not list the Tucson shovel-nosed snake subspecies 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 tree-like cactus species, is protected under the Arizona Native Plant Law (Arizona Administrative Code Title 3, Article 11). Saguaros occur on well-drained soils, desert slopes, and flats, especially rocky slopes. They 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 Invasive Species

The primary pest management concern on Davis-Monthan AFB is the persistent spread of the invasive non-native buffelgrass (*Pennisetum ciliare*). Invasive species of secondary concern include fountain grass

1 (*Pennisetum* sp.) and Lehmann’s lovegrass (*Eragrostis lehmanniana*). Establishment of non-native grasses
2 has created areas on Davis-Monthan AFB that are much more prone to wildfires.

3 **3.8.3 Existing Conditions – Special Use Airspace**

4 **3.8.3.1 Vegetation**

5 Native vegetation varies greatly by elevation and ecological diversity is extremely high. The Madrean
6 Archipelago and the Sonoran Basin and Range comprise the two primary ecoregions under the SUA
7 proposed for use. Vegetation within the Madrean Archipelago ecoregion is mostly grama-tobosa shrub-
8 steppe in the basins and oak-juniper woodlands on the ranges, except at higher elevations where
9 ponderosa pine is predominant (USEPA, 2013). The Sonoran Basin and Range contains scattered low
10 mountains and large areas of paloverde-cactus shrub and giant saguaro cactus.

11 **3.8.3.2 Wildlife**

12 The Madrean Archipelago and the Sonoran Basin and Range ecoregions support a wide range of wildlife
13 species. Some common bird and mammal species known to the region include Gambel’s quail (*Lophortyx*
14 *gambelii*), Gila woodpecker (*Melanerpes uropygialis*) roadrunner (*Geococcyx californianus*), curve-billed
15 thrasher (*Taxostoma curvirostre*), mourning dove (*Zenaida macroura*), cactus wren (*Campylorhynchus*
16 *brunneicapillus*), black-throated sparrow (*Amphispiza bilineata*), White-tailed deer (*Odocoileus virginianus*),
17 black bear (*Ursus americanus*), big horn sheep (*Ovis canadensis*), mountain lion (*Puma concolor*), coyote
18 (*Canis latrans*), bobcat (*Felis rufus*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus*
19 *auduboni*), Merriam’s kangaroo rat (*Dipodomys merriami*), white-throated woodrat (*Neotoma albigula*),
20 desert pocket mouse (*Perognathus penicillatus*) and round tailed ground squirrel (*Spermophilous*
21 *tereticaudus*).

22 **3.8.3.3 Threatened or Endangered Species**

23 Federally listed threatened, endangered, and/or candidate mammal and bird species that could occur in
24 the ROI are presented in **Table 3-31**. Plant, invertebrate, and fish species are not presented, as the
25 Proposed Action would be unlikely to impact these species.

26 **Table 3-31.**
27 **Threatened and Endangered Species Associated with the Special Use Airspace**

Name	Scientific Name	Federal Listing Status
Mammals		
Jaguar	<i>Panthera onca</i>	Endangered
Ocelot	<i>Felis pardalis</i>	Endangered
Sonoran pronghorn	<i>Antilocapra americana sonoriensis</i>	Endangered
Birds		
California least tern	<i>Sterna antillarum browni</i>	Endangered
Masked bobwhite	<i>Colinus virginianus ridgwayi</i>	Endangered
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	Endangered
Reptiles		
Narrow-headed gartersnake	<i>Thamnophis rufipunctatus</i>	Threatened
Northern Mexican gartersnake	<i>Thamnophis eques megalops</i>	Threatened
Sonoyta Mud turtle	<i>Kinosternon sonoriense longifemorale</i>	Endangered
New Mexican ridge-nosed rattlesnake	<i>Crotalus willardi</i>	Threatened
Amphibians		
Chiricahua leopard frog	<i>Rana chiricahuensis</i>	Threatened
Sonora tiger salamander	<i>Ambystoma tigrinum stebbinsi</i>	Endangered

1 **3.8.4 Environmental Consequences**

2 **3.8.4.1 Evaluation Criteria**

3 Evaluation criteria for potential impacts on biological resources are based on the following:

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

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

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

18 **3.8.4.2 Proposed Action – Davis-Monthan AFB**

19 **Vegetation**

20 The areas designated for construction activities under the Proposed Action are disturbed or developed.
21 Due to the lack of intact native vegetation in the areas proposed for development and the minimal vegetation
22 clearing associated with construction activities that would occur under the Proposed Action, no significant
23 impacts to vegetation would be anticipated to occur.

24 **Wildlife**

25 The areas designated for construction activities under the Proposed Action have limited suitable habitat for
26 wildlife. The developed portion of Davis-Monthan AFB, in which the projects proposed would be located,
27 supports relatively common wildlife species such as small mammals.

28 Wildlife management on Davis-Monthan AFB focuses on maintaining existing habitat and ensuring the
29 viability of existing populations. Clearing or mechanical disturbance of natural desert vegetation would not
30 occur during project construction. Project areas would be surveyed for species of concern, particularly for
31 western burrowing owls and raptor nests. Efforts to monitor burrowing owls on Davis-Monthan AFB and to
32 conduct habitat, mammal, amphibian, and reptile surveys on Davis-Monthan AFB are ongoing.

33 Aircraft operations always have the potential for bird and other wildlife strikes. This can occur during takeoff
34 and landing on and near active runways, as well as during flight at altitude. With an increase in air operations
35 associated with the Proposed Action, there likewise would be an increased risk of BASH. However, Davis-
36 Monthan AFB maintains a Wildlife Aircraft Strike Hazard Plan to manage BASH risk and implement
37 measures to greatly reduce the likelihood for BASH incidents. The outcome of the BASH program is both
38 increased safety for pilots and military aircraft as well as fewer incidents of injury or death to birds and other
39 wildlife. As such, with the continued airfield management and risk reduction implementation measures
40 associated with the BASH program discussed in **Section 3.3**, the impacts on birds and other wildlife from
41 the addition of the aircraft associated with the Proposed Action would be minor.

1 **Threatened or Endangered Species and Other Protected Species**

2 No federally listed threatened or endangered species have been observed on Davis-Monthan AFB, nor
3 does critical habitat exist within Davis-Monthan AFB.

4 Several state SGCN have the potential to occur at Davis-Monthan AFB. Coordination with environmental
5 personnel should be conducted to avoid any SGCN and all known nesting sites for migratory birds during
6 construction activities. The Proposed Action would not adversely affect any threatened or endangered
7 species or their habitat and is therefore determined to have “no effect” on threatened or endangered
8 species.

9 **Invasive Species**

10 Soil disturbance during construction would create potential sites for establishment of invasive species.
11 However, most of these sites would be occupied by new buildings or hardscape (e.g., parking lots) and
12 surrounded by maintained landscaping, thus preventing establishment of invasive species. Best
13 management practices (BMPs), such as checking construction sites for presence of invasive plants, would
14 be employed. If invasive plants are present, mechanical or chemical treatment of the plants, avoiding areas
15 of invasive plants, and thoroughly cleaning and inspection of equipment and work clothing before moving
16 off site would lessen the probability of spreading seeds throughout the Installation. No significant impacts
17 involving invasive species would be anticipated to occur

18 ***3.8.4.3 Proposed Action – Special Use Airspace***

19 Impacts to biological resources occurring under the SUA that would be utilized under the Proposed Action
20 could result from overflights and associated noise, the use of munitions and flares, and bird-aircraft
21 collisions. No sonic booms would occur due to the Proposed Action. Wildlife, especially avian species,
22 utilizing the surrounding undeveloped areas below the SUA for foraging and breeding would normally be
23 sensitive to increased noise impacts from military aircraft. Although there is variability in responses across
24 species, many birds and wildlife have the ability to habituate to noise and movement from military aircraft
25 (Grubb et al., 2013), and military aircraft operations have been ongoing at Davis-Monthan AFB for decades
26 and are now part of the natural noise environment.

27 Most aircraft training operations would occur at altitudes above where most bird species would be migrating
28 or foraging. As such, it is highly unlikely that aircraft movement within the SUA would adversely impact
29 foraging birds or have a risk of BASH. Migrating birds could have a greater potential of encountering aircraft
30 during training operations, especially those that migrate at altitudes above 2,000 feet AGL; however, given
31 the large area and high altitude where training would occur, and the fact that most migratory song birds
32 migrate at altitudes under 2,000 feet (Kerlinger, 2008), the likelihood for birds to encounter aircraft during
33 training operations is low. Research has also shown that raptors (e.g., peregrine falcons, prairie falcons,
34 golden eagles) showed very little response to low-level, mid-level, and high-level flyovers, resulting in no
35 change in productivity (Ellis et al., 1991). Additionally, a study of low-level (500 feet) jet aircraft passes
36 throughout the nesting season showed no differences detected in the nestling provisioning rates or subtle
37 behavioral differences and noted that the results provided “little support for the hypothesis that low-altitude
38 jet aircraft overflights affect parental behavior of peregrine falcons” (Palmer et al., 2003). For these reasons,
39 the increased aircraft movement under the Proposed Action would have negligible impacts on avian
40 species.

41 An evaluation of military jet noise effects on captive desert ungulates (e.g., mule deer and mountain sheep)
42 showed heart rate and behavioral responses to be limited in time (from 1 to 4 minutes) and also indicated
43 that animals habituated to sound levels of even low-altitude aircraft (Weisenberger et al., 1996). Given the
44 altitudes at which training would occur under the Proposed Action, the increased aircraft movement in the
45 training areas would have no significant impacts on terrestrial animals.

46 Under the Proposed Action, chaff and flares would be used over the BMGR and Ruby Fuzzy MOAs. To
47 minimize the potential for flares to ignite vegetation, flares would be employed at an altitude that prevents
48 the flares from impacting the ground or structures. Chaff and flares would be used in compliance with the

1 355 WG Inflight Guide. Chaff and flare usage would be consistent with existing usage, and impacts would
2 be negligible.

3 **3.8.4.4 Cumulative Impacts**

4 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions on and off
5 Davis-Monthan AFB (**Table 3-1**), would result in negligible impacts to biological resources. Construction
6 activities would occur in previously disturbed areas with minimal natural resources present. The additional
7 sorties and training actions under the Proposed Action would be an insignificant addition to the activities
8 already occurring at Davis-Monthan AFB and the SUAs. Future actions at Davis-Monthan AFB, including
9 the 492nd SOW Relocation EIS, would require additional Section 7 consultation with the USFWS to
10 evaluate impacts to threatened and endangered species. When considered in conjunction with other past,
11 present, and reasonably foreseeable environmental trends and planned actions at Davis-Monthan AFB, the
12 Proposed Action and Alternatives would result in minimal increases in BASH risk, wildfire risk, and noise
13 disturbance to wildlife. These actions would not result in any adverse effects on threatened and endangered
14 species. As such, no significant cumulative impacts on biological resources would be expected.

15 **3.8.4.5 No Action Alternative**

16 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
17 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
18 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
19 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
20 would be no changes to biological resources beyond baseline conditions.

21 **3.9 WATER RESOURCES**

22 **3.9.1 Definition of the Resource**

23 The primary water resource discussed in this section is surface water, which includes all lakes, ponds,
24 rivers, streams, impoundments, and wetlands within a defined area or watershed. Surface water may be
25 affected by stormwater infiltration and runoff generated during precipitation events. Groundwater and
26 floodplains are also discussed.

27 Water resources are vulnerable to contamination and quality degradation. The CWA set the national policy
28 objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."
29 The CWA provides the authority to establish water quality standards, control discharges into surface and
30 subsurface waters (including groundwater), develop waste treatment management plans and practices,
31 and issue permits for discharges. A National Pollutant Discharge Elimination System (NPDES) permit under
32 Section 402 of the CWA is required for discharges into navigable waters. The USEPA oversees the
33 issuance of NPDES permits at federal facilities as well as water quality regulations (Section 401 of the
34 CWA) for both surface and groundwater. The CWA also regulates the discharge of pollutants seaward for
35 3 miles.

36 As shown in **Table 3-2**, the ROI for effects to water resources is Davis-Monthan AFB and the Santa Cruz
37 River Watershed.

38 **3.9.2 Existing Conditions**

39 **3.9.2.1 Surface Water**

40 Davis-Monthan AFB is intersected by the border of the Upper Santa Cruz and Rillito Creek Watersheds
41 (Davis-Monthan AFB, 2021a). Patano Wash, a major tributary of the Rillito River, is located 3.5 miles
42 northeast of the Base. Atterbury Wash, the primary drainage of the eastern part of the Base, drains into
43 Patano Wash; Julian Wash, a drainage of the western portion of the Base, flows northwest into the Santa
44 Cruz River (Davis-Monthan AFB, 2021a). Surface water resources at Davis-Monthan AFB include

1 intermittent and ephemeral streams, floodplains, and several small ponds (**Figure 3-4**). Streams on Base
2 include Kinnison Wash and Atterbury Wash, which drain the east side of the Base and eventually flow into
3 the Rillito River (Davis-Monthan AFB, 2020), as well as a network of 17 sections and branches of unnamed
4 streams. There are no perennial drainages within the boundaries of Davis-Monthan AFB. The low level and
5 irregularity of rainfall results in erratic and potentially erosive flows in the local drainages. The Julian,
6 Kinnison, and Atterbury washes are classified as intermittent, meaning they contain flowing water only at
7 certain times of the year when provided by groundwater supply. The unnamed streams are classified as
8 ephemeral, meaning they contain flowing water only during and immediately after precipitation events.
9 Julian Wash, along with several of the unnamed ephemeral streams present on Base, is classified as a
10 Water of the US and is therefore protected under the CWA (Davis-Monthan AFB, 2020).

11 **3.9.2.2 Stormwater**

12 Stormwater associated with Davis-Monthan AFB drains into 12 different drainage areas that discharge to
13 various waterbodies in the city of Tucson via 16 outfalls in the form of surface channels and underground
14 pipes. These outfalls are operated under an Arizona Pollutant Discharge Elimination System (AZPDES)
15 2016 General Permit and an NPDES Stormwater General Permit, both of which are issued by the ADEQ
16 Water Quality Division (Davis-Monthan AFB, 2018). None of the receiving waters associated with Davis-
17 Monthan AFB's stormwater outfalls is listed as impaired; however, Lakeside Lake was included on Arizona's
18 2012–2014 Not Attaining Waters list due to levels of ammonia, chlorophyll-A, nitrogen, and phosphorus, as
19 well as low levels of dissolved oxygen and a high pH (Davis-Monthan AFB, 2018). No discharges
20 associated with Base activities that cause or contribute to exceedance of an applicable surface water quality
21 standard have been identified, and benchmark monitoring of specific outfalls is conducted in accordance
22 with the NPDES permit (Davis-Monthan AFB, 2018).

23 **3.9.2.3 Groundwater**

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

28 **3.9.2.4 Floodplains**

29 Davis-Monthan AFB is located in an area categorized as Zone D, "Areas in which Flood Hazards are
30 Undetermined." A recent study of floodplains associated with Julian, Kinnison, and Atterbury washes
31 indicated the probable existence of a 100-year floodplain associated with Atterbury Wash where it passes
32 through a southeastern portion of the Installation (**Figure 3-4**) (Davis-Monthan AFB, 2021a).

33 **3.9.2.5 Wetlands**

34 There are no wetlands on Davis-Monthan AFB (Davis-Monthan AFB, 2021a), and this EA does not discuss
35 this resource further.

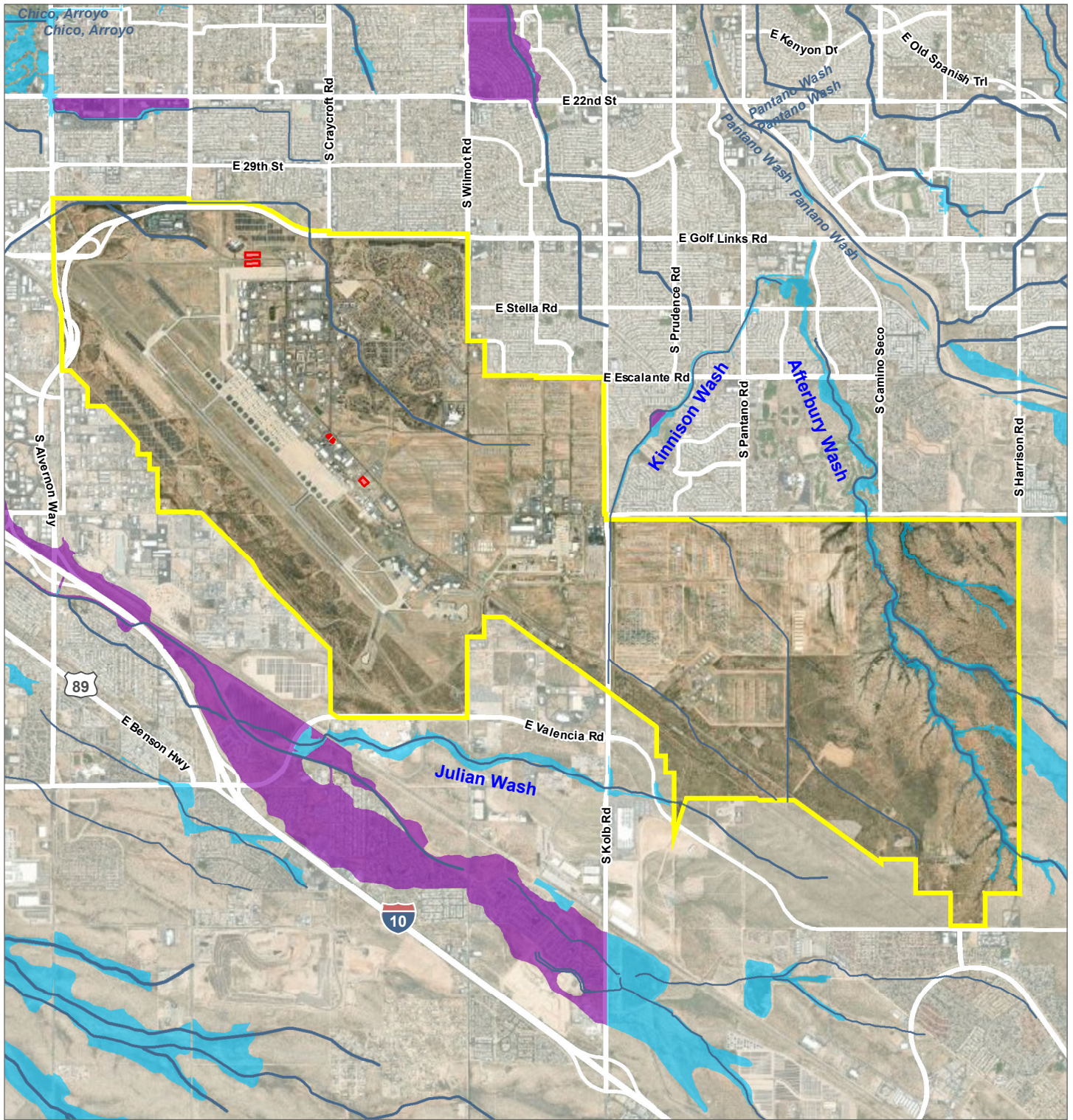
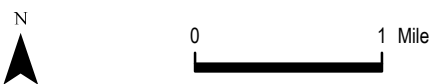
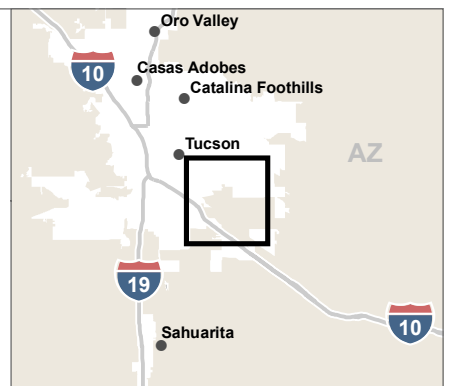


FIGURE 3-4
Floodplain and Water Resources

-  Streams
-  100-Year Flood Zone
-  500-Year Flood Zone
-  Installation Boundary
-  Proposed Projects



Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



1 **3.9.3 Environmental Consequences**

2 **3.9.3.1 Evaluation Criteria**

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

- 6 • reduced water availability or supply to existing users,
- 7 • overdraft of groundwater basins,
- 8 • excess of safe annual yield of water supply sources,
- 9 • adverse effects to water quality,
- 10 • adverse effects to public health from creating or worsening health hazard conditions, or
- 11 • violation of established laws or regulations adopted to protect sensitive water resources.

12 **3.9.3.2 Proposed Action**

13 The Proposed Action within the ROI would involve the construction of several facilities to accommodate the
14 relocation of six missions to Davis-Monthan AFB from Nellis AFB, including hangars, helicopter simulator
15 facilities, and LOLAs.

16 **Surface Water**

17 Impacts to surface water, such as localized increases in stormwater runoff volume and intensity, can result
18 from clearing and grading land and moving soil. Under the Proposed Action, new impervious surfaces would
19 be created, potentially introducing pollutants into construction areas. However, in accordance with Unified
20 Facilities Criteria (UFC) 3-210-10, *Low Impact Development (LID)* (as amended, 2020) and EISA Section
21 438, any increase in surface water runoff as a result of the Proposed Action would be attenuated through
22 the use of temporary and/or permanent drainage management features (e.g., use of porous materials,
23 directing runoff to permeable areas, and use of detention basins to release runoff over time). The integration
24 of LID concepts incorporates site design and stormwater management principles to maintain the site's pre-
25 development runoff rates and volumes to further minimize potential adverse impacts associated with
26 increases in impervious surface area.

27 Prior to construction, the contractor would be required to obtain coverage under an AZPDES Construction
28 General Permit by filing a Notice of Intent with ADEQ and prepare a site-specific stormwater pollution
29 prevention plan (SWPPP) to manage stormwater discharges during and after construction until the area is
30 revegetated. Upon revegetation, the contractor would file a Notice of Termination with ADEQ to terminate
31 permit coverage. The Air Force would specify compliance with the stormwater discharge permit. Strict
32 adherence to the SWPPP and the management actions identified for each construction site would reduce
33 potential impacts to surface water resources.

34 Approximately 7 acres of soil would be disturbed during construction activities under the Proposed Action.
35 Construction activities would take place on previously disturbed land adjacent to existing buildings and
36 infrastructure. No activities associated with the Proposed Action would occur within or intersect any surface
37 waters. However, these activities would have the potential to increase erosion and sedimentation of nearby
38 surface waters during construction and for a brief period after due to temporary disturbance of soils.

39 As the Proposed Action would have the potential to disturb up to 7 acres of ground surface, Davis-Monthan
40 AFB would be required to obtain a Construction Activity General Permit (CGP) under its 2016 General
41 Permit, which regulates the Base's stormwater outfalls. This permit requires various controls and BMPs to
42 reduce impacts on surface water through pollution prevention, and includes sedimentation and erosion
43 controls, soil stabilization, and pollutant management. These BMPs would be implemented to prevent
44 sediments and other pollutants from potentially entering nearby surface waters via Davis-Monthan AFB's

1 stormwater conveyance system. Therefore, impacts to surface water resources on Davis-Monthan AFB
2 from ground-disturbing activities associated with the Proposed Action would be anticipated to be short term
3 and minor.

4 There would be no expected impacts to surface water from operations. New facilities would be
5 administrative in nature with no increase in water usage or wastewater particular to those facilities.

6 **Stormwater**

7 Under the Proposed Action, 391,000 ft² of new impervious surface area would be added to the Base as a
8 result of the construction of new facilities. This increase in impervious surface area would be anticipated to
9 result in a minor, long-term increase in stormwater runoff at Davis-Monthan AFB.

10 Stormwater infrastructure at Davis-Monthan AFB has the capacity to handle increases in runoff that would
11 potentially result from increases in impervious surface area. Additionally, the Air Force contractors would
12 follow BMPs outlined in the CGP, Stormwater Management Plan, and SWPPP to ensure that any potential
13 adverse impacts to water resources due to stormwater runoff would be minimized to the greatest extent
14 possible. These BMPs include continued monitoring and routine inspection of the handling and storage of
15 presumed pollutants that have the potential to pollute stormwater runoff, including but not limited to
16 pesticides, construction trash, and sediment (Davis-Monthan AFB, 2018).

17 **Groundwater**

18 Construction-related activities would create the potential for contaminants, mainly fuel, to leach or discharge
19 to the Tucson Basin Aquifer. The Air Force contractor would follow BMPs designed to prevent polluted
20 stormwater runoff, as well as BMPs to manage pollution prevention outlined in the AZDEQ CGP, to minimize
21 the potential of chemicals entering the aquifer. There would be no expected impacts to groundwater from
22 operations. New facilities would be administrative in nature with no increase in water usage or wastewater
23 particular to those facilities. Therefore, the Proposed Action would be anticipated to have negligible, short-
24 term, indirect impacts on groundwater.

25 **Floodplains**

26 The Proposed Action would not occur within the probable 100-year floodplain located in the vicinity of
27 Atterbury Wash. The nearest activity under the Proposed Project is approximately 3.5 miles west.
28 Therefore, no direct or indirect impacts relating to floodplains would be anticipated to occur with
29 implementation of the Proposed Action.

30 **3.9.3.3 Cumulative Impacts**

31 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions (**Table 3-1**),
32 would not be expected to adversely impact water resources at Davis-Monthan. Construction activities would
33 only occur in previously disturbed areas lacking surface water resources. Future actions at Davis-Monthan
34 AFB, including the 492nd SOW Relocation EIS, most likely would be constructed on previously disturbed
35 land, avoiding any water resources. As such, cumulative impacts to water resources from the Proposed
36 Action would not be significant. When considered in conjunction with other past, present, and reasonably
37 foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative
38 effects to water resources would be anticipated to occur with implementation of the Proposed Action.

39 **3.9.3.4 No Action Alternative**

40 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
41 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
42 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
43 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
44 would be no changes to water resources beyond baseline conditions.

1 **3.10 GEOLOGY AND SOILS**

2 **3.10.1 Definition of the Resource**

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

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

13 As shown in **Table 3-2**, the ROI for geological resources is Davis-Monthan AFB.

14 **3.10.2 Existing Conditions**

15 **3.10.2.1 Geology**

16 Davis-Monthan AFB is located in Arizona within the Tucson Basin, surrounded by the Tucson Mountains
17 approximately 15 miles to the west, the Santa Catalina Mountains approximately 20 miles to the north, the
18 Rincon Mountains approximately 10 miles to the east, and the Santa Rita Mountains approximately 25 miles
19 to the south. These features are located within a larger geological unit known as the Basin and Range
20 physiographic Province, characterized by northwest-to-southeast trending mountain ranges separated by
21 wide alluvial basins. The Basin and Range Province extends from west Texas through southern New
22 Mexico, southeastern and northwestern Arizona, northwestern Mexico, Nevada, western Utah, and part of
23 southern California (National Park Service, 2019).

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

28 The Tucson Mountains are a rugged, strongly dissected mountain ridge carved from uplifted, tilted, and
29 faulted intrusive³ and extrusive⁴ igneous rock and sediments. Regionally, the oldest rocks are isolated
30 blocks of Paleozoic limestone. Other rock types include rhyolite tuff, early Cretaceous fine-grained
31 siltstones, sandstones, mudstones and granites, and middle Tertiary volcanics and basalts. The mountains
32 are skirted by younger sedimentary and alluvial deposits that range from late Miocene to Quaternary
33 periods (Davis-Monthan AFB, 2021a).

34 **3.10.2.2 Topography**

35 The terrain on Davis-Monthan AFB is generally flat, sloping downward southeast to northwest from an
36 elevation of 2,950 feet to 2,550 feet above sea level. The Base has two significant sloping areas: one is a
37 highway cut for Kolb Road and the other is Atterbury Wash, located in the eastern part of the Base. The
38 slopes in these areas constitute constraints to development. The major landforms in the Sonoran Desert

³ Intrusive refers to rock that was formed by magma cooling deep below the earth's surface over thousands to millions of years (United States Geological Survey [USGS], 2022).

⁴ Extrusive refers to rock that was formed by magma cooling above or very near the earth's surface almost instantly (USGS, 2022).

1 are desert plains, conjoined alluvial fans (locally known as bajadas), and terraces (Davis-Monthan AFB,
2 2021a).

3 **3.10.2.3 Soils**

4 **Figure 3-5** illustrates and **Table 3-32** summarizes the soils present at Davis-Monthan AFB in relation to the
5 Proposed Action.

6 **Table 3-32.**
7 **Soil Types Associated with 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	5,667.0	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	3,009.2	28.5
YaA	Yaqui fine sandy loam	1–3	Well drained	51.1	0.5

8 Source: USDA [Web Soil Survey](#)
9 N/A = not applicable; ROI = Region of Influence

10 Soils present at Davis-Monthan AFB primarily consist of Mohave soils and urban land, followed by Tubac
11 gravelly loam, and Pinaleno-Stagecoach complex. Each of these soils is characterized by low to moderate
12 slopes, efficient drainage, slight susceptibility to wind and water erosion,⁵ and medium runoff potential
13 (Davis-Monthan AFB, 2021a). Most soils on Base have been previously disturbed, highly urbanized, or
14 developed and used for military purposes.

15 **3.10.2.4 Prime Farmland**

16 Hantz loam soil is found on Davis-Monthan AFB and is considered to have the potential to be prime
17 farmland soil if irrigated and either protected from flooding or not frequently flooded during the growing
18 season.⁶ However, agriculture and irrigation are not current operations at Davis-Monthan AFB. Given
19 Davis-Monthan AFB’s historic use for military training, this soil would not be considered prime farmland or
20 warrant future designation under the Farmland Protection Policy Act. Therefore, prime farmland is not
21 carried forward for analysis.

22 **3.10.3 Environmental Consequences**

23 **3.10.3.1 Evaluation Criteria**

24 Evaluation criteria for potential impacts on geological resources are based on the following:

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

⁵ Data obtained from the USDA Web Soil Survey, Wind Erodibility Index, <https://websoilsurvey.sc.egov.usda.gov/>

⁶ Data obtained from the USDA Web Soil Survey, Farmland Classification, <https://websoilsurvey.sc.egov.usda.gov/>

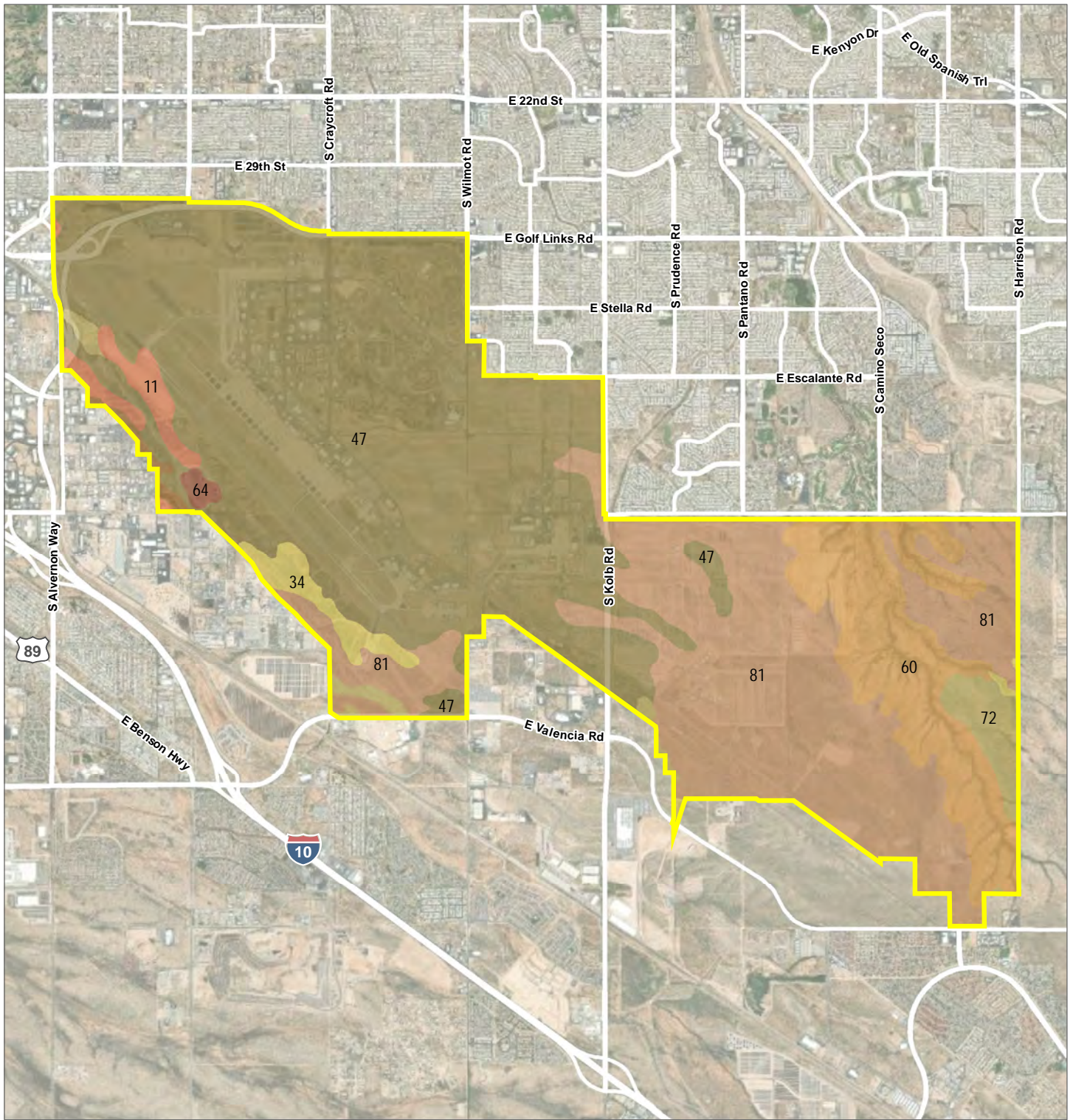


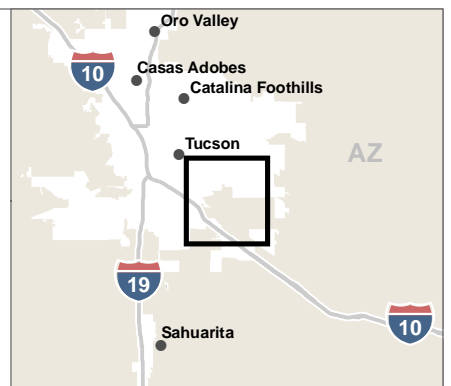
FIGURE 3-5
Soil Units

- | | |
|--------------------------------|---|
| Installation Boundary | 64 Pits, Dumps |
| 11 Cave Soils and Urban Land | 72 Sahuarita Soils, Mohave Soils and Urban Land |
| 34 Hantz Loam | 81 Tubac Gravelly Loam |
| 47 Mohave Soils and Urban Land | 86 Yaqui Fine Sandy Loam |
| 60 Pinaleno-Stagecoach Complex | |



0 1 Mile

Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



1 **3.10.3.2 Proposed Action**

2 The Proposed Action would involve the construction of five projects and disturb a total of 391,000 ft² of soil.
3 Construction occurring under the Proposed Action would involve earthwork, including excavation,
4 backfilling, and compacting of soils or fill materials on and immediately adjacent to the project sites. These
5 activities would expose soils and increase their susceptibility to water and wind erosion. Inclement weather
6 (e.g., rain or wind) would have the potential to increase the probability and severity of these potential effects.

7 **Geology**

8 The underlying geology of the area would not change under the Proposed Action. No direct or indirect
9 impacts to geology would be anticipated to occur with implementation of the Proposed Action.

10 **Topography**

11 None of the projects under the Proposed Action would occur in areas that necessitate large-scale alteration
12 of topography to accommodate construction. Any alteration of ground surfaces would be limited to basic
13 construction activities such as compacting and excavating to prepare the ground for the siting of a structure.
14 After placing and compacting reuse or fill soils, superficial soils would be graded to conform to local
15 topography to maintain efficient drainage. Therefore, short-term, negligible impacts to topography would be
16 anticipated to occur with implementation of the Proposed Action.

17 **Soils**

18 All construction projects implemented under the Proposed Action would involve soil-disturbing activities in
19 areas consisting of Mohave soils and urban land, which is well drained and has a moderate potential for
20 erosion (Davis-Monthan AFB, 2021a) (**Figure 3-5**). Slopes within the areas proposed for construction range
21 from 1 to 8 percent, with a medium runoff potential. All project sites under the Proposed Action are generally
22 suitable for development; however, the Air Force would validate soil conditions at each site prior to
23 construction to address any limiting factors by management or design.

24 Under the Proposed Action, potential adverse effects on soils, including soil loss, contamination, and
25 structural alteration, would be managed at an individual project level. When implementation of a project
26 would disturb 1 or more acre of land, the construction contractor would obtain and comply with a CGP under
27 the ADEQ-administered AZPDES program (see **Section 3.9**). The CGP would require the preparation and
28 implementation of a site-specific SWPPP prior to construction, including BMPs and erosion and sediment
29 control requirements (ADEQ, 2021). Implementation of BMPs would minimize impacts to soil resources,
30 and projects would be designed and implemented in accordance with UFC 3-210-10 (as amended 2016)
31 and EISA Section 438 (see **Section 3.9.3.2**) to minimize impacts to soil resources. With proper
32 implementation of BMPs and adherence to relevant permitting, adverse impacts to soils resulting from the
33 Proposed Action would be expected to be short term and minor.

34 Under the Proposed Action, reasonably foreseeable development plans and projects within and around the
35 Tucson area also would be subject to regulation under the AZPDES permitting program. Depending on the
36 nature and size of development, regulatory compliance measures would be in place to prevent or minimize
37 potential effects on or from geological resources.

38 **3.10.3.3 Cumulative Impacts**

39 The Proposed Action, in addition to the past, present, and reasonably foreseeable future actions (**Table 3-**
40 **1**), would have negligible cumulative impacts to soils during new construction activities, which would occur
41 in previously disturbed areas. BMPs and compliance with permits would minimize the cumulative impact
42 on soils. None of the projects listed in **Table 3-1** would have impacts to soils. Therefore, when considered
43 in conjunction with other past, present, and reasonably foreseeable environmental trends and planned
44 actions at Davis-Monthan AFB, no significant cumulative impacts to geological resources would be
45 anticipated to occur with implementation of the Proposed Action.

1 **3.10.3.4 No Action Alternative**

2 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
3 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
4 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
5 would continue to fall short of current or future mission needs and operate at or beyond capacity. No soil
6 would be disturbed, and there would be no change to geological resources beyond baseline conditions.

7 **3.11 LAND USE**

8 **3.11.1 Definition of Resources**

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

15 As shown in **Table 3-2**, the ROI for land use is Davis-Monthan AFB and local environs.

16 **3.11.2 Existing Conditions**

17 Davis-Monthan AFB is located in Pima County at the southeast corner of the city of Tucson, Arizona. The
18 Base is approximately 10,700 acres in size, of which 54 percent is developed, 45 percent is undeveloped,
19 and 1 percent is under easement and maintained by Pima County (Davis-Monthan AFB, 2020). The Base
20 is best known as the location of the Air Force Material Command's 309th AMARG. Davis-Monthan AFB is
21 divided into seven planning districts: Flightline Operations, North Planning, Housing Planning, Main Base
22 Planning, AMARG Planning, Main Base South, and the munitions and range areas. The largest of these
23 districts is the Flightline Operations District, which includes the runway, taxiways, aprons, and aircraft
24 parking and hangar areas.

25 **Figure 3-6** shows the land use categories on the Installation. Proposed construction locations would be
26 on land designated as either open space or aircraft maintenance operations.

27 In regard to local land use planning, the Installation is bounded by residential development to the north and
28 east, heavy and light industrial development to the west, and largely undeveloped land to the south and
29 southwest with some residential development adjacent to the Base. There are two residential communities
30 north of the Installation, Eastside and Terre Del Sol, and two to the south, Littleton and Drexel-Alvernon.

31 **3.11.3 Environmental Consequences**

32 **3.11.3.1 Evaluation Criteria**

33 Evaluation criteria for potential impacts on or from land use are based on the following:

- 34
- 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
35 ordinances.
36

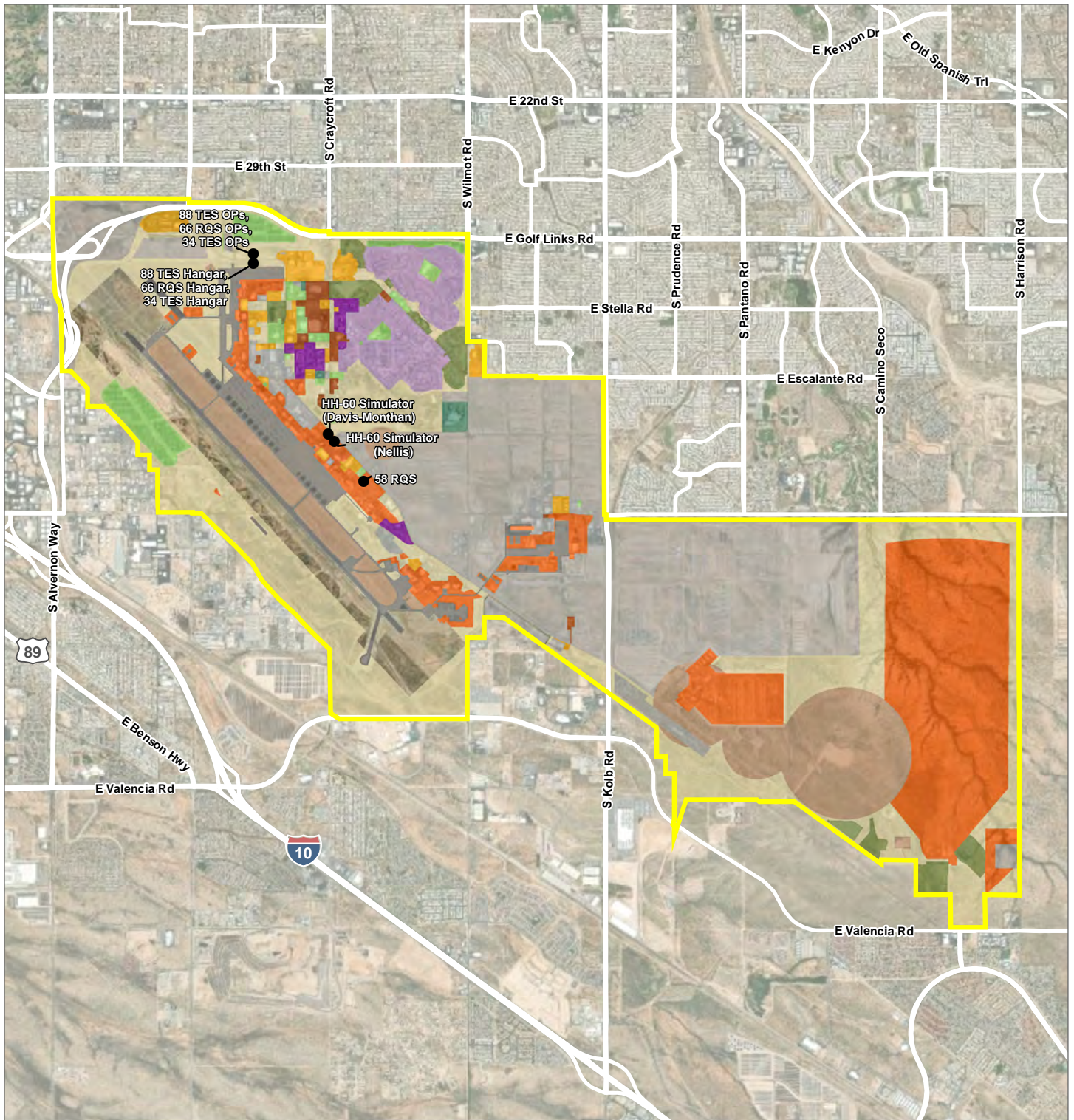
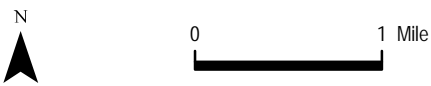
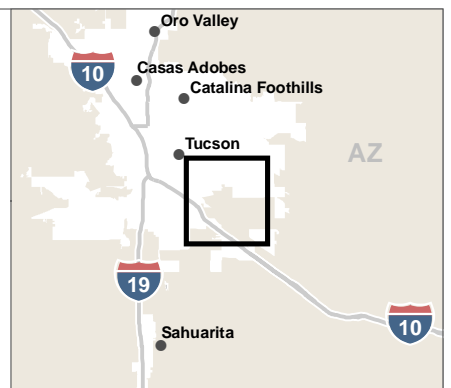


FIGURE 3-6
Land Use

- Proposed Projects
- ▭ Installation Boundary
- Administrative
- Air Operations Maintenance
- Airfield Clearance
- Airfield Pavement
- Community Commercial
- Community Service
- Housing Accompanied
- Housing Unaccompanied
- Industrial
- Medical Dental
- Open Space
- Outdoor Recreation



Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



1 **3.11.3.2 Proposed Action**

2 Under the Proposed Action, construction of new facilities would occur within the existing boundaries of the
3 Installation. Proposed construction locations would be on land designated as either open space or aircraft
4 maintenance operations. Proposed construction that would occur on land designated as open space would
5 be sited along the existing flight line and adjacent to other existing facilities. New construction activities
6 would continue to be designed to meet the land use needs of the Base.

7 Under the Proposed Action, there would be an overall decrease of 7 acres in the total area exposed to
8 noise levels of 65 dB DNL or greater outside of the Installation boundary. Existing land use under the
9 Proposed Action would remain generally unchanged. No impacts to land use on Base or outside of the
10 boundary of the Installation would be anticipated.

11 **3.11.3.3 Cumulative Impacts**

12 The Proposed Action, in addition to the past, present, and reasonably foreseeable future actions (**Table 3-**
13 **1**), would not change land use, would be consistent with existing land use, and would not affect future
14 adjacent land use. In addition, none of the reasonably foreseeable projects listed in **Table 3-1** would impact
15 land use at Davis-Monthan AFB. Noise would continue to be modeled and evaluated for each future activity,
16 building on previous modeling efforts. No impacts to land use on Base or outside of the boundary of the
17 Installation would be anticipated. When considered in conjunction with other past, present, and reasonably
18 foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative
19 impacts to land use would be anticipated to occur with implementation of the Proposed Action.

20 **3.11.3.4 No Action Alternative**

21 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
22 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
23 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
24 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
25 would be no change to land use or designations beyond baseline conditions.

26 **3.12 SOCIOECONOMICS**

27 **3.12.1 Definition of the Resource**

28 Socioeconomics is the relationship between economics and social elements, such as population levels and
29 economic activity. There are several factors that can be used as indicators of economic conditions for a
30 geographic area: demographics, median household income, percentage of families living below the poverty
31 level, employment, and housing data. Data on employment identify gross numbers of employees,
32 employment by industry or trade, and unemployment trends. Data on industrial, commercial, and other
33 sectors of the economy provide baseline information about the economic health of a region. Socioeconomic
34 data are typically presented at county, state, and national levels to characterize baseline socioeconomic
35 conditions in the context of regional, state, and national trends.

36 As shown in **Table 3-2**, the ROI for socioeconomics includes Davis-Monthan AFB and the surrounding
37 environs (i.e., the city of Tucson and Pima County).

38 **3.12.2 Existing Conditions**

39 **3.12.2.1 Population**

40 The city of Tucson has experienced minor population growth since 2000 (**Table 3-33**), with growth rates
41 lower than that of Pima County and the US. Tucson grew approximately 11.3 percent, compared to
42 approximately 21.7 percent for the county, 37.4 percent for Arizona, and 15.3 percent for the US. According
43 to the US Census Bureau. According to the US Census Bureau (USCB), Tucson's population was over

1 540,000 persons in 2019, and Pima County’s population was over 1 million persons (USCB, 2022c). Of the
2 total population of Arizona, about 7.7 percent reside in Tucson and about 15 percent reside in Pima County.

3 **Table 3-33.**
4 **Populations in the ROI, Arizona, and the United States (2010–2019)**

Geographic Area	2010	Average Annual Growth Rate 2000–2010 (percent)	2019	Average Annual Growth Rate 2010–2019 (percent)	Total Growth 2000–2019 (percent)
City of Tucson	520,116	0.7	541,482	0.4	11.3
Pima County	980,263	1.5	1,027,207	0.5	21.7
Arizona	6,392,017	2.2	7,050,299	1.1	37.4
United States	308,745,538	0.9	324,697,795	0.7	15.3

5 Source: USCB, 2001, 2004, 2012, 2022a, 2022c
6 ROI = Region of Influence

7 There are nearly 14,000 active-duty military, dependents, Reserve/ANG, civilian, and contract employees
8 associated with Davis-Monthan AFB (**Table 3-34**). Approximately 48.4 percent of active-duty military and
9 their dependents live on Base (Davis-Monthan AFB, 2016a).

10 **Table 3-34.**
11 **Personnel at Davis-Monthan AFB in 2016**

Personnel	Living On Base	Living Off Base	Totals
Active-Duty Military	2,870	2,873	5,743
Military Dependents	1,700	2,000	3,700
Reserve/ANG	0	1,804	1,804
Civilian and Contract Employees	0	2,688	2,688
Totals	4,570	9,365	13,935

12 Source: Davis-Monthan AFB, 2016a
13 AFB = Air Force Base; ANG = Air National Guard

14 **3.12.2.2 Employment**

15 The annual average labor force in 2021 in Pima County was 480,903 persons, and the average
16 unemployment rate was 5.0 percent (23,808 unemployed). The Pima County unemployment rate was
17 marginally higher than the average unemployment rate for Arizona (4.9 percent) and was slightly lower than
18 the 5.3-percent national average unemployment rate (US Bureau of Labor Statistics, 2022a, 2022b).

19 US Bureau of Economic Analysis (BEA) data and information on the county’s largest employers show that
20 employment in the area is dominated by the Government and Government Enterprises sector, followed
21 closely by the Health Care and Social Assistance sector, which are also the nation’s two largest
22 employment sectors. The Government and Government Enterprises sector accounts for 17 percent of
23 employment in Pima County, 11.8 percent of employment in the state of Arizona, and 12.6 percent of
24 employment in the US, while the Health Care and Social Assistance sector accounts for 13.6 percent, 11.7
25 percent, 11.8 percent of employment in Pima County, Arizona, and the US, respectively (BEA, 2021).

26 The single largest employer in Pima County overall is the Air Force, employing approximately 13,830
27 persons. The Air Force is also the largest employer specifically within the Government and Government
28 Enterprises sector, while Banner University Medical Center, Tucson Campus, is the largest employer in the
29 Health Care and Social Assistance sector, employing approximately 5,380 persons (Maricopa Association
30 of Governments, 2020).

31 **3.12.2.3 Housing**

32 USCB estimates show that housing vacancy rates in Pima County for both homeowner and rental housing
33 in 2019 were above the national average, although the homeowner vacancy rate was only higher by 0.1

percent (**Table 3-35**). There are more than 26,000 vacant units in Pima County, with almost 50 percent of these units located within the city of Tucson (USCB, 2020a). The percentage of homes that are owner-occupied in Pima County (63.2) and in the city of Tucson (50.6) is below the US average of 64 percent, while the percentage of owner-occupied homes in Arizona (64.4) is higher than all three other geographies. Approximately 12 percent of the housing units in Pima County are vacant, reflecting the national percentage of 12.1 (USCB, 2020a).

**Table 3-35.
Housing**

Description	City of Tucson	Pima County	Arizona	US
Total units	239,287	459,912	3,003,286	137,428,986
Owner-occupied	50.6%	63.2%	64.4%	64%
Renter-occupied	49.4%	36.8%	35.6%	36%
Vacant units	26,796	55,173	432,018	16,672,938
Homeowner vacancy rate ^a	1.5%	1.7%	1.9%	1.6%
Rental vacancy rate ^b	6.8%	6.8%	6.2%	6.0%
Median value ^c	\$155,300	\$184,100	\$225,500	\$217,500

Source: USCB, 2022b

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.

3.12.2.4 Schools

There are 11 major public school districts in the Tucson area, the largest of which is the Tucson Unified School District (TUSD) (DoD, 2022). The TUSD had an enrollment of approximately 42,000 students in the most recent fully recorded school year (2020–2021), a decrease in enrollment over the past several years (Arizona Department of Education, 2021). There are two schools on Base: 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 TUSD 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. Additionally, 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 (DoD, 2022).

3.12.3 Environmental Consequences

3.12.3.1 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.

3.12.3.2 Proposed Action

Population

The requirements for an estimated additional 646 military, contract, and civilian personnel under the Proposed Action in Pima County would have a small impact on the region's population. Assuming all

1 personnel relocated with family members to Pima County or Tucson, this would be a negligible increase in
2 the county's population of over 1 million people and minor increase in the city's population of over 500,000
3 people, leading to minor, long-term impacts on the local or regional population.

4 Under the Proposed Action, construction of LOLA spaces, munitions and munitions support facilities,
5 helicopter simulator facilities, and other unspecified facilities would result in a temporary increase of 20 to
6 50 construction personnel, which would have no impact on the socioeconomic condition on the region. No
7 new in-migration regionally would be anticipated because there are enough existing construction personnel
8 in Pima County to support the new construction.

9 **Employment**

10 The 646 additional military, contract, and civilian personnel would represent a 4.6-percent increase in the
11 total persons permanently assigned to and working at Davis-Monthan AFB, where approximately 14,000
12 military and civilian personnel are currently employed. A 4.6-percent increase in the amount of people
13 employed at the Base would not have an impact on the availability of employment in the region; personnel
14 relocating would already be employed by the Air Force and would not compete for currently available
15 positions that could be filled by the local workforce; however, it is possible that military dependents could
16 join the local workforce.

17 Local construction personnel would be needed to complete construction actions associated with the
18 Proposed Action, which would have the potential to create a short-term beneficial impact on regional
19 employment. Therefore, no adverse impacts on employment would be expected to occur under the
20 Proposed Action.

21 **Housing**

22 Adequate housing is available in the ROI to accommodate the increase in personnel; therefore, no adverse
23 impacts on housing would be expected to occur under the Proposed Action.

24 **Schools**

25 Due to Arizona's open enrollment policy and the number of schools available in the area surrounding the
26 Base, there are adequate educational resources available in the ROI to accommodate the increase in
27 personnel; therefore, no adverse impacts on educational resources would be expected to occur under the
28 Proposed Action.

29 **3.12.3.3 Cumulative Impacts**

30 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions on and off
31 Davis-Monthan AFB (**Table 3-1**), would not result in an adverse cumulative impact to the region's
32 population, employment, housing, or educational opportunities. Construction projects could result in a
33 cumulative beneficial impact, as local sales and payroll taxes would increase. Any potential beneficial
34 impact on employment would be short term and limited to the construction period and would not have
35 cumulative effects. Construction associated with the Davis-Monthan Multiple Development Projects EA
36 would have beneficial cumulative impacts on housing because it would provide additional on-Base housing.
37 Further, while the number of employees could increase at Davis-Monthan AFB due to some reasonably
38 foreseeable actions listed in **Table 3-1**, this increase would not be expected to result in a substantial change
39 in the regional population. When considered in conjunction with other past, present, and reasonably
40 foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative
41 impacts to socioeconomic resources would be anticipated to occur with implementation of the Proposed
42 Action.

43 **3.12.3.4 No Action Alternative**

44 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
45 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
46 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB

1 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
2 would be no change to socioeconomic conditions beyond baseline conditions.

3 **3.13 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN**

4 **3.13.1 Definition of the Resource**

5 Federal agencies are directed by EOs to address disproportionate environmental and human health effects
6 in minority and low-income communities and to identify and assess environmental health and safety risks
7 to children.

8 EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income*
9 *Populations*, pertains to environmental justice issues and relates to various socioeconomic groups and
10 disproportionate impacts that could be imposed on them. This EO requires that federal agencies' actions
11 substantially affecting human health or the environment do not exclude persons, deny persons benefits, or
12 subject persons to discrimination because of their race, color, or national origin. EO 12898 was enacted to
13 ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin,
14 or income with respect to the development, implementation, and enforcement of environmental laws,
15 regulations, and policies. Consideration of environmental justice concerns includes race, ethnicity, and the
16 poverty status of populations in the vicinity of a proposed action.

17 EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, states that each
18 federal agency

19 “(a) shall make it a high priority to identify and assess environmental health risks and safety
20 risks that may disproportionately affect children; and (b) shall ensure that its policies,
21 programs, activities, and standards address disproportionate risks to children that result
22 from environmental health risks or safety risks.”

23 For the purposes of this analysis, minority populations are defined as Alaska Natives and American Indians,
24 Asians, Blacks or African-Americans, Native Hawaiians, and Pacific Islanders or persons of Hispanic origin
25 (of any race); low-income populations include persons living below the poverty threshold as determined by
26 the USCB; and youth populations are children under the age of 18 years.

27 As shown in **Table 3-2**, the ROI for environmental justice and the protection of children is Davis-Monthan
28 AFB and the surrounding environs (i.e., the city of Tucson and Pima County).

29 Minority, low-income, and youth populations that could be disproportionately impacted by the project are
30 addressed for the ROI and are compared with those populations in Arizona and the US. For further
31 discussion of the specific Native American tribes associated with the ROI, see **Section 3.14** of this EA.

32 **3.13.2 Existing Conditions**

33 An evaluation of minority and low-income populations in Pima County and four CTs on the western side
34 and one southern sides of the Base forms a baseline for the evaluation of the potential for disproportionate
35 impacts on these populations from the Proposed Action (**Table 3-36**). Only CTs on the western and
36 southern sides of the Base were included in the baseline due to potential noise impacts; other CTs
37 surrounding the Installation would experience no change in noise impacts.

38 In 2019, Arizona, Pima County, and the city of Tucson had a higher percentage of minorities in the
39 population and a significantly higher percentage of the population that was Hispanic or Latino compared to
40 the US (USCB, 2022a). All four CTs evaluated have a higher minority population and percent Hispanic or
41 Latino than Pima County.

Table 3-36.
Total Population and Populations of Concern^a

Area	Total Population	Percent Minority	Percent Hispanic or Latino ^b	Percent Below Poverty	Percent Youth ^c	Percent Elderly
CT 20, Pima County	6,640	59.7	64.7	18.4	20.3	20.7
CT 21 Pima County	6,205	73.1	77.4	24.0	31.6	13.3
CT 41.18 Pima County	5,274	54.1	53.8	11.0	34.9	9.7
CT 40.73 Pima County	6,077	44.2	27.9	8.6	31.4	20.7
City of Tucson	541,482	56.1	43.6	22.5	21.2	14.3
Pima County	1,027,207	48.3	37.2	16.8	21.1	19.2
State of Arizona	7,050,299	45.3	31.3	15.1	23.2	17.1
United States	324,697,795	39.3	18	13.4	22.6	15.6

Source: USCB, 2022a, 2022d

Notes:

a Bold text indicates environmental justice populations.

b Hispanic and Latino denote a place of origin.

c The US Census Bureau categorizes all people under the age of 18 as “youth”; this EA uses “children” for the same group.

CT = census tract

Over the same period, the city of Tucson had a notably higher rate of poverty than Pima County, Arizona, and the US, while the rates of poverty in Pima County and the state of Arizona were higher than the rates of poverty in the US, but not drastically so. As can be seen in **Table 3-36**, CTs 20 and 21 reported a percentage of the population below the poverty level at a higher rate than that of Pima County, Arizona, and the US, while CT 21 also had a higher percentage of the population below poverty than the city of Tucson.

The percentage of children in the city of Tucson was negligibly higher than the percentage of children in Pima County, slightly lower than the percentage in the state of Arizona and the overall US (see **Table 3-36**) (USCB, 2022d). The percentage of children in CTs 21, 40.73, and 41.18 were higher than Pima County and Tucson. Both CTs 20 and 40.73 had a higher percentage of elderly population than Pima County

3.13.3 Environmental Consequences

3.13.3.1 Evaluation Criteria

Environmental justice analysis applies to potential disproportionate and adverse effects on minority, low-income, and youth populations. Environmental justice issues could occur if an adverse environmental or socioeconomic consequence to the human population fell disproportionately upon minority, low-income, or youth populations.

3.13.3.2 Proposed Action

Because the proposed realignment and relocation actions under the Proposed Action would not impact the availability of housing, community resources, and community services, the Proposed Action would not disproportionately affect the availability of these resources to minorities, low-income populations, or children in the vicinity of Davis-Monthan AFB.

Under the Proposed Action, there would be an overall decrease of acreage outside of the Installation boundary exposed to 65 dB DNL. No off-Base schools or child-care facilities would be exposed to DNL of 65 dB or greater under baseline conditions at Davis-Monthan AFB. Additionally, no hospitals, parks, or libraries would be exposed to DNL of 65 dB or greater.

Based on the above information, disproportionately high and adverse impacts to minority, low-income, or youth populations would not be expected to occur with implementation of the Proposed Action.

1 **3.13.3.3 Cumulative Impacts**

2 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions on and off
3 Davis-Monthan AFB (**Table 3-1**), would not have a disproportionate cumulative impact on minority and low-
4 income populations or children. When considered in conjunction with other past, present, and reasonably
5 foreseeable environmental trends and planned actions at Davis-Monthan AFB, no significant cumulative
6 impacts to environmental justice populations would be anticipated to occur with implementation of the
7 Proposed Action.

8 **3.13.3.4 No Action Alternative**

9 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
10 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
11 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
12 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
13 would be no impact to minority, low-income, or youth populations beyond baseline conditions.

14 **3.14 CULTURAL RESOURCES**

15 **3.14.1 Definition of the Resource**

16 Cultural resources are any prehistoric or historic district, site, building, structure, or object considered
17 important to a culture or community for scientific, traditional, religious, or other purposes. These resources
18 are protected and identified under several federal laws and EOs including the *Archaeological and Historic*
19 *Preservation Act of 1960*, as amended (54 USC § 300101 et seq.), the *American Indian Religious Freedom*
20 *Act of 1978* (42 USC § 1996), the *Archaeological Resources Protection Act of 1979*, as amended (16 USC
21 §§ 470aa–470mm), the *Native American Graves Protection and Repatriation Act of 1990* (25 USC §§ 3001–
22 3013), and the NHPA and associated regulations (36 CFR Part 800). The NHPA requires federal agencies
23 to consider effects of federal undertakings on historic properties prior to deciding or taking an action and
24 integrate historic preservation values into their decision-making process. Federal agencies fulfill this
25 requirement by completing the NHPA Section 106 consultation process, as set forth in 36 CFR Part 800.
26 NHPA Section 106 also requires agencies to consult with federally recognized American Indian tribes with
27 a vested interest in the undertaking. NHPA Section 106 requires all federal agencies to seek to avoid,
28 minimize, or mitigate adverse effects to historic properties (36 CFR § 800.1(a)).

29 Cultural resources include the following subcategories:

- 30
- 31 • Archaeological (i.e., prehistoric or historic sites where human activity has left physical evidence of
32 that activity, but no structures remain standing);
 - 33 • Architectural (i.e., buildings, structures, groups of structures, or designed landscapes that are of
34 historic or aesthetic significance); and
 - 35 • Traditional Cultural Properties (TCPs) (resources of traditional, religious, or cultural significance to
36 American Indian tribes).

36 Significant cultural resources are those listed on the National Register of Historic Places (NRHP) or
37 determined to be eligible for listing. To be eligible, properties must be 50 years old and have national, state,
38 or local significance in American history, architecture, archaeology, engineering, or culture. They must
39 possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association to
40 convey their historical significance and meet at least one of four criteria for evaluation:

- 41
- 42 1) Associated with events that have made a significant contribution to the broad patterns of our
43 history (Criterion A);
 - 44 2) Associated with the lives of persons significant in our past (Criterion B);

- 1 3) Embody distinctive characteristics of a type, period, or method of construction, or represent the
2 work of a master, or possess high artistic values, or represent a significant and distinguishable
3 entity whose components may lack individual distinction (Criterion C); and/or
4 4) Have yielded or be likely to yield information important in prehistory or history (Criterion D).

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

9 For cultural resources analyses, the ROI is defined by the Area of Potential Effect (APE). The APE is defined
10 as the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in
11 the character or use of historic properties, if any such properties exist,” (36 CFR § 800.16(d)) and thereby
12 diminish their historic integrity. The direct and indirect APE for this EA is 50 meters and 800 meters around
13 each project location, respectively (**Figure 3-7**). For the purposes of this EA, project locations are defined
14 as the buildings identified for activities under the Proposed Action.

15 **3.14.2 Existing Conditions – Davis-Monthan AFB**

16 **3.14.2.1 Archaeological Sites**

17 Approximately 20 archaeological sites eligible for NRHP listing have been identified at Davis-Monthan AFB
18 (Davis-Monthan AFB, 2021a). The highest potential for archaeological sites is at the Atterbury Wash
19 system, located in the eastern portion of the Installation (Davis-Monthan AFB, 2021b).

20 An intensive cultural resources survey was conducted from 14 February 2017 to 9 June 2017 on 3,180
21 acres and included a site assessment of 25 previously recorded archaeological sites at Davis-Monthan
22 AFB. The survey identified four archaeological sites within the APE not eligible for NRHP listing: 1) AZ
23 BB:13:908, 2) AZ BB:13:916, 3) AZ BB:13:920, and 4) AZ BB:13:940 (Statistical Research, Inc., 2017).

24 **3.14.2.2 Historic Architectural Properties**

25 Davis-Monthan manages 433 buildings constructed prior to 1991. Thirty-nine structures were determined
26 eligible for NRHP listing and are managed as such for all future undertakings. These eligible architectural
27 resources consist of 11 buildings in the MSA, Hangar 8030, 27 structures part of the Titan Missile Complex,
28 and Titan Missile Site 12 (Davis-Monthan AFB, 2021b). As shown in **Figure 3-7**, no NRHP-listed or NRHP-
29 eligible building is located within the direct or indirect APE for the Proposed Action.

30 **3.14.2.3 Traditional Cultural Properties**

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

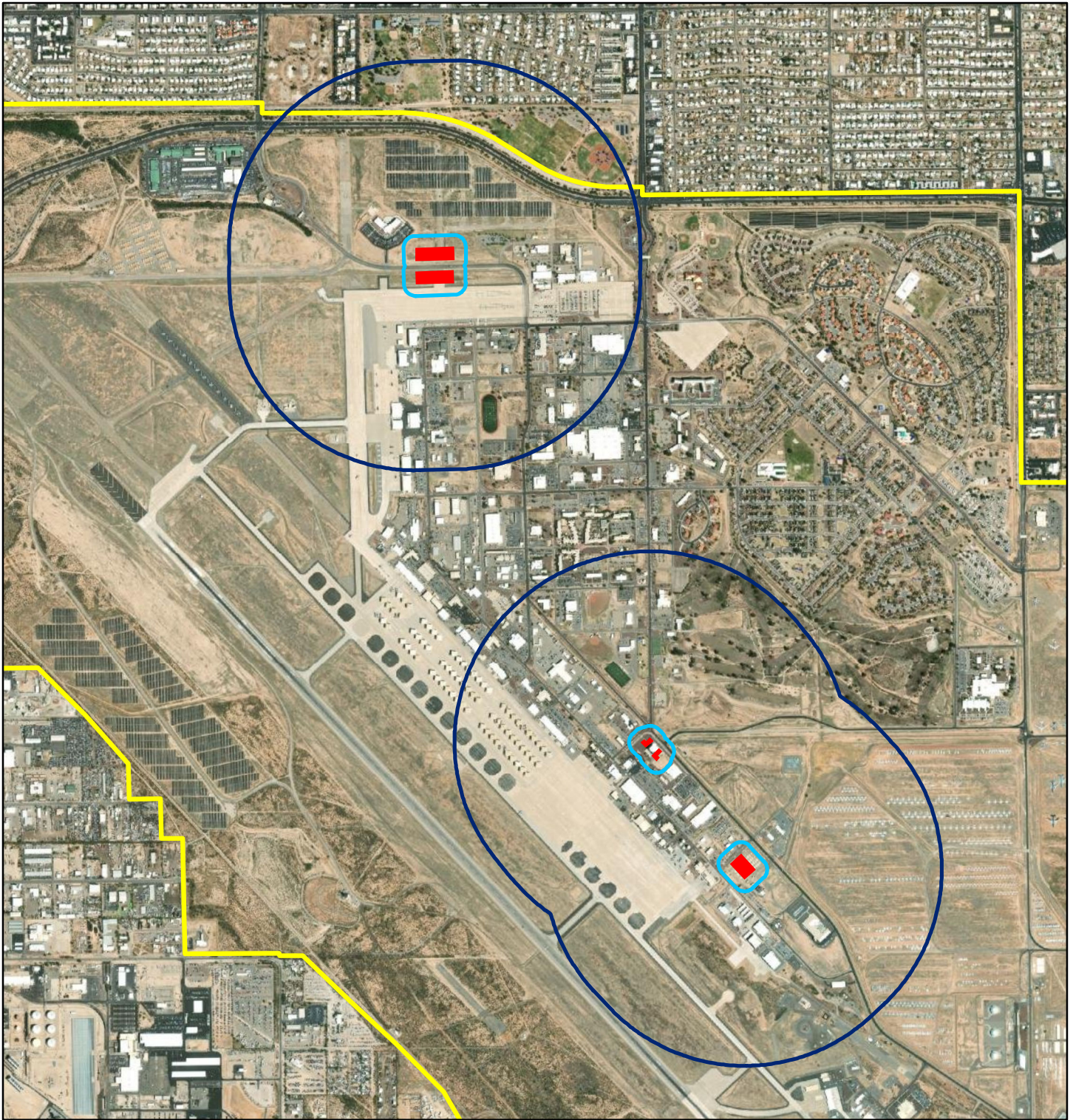
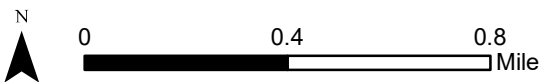
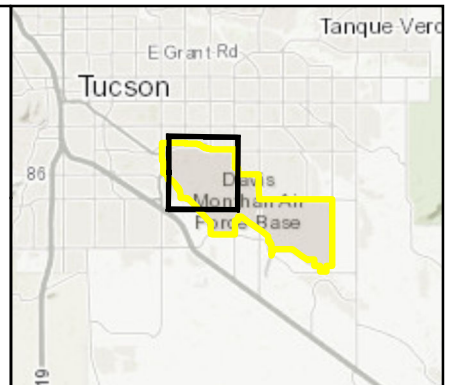


FIGURE 3-7
Cultural Resources

- Direct Area of Potential Effects (50 m)
- Indirect Area of Potential Effects (800 m)
- Installation Boundary
- Proposed Projects



Imagery: ESRI, 2021
Coordinate System: NAD 83 UTM Zone 12N



3.14.3 Existing Conditions – Special Use Airspace

Table 3-37 presents the number of NRHP-listed sites and Native American lands under Davis-Monthan AFB training airspace. The training airspace overlies at least part of 10 Arizona counties (Apache, Cochise, Gila, Graham, Maricopa, Navajo, Pima, Pinal, Santa Cruz, and Yuma) and 2 New Mexico counties (Hidalgo and Luna). One-hundred eighteen NRHP-listed properties have been identified under Davis-Monthan AFB airspace. Three Native American tribes—Fort Sill Apache Tribe of Oklahoma, San Carlos Apache, and the Tohono O’odham Nation—own land under the airspace proposed for use. No other known traditional cultural resources have been identified under the airspace associated with the Proposed Action. Other cultural resources could exist, but the exact location of some traditional cultural resources is confidential. Mount Graham is a TCP as identified by the Apache Tribes of Arizona and is located in the Outlaw/Jackal/Morenci MOAs (Davis-Monthan AFB, 2021b).

**Table 3-37.
NRHP-Listed Sites and Native American Reservation Lands Under Training Airspace**

Airspace Designation	Number of NRHP Properties Under Airspace	Native American Lands Under the Airspace
Jackal MOA	31	Fort Sill Apache Tribe of Oklahoma and San Carlos Apache
Outlaw MOA	39	San Carlos Apache
R-2301E	1	None
R-2303A/B/C	8	None
Ruby and Fuzzy MOAs	2	Tohono O’odham Nation
Sells 1 and Low MOAs; R-2304 & R-2305	10	Tohono O’odham Nation
Tombstone A/B/C MOA	27	None

MOA = Military Operations Area; NRHP = National Register of Historic Places

3.14.4 Environmental Consequences

3.14.4.1 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 a NRHP-listed, NRHP-eligible, or potentially eligible resource or potentially impacts TCPs.

3.14.4.2 Proposed Action – Davis-Monthan AFB

Archaeological Sites

Under the Proposed Action, five new buildings including two helicopter simulators would be constructed on the Installation. The two helicopter simulators would be constructed to the east and west of Building 4382. The 58 RQS facility would be constructed just east of Building 4868, and the two 88 TES buildings would be constructed southeast of the runway. Archaeological sites not eligible for NRHP listing are located within

1 the 800-meter indirect APE for all the proposed new construction. However, all construction is occurring on
2 land that has been disturbed from past and ongoing mission activities.

3 **Historic Architectural Properties**

4 No demolition or renovation activities would be implemented under the Proposed Action. No NRHP-listed
5 or NRHP-eligible buildings are located within the direct or indirect APE for the Proposed Action; however,
6 the construction of the five proposed facilities on the Installation would not be expected to have an impact
7 on historic properties.

8 **Traditional Cultural Properties**

9 No TCPs, sacred sites, human remains, associated grave goods, unassociated grave goods, sacred
10 objects, or objects of cultural patrimony have been identified or recovered on Davis-Monthan AFB.
11 Therefore, construction of the five proposed facilities on the Installation would not be expected to have an
12 impact on TCPs.

13 ***3.14.4.3 Proposed Action – Special Use Airspace***

14 Implementation of the Proposed Action would result in an increase in the annual sorties conducted in the
15 airspace proposed for use. However, the increase in noise would be negligible and well below 65 dBA. The
16 increase in noise level due to the escalation in HH-60 operations likely would be imperceptible against the
17 background noise from other jet aircraft (e.g., F-16, F-35) operations within the airspaces

18 No impacts to historic properties under the airspace would be expected. No supersonic flights would be
19 included as part of the Proposed Action and the increase in overall noise would be negligible.

20 Use of ordnance and flares would continue in areas already used for these activities. No additional ground
21 disturbance would occur. Flare and ordnance use is not expected to impact historic properties under the
22 airspace. Existing use of flares and ordnance is not known to have impacted these resources; therefore,
23 the continued use of flares and ordnance under the Proposed Action would not be expected to result in any
24 new impacts.

25 The Proposed Action would not be expected to result in impacts on TCPs. Mount Graham, located within
26 the Outlaw/Jackal/Morenci MOAs, is a TCP according to the Apache Tribes of Arizona, and the Air Force
27 would continue to avoid overflights of this resource (Davis-Monthan AFB, 2021b).

28 ***3.14.4.4 Cumulative Impacts***

29 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions on and off
30 Davis-Monthan AFB (**Table 3-1**), would not impact cultural resources. Additional facility construction,
31 renovation, or demolition in the future would need to be evaluated for impacts to cultural resource and
32 would require consultation with tribes and the SHPO. Any future changes to the airspace, including an
33 increase in aircraft operations and associated noise levels, could have the potential to impact cultural
34 resources under that airspace. Any future project listed in **Table 3-1** involving airspace would require
35 additional tribal consultation. When considered in conjunction with other past, present, and reasonably
36 foreseeable environmental trends and planned actions, no significant cumulative impacts to cultural
37 resource would be anticipated to occur with implementation of the Proposed Action.

38 ***3.14.4.5 No Action Alternative***

39 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
40 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
41 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
42 would continue to fall short of current or future mission needs and operate at or beyond capacity. No cultural
43 resources would be impacted beyond baseline conditions.

1 **3.15 HAZARDOUS MATERIALS AND WASTES, TOXIC SUBSTANCES, AND CONTAMINATED**
2 **SITES**

3 **3.15.1 Definition of the Resource**

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

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

18 Under Air Force Policy Directive (AFPD) 32-70, *Environmental Considerations in Air Force Programs and*
19 *Activities*, the Air Force is committed to performing the following actions:

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

25 AFMAN 31-1067, *Water and Fuel Systems*, implements AFPD 32-70 and identifies compliance
26 requirements for underground storage tanks (USTs) and aboveground storage tanks (ASTs), and
27 associated piping, that store petroleum products and hazardous substances. Evaluation of HAZMAT and
28 hazardous wastes focuses on USTs and ASTs as well as the storage, transport, and use of pesticides,
29 fuels, oils, and lubricants. Evaluation might also extend to generation, storage, transportation, and disposal
30 of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition
31 to being a threat to humans, the improper release of HAZMAT and hazardous wastes can threaten the
32 health and wellbeing of wildlife species, botanical habitats, soil systems, and water resources. In the event
33 of HAZMAT or hazardous waste release, the extent of contamination would vary based on type of soil,
34 topography, weather conditions, and water resources.

35 AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, establishes procedures and
36 standards that govern management of HAZMAT throughout the Air Force. It applies to all Air Force
37 personnel who authorize, procure, issue, use, or dispose of HAZMAT, and to those who manage, monitor,
38 or track any of those activities.

39 Through the Environmental Restoration Program (ERP) initiated in 1980, a subcomponent of the Defense
40 ERP that became law under SARA (formerly the Installation Restoration Program), each DoD installation
41 is required to identify, investigate, and clean up hazardous waste disposal or release sites. Remedial
42 activities for ERP sites follow the Hazardous and Solid Waste Amendments under the RCRA Corrective
43 Action Program. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, control
44 the migration of contaminants, minimize potential hazards to human health and the environment, and clean
45 up contamination through a series of stages until it is decided that no further remedial action is warranted.

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

5 As shown in **Table 3-2**, the ROI for this resource is Davis-Monthan AFB. Because the Proposed Action
6 does not involve renovation or demolition activities, asbestos and lead-based paint are not discussed further
7 herein.

8 **3.15.2 Existing Conditions**

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

14 Hazardous wastes at Davis-Monthan AFB are managed in accordance with its Hazardous Waste
15 Management Plan (Davis-Monthan AFB, 2017a). This plan covers the management of hazardous wastes
16 from the point the material becomes a hazardous waste to the point of ultimate disposal, as required by
17 federal and state laws and regulations. In 2019, the Base generated approximately 45 pounds of hazardous
18 waste, which was disposed of at permitted disposal facilities off Base.

19 The Davis-Monthan AFB Spill Prevention, Control, and Countermeasures Plan outlines the procedures to
20 prevent, control, and/or mitigate releases of oil and other petroleum substances. Davis-Monthan AFB made
21 a determination under 40 CFR § 112.20(e), as recorded in the Certification of Applicability of Substantial
22 Harm Criteria, that the facility does not pose a risk of substantial harm. Therefore, a facility response plan
23 is not required for Davis-Monthan AFB (Davis-Monthan AFB, 2018). The Spill Prevention, Control, and
24 Countermeasures Plan and Installation Emergency Management Plan address roles, responsibilities, and
25 response actions for all major spills (Davis-Monthan AFB, 2017b).

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

31 There are 55 ERP sites at Davis-Monthan AFB, of which 43 are closed, 8 are no further response action
32 planned, and 4 are active sites. Environmental response actions at Davis-Monthan AFB are planned and
33 executed under the ERP, consistent with CERCLA, RCRA, and other applicable laws. Davis-Monthan AFB
34 is not listed on the USEPA's National Priorities List (Davis-Monthan AFB, 2017c).

35 Davis-Monthan AFB no longer uses firefighting foam containing perfluorooctanoic acid (PFOA) and
36 perfluorooctane sulfonate (PFOS). In 2016, Davis-Monthan transitioned from the legacy formula of aqueous
37 film-forming foam that contains no PFOS and only trace amounts of PFOA, and is not used in training
38 activities. In 2019, PFOS and PFOA were detected at 935 parts per trillion and 14,400 parts per trillion at
39 two wells located along the northern boundary of the Base.

40 **3.15.3 Environmental Consequences**

41 **3.15.3.1 Evaluation Criteria**

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

1 **3.15.3.2 Proposed Action**

2 Implementation of the Proposed Action at Davis-Monthan AFB would not add any new HAZMAT that would
3 exceed the Base's current hazardous waste processes. Existing procedures for the centralized
4 management of the storage, distribution, use, reuse, recycling, and disposal of HAZMAT through the Base
5 Hazardous Materials Storage Facility are adequate to accommodate the changes anticipated under the
6 Proposed Action. Construction waste would only be generated due to new construction projects since no
7 demolition or renovation activities are proposed. No construction activities would occur within identified
8 ERP sites; therefore, there would be no impacts to those sites. Construction also would not interact with
9 PFOS and PFOA.

10 **3.15.3.3 Cumulative Impacts**

11 The Proposed Action, in addition to past, present, and reasonably foreseeable future actions (**Table 3-1**)
12 on and off Davis-Monthan AFB, would result in negligible impacts related to HAZMAT and hazardous
13 wastes. Any future project listed in **Table 3-1** requiring additional facility construction in the future would
14 need to be evaluated for impacts to HAZMAT and hazardous wastes. When considered in conjunction with
15 other past, present, and reasonably foreseeable environmental trends and planned actions at Davis-
16 Monthan AFB, no significant cumulative impacts to HAZMAT, hazardous wastes, toxic substances, and
17 contaminated sites would be anticipated to occur with implementation of the Proposed Action.

18 **3.15.3.4 No Action Alternative**

19 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
20 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
21 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
22 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
23 would be no change in management or use of HAZMAT, hazardous wastes, toxic substances, and
24 contaminated sites beyond baseline conditions.

25 **3.16 INFRASTRUCTURE, TRANSPORTATION, AND UTILITIES**

26 **3.16.1 Definition of Resource**

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

33 Transportation is defined as the system of roadways, highways, and transit services that provide
34 ingress/egress from or to a particular location, as well as access to regional goods and services. Utilities
35 include electrical, natural gas, potable water, sanitary sewage/wastewater, stormwater conveyance, and
36 communications systems. Solid waste management primarily relates to landfill capacity for disposal of
37 nonhazardous solid waste (e.g., construction waste) generated in an area or by a population. Stormwater
38 infrastructure includes the man-made conveyance systems that function in tandem with natural drainages
39 to collect and control the rate of surface runoff during and after a precipitation event. In urbanized areas,
40 stormwater that is not discharged to a waterbody is conveyed to sanitary sewers, systems that collect,
41 move, and treat liquid waste prior to its discharge back into the environment.

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

1 **3.16.2 Existing Conditions**

2 **3.16.2.1 Transportation**

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

7 Access to the Base is via one of four gates. The main gate is on Craycroft Road with additional gate access
8 on Swan, Wilmot, and Irvington Roads. Craycroft Road extends generally north to south through the Main
9 Base and provides the main entry point to the Base. Wilmot Road provides access to the AMARG and the
10 Base hospital. Picacho Street extends east to west and connects with Yuma Street and Wilmot Road. Yuma
11 Street runs parallel to the flight line. The HH-60 simulators and the 58 RQS facility would be located off of
12 Yuma Street.

13 The primary mode of transportation on Base is private automobile. High-use areas such as the Base
14 commissary currently experience parking problems during peak hours. There is no mass transit provided
15 on Davis-Monthan AFB, but there are several bus stops nearby. There are officially designated pedestrian
16 and bike paths on Base that serve the dormitory area. The road system on Base is considered sufficient
17 for current and future needs, with only minor maintenance repair expected (Davis-Monthan AFB, 2008).

18 **3.16.2.2 Utilities**

19 **Electricity**

20 Electricity to Davis-Monthan AFB is provided by Tucson Electric Power via two separate overhead 46-
21 kilovolt feeder lines. These lines extend from the northeast side of the Installation along Wilmot Road until
22 they enter the substation (Davis-Monthan AFB, 2021a). The Base has 16.4-megawatt and 6.5-megawatt
23 solar arrays, and one 25-megavolt ampere (MVA) transformer that distributes power to the Base. The
24 current demand on the Installation's electrical system is approximately 16 MVA of the available 25 MVA.
25 The electrical system capacity is adequate for current and future demand (Davis-Monthan AFB, 2016b).

26 **Natural Gas**

27 Natural gas is provided by the Southwest Gas Company via a commercial line that connects to the Base at
28 the northwest and southeast corners of the Installation (Davis-Monthan AFB, 2021a). The system is in
29 excellent condition and the demand on the system is approximately 0.36 million cubic feet (MCF) per day
30 of the available 3.4 MCF per day (Davis-Monthan AFB, 2016b).

31 **Potable Water**

32 Potable water at Davis-Monthan AFB comes from the Tucson Basin Aquifer. Eight active, on-Base wells
33 pump water to a mix of elevated and underground tanks with a capacity of 2.53 million gallons. An additional
34 10 on-Base wells are available, if needed. The Installation produces, treats, and distributes its own water
35 for consumption and fire protection. Davis-Monthan AFB can supply a maximum of approximately 4.03
36 million gallons per day (MGD) to meet peak demands. The current estimated peak demand is 1.6 MGD and
37 the average demand is approximately 1.18 MGD (Davis-Monthan AFB, 2021a).

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

1 **Sanitary Sewage/Wastewater**

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

9 Stormwater runoff at the Installation is managed through a stormwater system consisting of surface
10 channels and underground infrastructure. There is adequate capacity to handle most flows, however, during
11 the rainy season (July–September), storms can lead to flooding in portions of the Base (Davis-Monthan
12 2016b).

13 **3.16.2.3 Solid Waste Management**

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

17 **3.16.3 Environmental Consequences**

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

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

24 **3.16.3.1 Proposed Action**

25 **Transportation**

26 Under the Proposed Action, personnel on the Installation would increase by 646. Increased truck traffic and
27 construction workers commuting to the Installation during periods of construction would be expected to
28 cause temporary increases in demand and increased congestion on local roads. At project sites, temporary
29 lane closures would be expected during construction activities. The on-Base transportation network is
30 sufficient to handle the existing traffic volume. The road system has a good foundation and requires only
31 minor maintenance repair on the top surface (Davis-Monthan AFB, 2016b).

32 **Electricity and Natural Gas**

33 Short-term, negligible, adverse impacts on the electrical distribution system would have the potential to
34 occur under the Proposed Action as the operation of newly constructed buildings has the potential to
35 increase demand on the system; however, energy-efficient construction is expected to decrease energy
36 consumption consistent with EO 13693, *Planning for Federal Sustainability in the Next Decade*. Net
37 changes in long-term demand would be anticipated to be minimal.

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

1 **Potable Water**

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

6 **Solid Waste Management**

7 Short-term, minor, adverse impacts on solid waste management would have the potential to occur due to
8 construction and demolition projects under the Proposed Action. Based on USEPA guidance on estimating
9 solid waste from construction, the 291,000 ft² of new construction would generate 4.39 pounds/ft² of debris.
10 This equates to 1,277,490 pounds of solid waste created as a result of the Proposed Action. Contractors
11 would be required to comply with federal, state, and local regulations for the collection and disposal of solid
12 waste generated under the Proposed Action, and all solid waste generated would be collected and
13 transported off Base for disposal or recycling in accordance with AFMAN 32-7002, *Environmental*
14 *Compliance and Pollution Prevention*.

15 **Sanitary and Storm Sewer**

16 Short-term, negligible, adverse impacts on the sanitary sewer and wastewater treatment system would
17 have the potential to occur during construction when existing lines would be connected to new buildings.
18 Although the operation of the new buildings would increase the demand on the sanitary sewer and
19 wastewater treatment system in the short-term, adverse impacts to the sanitary sewer and wastewater
20 treatment systems in the long-term would not be expected as the current systems have the capacity
21 required to meet new demands.

22 ***3.16.3.2 Cumulative Impacts***

23 The minimal increase in demand for utilities (i.e., electricity, natural gas, sanitary waste discharge, and solid
24 waste disposal) under the Proposed Action would have negligible cumulative impacts with the other past,
25 present, and reasonably foreseeable environmental planned actions, as listed in **Table 3-1**, at Davis-
26 Monthan AFB that may create similar increases in utility demand. Future actions with the potential to affect
27 infrastructure at Davis-Monthan AFB would be evaluated in context of the growing regional population.
28 When considered in conjunction with other past, present, and reasonably foreseeable environmental trends
29 and planned actions at Davis-Monthan AFB, no significant cumulative impacts on infrastructure,
30 transportation, or utilities would be expected to occur with implementation of the Proposed Action

31 ***3.16.3.3 No Action Alternative***

32 Under the No Action Alternative, Davis-Monthan AFB's air operations would remain at current conditions.
33 The 4th Gen missions would remain or be inactivated in place at Nellis AFB, which would create a capacity
34 issue as 5th Gen missions continue to increase in scope and number. The infrastructure at Nellis AFB
35 would continue to fall short of current or future mission needs and operate at or beyond capacity. There
36 would be no change in infrastructure, transportation, and utilities beyond baseline conditions.

1

This page intentionally left blank

1 **CHAPTER 4 LIST OF PREPARERS**

2 The following individuals assisted in the preparation of this Draft EA.

3 **Danielle Cemproma**
4 Environmental Assessment Services, LLC
5 M.B.A., Business Administration
6 M.S., Community Development
7 B.S., Geography
8 Years of Experience: 14
9 Contribution: NEPA Program Management,
10 Quality Control

11 **Ronald Green, PhD**
12 Environmental Assessment Services, LLC
13 Ph.D., Zoology
14 M.S., Wildlife Biology
15 B.S., Wildlife Biology
16 Years of Experience: 35
17 Contribution: Biological Resources

18 **Kevin Groppe, PE**
19 Environmental Assessment Services, LLC
20 M.S., Environmental Engineering
21 B.S., Chemical Engineering
22 Years of Experience: 23
23 Contribution: Project Management, Safety

24 **Lesley Hamilton**
25 Cardno-Stantec
26 B.A., Chemistry
27 Years of Experience: 35
28 Contribution: Air Quality

29 **Michael Nied**
30 Environmental Assessment Services, LLC
31 B.S., Biological Systems Engineering–Natural
32 Resources
33 Years of Experience: 10
34 Contribution: Biological Resources
35

36 **Geoff Olander**
37 Cardno-Stantec
38 B.S. Mechanical Engineering
39 Years of Experience: 30
40 Contribution: Airspace, Noise

41 **Violet Perry**
42 Environmental Assessment Services, LLC
43 M.S., Urban Planning
44 B.S., Outdoor Adventure Leadership
45 Years of Experience: 1
46 Contribution: GIS, Water Resources

47 **Derek Stadther**
48 Cardno-Stantec
49 B.S., Mechanical Engineering
50 Years of Experience: 11
51 Contribution: Airspace, Noise

52 **Joanne Stover**
53 Environmental Assessment Services, LLC
54 B.S., Business Administration
55 Years of Experience: 28
56 Contribution: Technical Editor/Document
57 Production

58 **Karin Volpe**
59 Environmental Assessment Services, LLC
60 B.A., Urban Planning
61 Minors: Disaster Risk Reduction
62 Years of Experience: 3
63 Contribution: Waste Management, Infrastructure
64
65

1 **4.1 GOVERNMENT CONTRIBUTORS**

Contributor	Organization/Affiliation
Chris Brewster	ACC 355 CES/CEIE
Kevin Wakefield	ACC 355 CES/CEIE
Maj. Enisa Dervisevic	AFLOA (ACC)
Don Mattner	ACC/A5/8BG
TBD	AFLOA
Grace Keesling	AFCEC/CZN
Lt Col Patrick Chapman	355 OSS
Sarah Amthor	AFMC AFIMSC Det 8/CEO

2

CHAPTER 5 REFERENCES

- 1
2 Air Force Safety Center (AFSEC). 2018a. *BASH Statistics by Altitude*.
3 (<http://www.safety.af.mil/Portals/71/documents/Aviation/BASH%20Statistics/USAF%20Wildlife%20Strikes%20by%20Altitude.pdf?ver=2016-08-22-120752-537>) (accessed 9 November 2018).
4
- 5 AFSEC. 2018b. *USAF Wildlife Strikes by Operation*.
6 (<http://www.safety.af.mil/Portals/71/documents/Aviation/BASH%20Statistics/USAF%20Wildlife%20Strikes%20by%20Phase%20of%20Operation.pdf?ver=2016-08-22-120754-583>) (accessed 9
7
8 November 2018).
- 9 AFSEC. 2018c. *USAF Wildlife Strikes by Fiscal Year*.
10 (<http://www.safety.af.mil/Portals/71/documents/Aviation/BASH%20Statistics/USAF%20Wildlife%20Strikes%20by%20Fiscal%20Year.pdf?ver=2016-08-22-120752-537>) (accessed 9 November
11
12 2018).
- 13 AFSEC. 2018d. *Class A Mishaps by Fiscal Year*.
14 (<http://www.safety.af.mil/Portals/71/documents/Aviation/BASH%20Statistics/Class%20A%20Mishaps%20by%20Fiscal%20Year.pdf?ver=2016-08-22-120752-567>) (accessed 9 November 2018).
15
- 16 AFSEC. 2021a. *A-10 Mishap History*.
17 (<https://www.safety.af.mil/Portals/71/documents/Aviation/Aircraft%20Statistics/a-10.pdf>). 1
18 November (accessed 11 August 2020).
- 19 AFSEC. 2021b. *HH-60 A Mishap History*.
20 (<https://www.safety.af.mil/Portals/71/documents/Aviation/Aircraft%20Statistics/H-60.pdf>). 28
21 December (accessed 15 May 2023).
- 22 Department of the Air Force (Air Force). 2020. *Personnel Recovery Training Program Final Environmental*
23 *Assessment, Davis-Monthan Air Force Base Arizona*.
24 (https://www.dm.af.mil/Portals/99/Docs/Public%20Information%20Docs/DM%20PR%20Training%20Final%20EA%20and%20FONSI_2_5_2020.pdf?ver=2020-02-05-191311-560)
25
26 (accessed 28 April 2023).
- 27 Air Force. 2022. *Climate Action Plan*. October.
28 (<https://www.safie.hq.af.mil/Portals/78/documents/Climate/DAF%20Climate%20Action%20Plan%20-%20FINAL%20Oct%202022.pdf>) (accessed 20 October 2022).
29
- 30 Arizona Department of Education. 2021. "Accountability and Research Data: Graduation Rate, Dropout
31 Rate, and Enrollment Reports. <https://www.azed.gov/accountability-research/data/> (accessed 30
32 August 2022).
- 33 Arizona Department of Environmental Quality. 2021. *Arizona Pollutant Discharge Elimination System*
34 *General Permit for Stormwater Discharges Associated with Construction Activity to Protected*
35 *Surface Waters*. https://static.azdeq.gov/permits/azpdes/cgp_permit.pdf (accessed 3 November
36 2022).
- 37 Arizona Game and Fish Department. 2022. *Arizona Wildlife Conservation Strategy: 2022–2032*. Phoenix,
38 Arizona.
- 39 Berglund, B. and T. Lindvall, eds. 1995. *Community Noise*. Jannes Snabbtryck, Stockholm, Sweden.
- 40 Bureau of Economic Analysis. 2021. *CAEMP25N Total Full-time and Part- Time Employment by NAICS*
41 *Industry*. Regional Data. Bureau of Economic Analysis.

- 1 <https://apps.bea.gov/iTable/iTable.cfm?reqid=70&step=1&isuri=1&acrdn=7%23reqid%3D70>
2 (accessed 30 August 2022).
- 3 BLS (Bureau of Labor Statistics). 2022a. *Local Area Unemployment Statistics. Labor Force Data by*
4 *County, 2021 Annual Averages.* <https://www.bls.gov/lau/laucnty21.xlsx> (accessed 30 August
5 2022).
- 6 BLS. 2022b. *Local Area Unemployment Statistics. Unemployment Rates for States.*
7 <https://www.bls.gov/lau/lastrk21.htm> (accessed 30 August 2022).
- 8 Brown, D.E. 1982. "Biotic Communities of the American Southwest-United States and Mexico." *Desert*
9 *Plants* 4(1-4).
- 10 City of Tucson 2022. *City of Tucson Los Reales Landfill 10-Year Plan.*
- 11 Davis-Monthan AFB 2008. *Davis-Monthan Air Force Base. Environmental Assessment for Capital*
12 *Improvements Program (CIP).* Davis-Monthan Air Force Base, Tucson, Arizona. Final. June.
- 13 Davis-Monthan AFB. 2016a. *Fiscal Year 2016: Economic Impact Analysis.*
14 [https://www.dm.af.mil/Portals/99/Docs/Community%20Liaison%20Documents/DMAFB%20FY16](https://www.dm.af.mil/Portals/99/Docs/Community%20Liaison%20Documents/DMAFB%20FY16%20Economic%20Impact%20Analysis.pdf?ver=2017-05-04-132953-693)
15 [%20Economic%20Impact%20Analysis.pdf?ver=2017-05-04-132953-693](https://www.dm.af.mil/Portals/99/Docs/Community%20Liaison%20Documents/DMAFB%20FY16%20Economic%20Impact%20Analysis.pdf?ver=2017-05-04-132953-693) (accessed 30 August
16 2022).
- 17 Davis-Monthan AFB 2016b. *Davis-Monthan Air Force Base. Installation Development Plan.* Davis-
18 Monthan AFB, Arizona. March.
- 19 Davis-Monthan AFB. 2017a. *Hazardous Waste Management Plan.*
- 20 Davis-Monthan AFB 2017b. *355th Fighter Wing Installation 38 Emergency Management Plan 10-2.*
- 21 Davis-Monthan AFB 2017c. *Davis-Monthan Air Force Base 40 Hazardous Waste Management Plan.*
22 May.
- 23 Davis-Monthan AFB. 2018. *Stormwater Pollution Prevention Plan.*
- 24 Davis-Monthan AFB. 2020. *F-35A Operational Beddown—Air Force Reserve Command Environmental*
25 *Impact Statement.* US Air Force.
- 26 Davis-Monthan AFB. 2021a. *Integrated Natural Resources Management Plan.* US Air Force.
- 27 Davis-Monthan AFB 2021b. *Integrated Cultural Resources Management Plan.* Davis-Monthan Air Force
28 Base, Tucson, Arizona. August.
- 29 Ellis, D.H., C.H. Ellis, and D.P. Mindell. 1991. "Raptor Responses to Low-level Jet Aircraft and Sonic
30 Booms." *Environmental Pollution*, Vol: 74 p. 53-83.
- 31 Frankson, R., K.E. Kunkel, L.E. Stevens, D.R. Easterling, T. Brown, N. Selover, and E. Saffell, 2022.
32 *Arizona State Climate Summary 2022.* NOAA Technical Report NESDIS 150-AZ. NOAA/NESDIS,
33 Silver Spring, MD, 5 pp. <https://statesummaries.ncics.org/chapter/az/> (accessed 28 December
34 2022).
- 35 Grubb, T.G., L.L. Pater, A.E. Gatto, and D.K. Delaney. 2013. "Response of Nesting Northern Goshawks
36 to Logging Truck Noise in Northern Arizona." *The Journal of Wildlife Management* 77(8):1618.

- 1 Kerlinger, P. 2008. *Phase I Avian Risk Assessment – Mount Wachusett Community College Wind Energy*
2 *Project*. Report Prepared for Mount Wachusett Community College.
- 3 Maricopa Association of Governments. 2020. “Arizona Employer Viewer”.
4 <https://geo.azmag.gov/maps/azemployer/> (accessed 30 August 2022).
- 5 National Park Service. 2019. “Sonoran Desert Network Ecosystems”.
6 <https://www.nps.gov/im/sodn/ecosystems.htm> (accessed 15 September 2022).
- 7 Palmer, AG., D.L. Nordmeyer, and D.D. Roby 2003. “Effects of Jet Aircraft Overflights on Parental Care of
8 Peregrine Falcons.” *Wildlife Society Bulletin* (1973–2006), vol. 31, no. 2, p. 499–509.
- 9 Statistical Research, Inc. 2017. Intensive Cultural Resource Survey of 3,180 Acres and Completion of
10 Site-Condition Assessments of 25 Previously Recorded Archaeological Sites at Davis-Monthan
11 Air Force Base, Tucson, Arizona
- 12 Tucson Water. 2018. *Status and Quality of the Aquifer*.
13 <https://www.tucsonaz.gov/files/water/docs/Aquifer.pdf> (accessed 23 September 2022).
- 14 United States Census Bureau (USCB). 2001. 2000 Census of Population and Housing. *Profiles of*
15 *General Demographic Characteristics*.
16 https://www2.census.gov/census_2000/datasets/demographic_profile/Arizona/2kh04.pdf
- 17 USCB. 2004. 2000 Census of Population and Housing. *United States Summary: 2000- Population and*
18 *Housing Unit Counts*.
19 <https://www.census.gov/content/dam/Census/library/publications/2003/dec/phc3-us-pt1.pdf>
20 (accessed 30 August 2022).
- 21 USCB. 2012. 2010 Census of Population and Housing. *Population and Housing Unit Counts*.
22 <https://www2.census.gov/library/publications/decennial/2010/cph-2/cph-2-4.pdf> (accessed 30
23 August 2022).
- 24 USCB. 2022a. *2010 Decennial Census*. Data Analysis Search for the United States Census Bureau.
25 <https://data.census.gov/cedsci/table?q=United%20States&tid=DECENNIALSF12010.P1&hidePre>
26 [view=false](https://data.census.gov/cedsci/table?q=United%20States&tid=DECENNIALSF12010.P1&hidePreview=false) (accessed 30 August 2022).
- 27 USCB. 2022b. *ACS 5-Year Estimates Data Profiles Table DP04*. American Community Survey: Selected
28 Housing Characteristics. United States Census Bureau.
29 https://data.census.gov/cedsci/table?text=DP04&g=0100000US_0400000US04_0500000US0401
30 [9_1600000US0477000&y=2019&tid=ACSDP5Y2019.DP04](https://data.census.gov/cedsci/table?text=DP04&g=0100000US_0400000US04_0500000US04019_1600000US0477000&y=2019&tid=ACSDP5Y2019.DP04) (accessed 30 August 2022).
- 31 USCB. 2022c. *ACS 5-Year Estimates Data Profiles Table DP05*. American Community Survey:
32 Demographic and Housing Estimates. United States Census Bureau.
33 https://data.census.gov/cedsci/table?q=DP05&g=0100000US_0400000US04_0500000US04019
34 [_1600000US0477000&tid=ACSDP5Y2019.DP05](https://data.census.gov/cedsci/table?q=DP05&g=0100000US_0400000US04_0500000US04019_1600000US0477000&tid=ACSDP5Y2019.DP05) (accessed 30 August 2022).
- 35 USCB. 2022d. *ACS 5-Year Estimates Data Profiles Table S1701*. American Community Survey: Poverty
36 Status in the Past 12 Months. United States Census Bureau.
37 https://data.census.gov/cedsci/table?q=poverty&g=0100000US_0400000US04_0500000US0401
38 [9_1600000US0477000&tid=ACSST5Y2019.S1701](https://data.census.gov/cedsci/table?q=poverty&g=0100000US_0400000US04_0500000US04019_1600000US0477000&tid=ACSST5Y2019.S1701) (accessed 6 September 2022).
- 39 United States Department of Defense. 2022. “Davis-Monthan AFB Education.”
40 [https://installations.militaryonesource.mil/military-installation/davis-monthan-](https://installations.militaryonesource.mil/military-installation/davis-monthan-afb/education/education)
41 [afb/education/education](https://installations.militaryonesource.mil/military-installation/davis-monthan-afb/education/education) (accessed 30 August 2022).

- 1 United States Environmental Protection Agency (USEPA). 2003. "Approval and Promulgation of
2 Implementation Plans and Designation of Areas for Air Quality Planning Purposes; Arizona."
3 Direct Final Rule. *Federal Register* Vol. 68, No. 212, pp 62239–62244. 3 November.
- 4 USEPA. 2008. "Approval and Promulgation of Air Quality Implementation Plans; Designation of Areas for
5 Air Quality Planning Purposes; Arizona; San Manuel Sulfur Dioxide State Implementation Plan
6 and Request for Redesignation to Attainment. Direct Final Rule." *Federal Register* Vol. 73, No.
7 13, pp 3396–3405. 18 January.
- 8 USEPA. 2009a. "Approval and Promulgation of Maintenance Plan for Carbon Monoxide; State of Arizona;
9 Tucson Air Planning Area. Proposed Rule." *Federal Register* Vol. 74, No. 149, pp.39007–39013.
10 5 August.
- 11 USEPA. 2009b. "Approval and Promulgation of Maintenance Plan for Carbon Monoxide; State of Arizona;
12 Tucson Air Planning Area. Final Rule." *Federal Register* Vol. 74, No. 243, pp.67819–67821. 21
13 December.
- 14 USEPA. 2022. Air Quality Design Values. 2021 Design Value Reports. May. Accessed at
15 <https://www.epa.gov/air-trends/air-quality-design-values#report> (accessed 22 February 2023).
- 16 USEPA. 2023. *Green Book. Arizona Nonattainment/Maintenance Status for Each County by Year for all*
17 *Criteria Pollutants*. 31 January. https://www3.epa.gov/airquality/greenbook/anayo_az.html
18 (accessed 27 February 2023).
- 19 USEPA/Federal Aviation Administration. 2009. *Recommended Best Practice for Quantifying Speciated*
20 *Organic Gas Emissions from Aircraft Equipped with Turbofan, Turbojet, and Turboprop Engines*.
21 May.
- 22 U.S. Global Change Research Program. 2017. *Climate Science Special Report: Fourth National Climate*
23 *Assessment, Volume 1*.
- 24 United States Geological Survey. 2022. "What are Igneous Rocks?"
25 [https://www.usgs.gov/faqs/what-are-igneous-](https://www.usgs.gov/faqs/what-are-igneous-rocks#:~:text=Intrusive%2C%20or%20plutonic%2C%20igneous%20rock,rock%20rise%20toward%20the%20surface)
26 [rocks#:~:text=Intrusive%2C%20or%20plutonic%2C%20igneous%20rock,rock%20rise%20toward](https://www.usgs.gov/faqs/what-are-igneous-rocks#:~:text=Intrusive%2C%20or%20plutonic%2C%20igneous%20rock,rock%20rise%20toward%20the%20surface)
27 [%20the%20surface](https://www.usgs.gov/faqs/what-are-igneous-rocks#:~:text=Intrusive%2C%20or%20plutonic%2C%20igneous%20rock,rock%20rise%20toward%20the%20surface) (accessed November 29, 2022).
- 28 Weisenberger, M.E., P.R. Krausman, M.C. Wallace, D.W. De Young, and O.E. Maughan. 1996. "Effects
29 of Simulated Jet Aircraft Noise on Heart Rate and Behavior of Desert Ungulates." *The Journal of*
30 *Wildlife Management*, vol. 60, no. 1, 1996, pp. 52–61. <http://www.jstor.org/stable/3802039>

APPENDIX A
INTERGOVERNMENTAL COORDINATION, PUBLIC AND AGENCY PARTICIPATION

This page intentionally left blank

Mailing List

Erin Davis
State Historic Preservation Officer
AZ State Historic Preservation Office
1300 W. Washington
Phoenix, AZ 85007

Jeff Humprey
Regional Director
US Fish and Wildlife Region 2
Ecological Services Arizona Field Office
9828 N 31st Ave, Suite C3
Phoenix, AZ 85051

U.S. Fish and Wildlife Service
Southwest Regional Office
PO Box 1306
Albuquerque, NM 87103

Alessandro Amaglio
Environmental Officer
FEMA-Region 9
1111 Broadway, Suite 1200
Oakland, CA 94607

Amanda Stone, Director
Arizona Department of Environmental Quality,
Intergovernmental Affairs
110 W. Washington St.
Phoenix, AZ 85007

Amanda Stone
Arizona Department of Environmental Quality
Southern Regional Office
400 W. Congress, Suite 433
Tucson, AZ 85701

Andy Rhea
Southwest Gas Company
Industrial Services
3401 E. Gas Road
Tucson, AZ 85714

Charla Glendening
Planning Manager
Arizona Department of Transportation,
Transportation Planning Division
206 South 17th Ave, MD 310B
Phoenix, AZ 85007

Cheri A. Boucher
Arizona Game and Fish Department, Project
Evaluation Program, WMHB
5000 W Carefree Highway
Phoenix, AZ 85086

Chris Poirier
Deputy Director/Planning Official
Pima County
Development Services
201 N. Stone Ave
Tucson, AZ 85701

Diana Imig
The Nature Conservancy
Tucson Conservation Center
1510 E. Fort Lowell Rd
Tucson, AZ 85719

Jason Angell
Director
Town of Marana
Development Services
11555 W. Civic Center Dr
Marana, AZ 85653

Jim DeGrood
Deputy Director
Pima Association of Governments
1 E. Broadway Blvd, Suite 401
Tucson, AZ 85701

Joe Derungs
Project Manager
USACE-Los Angeles District
Arizona-Nevada Area Office
3636 N. Central Ave., Suite 900
Phoenix, AZ 85012

Karen Vitulano
NEPA Reviewer
USEPA-Region 9, Environmental Review
75 Hawthorne St.
San Francisco, CA 94105

Leslie Meyers
Area Manager
US Bureau of Reclamation
Phoenix Area Office
6150 W. Thunderbird Rd
Glendale, AZ 85306

Lexy Wellott
Chair
201 N. Stone Ave
Tucson Planning Commission
Tucson, AZ 87701

Lindy Bauer
Environmental Director
1 E. Broadway Blvd, Suite 401
Pima Association of Governments
Tucson, AZ 85701

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

Mark Brnovich
Arizona Attorney General
Office of the Attorney General
2005 N Central Ave
Phoenix, AZ 85004-2926

Reuben Teran
Executive Director
Arizona Department of Water Resources
Arizona Water Protection Fund
1110 W. Washington St, Ste 310
Phoenix, AZ 85007

Michael Ingraldi
Arizona Game and Fish Department
2221 Greenway Rd
Phoenix, AZ 85023

Rodney Mackey
University of Arizona
Planning, Design, and Construction
P.O. Box 210300
Tucson, AZ 85721-0300

Michael Spaeth
Town of Oro Valley
Planning and Zoning
11000 N. La Canada Dr
Oro Valley, AZ 85737

Sarah More
Town of Sahuarita
Planning and Zoning
375 W. Sahuarita Center Way
Sahuarita, AZ 85629

Mick Jensen
Senior Planner
City of South Tucson Planning
1601 S. Sixth Ave
Tucson, AZ 85713

Teresa Martinez
Executive Director, CDTC
Continental Divide Trail Coalition
710 10th Street Suite 200
Golden, CO 80401

Misael Cabrera
Director
Arizona Department of Environmental Quality
Office of Administrative Council
1110 W. Washington St
Phoenix, AZ 85007

Thomas Buschatzke
Director
Arizona Department of Water Resources
Office of the Director
1110 W. Washington St, Ste 310
Phoenix, AZ 85007

Nichole Engelmann
Fish and Wildlife Biologist
Arizona Ecological Services State Office
9828 North 31st Avenue, Suite C3
Phoenix, AZ 85051-2517

Scott Clark
Director
City of Tucson
Planning and Development Services Department
201 N. Stone Ave - 1st Floor
Tucson, AZ 85701

Philip McNeely
Director
33 N. Stove Ave., Suite 700
Pima County Department of Environmental Quality
Tucson, AZ 85701

The Honorable Doug Ducey
Governor
State of Arizona
Governor
1700 W. Washington St
Phoenix, AZ 85007

Ralph Ware
USDA Natural Resources Conservation Service
Tucson Service Center
3241 N. Romero Rd
Tucson, AZ 85705-9223

Tim Snow
Arizona Game and Fish Department
Non-Game Species and Bats
555 N. Greasewood Rd
Tucson, AZ 85745

Manager
201 N. Stone Ave, 9th Floor
Flood Control District of Pima County
Tucson, AZ 87701

Arizona Department of Agriculture
1688 W. Adams St
Phoenix, AZ 85007

Arizona Department of Water Resources
Tucson Active Management Area
400 W. Congress, Suite 518
Tucson, AZ 85701

Arizona Game and Fish Department
WMHB - Project Evaluation Program
5000 W. Carefree Highway
Phoenix, AZ 85086-5000

State of Arizona
Commission of Indian Affairs
1700 W. Washington St, Ste 430
Phoenix, AZ 85007

Coronado National Forest
Archaeologist
300 W. Congress St
Tucson, AZ 85701

Bureau of Land Management
Safford Field Office
711 14th Ave
Safford, AZ 85546

Bureau of Land Management
Tucson Field Office
3201 E. Universal Way
Tucson, AZ 85756

Bureau of Indian Affairs
2600 N Central Ave
Phoenix, AZ 85004

Arizona State Trust Land
Archaeologist
1616 W. Adams St
Phoenix, AZ 85007

Arizona State Museum
1013 E. University Blvd
Tucson, AZ 85721-0026

Tonto National Forest
Planning
2324 E. McDowell Rd
Phoenix, AZ 85006

Tonto National Forest
Forest Archaeologist/Heritage Program Manager
2324 E. McDowell Rd
Phoenix, AZ 85006

Western Archaeological Conservation Center
255 N. Commerce Park Loop
Tucson, AZ 85745

Pima Department of Environmental Quality
33 N. Stone Ave, Ste 700
Tucson, AZ 85701

US Army Corps of Engineers
Arizona-Nevada Area Office
3636 N. Central Ave, Ste 900
Phoenix, AZ 85012-1939

Calvin Johnson
Chairman
Tonto Apache Tribe of Arizona
Tonto Apache Reservation 30
Payson, AZ 85541

Chris Coder
Tribal Archaeologist
Yavapai-Apache Nation
2400 W. Datsi Street
Camp Verde, AZ 86322

Gabe Aguilar
President
Mescalero Apache Tribe
PO Box 227
Mescalero, NM 88340

Holly Houghten
THPO
Mescalero Apache Tribe
PO Box 227
Mescalero, NM 88340

Jefford Francisco
Cultural Resource Specialist
Tohono O'odham Nation
P.O. Box 837
Sells, AZ 85634

Jeri DeCola
Cultural & NAGPRA Representative
Tonto Apache Tribe of Arizona
Tonto Apache Reservation 30
Payson, AZ 85541

Jon Huey
Chairman
Yavapai-Apache Nation
2400 W. Datsi Street
Camp Verde, AZ 86322

Karl A. Hoerig, PhD
THPO
Pascua Yaqui Tribe of Arizona
7777 S. Camino Huivisim, Building C
Tucson, AZ 85757

Kasey Velasques
Chairman
White Mountain Apache Tribe
P.O. Box 700
Whiteriver, AZ 85941

Kurt Dongoske
THPO
Pueblo of Zuni
Heritage and Historic Preservation Office
P.O. Box 1149
Zuni, NM 87327

Val R. Panteah
Governor
Pueblo of Zuni
P.O. Box 339
Zuni, NM 87327

Mark Altaha
THPO
White Mountain Apache Tribe
P.O. Box 1032
Ft. Apache, AZ 85926

Ned Norris Jr.
Chairman
Tohono O'odham Nation
P.O. Box 837
Sells, AZ 85634

Peter Yucupicio
Chairman
Pascua Yaqui Tribe of Arizona
7474 South Camino de Oeste
Tucson, AZ 85746

Peter Steere
THPO
Tohono O'odham Nation
P.O. Box 837
Sells, AZ 85634

Stewart Koyiyumptewa
THPO
Hopi Tribe
Hopi Tribe Cultural Preservation Office
P.O. Box 123
Kykotsmovi, AZ 86039

Terry Rambler
Chairperson
San Carlos Apache Tribe of the San Carlos
Reservation, Arizona
PO Box "o"
San Carlos, AZ 85550

Vernelda Grant
THPO
San Carlos Apache Tribe of the San Carlos
Reservation, Arizona
PO Box "o"
San Carlos, AZ 85550

Timothy L. Nuvangyaoma
Chairman
Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86039



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

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

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

MEMORANDUM FOR: STAKEHOLDERS

FROM: 355 Civil Engineer Squadron, Flight Chief

SUBJECT: Environmental Assessment for Davis Monthan Fourth Generation Missions
Regional

Dear Ms. Romero,

The United States Air Force (Air Force) is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the Proposed Action to relocate the 4th Generation (Gen) missions from Nellis Air Force Base (AFB), Nevada, to Davis-Monthan AFB, Arizona. The Proposed Action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity.

The first step in making space for the 5th Gen mission at Nellis AFB is identifying those 4th Gen missions that must be relocated and installations with available space for relocated aircraft. The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB. There are several other proposed actions at Davis-Monthan AFB unrelated to these relocations that are occurring on approximately the same timelines and are therefore included in the EA analysis. These actions consist of establishing a new Air Force Reserve Command (AFRC) wing overhead structure, assignment of one Civil Air Patrol (CAP) Cessna 182 aircraft, and the transfer of one RC-26B aircraft from Tucson International Airport.

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 airspace management and use, noise, safety, air quality, cultural resources, hazardous materials and wastes, soils, water resources, biological resources, land use,

TRAIN – DEPLOY – WIN
RESCUE & ATTACK!

infrastructure, socioeconomics and environmental justice and protection of children. The EA will examine the cumulative effects when combined with past, present, and any reasonably foreseeable future actions. 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 provide your organization with a hyperlink of the Draft EA when the document is completed. Please inform us if additional CD copies are needed or if someone else within your agency other than you should receive the Draft EA.

Please reach out to my point of contact, provided below, on any issues or concerns you have in the development of this EA. We ask your assistance in identifying any issues or concerns of which we may be unaware, particularly those that may be affected by this proposal.

The Air Force Point of Contact for this project is Mr. Kevin Wakefield, EIAP Program Manager. Please send him your comments and concerns to 3775 South Fifth Street, Davis-Monthan AFB, AZ, 85707-3012, or by email or phone at kevin.wakefield.1@us.af.mil or (520) 228-4035. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. L. Brewster', with a horizontal line extending to the right.

CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

Attachment:
Summary of the Description of the Proposed Action and Alternatives



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

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

U.S. Department of the Interior Fish and Wildlife Service
Arizona Ecological Services Field Office
9828 N 31st Ave., #C3
Phoenix, AZ 85051-2517

MEMORANDUM FOR: U.S. FISH AND WILDLIFE SERVICE

FROM: 355 Civil Engineer Squadron, Flight Chief

SUBJECT: Environmental Assessment for Davis Monthan Fourth Generation Missions
Regional Realignment

Dear Sir/Madam,

The United States Air Force (Air Force) is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the Proposed Action to relocate the 4th Generation (Gen) missions from Nellis Air Force Base (AFB), Nevada, to Davis-Monthan AFB, Arizona. The Proposed Action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity.

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB. There are several other proposed actions at Davis-Monthan AFB unrelated to these relocations that are occurring on approximately the same timelines and are therefore included in the EA analysis. These actions consist of establishing a new Air Force Reserve Command (AFRC) wing overhead structure, assignment of one Civil Air Patrol (CAP) Cessna 182 aircraft, and the transfer of one RC-26B aircraft from Tucson International Airport.

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 airspace management and use, noise, safety, air quality, cultural resources, hazardous materials and wastes, soils, water resources, biological resources, land use, infrastructure, socioeconomics and environmental justice and protection of children. The EA will examine the cumulative effects when combined with past, present, and any reasonably

TRAIN – DEPLOY – WIN
RESCUE & ATTACK!

foreseeable future actions. 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.

Taking into account various environmental concerns, the Air Force is engaging early with the appropriate resource and regulatory agencies as it formulates the undertaking. We intend to provide your agency with a copy of the Draft EA when the document is completed. Please inform us if additional copies are needed or if someone else within your agency other than you should receive the Draft EA.

The Air Force point of contact for this project is Mr. Kevin Wakefield, EIAP Program Manager. Please send him your comments and concerns to 3775 South Fifth Street, Davis-Monthan AFB, AZ, 85707-3012, or by email or phone at kevin.wakefield.1@us.af.mil or (520) 228-4035. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

Sincerely,

A handwritten signature in black ink, appearing to read 'CLB', with a horizontal line extending to the right.

CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

Attachment:

Summary of the Description of the Proposed Action and Alternatives



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

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

State Historic Preservation Office
Arizona State Parks & Trails
1110 W Washington St, Suite 100
Phoenix, AZ 85007

MEMORANDUM FOR: ARIZONA STATE HISTORIC PRESERVATION DIVISION

FROM: 355 Civil Engineer Squadron, Flight Chief

SUBJECT: Environmental Assessment for Proposed Davis-Monthan Fourth Generation Missions Regional Realignment

Dear Kathryn Leonard,

The purpose of this letter is twofold: to give you an opportunity to review and comment on a proposed action in which the State Historic Preservation Office (SHPO) may have an interest; and to initiate consultation pursuant to Section 106 of the National Historic Preservation Act and 36 CFR § 800.3.

The United States Air Force (Air Force) is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the Proposed Action to relocate the 4th Generation (Gen) missions from Nellis Air Force Base (AFB), Nevada, to Davis-Monthan AFB, Arizona. The Proposed Action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity.

The first step in making space for the 5th Gen mission at Nellis AFB is identifying those 4th Gen missions that must be relocated and installations with available space for relocated aircraft. The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB. There are several other proposed actions at Davis-Monthan AFB unrelated to these relocations that are occurring on approximately the same timelines and are therefore included in the EA analysis. These actions consist of establishing a new Air Force Reserve Command (AFRC) wing overhead structure, assignment of one Civil Air Patrol (CAP) Cessna 182 aircraft, and the transfer of one RC-26B aircraft from Tucson International Airport.

TRAIN – DEPLOY – WIN
RESCUE & ATTACK!

Taking into account various environmental concerns, the Air Force is engaging early with the appropriate resource and regulatory agencies as it formulates this undertaking. Pursuant to 36 CFR Sections 800.4(a) and (b), we request your assistance in defining the Area of Potential Effect (APE) and information on any historic properties located therein that may be affected. Location maps are included as part of the attachment to this letter. Your comments will help us develop the scope of our environmental review.

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 airspace management and use, noise, safety, air quality, cultural resources, hazardous materials and wastes, soils, water resources, biological resources, land use, infrastructure, socioeconomics and environmental justice and protection of children. The EA will examine the cumulative effects when combined with past, present, and any reasonably foreseeable future actions. 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 provide your agency with a copy of the Draft EA when the document is completed. Please inform us if additional copies are needed or if someone else within your agency other than you should receive the Draft EA. We will also provide you with a 36 CFR § 800.4 effects determination after we have completed the historic property identification process.

Please reach out to my point of contact, provided below, on any issues or concerns you have in the development of this EA. We ask your assistance in identifying any issues or concerns of which we may be unaware, particularly those that may be affected by this proposal.

The Air Force point of contact for this project is Mr. Kevin Wakefield, EIAP Program Manager. Please send him your comments and concerns to 3775 South Fifth Street, Davis-Monthan AFB, AZ, 85707-3012, or by email or phone at kevin.wakefield.1@us.af.mil or (520) 228-4035. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. L. Brewster', with a long horizontal flourish extending to the right.

CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

Attachment:
Summary of the Description of the Proposed Action and Alternatives



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

355th Wing
3405 South Fifth Street
Davis-Monthan AFB AZ 85707-3012

Ms. Holly Houghten
THPO
Mescalero Apache Tribe
PO Box 227
Mescalero, NM 88340

Subject: Environmental Assessment for Davis Monthan Fourth Generation Missions Regional Realignment

Dear Ms. Houghten,

The purpose of this letter is twofold: to give you an opportunity to review and comment on a proposed action in which the Mescalero Apache Tribe may have an interest; and to invite the Mescalero Apache Tribe to participate in government-to-government consultation with the United States Air Force (Air Force) pursuant to Section 106 of the National Historic Preservation Act (NHPA).

The Air Force is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the Proposed Action to relocate the 4th Generation (Gen) missions from Nellis Air Force Base (AFB), Nevada, to Davis-Monthan AFB, Arizona. The Proposed Action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity.

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB. There are several other proposed actions at Davis-Monthan AFB unrelated to these relocations that are occurring on approximately the same timelines and are therefore included in the EA analysis. These actions consist of establishing a new Air Force Reserve Command (AFRC) wing overhead structure, assignment of one Civil Air Patrol (CAP) Cessna 182 aircraft, and the transfer of one RC-26B aircraft from Tucson International Airport.

RESCUE & ATTACK!

Pursuant to Section 106 of the NHPA, implementing regulations at 36 CFR Part 800, and Department of Defense Instruction 4710.02, *DoD Interactions with Federally Recognized Tribes*, we request government-to-government consultation on this Proposed Action. In particular, we invite you, pursuant to 36 CFR § 800.4(a)(4), to provide information on any properties of historic, religious, or cultural significance that may be affected by our proposed undertaking. Regardless of whether the Mescalero Apache Tribe 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 inadvertent 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.

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 airspace management and use, noise, safety, air quality, cultural resources, hazardous materials and wastes, soils, water resources, biological resources, land use, infrastructure, socioeconomics and environmental justice and protection of children. The EA will examine the cumulative effects when combined with past, present, and any reasonably foreseeable future actions. 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 provide you with a hyperlink of the Draft EA when the document is completed. Please inform us if additional CD copies are needed or if someone else within the Mescalero Apache Tribe other than you should receive the Draft EA.

Please reach out to my point of contact, provided below, on any issues or concerns you have in the development of this EA. We ask your assistance in identifying any issues or concerns of which we may be unaware, particularly those that may be affected by this proposal.

The Air Force point of contact for this project is Mr. Kevin Wakefield, EIAP Program Manager. Please send him your comments and concerns to 3775 South Fifth Street, Davis-Monthan AFB, AZ, 85707-3012, or by email or phone at kevin.wakefield.1@us.af.mil or (520) 228-4035. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott C. Mills". The signature is fluid and cursive, with the first name "Scott" being the most prominent.

SCOTT C. MILLS, Colonel, USAF
Commander

Attachment:

Summary of the Description of the Proposed Action and Alternatives

Summary Description of the Proposed Action and Alternatives Fourth Generation Missions Regional Realignment Davis-Monthan Air Force Base, Arizona

CHAPTER 1 PURPOSE AND NEED FOR ACTION

The United States (US) Air Force (Air Force), Air Combat Command (ACC), prepared this Environmental Assessment (EA) in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 *United States Code* [USC] §§ 4321–4317), implemented through the Council on Environmental Quality (CEQ) regulations of 1978 and amended in 2020 (Title 40 *Code of Federal Regulations* [CFR] Parts 1500–1508 [the September 14, 2020, version of CEQ NEPA rules is being used; 85 FR 43304-43376], as modified by the CEQ NEPA implementing regulation revisions that became effective 20 May 2022), and codified at 32 CFR Part 989, *Environmental Impact Analysis Process (EIAP)*. Other pertinent environmental statutes, regulations, and compliance requirements were also considered during the preparation of this EA and are addressed in relevant sections.

1.1 INTRODUCTION

On 30 June 2021, the Air Force announced plans to make space for a larger than present fighter presence at Nellis Air Force Base (AFB), Nevada, by realigning the Base's close air support and rescue missions to Davis-Monthan AFB, Arizona. In order to free up capacity to support fifth-generation (5th Gen) aircraft test and training missions at Nellis AFB, the Air Force must relocate some older fourth-generation (4th Gen) force structure.

The Commander, Air Combat Command provided the following direction:

- Focus Nellis AFB command on 5th Gen test and training missions.
- Reorient Nellis' capabilities and capacity for future warfighting testing and training by relocating most 4th generation missions to other locations.
- Provide options for missions dislocated from Nellis AFB.

After consideration of reasonable alternatives discussed in Sections 2.4 and 2.5 of this EA, the Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB, Arizona.

There are several other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

FIFTH GENERATION (5TH GEN) AIRCRAFT ARE THE NEWEST WEAPONS SYSTEMS SUCH AS THE F-22 AND F-35 FIGHTERS THAT CONTAIN NEW AND ENHANCED LEVELS OF STEALTH PROFILES, SPEED, MANEUVERABILITY, AND ADVANCED AVIONICS AND ATTACK CAPABILITIES.

1.2 BACKGROUND

Davis-Monthan AFB is located 5 miles south-southeast of downtown Tucson, Arizona. It was established in 1925 as Davis-Monthan Landing Field (**Figure 1-1**). The host unit for Davis-Monthan AFB is the 355th Wing (355 WG) assigned to ACC's Fifteenth Air Force. The Base is best known as the location of the Air Force Materiel Command's 309th Aerospace Maintenance and Regeneration Group, the aircraft boneyard for all excess military and US government aircraft and aerospace vehicles.

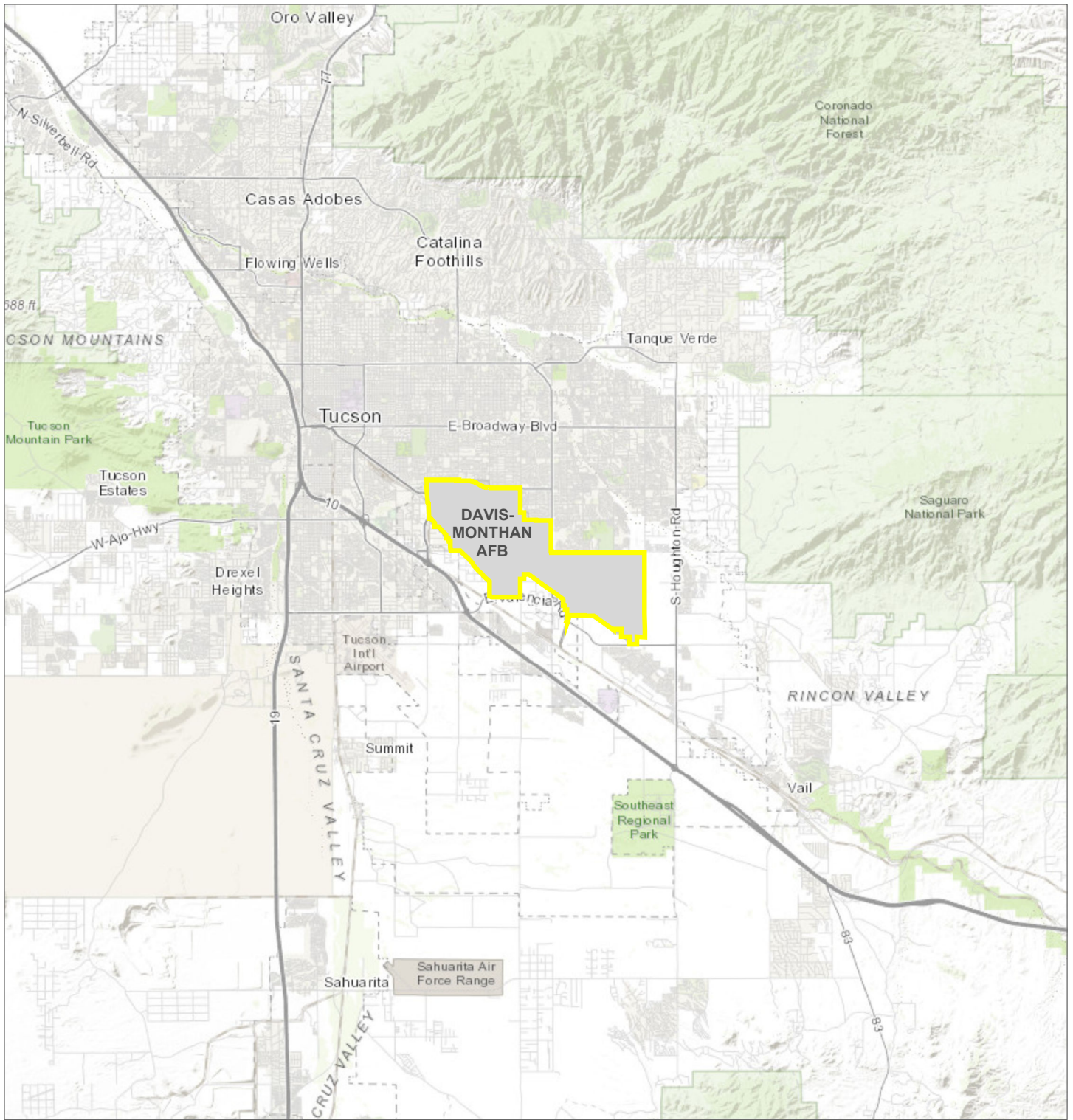


FIGURE 1-1
Regional Overview

 Installation Boundary



0  5 Miles

Coordinate System: NAD 83 UTM Zone 12N



ATTACHMENT

The 355 WG provides A-10 Thunderbolt II close air support to ground forces worldwide. The 355 WG is also a host unit, providing medical, logistical, mission and operational support to all assigned units. The 355 WG is also the sole Formal Training Unit (FTU) for the A-10 aircraft, providing initial and recurrent training to all Air Force A-10 pilots, including those in the AFRC and the Air National Guard (ANG).

1.3 PURPOSE AND NEED FOR THE ACTION

1.3.1 Davis-Monthan Restructure

The purpose of moving the 4th Gen A-10 and HH-60 aircraft squadrons from Nellis AFB is to free up range capacity at the Nevada Test and Training Range (NTTR) necessary to test and train warfighters in 5th Gen aircraft and allow personnel recovery units to take advantage of the synergy provided by co-locating with other rescue units. The Proposed Action would improve 5th Gen and beyond test, training, and tactics development capabilities at Nellis AFB to keep pace with Air Force mission requirements, evolving technology, and enemy capabilities. Nellis AFB has reached maximum capacity and space must be freed up to beddown 5th Gen missions.

The action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity. The infrastructure available at Nellis AFB does not meet current or future mission needs and is operating at or beyond capacity.

1.3.2 Beddown Civil Air Patrol Cessna 182

The purpose of the beddown of the CAP Cessna 182 is to provide better training and to increase operations missions that the CAP conducts in support of the Air Force.

The Air Force partnership with the CAP encompasses a variety of mission sets that directly benefit the Air Force. The beddown of CAP aircraft at Davis-Monthan AFB is needed to improve communications, interaction between the CAP and Air Force, and execution of a number of these missions.

1.3.3 Relocate RC-26B Operations

The purpose of the relocation of RC-26B operations is to create space for the impending large-scale increase in international F-16 training based at the 162nd Wing (162 WG) at the Morris ANGB.

The ANG anticipates a large-scale increase in international F-16 training based at the 162 WG at Morris ANGB. A single RC-26B aircraft needs to be relocated to make room for F-16-specific ramp realignments and improvements that are incompatible with continued RC-26 operations. In 2017, responsibility for the RC-26 organization was transferred from the 162nd Operations Group at Morris ANGB to the 214th Attack Group (214 ATKG), a subordinate unit to the 162 WG that is a tenant on Davis-Monthan AFB. Relocating the RC-26 aircraft and associated manpower to Davis-Monthan AFB in existing Total Force Training Center facilities would also serve to consolidate 214 ATKG assets and operations in a common location.

1.4 SCOPE OF THE ENVIRONMENTAL ANALYSIS

This EA analyzes the potential environmental consequences associated with the Proposed Action and Alternatives. The analysis also addresses facility demolition, renovation, construction, minor building additions, airspace utilization, and an increase in personnel.

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 information on the project location, purpose and need statements, scope of environmental analysis, decision to be made, Interagency/Intergovernmental Coordination for Environmental Planning (IICEP), applicable laws and environmental regulations, and a description of public and agency review of this EA.
- Chapter 2, Description of the Proposed Action and Alternatives (DOPAA), 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 and the airspace 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 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 Finding of No Significant Impact (FONSI), allowing implementation of the selected alternative;
- 2) Initiate preparation of an Environmental Impact Statement (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.

CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 OVERVIEW OF THE PROPOSED ACTION

The Air Force is proposing to relocate the following 4th Gen missions from Nellis AFB, Nevada, to Davis-Monthan AFB, Arizona:

- 66th Weapons Squadron (66 WPS)
- A-10 Operational Test (OT) portion of the 422nd Test and Evaluation Squadron (422 TES)
- 66th Rescue Squadron (66 RQS)
- 58th Rescue Squadron (58 RQS)
- 34th Weapons Squadron (34 WPS)
- 88th Test and Evaluation Squadron (88 TES)

In order to create capacity at Davis-Monthan AFB to accept the aforementioned missions, the Air Force proposes to take the following actions with units already stationed at Davis-Monthan AFB:

- Inactivate the 354th Fighter Squadron (354 FS) and retire assigned A-10C aircraft.
- Convert the 357th Fighter Squadron (357 FS) from an active duty flying squadron to an active association with the 47th Fighter Squadron (47 FS), an AFRC A-10 FTU. Some A-10 aircraft assigned to the 357 FS would be retired, others would be reassigned to the 47 FS.

The A-10 OT portion of the 422 TES would transition in 2024. The HH-60 Weapons Instructor Course (WIC) and Test and combat-coded units, to include the 88 TES, 66 RQS, 58 RQS, 79th Rescue Generation Squadron (RGS), 55 RGS, and the 34 WPS, would move beginning in 2025.

The Air Force also proposes several unrelated actions that are analyzed in this EA due to overlap in the proposed timing:

- Beddown CAP Cessna 182.
- Relocate RC-26B operations.

Table 2-1 presents the proposed changes to the primary aerospace vehicles authorized (PAA) for each unit. Under the Proposed Action, the net change would be an increase of 1 PAA. **Table 2-2** summarizes the personnel changes from the current level for each unit. **Table 2-3** presents the total changes in sorties at Davis-Monthan AFB. A sortie is defined as a single military aircraft flight from initial takeoff through final landing. Under the Proposed Action, day sorties would change from a total of 11,739 to 11,906, an increase of 167 sorties. Night sorties would change from a total of 2,272 to 3,206, an increase of 934 sorties. The net increase in sorties under the Proposed Action would be 1,101. Section 2.3 provides a more detailed discussion on the change in sorties within the surrounding airspace.

ATTACHMENT

**Table 2-1
Total Proposed Aircraft Changes at Davis-Monthan AFB**

Unit	Starting Location	A-10C	HH-60W	Cessna 182	RC-26B
66 WPS	Nellis AFB	+7			
422 TES	Nellis AFB	+4			
66 RQS	Nellis AFB		+14		
58 RQS	Nellis AFB				
34 WPS	Nellis AFB		+4		
88 TES	Nellis AFB		+2		
354 FS	Davis-Monthan AFB	-18			
357 FS	Davis-Monthan AFB	-21			
47 FS	Davis-Monthan AFB	+8			
CAP	Davis-Monthan AFB			+2	
162 WG	Morris ANGB				+1
Totals		-20	+20	+2	+1

AFB = Air Force Base; ANGB = Air National Guard Base; CAP = Civil Air Patrol; FS = Fighter Squadron; RQS = Rescue Squadron; TES = Test and Evaluation Squadron; WG = Wing; WPS = Weapons Squadron

**Table 2-2
Davis-Monthan AFB Personnel Changes**

Unit/Function	Officer Full Time	Officer Part Time	Enlisted Full Time	Enlisted Part Time	Civilian	Total Change from Current Levels
66 WPS	10	-	-	200	2	212
422 TES	5	-	-	-	4	9
66 RQS	56	-	-	569	8	633
58 RQS	22	-	129	-	12	163
34 WPS	13	-	-	18	2	33
88 TES ^a	20	-	37	-	31	88
354 FS	-40	-	-464	-	-1	-505
357 FS	-	-	-	-	-	0
47 FS	-	-	-	-	-	0
CAP Cessna 182	-	-	-	-	-	-
RC-26B	6	3			4	13

Notes:

a The total number listed for the 88 TES includes the Det 1, 413 FLTS personnel as they are the other half of the CSAR CTF and will have to be moved and be allowed to complete their HH-60 Developmental Test mission. The first number is 88 TES personnel, the second number is Det 1, 413 FLTS personnel, and the third is the total.

AFB = Air Force Base; CAP = Civil Air Patrol; CSAR = combat search and rescue; CTF = combined test force; FLTS = flight test squadron; FS = Fighter Squadron; RQS = Rescue Squadron; TES = Test and Evaluation Squadron; WPS = Weapons Squadron

ATTACHMENT

**Table 2-3
Total Sortie Changes at Davis-Monthan AFB**

Unit	Aircraft Type	Current Day Sorties	Current Night Sorties	Current Total Sorties	Proposed Day Sortie	Proposed Night Sortie	Total Proposed Sorties
Davis-Monthan Restructure							
66 WPS	A-10C	N/A	N/A	N/A	861	352	1,213
422 TES	A-10C	N/A	N/A	N/A	400	72	472
66 RQS	HH-60G	N/A	N/A	N/A	550	550	1,100
58 RQS	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34 WPS	HH-60G	N/A	N/A	N/A	224	148	372
88 TES	HH-60G	N/A	N/A	N/A	147	48	195
354 FS	A-10C	3,275	416	3,691	0	0	0
357 FS	A-10C	4,232	928	5,160	0	0	0
47 FS	A-10C	4,232	928	5,160	8,464	1,856	10,320
	Subtotal	11,739	2,272	14,011	10,646	3,026	13,672
Beddown Civil Air Patrol							
CAP	Cessna 182	-	-	-	720	0	720
Relocate RC-26B Operations							
162 WG	RC-26B	-	-	-	540	180	720
	Totals	11,739	2,272	14,011	11,906	3,206	15,112
	Net Change				167	934	1,101

AFB = Air Force Base; CAP = Civil Air Patrol; FS = Fighter Squadron; N/A = not applicable; RQS = Rescue Squadron; TES = Test and Evaluation Squadron; WG = Wing; WPS = Weapons Squadron

2.2 PROPOSED ACTION AT DAVIS-MONTHAN AFB

This section provides a detailed discussion of proposed activities by squadron at Davis-Monthan AFB, providing information on the change in PAA, the change in personnel, and related construction activities.

2.2.1 66th Weapons Squadron

The 66 WPS teaches graduate-level A-10C pilot and JTAC WICs that provide training and weapons and tactics employment to officers of the Combat Air Forces and Mobility Air Forces.

Aircraft transferring to Davis-Monthan AFB would consist of 7 PAA A-10. Personnel transferring to Davis-Monthan AFB would consist of 10 officers, 200 enlisted personnel, and 2 civilians for a total of 212 personnel. The 66 WPS would utilize existing 354 FS facilities at Buildings 4800, 4809, and 4810.

The 66 WPS and the 422 TES functions have a number of live weapons requirements. The number of live ordnance load area (LOLA) aircraft parking spaces currently at Davis-Monthan AFB is inadequate to support the increase in live weapons requirements associated with the beddown of the 7 PAA A-10; Up to 14 additional LOLA spaces would need to be constructed. The additional LOLA spaces would be near the present LOLA.

The 66 WPS would fly 1,213 A-10C sorties per year with an average duration of 2 hours for each sortie. The training syllabus requires 861 day sorties and 352 night sorties per year to graduate 12 students per year. A night sortie is defined as takeoff or landing before 7:00 am or after 10:00 pm local time. The entire sortie does not need to occur during those hours; any portion of a sortie occurring during those hours counts as a night sortie.

The 66 WPS is responsible for both A-10 and JTAC training. The 66 WPS would utilize air-to-ground munitions and defensive countermeasures during A-10 training and small arms ordnance for JTAC training (**Tables 2-4 and 2-5**).

ATTACHMENT

**Table 2-4
66 WPS A-10 Weapons and Defensive Countermeasure Annual Quantities**

Weapon or Defensive Countermeasure	Projected Quantity
30-millimeter target practice/high-explosive aircraft cannon ammo	208,800
2.75-inch rocket target practice/white phosphorous	2,349
Laser rocket	99
Illumination rocket	1,566
Joint direct attack munition	80
Laser-guided bomb	107
Cluster bomb unit	64
Air-to-ground missile	58
BDU-33	1,249
M-206 flares	12,000
RR-170 chaff	12,000

66 WPS = 66th Weapons Squadron

**Table 2-5
66 WPS JTAC Ordnance Quantities**

Ordnance Type	Projected Quantity
5.56-millimeter ball ammunition	16,620
5.56-millimeter tracer ammunition	15,720
5.56-millimeter ultimate training munition	4,860
7.62-millimeter ammunition	11,400
9-millimeter ammunition	16,160
Grenade simulator	44
40-millimeter smoke round	126
Smoke grenade	100

66 WPS = 66th Weapons Squadron; JTAC = Joint Terminal Attack Controller

2.2.2 422nd Test and Evaluation Squadron

The 422 TES performs operational testing of all fighter aircraft and munitions entering and in operational use by ACC. The 422 TES is a geographically separated unit of the 53rd Test and Evaluation Group stationed at Nellis AFB. After a new fighter weapons system completes developmental testing, the mission of the 422 TES is to thoroughly vet the new equipment in a combat representative environment. A variety of aircraft are assigned to the 422 TES, to include A-10, F-15C, F-15E, F-16, F-22A and F-35A. The Air Force proposes to relocate the portion of the 422 TES that supports A-10 Operational Test to Davis-Monthan AFB.

Aircraft transferring to Davis-Monthan AFB would consist of four PAA A-10C. Personnel transfers to Davis Monthan AFB would consist of 5 officers and 4 civilians for a total of 9 personnel.

The 422 TES would fly 472 A-10C sorties per year with an average duration of 2 hours for each sortie, including 72 night sorties per year. The 422 TES also would utilize air-to-ground munitions and self-defense countermeasures for A-10 training (**Table 2-6**).

ATTACHMENT

**Table 2-6
422 TES A-10 Annual Weapons and Defensive Countermeasures Quantities**

Weapon or Defensive Countermeasure	Projected Quantity
30-millimeter CTG TP PGU-15A	46,000
30-millimeter cartridge 2 HEI	11,500
30-millimeter CTG HEI PGU-13D	11,500
Illumination rocket	350
Joint direct attack munition	46
Laser-guided bomb	34
Cluster bomb unit	36
Air-to-ground missile	48
Heavy-weight inert bomb	160
BDU-33	450
M-206 flares	3000
RR-170 chaff	900
Chaff RR-188	3000

422 TES = 422nd Test and Evaluation Squadron

2.2.3 66th Rescue Squadron

The 66 RQS and the 58 RQS operate jointly as a composite mission. The 66 RQS provides HH-60G aircraft and the 58 RQS provides Guardian Angel pararescue personnel.

The 66 RQS operates the HH-60G Pave Hawk medium-lift Combat Search and Rescue helicopter and provides rapidly deployable, full-spectrum expeditionary personnel recovery vertical lift capabilities to theater commanders worldwide. The 66 RQS tactically employs the HH-60G helicopter and its crew in hostile environments to recover downed aircrew and isolated personnel during day, night, or marginal weather conditions in contested airspace employing skills such as weapons employment, shipboard operations, and aerial refueling. The RQS also conducts military operations including civil search and rescue, disaster relief, international aid, and emergency medical evacuation.

Aircraft transferring to Davis-Monthan AFB would consist of 14 PAA HH-60W. Personnel transfers associated with the aircraft would consist of 56 officers, 569 enlisted personnel, and 8 civilians for a total of 633 personnel.

The 66 RQS would fly 1,100 A-10C sorties per year, of which approximately 550 would occur at night. The 66 RQS would utilize air-to-ground munitions and self-defense countermeasures for HH-60G training (**Table 2-7**).

Figure 2-1 below shows the proposed location of new construction for the 66 RQS on the northern portion of the Base (approximately 100,000 square feet in size. Proposed locations for construction of new helicopter simulator facilities (approximately 13,000 square feet each) are depicted in **Figure 2-2**.

**Table 2-7
66 RQS Annual Weapons and Defensive Countermeasures**

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	297,000 rounds
7.62-millimeter machine gun ammunition	1,587,600 rounds
Chaff	1,920
Flare	4,000

66 RQS = 66th Rescue Squadron

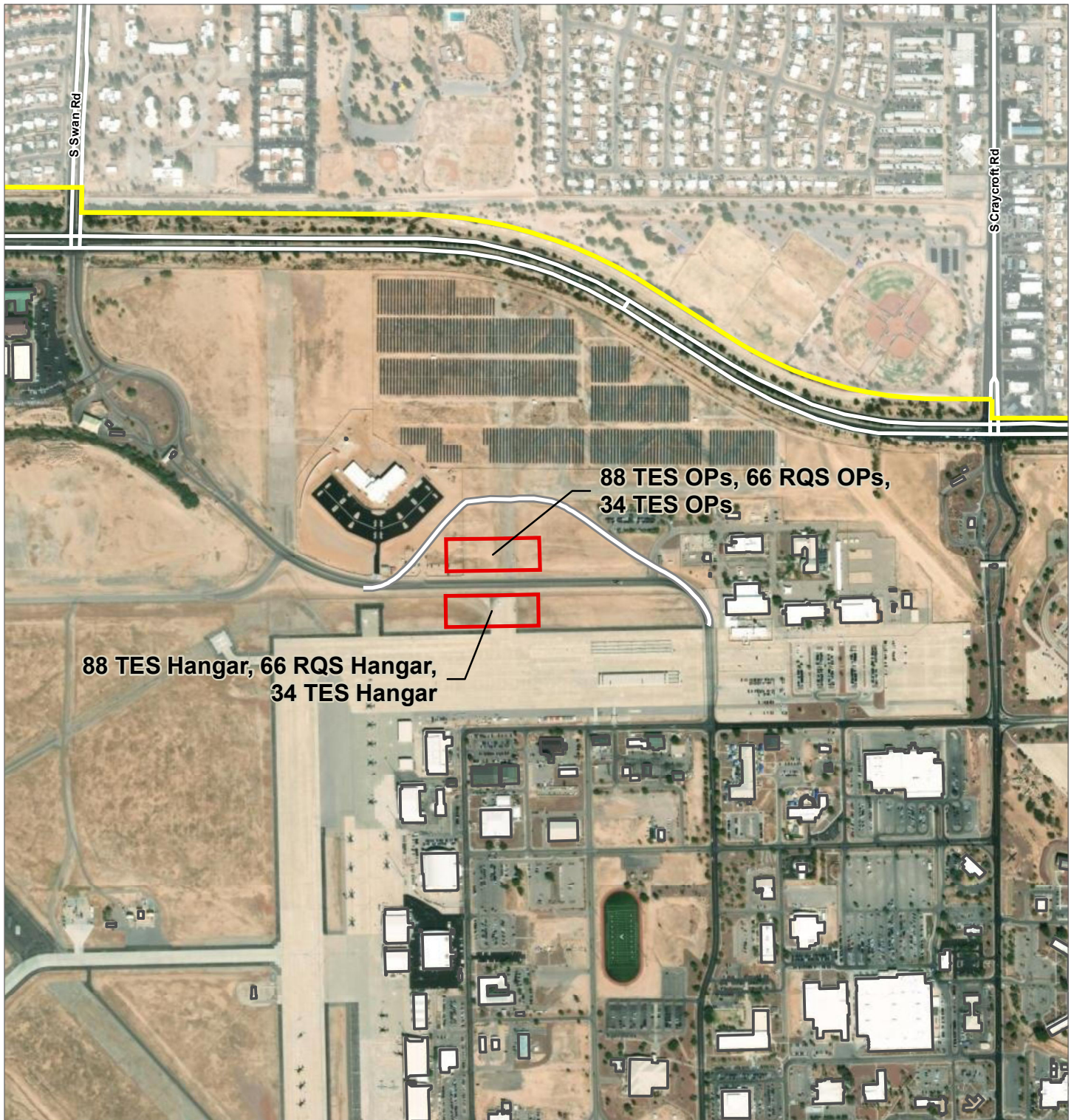


FIGURE 2-1

Proposed Locations of New Construction for the 88 TES, 66 RQS, and 34 WPS under the Proposed Action

— Sunglow Realignment MILCON
 □ Existing Buildings

▭ Installation Boundary
 □ Proposed Projects



0 1,000 Feet

Imagery: ESRI, 2021.
 Coordinate System: NAD 83 UTM Zone 12N





FIGURE 2-2
58th RQS And HH-60 Simulator Proposed Action

- Existing Buildings
- Proposed Projects



0 500 Feet

Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



2.2.4 58th Rescue Squadron

The 58 RQS Guardian Angel mission is uniquely designed and dedicated to conduct personnel recovery across the full range of military operations and during all phases of joint, coalition, and combined operations. Its most fundamental mission tasks are: (1) to prepare personnel who may be isolated or become missing while participating in US government-sanctioned military activities (or missions in uncertain or hostile environments), (2) to conduct recovery operations during peacetime and war, and (3) to lead reintegration operations after a recovery.

Personnel transferring to Davis-Monthan AFB would consist of 22 officers, 129 enlisted personnel, and 12 civilians for a total of 163 personnel. The 58 RQS would require construction of a new facility (approximately 65,000 square feet) near the south end of the aircraft ramp (see **Figure 2-2**).

The 58 RQS has no assigned aircraft and relies upon the 66 RQS and other units to complete its training.

2.2.5 34th Weapons Squadron

The 34 WPS is assigned to the Air Force Weapons School and provides HH-60G and HC-130J instructional flying for air rescue missions. Aircraft transferring to Davis-Monthan AFB would consist of 4 PAA HH-60W; no HC-130J aircraft would be transferred to Davis-Monthan AFB. Personnel transferring to Davis-Monthan AFB would consist of 13 officers, 18 enlisted personnel, and 2 civilians for a total of 33 personnel.

The 34 WPS would require additional munitions facilities and munitions support facilities (see **Figure 2-1**). Proposed locations for construction of new helicopter simulator facilities are depicted in **Figure 2-2**.

As shown in **Table 2-3** above, the 34 WPS would fly 372 HH-60G sorties per year, of which 148 would occur at night. The 34 WPS would utilize air-to-ground munitions and self-defense countermeasures for HH-60G and HC-130J training (**Table 2-8**).

**Table 2-8
34 WPS HH-60G Annual Weapons and Defensive Countermeasures**

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	198,200 rounds
7.62-millimeter machine gun ammunition	794,800 rounds
HH-60G chaff	4,201
HH-60G flare	2,000
HC-130J chaff	8,400
HC-130J flare	6,720

34 WPS = 34th Weapons Squadron

2.2.6 88th Test and Evaluation Squadron

The 88 TES is part of the Combat Search and Rescue Combined Test Force and is the Air Force's unit responsible for testing, evaluating, and developing tactics for Combat Search and Rescue. The 88 TES performs this mission on the HH-60G, HC-130J, and Guardian Angel weapon systems.

Aircraft transferring to Davis-Monthan AFB would consist of 2 PAA HH-60W. Personnel transferring to Davis-Monthan AFB would consist of 20 officers, 37 enlisted personnel, and 31 civilians for a total of 88 personnel.

The 88 TES would require construction of two new facilities (approximately 100,000 square feet for each building) co-located with new construction for the 66 RQS (see **Figure 2-1** above). The 88 TES would fly 195 HH-60G sorties per year, of which approximately 48 would occur at night. The 88 TES would utilize air-to-ground munitions and self-defense countermeasures for HH-60W training (**Table 2-9**).

ATTACHMENT

Table 2-9
88 TES HH-60W Annual Weapons and Defensive Countermeasures

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	59,200 rounds
7.62-mm machine gun ammunition	151,000 rounds
HH-60W chaff	1,300
HH-60W flare	3,307

2.2.7 354th Fighter Squadron

The 354 FS is an active-duty operational A-10 squadron stationed at Davis-Monthan AFB. The Air Force proposes to inactivate the 354 FS and retire the A-10s assigned to this unit.

Aircraft transferring to the Aircraft Maintenance and Regeneration Center at Davis-Monthan AFB would consist of 18 PAA A-10C. Personnel departing Davis-Monthan AFB would consist of 505 positions.

The inactivation of the 354 FS would result in a decrease of 3,691 A-10C sorties per year. Night flying would decrease by 416 sorties.

2.2.8 357th Fighter Squadron

The 357 FS is an active-duty A-10C FTU stationed at Davis-Monthan AFB. This mission would transfer to the AFRC and the 357 FS would be converted to an active association with AFRC. The 357 FS resources would associate with the 47 FS to result in a single AFRC-assigned A-10C FTU squadron.

The 357 FS has 21 PAA A-10C assigned and the 47 FS has 24 PAA A-10C assigned for a combined FTU total of 45 PAA. As the 357 FS is converted to an active association and resources combined with the 47 FS, the total FTU PAA would be reduced from 45 PAA to 32 PAA, a reduction of 13 PAA A-10C. A total of 13 PAA A-10 aircraft would depart Davis-Monthan AFB under this action.

There are currently 713 personnel associated with the 357 FS at Davis-Monthan AFB. While the 357 FS would be converted to an active association without assigned aircraft, these manpower authorizations would largely stay in place. A number of the personnel would convert into an active association with the 47 FS at Davis-Monthan AFB. The remainder are expected to stay in place to support the 66 WPS and 422 TES missions moving from Nellis AFB. Maintenance for the 66 WPS and 422 TES at Nellis AFB are provided by contract maintenance that would not transfer to Davis-Monthan AFB.

The conversion of the 357 FS would result in the reduction of 5,160 A-10C sorties. Night flying would decrease by 928 sorties. A number of sorties previously flown by the 357 FS would shift to the 47 FS as the 47 FS gains aircraft from the 357 FS.

2.2.9 47th Fighter Squadron

The conversion of the 357 FS would result in the addition of 8 PAA A-10C to the 47 FS. The addition of these aircraft would result in an increase of 5,160 sorties per year, of which 928 would occur at night.

As stated in **Section 2.2.8**, personnel from the 357 FS would convert into an active association with the 47 FS at Davis-Monthan AFB. The 47 FS would utilize self-defense countermeasures for training (**Table 2-9**).

ATTACHMENT

Table 2-9
47 FS Annual Weapons and Defensive Countermeasures

Weapon or Defensive Countermeasure	Projected Quantity
M206 flare	76,825
Chaff RR-188	22,696

47 FS = 47th Fighter Squadron

2.2.10 Beddown Civil Air Patrol Cessna 182

Two Cessna 182 aircraft would beddown and operate from Davis-Monthan AFB; the aircraft would be parked on the North Ramp (**Figure 2-1**). Operations would support Cadet orientation flights for the CAP, Reserve Officer Training Corps, and Junior Reserve Officer Training Corps. The aircraft would also support search and rescue and disaster relief training and operational missions, counter narcotics operations, and low/slow flying intercept training. No new facilities would be constructed for CAP operations under this Proposed Action; however, there might be associated construction in the future, which would be covered under a separate NEPA analysis.

The Cessna 182 aircraft would fly one to three sorties per day, for a maximum of 720 sorties per year (based on three per day for 240 days per year). All sorties would conclude with a single approach to a full stop landing. Any pattern work for training and proficiency would be accomplished at satellite airfields in the local area.

2.2.11 Relocate RC-26B Operations

One RC-26B aircraft and associated personnel would be relocated from Morris ANGB to Davis-Monthan AFB. The aircraft would be off-station an average of 30 to 90 days per year supporting law enforcement activities, disaster relief, and national requests. Additional manpower would consist of 10 aircrew (6 full-time, 4 part-time), and 3 full-time contract logistics support/maintenance personnel.

No new facilities would be constructed for relocation of RC-26B operations. Personnel would be located at Building 1711 in the Snowbird Compound.

The RC-26B aircraft would average 2 to 3 sorties per day with approximately 720 sorties per year. Approximately 50 sorties would occur at night.

2.3 AIRSPACE USE

The primary airspace utilized by the 355 WG is the Barry M. Goldwater Range (BMGR). The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB (**Figure 2-3**). MOAs consist of airspace of defined vertical and lateral limits established for the purpose of separating certain military training activities from commercial and personal air traffic. Whenever a MOA is being used, nonparticipating flight traffic may be cleared through a MOA if separation can be provided by air traffic control. Otherwise, nonparticipating traffic will be rerouted (FAA, 2021).

The BMGR was established in 1941 and is located in southwest Arizona along the US-Mexico border. It is located within Maricopa, Pima, and Yuma counties, Arizona, and covers 1,050,000 acres of land and 7,000 square miles of Special Use Airspace (SUA). BMGR supports over 54,000 operations per year. The range offers four manned target complexes, an aerial gunnery range, and three tactical ranges for advanced training scenarios. Electronic combat systems include air combat maneuvering instrumentation for live monitoring and recorded playback debrief, tactical datalink, threat simulation, moving target systems, and a range operations center providing real-time range/airspace access and management.

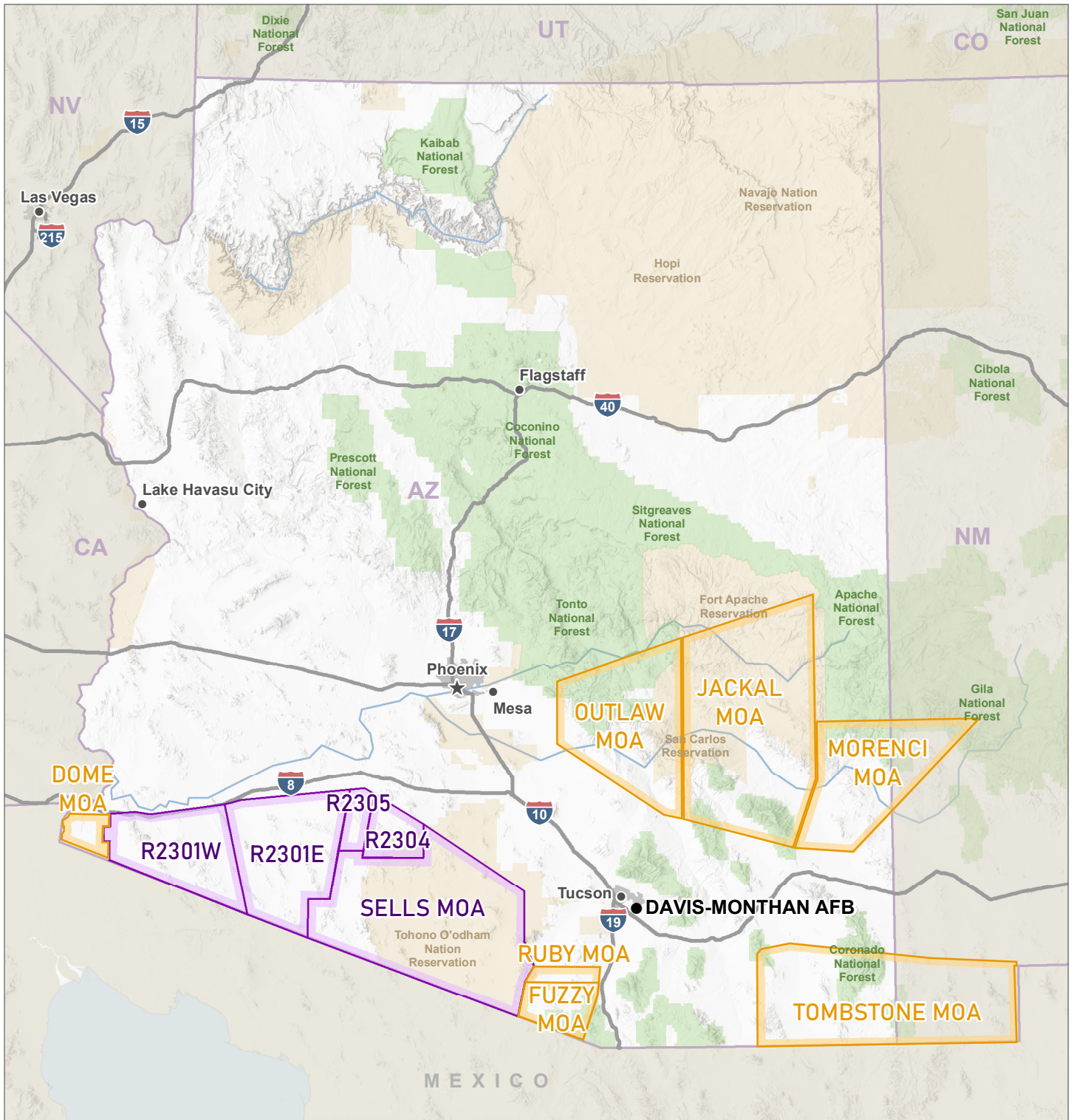


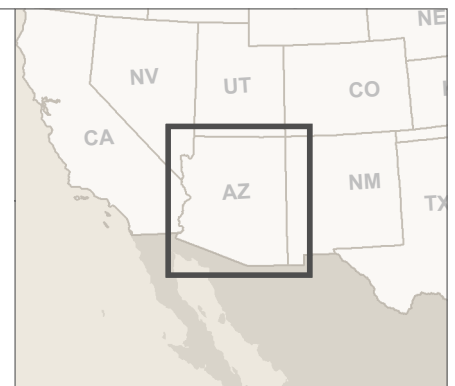
FIGURE 2-3
Special Use Airspace Used by Davis-Monthan AFB

- Barry M. Goldwater Range (BMGR)
- Military Operations Area (MOA)



0 50 Miles

Imagery: ESRI, 2021.
Coordinate System: NAD 83 UTM Zone 12N



ATTACHMENT

The total increase in operations under the Proposed Action would be 15,112 sorties flown in the combined airspaces annually (an increase of 1,101 from baseline conditions).

The projected airspace operations also include those flown by other aircraft in support of the 66 WPS A-10C and JTAC WIC. These include operations flown by fixed aircraft to include bombers, electronic warfare and intelligence, surveillance, and reconnaissance aircraft. It also includes support operations flown by rotary wing aircraft.

2.3.1 Combined Weapons Changes in Special Use Airspace/Ranges

The Proposed Action also would result in changes to the quantities of ordnance utilized. Ordnance in this case is defined as any air-to-ground munition such as bombs, missiles, rockets, or aircraft-mounted machine guns or cannons. It also includes ground-to-ground munitions such as rifle, pistol, and machine gun ammunition or grenades.

2.3.2 Combined Defensive Countermeasure Changes in Special Use Airspace/Ranges

Defensive countermeasures are defined as expendable devices used to help protect the aircraft from hostile actions. Chaff and flares are the principal defensive countermeasures dispensed by military aircraft to avoid detection or attack by enemy air defense systems.

Chaff is an electronic countermeasure designed to reflect radar waves and obscure aircraft, ships, and other equipment from radar tracking sources. Chaff bundles consist of millions of nonhazardous aluminum-coated glass fibers. When ejected from the aircraft, these fibers disperse widely in the air, forming an electromagnetic screen that temporarily hides the aircraft from radar and forms a radar decoy, allowing the aircraft to defensively maneuver or leave the area.

Flares are a principal defensive countermeasure dispensed by military aircraft to avoid detection or attack by enemy air defense systems. Flares are magnesium pellets ejected from military aircraft and provide high-temperature heat sources that act as decoys for heat-seeking weapons targeting the aircraft. These defensive countermeasures are utilized to keep aircraft from being successfully targeted by or escape from weapons such as surface-to-air missiles, air-to-air missiles, and anti-aircraft artillery.

Under the Proposed Action, chaff and flares would be only used over the BMGR and Ruby Fuzzy MOAs. To minimize the potential for flares to ignite vegetation, flares would be employed at an altitude that prevents the flares from impacting the ground or structures. Chaff and flares would be used in compliance with the 355 WG Inflight Guide. The 354 and 357 FS currently use chaff and flare within the BMGR and Ruby Fuzzy MOAs. Under the Davis-Monthan Restructure discussed in Sections 1.3.1 and 2.2, the overall usage of chaff and flare would remain consistent with existing levels of usage.



SHPO-2023-0348 (168267)

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

RECEIVED

MAR 21 2023

ARIZONA SHPO

17 March 2023

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

State Historic Preservation Office
Arizona State Parks & Trails
1110 W Washington St, Suite 100
Phoenix, AZ 85007

MEMORANDUM FOR: ARIZONA STATE HISTORIC PRESERVATION DIVISION

FROM: 355 Civil Engineer Squadron, Flight Chief

SUBJECT: Environmental Assessment for Proposed Davis-Monthan Fourth Generation Missions Regional Realignment

Dear Kathryn Leonard,

The purpose of this letter is twofold: to give you an opportunity to review and comment on a proposed action in which the State Historic Preservation Office (SHPO) may have an interest; and to initiate consultation pursuant to Section 106 of the National Historic Preservation Act and 36 CFR § 800.3.

The United States Air Force (Air Force) is preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) to evaluate the potential impacts associated with the Proposed Action to relocate the 4th Generation (Gen) missions from Nellis Air Force Base (AFB), Nevada, to Davis-Monthan AFB, Arizona. The Proposed Action to reassign the 4th Gen mission is needed because the current mission sets assigned to Nellis AFB and the Air Force Weapons Center are outpacing the ability to expand resources and capacity.

The first step in making space for the 5th Gen mission at Nellis AFB is identifying those 4th Gen missions that must be relocated and installations with available space for relocated aircraft. The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations to Davis-Monthan AFB. There are several other proposed actions at Davis-Monthan AFB unrelated to these relocations that are occurring on approximately the same timelines and are therefore included in the EA analysis. These actions consist of establishing a new Air Force Reserve Command (AFRC) wing overhead structure, assignment of one Civil Air Patrol (CAP) Cessna 182 aircraft, and the transfer of one RC-26B aircraft from Tucson International Airport.

TRAIN – DEPLOY – WIN
RESCUE & ATTACK!

Taking into account various environmental concerns, the Air Force is engaging early with the appropriate resource and regulatory agencies as it formulates this undertaking. Pursuant to 36 CFR Sections 800.4(a) and (b), we request your assistance in defining the Area of Potential Effect (APE) and information on any historic properties located therein that may be affected. Location maps are included as part of the attachment to this letter. Your comments will help us develop the scope of our environmental review.

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 airspace management and use, noise, safety, air quality, cultural resources, hazardous materials and wastes, soils, water resources, biological resources, land use, infrastructure, socioeconomics and environmental justice and protection of children. The EA will examine the cumulative effects when combined with past, present, and any reasonably foreseeable future actions. 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 provide your agency with a copy of the Draft EA when the document is completed. Please inform us if additional copies are needed or if someone else within your agency other than you should receive the Draft EA. We will also provide you with a 36 CFR § 800.4 effects determination after we have completed the historic property identification process.

Please reach out to my point of contact, provided below, on any issues or concerns you have in the development of this EA. We ask your assistance in identifying any issues or concerns of which we may be unaware, particularly those that may be affected by this proposal.

The Air Force point of contact for this project is Mr. Kevin Wakefield, EIAP Program Manager. Please send him your comments and concerns to 3775 South Fifth Street, Davis-Monthan AFB, AZ, 85707-3012, or by email or phone at kevin.wakefield.1@us.af.mil or (520) 228-4035. I look forward to receiving any input you may have regarding this endeavor. Thank you in advance for your assistance in this effort.

Sincerely,



CHRISTOPHER L. BREWSTER, PE
Flight Chief, Installation Management

Attachment:

Summary of the Description of the Proposed Action and Alternatives

Thank you for consulting with our office. We look forward to continuing Section 106 consultation. When defining the area of potential effects (APE), the APE should adhere to the definition at 36 CFR 800.16: "...the geographical 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..." This includes horizontal and vertical extents. We recommend that the APE include any new construction needed for the undertaking and any airspace that will see increased use and, per 36 CFR 800.5(2)(v), "increase in the introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features" should historic properties be present. For this undertaking, it is possible that Traditional Cultural Properties, including those of traditional religious and cultural importance to Native American tribes, are present that could be adversely affected by the undertaking. The views of Indian tribes are based on expertise and information not available and/or possessed by our staff, but are critical to informing the Section 106 review process. The Air Force remains responsible for consulting with and considering the views of Indian tribes. Please don't hesitate to contact me if you would like assistance identifying the appropriate Tribes to consult, or review our Government-to-Government Consultation Toolkit at <https://sites.google.com/view/az-consultation-toolkit> for information on how to determine which Tribes have an interest in the geographical areas.



Erin Davis
Arizona State Historic Preservation Office
April 18, 2023



Received from Tribal Admin 3/23/23 (initials & date)
E-mailed 05/04/23 (initials & date)
Scanned 05/04/23 (initials & 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: March 23, 2023
Contact Name: Scott C. Mills (520) 228-4035/kevin.wakefield.1@us.af.mil
Company: Department of the Air Force – Davis-Monthan Air Force
Address: 3405 South Fifth Street David-Monthan AFB AZ 85707-3012
Project Name/#: Environmental Assessment for Davis Monthan Fourth Generation Missions Regional Realignment

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:

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

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 We request a virtual or in-person

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.

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:

Vernelda J. Grant
Vernelda J. Grant, Tribal Historic Preservation Officer

Date

04/23/23

CONCURRENCE:

Terry Rambler
Terry Rambler, Tribal Chairman

Date

5/1/23

Kevin Groppe

From: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE <kevin.wakefield.1@us.af.mil>
Sent: Thursday, March 23, 2023 3:28 PM
To: Kevin Groppe
Cc: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE
Subject: FW: EA for David-Monthan Fourth Generation Missions Regional Realignment

Just in from the Tohono O'odham Nation.

v/r kevin

Kevin Wakefield, GS-13, DAFC
Environmental Section Chief
Base Natural and Cultural Resource Manager
EIAP Program Manager
355 CES/CEIE
3775 South Fifth Street
Davis-Monthan AFB AZ 85707-3012
Email: kevin.wakefield.1@us.af.mil
DSN: 228-4035
Comm: (520) 228-4035

-----Original Message-----

From: Peter Steere <Peter.Steere@tonation-nsn.gov>
Sent: Thursday, March 23, 2023 1:23 PM
To: WAKEFIELD, KEVIN L CIV USAF ACC 355 CES/CEIE
<kevin.wakefield.1@us.af.mil>
Subject: [Non-DoD Source] EA for David-Monthan Fourth Generation Missions
Regional Realignment

Kevin Wakefield

EIAP Program Manager

The Tohono O'odham Nation has no issues or concerns regarding

The EA for Davis Monthan Fourth Generation Mission Regional Realignment

Peter L. Steere

THPO

Tohono O'odham Nation



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 Davis Monthan AFB

Date: March 23, 2023

Re: *EA for Davis-Monthan Fourth Generation Missions Regional Realignment*

.....

The White Mountain Apache Tribe Historic Preservation Office appreciates receiving information on the project dated; March 17, 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 relocation of the 4th Generation missions from Nellis Air Force Base, Nevada to Davis-Monthan AFB, Arizona.

Please be advised, we have reviewed the consultation letter and the information provided, and we've determined that the project will have ***"No Adverse Effect"*** to the tribe's cultural heritage resources and/or historic properties.

Thank you for early tribal engagement and consultation, and continued collaborations in protecting and preserving places of cultural and historical importance. We concur with the project report and recommendations.

Sincerely,

Mark Altaha

White Mountain Apache Tribe – THPO
Historic Preservation Office

APPENDIX B
AIR QUALITY ANALYSIS RESOURCES, METHODOLOGIES AND RECORD OF
CONFORMITY APPLICABILITY

This page intentionally left blank

Air Quality Analysis Resources, Methodologies and Record of Conformity Applicability

The following information is provided for additional detail on air pollutants evaluated in the Proposed Action air quality impacts analysis and on the methodology used in the impact analysis.

Criteria Pollutants

National Ambient Air Quality Standards (NAAQS) are currently established for the criteria air pollutants ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (including particulates equal to or less than 10 microns in diameter [PM₁₀] and particulates equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources in addition to maintaining visibility standards.

The criteria pollutant O₃ is not usually emitted directly into the air but is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants, or "O₃ precursors." These O₃ precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emission sources. For this reason, regulatory agencies limit atmospheric O₃ concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO_x.

The USEPA has recognized that particulate matter emissions can have different health effects depending on particle size and, therefore, developed separate NAAQS for coarse particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}). The pollutant PM_{2.5} can be emitted from emission sources directly as very fine dust and/or liquid mist or formed secondarily in the atmosphere as condensable particulate matter, typically forming nitrate and sulfate compounds. Secondary (indirect) emissions vary by region depending upon the predominant emission sources located there and thus which precursors are considered significant for PM_{2.5} formation and identified for ultimate control.

The CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels. When a region or area fails to meet a NAAQS for a pollutant, that region is classified as "non-attainment" for that pollutant. In such cases, the affected state must develop a state implementation plan (SIP) that is subject to USEPA review and approval. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by USEPA.

Greenhouse Gases (GHGs)

GHG emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere helps regulate the earth's temperature and contribute to global climate change. Primary GHGs include water vapor, methane, NO_x, hydrofluorocarbons, and chlorofluorocarbons. While water vapor is considered a GHG, note that atmospheric temperature controls the amount of water vapor in the air and the other GHGs control the atmospheric temperature. As a result, the amount of water vapor in the air is determined by the amount of other GHGs present in the atmosphere. This is how the greenhouse effect has rapidly increased over the last 100 years –when emissions of CO₂ and other GHGs significantly increased due to man's activities.

Each GHG has an estimated global warming potential (GWP), which is a function of its atmospheric lifetime and its ability to absorb and radiate infrared energy emitted from the earth's surface. The GWP of a particular gas provides a relative basis for calculating its CO₂ equivalent (CO₂e) or the amount of CO₂e to the emissions of that gas. CO₂ has a GWP of 1 and is, therefore, the standard by which all other GHGs are measured.

Analytical Methodology

Construction

Construction emissions were quantified based on construction footprints. Equipment selection and duration were based on the South Coast Air Quality Management District construction survey to estimate default phase lengths based on total project acreage. These data are found in Appendix A of the CALEEMOD Users Guide (Trinity Consultants 2021). Additional information used for estimating worker and vendor trips were generated using the same resource.

Truck sizes were selected based on average standards – concrete truck capacity = 9 CY of material

Dump truck sizes vary based on material weight and range from 10-16 CY. 12 CY was used as average capacity for the construction.

Ordnance

Ordnance emissions were calculated via Excel spreadsheet and added to total emissions for SUAs. Data on ordnance emissions were obtained from USEPA's AP-42, Compilation of Air Emission Factors. Data on some munitions were unavailable, primarily bombs and missiles, which are likely fired from higher altitudes. The materials selected were obtained from Sections 15.1 – 15.8 (USEPA 2007- 2009). Ordnance usage was distributed across the SUAs based on the distribution of training sorties. Chaff and flare use would remain unchanged from existing conditions.

HH-60 Helicopters

Helicopter landing, take off and closed pattern emissions were provided by Solutio Environmental. Additionally, engine maintenance runup emissions were calculated via Excel spreadsheet and added to the total emissions for Davis-Monthan AFB. Runups data came from installation personnel performing the activities. Additionally, cruise to and from the SUAs and sortie time in the SUAs were calculated via spreadsheet. The data for these calculations were based on the distance from the installation to the boundary of each applicable MOA, the location of the low altitude training areas within the MOAs and the helicopter speed. The cruise time was applied in two different ways to the impact analysis: because every transit includes Pima County for some duration, the total transit time for helos was conservatively included in the installation emission estimates. In addition, because each MOA is uniquely distant from the installation, their transit times were calculated individually, and the totals for each applied to the MOAs. This ensured that each MOA where nonattainment or maintenance areas existed in the transit path (besides Pima County) were most conservatively evaluated for emission impacts.

Training in the SUAs was based on the net change in annual sorties for each MOA and a standard 2-hour training period within the SUA. Additionally, all sorties were assigned to MOAs where low-altitude training would occur.

A-10C, Cessna 128 and RC-26B Aircraft

Each of these aircraft were evaluated in ACAM. Solutio Environmental provided time in modes (TIMs). For the Cessna 128, a surrogate aircraft, the MQ-9, which uses the TPE331-8 engine, was selected to calculate the TIMs.

Additionally, adjustments made to the aircraft operations included the following:

Activity	A-10C	Cessna 128	RC-26B
Engine warmup (before taxi) - minutes	20	20	20
Preflight runup (immediately before takeoff) - seconds	5	10	10

Jet engine test cell operational changes were captured independently for the A-10C and the RC-26B, as these emissions are exempt from General Conformity regulations. Jet engine test cell data for the A-10C were derived from data provided by installation personnel. The RC-26B jet engine test cell calculation used the default settings in ACAM.

For the A-10C, low altitude flight in the SUAs was calculated based on 30% training time. Generally, sortie (flight) times for the Cessna 128 and the RC-26B aircraft were assumed similar to the other aircraft, with calculations based on a 2-hour duration.

GHG Emissions

Because GHG emission impacts are independent of altitude, the entire flight horizon for all aircraft sorties was estimated using the military settings for each for Cruise operations. For the A-10, high altitude flight transits to/from the SUAs were based on the net change in sorties for each SUA. For the Cessna-182 and RC-26B operations, a standard 2-hour sortie time was used.

A 20-year lifetime horizon was estimated based on the lifespan of the HH-60 and the estimated lifetime of the renovated A-10s. Because these aircraft are the predominant emission sources for the Proposed Action, this timespan was used for all aircraft. Building emissions for the 20-year period were not calculated as too little information is available on what sources could exist and the DAF's plan to become net zero by 2046 cannot be calculated, though emissions would be anticipated to steadily decline over the period.

References

Trinity Consultants. 2021. California Emissions Estimator Model User's Guide, Version 2020.4.0, prepared for California Air Pollution Control Officers Association (CAPCOA). May.

USEPA. 2007 – 2009. AP 42, Fifth Edition, Volume I, Chapter 15: Ordnance Detonation. Accessed at <https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-fifth-edition-volume-i-chapter-15-ordnance-1>.

This page intentionally blank

Emissions Information and Calculations

- **Davis-Monthan AFB Ops Summary**
- **Airspace Ops Summary**
- **Construction Info**
- **Ops Personnel Info**
- **Ordnance Info**
- **Ordnance Calculations**
- **HH-60 Maintenance Calculations**
- **Airspace HH-60 Calculations**
- **A-10C Engine Maintenance Runups Info**
- **A-10C Airspace Low Altitude Ops Info**
- **CO2e Calculations**

This Page Intentionally Blank

AIRCRAFT SUMMARY

	Emissions in Tons per Year						
	NOx	SOx	CO	VOC	PM ₁₀	PM2.5	CO ₂ e
A-10C Aircraft							
LTOs	18.6	3.0	46.5	11.1	3.0	2.1	8,297
Closed Patterns	0.01	0.001	0.02	0.01	0.01	0.01	4.10
Subtotal	18.6	3.0	46.5	11.1	3.0	2.1	8,301
HH-60 Aircraft							
LTOs	31.7	3.0	12.0	0.07	6.9	6.2	9,124
Closed Patterns	3.5	0.3	1.0	0.000	0.7	0.6	951
Cruise within Pima County	7.6	0.7	1.9	0.01	1.7	1.6	2,147
Subtotal	42.8	4.1	15.0	0.1	9.3	8.3	12,222
RC-26B Aircraft							
LTOs	32.3	0.7	7.7	4.3	0.9	0.9	1,162
Cessna-182 Aircraft							
LTOs	0.2	0.03	0.7	0.9	0.1	0.1	89
Total Mobile Source Ops	93.9	7.8	69.9	16.4	13.3	11.4	21,773
De Minimis Threshold	NA	NA	NA	NA	100	NA	NA
Exceedance?					No		
A-10C Engine Test Cell	0.8	0.1	1.0	0.3	0.3	0.2	272
RC-26B Engine Test Cell	0.04	0.004	0.03	0.03	0.01	0.01	11
Total	94.8	7.9	70.9	16.7	13.6	11.6	22,056
Comparative Threshold	100	100	100	100	NA	100	NA
Exceedance?	No	No	No	No		No	No

Note: CO = carbon monoxide; CO2e = carbon dioxide equivalent; LTO = landing take-off cycle area; N/A = not applicable; NO2 = nitrogen dioxide; PM2.5 = particulate matter less than or equal to 2.5 microns in diameter; SO2 = sulfur dioxide; SUA = special use airspace; VOC = volatile organic compound

AIRSPACE EMISSIONS SUMMARY

General Conformity applies
Pima and Cochise Counties - General Conformity

Emissions in Tons per Year							
	NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO _{2e}
Tombstone SUA Ops							
A-10C Sorties	0.9	0.1	0.2	0.011	0.2	0.2	284
HH-60 Sorties	5.4	0.5	1.3	0.005	1.2	1.1	1,511
Ordnance	0.4	-	2.9	-	1.4	0.2	4.45
Total	6.7	0.6	4.4	0.015	2.8	1.6	1,799
HH-60 Transit Emissions To/ From Tombstone	4.4	0.4	1.1	0.004	1.0	0.9	1,247
Tombstone Total Low Altitude Training Emissions	11.1	1.0	5.5	0.02	3.8	2.5	3,047

Pima and Pinal Counties - General Conformity

Emissions in Tons per Year							
	NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO _{2e}
Jackal Low SUA Ops							
A-10C Sorties	0.7	0.1	0.1	0.01	0.2	0.2	205
HH-60 Sorties	3.9	0.4	0.9	0.003	0.9	0.8	1,087
Ordnance	0.3	-	2.0	-	1.0	0.2	3
Total	4.8	0.4	3.1	0.01	2.0	1.1	1,295
HH-60 Transit Emissions To/ From Jackal Low	1.1	0.1	0.3	0.001	0.3	0.2	315
Total Jackal Low Altitude Training Emissions	5.9	0.5	3.4	0.01	2.3	1.3	1,610

Pima and Greenlee Counties - General Conformity

Emissions in Tons per Year							
	NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO _{2e}
Morenci SUA Ops							
A-10C Sorties	0.3	0.03	0.1	0.003	0.1	0.1	84
HH-60 Sorties	1.6	0.1	0.4	0.001	0.4	0.3	443
Ordnance	0.1	-	0.8	-	0.4	0.1	1
Total	2.0	0.2	1.3	0.004	0.8	0.5	528
HH-60 Transit Emissions To/ From Morenci	0.9	0.1	0.2	0.001	0.2	0.2	241
Total Morenci Low Altitude Training Emissions	2.8	0.3	1.5	0.01	1.0	0.6	769

Pima and Santa Cruz Counties - General Conformity

Emissions in Tons per Year							
	NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO _{2e}
Fuzzy SUA Ops							
A-10C Sorties	0.9	0.1	0.2	0.01	0.2	0.2	258
HH-60 Sorties	4.8	0.5	1.2	0.004	1.1	1.0	1357
Ordnance	0.3	-	2.6	-	1.2	0.2	4
Total	6.0	0.5	4.0	0.01	2.5	1.4	1,619
HH-60 Transit Emissions To/ From Fuzzy	1.2	0.1	0.3	0.001	0.3	0.2	344
Total Fuzzy Low Altitude Training Emissions	7.2	0.7	4.3	0.01	2.8	1.6	1,963

Total CO_{2e} 7,388

Note: CO = carbon monoxide; CO_{2e} = carbon dioxide equivalent; MOA = military operations area; N/A = not applicable; NO₂ = nitrogen dioxide; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; SO₂ = sulfur dioxide; SUA = special use airspace; VOC = volatile organic compound

Davis-Monthan AFB 4th Gen Missions Regional Realignment - Construction Calcs

Construction Period: 4th quarter 2023 - 4th quarter 2024 15 months total
 0.42 worker trips/day/1000 SF From App A of CALEEMOD User Guide
 13 worker trips/day on average 2023
 128 worker trips/day on average 2024
 43,560 sf in 1 acre
 100 ft trenching assumed per building
 20 mi round trip average assumed for vendors, haul trucks and worker commutes
 0.1639 daily vendor trips per 1000 sf from App A of CALEEMOD User Guide
 Construction of 1 hangar begins in 4th quarter 2023; all else begins in 2024

Flight Simulator (3) 57,000 sf bldg 12 months construction duration
 57,000 cf excavation 1.31 ac 0.87 ac
 2,111 cy excavation 176 trucks of dirt hauled out
 1,407 cy concrete 156 concrete trucks
 704 cy gravel 59 trucks of gravel hauled in
 300 ft trenching 9 Vendor trips
 400

Hangar (3) 93,000 sf bldg 15 months construction duration
 93,000 cf excavation 2.1 ac
 3,444 cy excavation 287 trucks of dirt hauled out
 2,296 cy concrete 255 concrete trucks
 1,148 cy gravel 96 trucks of gravel hauled in
 300 ft trenching 15 Vendor trips
 653

Construct LOLAs (14) 44,450 sf concrete 6 months construction 1.0 ac
 convert conc cf to bldg cf 1,646 CY soil excavation 137 trucks of soil removed
 divide by 14 to get an equivalent 3,293 CY concrete 366 conc truck trips
 bldg size (6,350 sf) for ACAM 1,646 CY gravel 137 dump trucks gravel
 400 ft trenching 7 Vendor trips
 648

Construct concrete igloos (2) 16,800 SF 9 months construction 0.4 ac
 622 CY soil excavation 52 trucks of soil removed
 948 CY concrete 105 concrete trucks
 622 CY gravel 52 trucks of gravel hauled in
 200 ft trenching 3 Vendor trips
 212

Ops and Training (3) 75,000 sf 10 months construction 1.7 ac
 2,778 cy excavation 231 trucks of dirt hauled out
 2,778 cy concrete 309 concrete trucks
 1,389 cy gravel 116 trucks of gravel hauled in
 100 ft trenching 12 Vendor trips
 678

Total Truck Trips		Truck Haul Miles
	2023	
Dirt/Debris	96	
Concrete, asphalt & gravel	117	
Materials Delivery	5	4,354
Grand Total Truck Trips	218	73
Ave # Truck Trip/Day	3.6	102
Total acreage		0.4

	2023	2023
Trenching volume CF		300
Material removed		11 CY
Total Bldg SF		31,000
area to be graded sf		38,750 bldg footprint +25%
excavation - out		1,148 cy
asphalt/conc & gravel - in		1,148 cy

Total Truck Trips		Miles
	2024	
Dirt	944	
Concrete, asphalt & gravel	1,715	
Grand Total Truck Trips	2,659	53,182
Ave # Truck Trip/Day	10	205
Materials Delivery	53	1,069

	2024	2024
Trenching area CF		1,300
Material removed		48 cy
Total Bldg SF		227,150
area to be graded sf		527,576
excavation - out		11,326
asphalt/concrete & gravel - in		17,141 cy
paving area (inc conc) sf		105,276 cy
# trucks assoc with paving		628
per day trucks for paving		31

Armament Shop	10,000 SF	7 months construction	0.2 ac
	370 cy excavation	31 trucks of dirt hauled out	
	370 cy concrete	41 concrete trucks	
	185 cy gravel	15 trucks of gravel hauled in	
	100 ft trenching	2 Vendor trips	
		89	
Road extension for Ops buildings	0.48 miles long	4 months construction	1.4 ac
	24 ft wide		
	60,826 SF		
	6,758 sy grading		
	1,502 cy excavation	125 trucks of dirt hauled out	
	751 cy gravel	63 trucks of gravel hauled in	
	751 cy asphalt	63 asphalt trucks	
	10 Vendor trips		7.8 ac

Using	0.44 acres for 2023 construction:	Phase			
	# equip	Hrs/day	duration days	Total hours	
Site Prep	1 day				
Grader	1	8	1	8	
Tractors/Loaders/Backhoes	1	8	1	8	
Grading	2 days				
Rubber tired Dozers	1	6	3	18	
Tractors/Loaders/Backhoes	1	7	3	29	Combine site prep and
Grader	1	6	3	26	grading since ACAM does
Excavator					not account for site prep
Building Construction	100 days				
Cranes	1	4	100	400	
Forklifts	2	6	100	1200	
Tractors/Loaders/Backhoes	2	8	100	1600	
Welders					
Generator sets					
Architectural Coating	5 days				
Air compressors	1	6	5	30	
Paving	5 days				
Pavers	1	7	5	35	
Cement and mortar mixers	4	6	5	120	
Rollers	1	7	5	35	
Tractors/Loaders/Backhoes	1	7	5	35	

Using	7.8 acres for 2024 construction:	Phase			
	# equip	Hrs/day	duration days	Total dur	Total hours
Site Prep	10 days				
Tractors/Loaders/Backhoes	4	8	10		320
Rubber tired Dozers	3	8	10		240
Grading	30 days	Site Prep and Grading combined			
Rubber tired Dozers	4	8	30	Combine site prep and	960
Tractors/Loaders/Backhoes	4	8	30	grading since ACAM	960
Grader	1	8	30	does not account for	240
Excavator	1	8	30	site prep	240
Building Construction	230 days				
Cranes	1	7	230		1610
Forklifts	3	8	230		5520
Tractors/Loaders/Backhoes	3	7	230		4830
Welders	1	8	230		1840
Generator sets	1	8	230		1840
Architectural Coating	20 days				
Air compressors	1	6	20		120
Paving	20 days				
Pavers	2	8	20		320
Cement and mortar mixers					
Rollers	2	8	20		320
Tractors/Loaders/Backhoes					
Paving equipment	2	8	20		320

Davis-Monthan AFB Personnel Changes

Unit/Function	Officer Full Time	Officer Part Time	Enlisted Full Time	Enlisted Part Time	Civilian	Total Change from Current Levels
66 WPS	10	-	-	200	2	212
422 TES	5	-	-	-	4	9
66 RQS	56	-	-	569	8	633
58 RQS	22	-	129	-	12	163
34 WPS	13	-	-	18	2	33
88 TES ^a	20	-	37	-	31	88
354 FS	-40	-	-464	-	-1	-505
357 FS	-	-	-	-	-	0
47 FS	-	-	-	-	-	0
CAP Cessna 182	-	-	-	-	-	-
RC-26B	6	3			4	13
	92	3	-298	787	62	646
				489		

Ordnance**66 WPS A-10**

Weapon or Defensive Countermeasure	Projected Quantity	Reference Used
30-millimeter target practice/high-explosive aircraft cannon ammo	208,800	AP-42, section 15.2.1
2.75-inch rocket target practice/white phosphorous	2,349	AP-42, section 15.6.7
Laser rocket	99	
Illumination rocket	1,566	AP-42, section 15.4
Joint direct attack munition	80	
Laser-guided bomb	107	
Cluster bomb unit	64	
Air-to-ground missile	58	
BDU-33	1,249	
M-206 flares	12,000	AP-42, section 15.8.16
RR-170 chaff	12,000	

66 WPS JTAC

Ordnance Type	Projected Quantity	
5.56-millimeter ball ammunition	16,620	AP-42, section 15.1.4
5.56-millimeter tracer ammunition	15,720	AP-42, section 15.1.5
5.56-millimeter ultimate training munition	4,860	AP-42, section 15.1.6
7.62-millimeter ammunition	11,400	AP-42, section 15.1.15
9-millimeter ammunition	16,160	AP-42, section 15.1.21
Grenade simulator	44	
40-millimeter smoke round	126	AP-42, section 15.2.7
Smoke grenade	100	AP-42, section 15.5.5

422 TES A-10

Weapon or Defensive Countermeasure	Projected Quantity	
30-millimeter CTG TP PGU-15A	46,000	AP-42, section 15.2.1
30-millimeter cartridge 2 HEI	11,500	AP-42, section 15.2.1
30-millimeter CTG HEI PGU-13D	11,500	AP-42, section 15.2.1
Illumination rocket	350	AP-42, section 15.4
Joint direct attack munition	46	
Laser-guided bomb	34	

Cluster bomb unit	36
Air-to-ground missile	48
Heavy-weight inert bomb	160
BDU-33	450
M-206 flares	3000
RR-170 chaff	900
Chaff RR-188	3000

AP-42, section 15.8.16

47 FS

Weapon or Defensive Countermeasure	Projected Quantity
M206 flare	76,825
Chaff RR-188	22,696

Helos - 66 RQS

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	297,000
7.62-millimeter machine gun ammunition	1,587,600
Chaff	1,920
Flare	4,000

AP-42, section 15.1.27

AP-42, section 15.1.15

AP-42, section 15.8.16

Helos - 34 WPS

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	198,200
7.62-millimeter machine gun ammunition	794,800
HH-60G chaff	4,201
HH-60G flare	2,000
HC-130J chaff	8,400
HC-130J flare	6,720

Helos - 88 TES

Weapon or Defensive Countermeasure	Projected Quantity
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	59,200
7.62-mm machine gun ammunition	151,000
HH-60W chaff	1,300
HH-60W flare	3,307

Ordnance Detonation Emissions

	lb/item								total lbs							
	Number	CO	Nox	PM2.5	PM10	CO2	CH4	Pb	CO	Nox	PM2.5	PM10	CO2	CH4	Pb	CO2e
5.56-millimeter ball ammunition	16,620	0.0016	0.000085	0.000028	0.000039	0.00087	9.7E-06	0.0000051	26.59	1.41	0.47	0.65	14.46	0.16	0.08	
5.56-millimeter tracer ammunition	15,720	0.0014	0.000065	0.000033	0.000049	0.00075	6.7E-06	0.0000027	22.01	1.02	0.52	0.77	11.79	0.11	0.04	
5.56-millimeter ultimate training ammunition	4,860	0.0004	0.000019	0.00001	0.000011	0.00032	0.000022	0.0000031	1.94	0.09	0.05	0.05	1.56	0.11	0.02	
7.62-millimeter ammunition	2,544,800	0.0023	0.000097	0.000038	0.000051	0.0012	0.00001	0.0000049	5,853.04	246.85	96.70	129.78	3,053.76	25.45	12.47	
9-millimeter ammunition	16,160	0.00031	0.000015	0.00002	0.000024	0.0002	1.4E-06	0.0000068	5.01	0.24	0.32	0.39	3.23	0.02	0.11	
.50-caliber machine gun ammunition up to Armor Piercing Incendiary Tracer	554,400	0.016	0.000033	0.00044	0.00097	0.0092	0.000053	0.000021	8,870.40	18.30	243.94	537.77	5,100.48	29.38	11.64	
30-millimeter ammo, various	277,800	0.00086	0.0002	0.0025	0.0039	0.0044	0.000046	0.000011	238.91	55.56	694.50	1,083.42	1,222.32	12.78	3.06	
40-millimeter smoke round	126	0.0026	0.000097	0.00012	0.00014	0.0027	5.4E-06	0.000011	0.33	0.01	0.02	0.02	0.34	0.00	0.00	
2.75-inch rocket target practice/white phosphorous	2,349	0.53	-	0.17	0.16	4.8	0.0062	0.07	1,244.97	-	399.33	375.84	11,275.20	14.56	164.43	
Smoke grenade	100	0.046	0.001	0.11	0.68	0.033	-	0.00047	4.6	0.10	11	68	3.3	-	0.047	
Illumination rocket	1,916	0.26	0.94	-	3	1.8	-	0.000058	498.16	1801.04	-	5748	3448.8	-	0.111128	
Total Annual Emissions									8.38	1.06	0.72	3.97	12.07	0.04	0.10	13.10
34% Tombstone									2.85	0.36	0.25	1.35	4.10	0.01	0.03	4.45
24% Jackal Low									2.01	0.25	0.17	0.95	2.90	0.01	0.02	3.14
10% Morenci									0.84	0.11	0.07	0.40	1.21	0.00	0.01	1.31
31% Fuzzy									2.60	0.33	0.22	1.23	3.74	0.01	0.03	4.06

HH-60 Maintenance Ops

Additional Maintenance Activities Using EFs from USAF 2021 Mobile Source Guide

Power setting		Minutes	(lb/1000 lb fuel)									Total emissions						
			FFR (Lb/hr)	Nox	Sox	CO	VOC	PM10	PM2.5	CO2	Nox	Sox	CO	VOC	PM10	PM2.5	CO2	
Ground Idle	Mtnce - 55 RGS	1,120	134	3.36	1.07	46.24	0.5	1.48	1.33	3203.44	8.40	2.68	115.66	1.25	3.70	3.33	8,013	
Ground Idle	Mtnce - 55 RGQ	6,060	134	3.36	1.07	46.24	0.5	1.48	1.33	3203.44	45.47	14.48	625.81	6.77	20.03	18.00	43,355	
Ground Idle	Idle Engine Runs	33,840	134	3.36	1.07	46.24	0.5	1.48	1.33	3203.44	253.94	80.87	3,494.63	37.79	111.85	100.52	242,103	
Flight Idle	Warm up/Cool down	49,200	469	10.95	1.07	5.12	0.02	1.26	1.13	3214.59	4,211.15	411.50	1,969.05	7.69	484.57	434.58	1,236,267	
Ground Idle	Nat'l Prog Mtnce	825	134	3.36	1.07	46.24	0.5	1.48	1.33	3203.44	6.19	1.97	85.20	0.92	2.73	2.45	5,902	
Overspeed	Nat'l Prog Mtnce	75	725	11.43	1.07	2.81	0.01	2.61	2.33	3214.59	10.36	0.97	2.55	0.01	2.37	2.11	2,913	
Ground Idle	Routine Mtnce	10,890	134	3.36	1.07	46.24	0.5	1.48	1.33	3203.44	81.72	26.02	1,124.60	12.16	36.00	32.35	77,911	
Overspeed	Routine Mtnce	990	725	11.43	1.07	2.81	0.01	2.61	2.33	3214.59	136.73	12.80	33.61	0.12	31.22	27.87	38,455	
Total in Tons per Year											2.38	0.28	3.73	0.03	0.35	0.31	827	

Airspace Helo Ops

120 knots = 138.1 mph

Flight Destinations	Average One-way Flight distance (miles)	Round trip time for transit to SUA (min)	Round trip time for transit to SUA (hrs)	Mission Time in SUA (min)	Mission Time in SUA (hrs)	Total Time (hrs)
Tombstone MOA	114	99.06	1.65	120	2	3.65
Jackal Low MOA	40	34.76	0.58	120	2	2.58
Morenci MOA	75	65.17	1.09	120	2	3.09
Fuzzy MOA	35	30.41	0.51	120	2	2.51

Flight Phase	Fuel Flow Rate (lb/hr)
Flight	725

Flight Destinations	Net Change in Annual Flights	Total Time (hrs)	# engines	Fuel Flow Rate (lb/hr) per engine	Emissions Factors (lb/1,000 lb fuel)									
					NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO ₂ e	CO ₂	CH ₄	N ₂ O
Tombstone MOA	324	1.65	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
Jackal Low MOA	233	0.58	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
Morenci MOA	95	1.09	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
Fuzzy MOA	291	0.51	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
					Flight Phase Emissions (ton/yr)							GHGs (ton/yr)		
					NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO ₂ e	CO ₂	CH ₄	N ₂ O
Tombstone MOA					4.43	0.41	1.09	0.00	1.01	0.90	1,247	#	0.06	0.01
Jackal Low MOA					1.12	0.10	0.27	0.00	0.26	0.23	315	313	0.01	0.00
Morenci MOA					0.86	0.08	0.21	0.00	0.20	0.17	241	240	0.01	0.00
Fuzzy MOA					1.22	0.11	0.30	0.00	0.28	0.25	344	343	0.02	0.00
Total Transit To/From SUA Emissions, Tons per Year					7.63	0.71	1.88	0.01	1.74	1.56	2,147			

SUA Flight Activity	Net Change in Annual Sorties	Total Time (hrs)	# engines	Fuel Flow Rate (lb/hr) per engine	Emissions Factors (lb/1,000 lb fuel)									
					NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO ₂ e	CO ₂	CH ₄	N ₂ O
Tombstone MOA	324	2.00	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
Jackal Low MOA	233	2.00	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
Morenci MOA	95	2.00	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
Fuzzy MOA	291	2.00	2	725	11.43	1.07	2.81	0.01	2.61	2.33	3,215	3,203	0.15	0.03
					Flight Phase Emissions (ton/yr)							GHGs (ton/yr)		
					NO _x	SO _x	CO	VOC	PM ₁₀	PM2.5	CO ₂ e	CO ₂	CH ₄	N ₂ O
Tombstone MOA					5.37	0.50	1.32	0.00	1.23	1.09	1,511	#	0.07	0.01
Jackal Low MOA					3.86	0.36	0.95	0.00	0.88	0.79	1,087	#	0.05	0.01
Morenci MOA					1.57	0.15	0.39	0.00	0.36	0.32	443	441	0.02	0.00
Fuzzy MOA					4.82	0.45	1.19	0.00	1.10	0.98	1,357	#	0.06	0.01
Total Airspace Emissions, Tons per Year					15.63	1.46	3.84	0.01	3.57	3.19	4,398			

A-10C Maintenance Activities

Additional Maintenance Activities Using EFs from USAF 2021 Mobile Source Guide

Power setting		# engines	Minutes	FFR (Lb/hr)
Military	A-10 Full Power Runs	2	960	2,710
Idle	AMARG	2	251	390
Idle	A-10 Parking Idle Runs	2	150	390
Idle	AFRC ANG Test Center Idle Parking Runs	2	300	390

1,920	Total minutes per setting			
502				
300				
600				
		1,920 MIL	divided by 64 aircraft	min per engine per aircraft
		1,402 Idle	30 min/aircraft	15.00
			21.9 min/aircraft	10.95

Jet Engine Test Cell Ops

Power setting		# engines	Minutes	FFR (Lb/hr)
Military	A-10 Test Cell	1	3,360	2,710
Idle	A-10 Test Cell	1	2520	390

			divided by 128 engines	
		MIL	26.25 min/engine	
		Idle	19.69 min/engine	

Airspace A-10C Low Altitude Ops

300 knots =

459.2 mph

Flight Destinations	Mission Time in SUA (min)	Total Time (hrs)	Low Altitude tim (min)
Tombstone MOA	120	2.00	36
Jackal Low MOA	120	2.00	36
Morenci MOA	120	2.00	36
Fuzzy MOA	120	2.00	36

Flight Phase	Fuel Flow Rate (lb/hr)
Flight	2,710

GHG calcs for high altitude cruise (> 3,000 ft AGL)

High Altitude A-10 Flight to SUAs, net change

Flight Destinations	Net Change in Annual Flights	Total Time (hrs)	# engines	Fuel Flow Rate (lb/hr) per engine	Emissions Factor (lb/1,000 lb fuel)	GHGs (ton/yr)
					CO ₂ e	CO ₂ e
Tombstone MOA	54	26.81	2	2,710	3,234	235
Jackal Low MOA	39	6.79	2	2,710	3,234	60
Morenci MOA	16	5.23	2	2,710	3,234	46
Fuzzy MOA	49	7.47	2	2,710	3,234	65
158 Total Airspace Emissions, Tons per Year						406

Flight Destinations	Net Change in Annual Flights	Average One-way Flight distance (miles)	Round trip time for transit to SUA (min)
Tombstone MOA	54	114	29.79
Jackal Low MOA	39	40	10.45
Morenci MOA	16	75	19.60
Fuzzy MOA	49	35	9.15
158			

Sortie duration

Aircraft	Power setting		# engines	Minutes/ sortie	Net change sorties/yr	FFR (Lb/hr/ engine)	Total Fuel Lb	CO ₂ lb/1000 lb fuel	CO ₂ tons
	Military	Cruise							
A-10C			2	120	266	2,710	2,883,440	3,234	4,663

Aircraft	surrogate aircraft data used		# engines	Minutes/ sortie†	Net change sorties/yr	FFR (Lb/hr/ engine)	Total Fuel Lb	CO ₂ e lb/1000 lb fuel	CO ₂ tons
	Military	Cruise							
Cessna-182			1	120	720	458	659,520	3,234	1,066

Aircraft	Power setting		# engines	Minutes/ sortie†	Net change sorties/yr	FFR (Lb/hr/ engine)	Total Fuel Lb	CO ₂ e lb/1000 lb fuel	CO ₂ tons
	Military	Cruise							
RC-26B			2	120	720	458	1,319,040	3,234	2,133

† Assumed

Total CO₂e **7,862**

Construction and Low Altitude Emissions:	Tons/year
Davis-Monthan AFB airfield ops	22,056
Low Altitude Transit and Airspace Ops	7,388
High Altitude Transit and Sortie Ops	8,268
Personnel	520
Total CO2e for annual aircraft ops	38,232
2023 Construction emissions	110
2024 Construction emissions	784

20-year Lifetime emissions estimate **765,530**

This Page Intentionally Blank

Davis-Monthan AFB ACAM ROCA and Detail Report

This Page Intentionally Blank

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

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): Rillito, AZ

b. Action Title: Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

c. Project Number/s (if applicable):

d. Projected Action Start Date: 10 / 2023

e. Action Description:

The Air Force is proposing to relocate the following 4th Gen missions from Nellis AFB, Nevada, to Davis-Monthan AFB, Arizona:

- 66th Weapons Squadron (66 WPS)
- A-10 Operational Test (OT) portion of the 422nd Test and Evaluation Squadron (422 TES)
- 66th Rescue Squadron (66 RQS)
- 58th Rescue Squadron (58 RQS)
- 34th Weapons Squadron (34 WPS)
- 88th Test and Evaluation Squadron (88 TES)

In order to create capacity at Davis-Monthan AFB to accept the aforementioned missions, the Air Force proposes to take the following actions with units already stationed at Davis-Monthan AFB:

- Inactivate the 354th Fighter Squadron (354 FS) and retire assigned A-10C aircraft.
- Convert the 357th Fighter Squadron (357 FS) from an active duty flying squadron to an active association with the 47th Fighter Squadron (47 FS), an AFRC A-10 FTU. Some A-10 aircraft assigned to the 357 FS would be retired, others would be reassigned to the 47 FS.

The Air Force also proposes several unrelated actions that are analyzed in this EA due to overlap in the proposed timing:

- Beddown CAP Cessna 182.
- Relocate RC-26B operations.

f. Point of Contact:

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the "worst-case" and "steady state" (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are:

_____ applicable
 X not applicable

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

Conformity Analysis Summary:

2023

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Rillito, AZ			
VOC	0.406		
NOx	0.286		
CO	0.402		
SOx	0.001		
PM 10	0.063	100	No
PM 2.5	0.010		
Pb	0.000		
NH3	0.001		
CO2e	101.9		

2024

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Rillito, AZ			
VOC	2.949		
NOx	2.196		
CO	3.431		
SOx	0.007		
PM 10	5.187	100	No
PM 2.5	0.074		
Pb	0.000		
NH3	0.007		
CO2e	784.1		

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Rillito, AZ			
VOC	16.7		
NOx	94.8		
CO	70.9		
SOx	7.9		
PM 10	13.3	100	No
PM 2.5	11.6		
Pb	0.0		
NH3	0.04		
22,056	22,056		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Lesley Hamilton, Consultant

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: DAVIS-MONTHAN AFB
State: Arizona
County(s): Pima
Regulatory Area(s): Rillito, AZ

- **Action Title:** Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 10 / 2023

- Action Purpose and Need:

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations from Nellis AFB to Davis-Monthan AFB, Arizona in support of Nellis AFB increase in fighter aircraft. Two other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

- Action Description:

The Air Force is proposing to relocate the following 4th Gen missions from Nellis AFB, Nevada, to Davis-Monthan AFB, Arizona:

- 66th Weapons Squadron (66 WPS)
- A-10 Operational Test (OT) portion of the 422nd Test and Evaluation Squadron (422 TES)
- 66th Rescue Squadron (66 RQS)
- 58th Rescue Squadron (58 RQS)
- 34th Weapons Squadron (34 WPS)
- 88th Test and Evaluation Squadron (88 TES)

In order to create capacity at Davis-Monthan AFB to accept the aforementioned missions, the Air Force proposes to take the following actions with units already stationed at Davis-Monthan AFB:

- Inactivate the 354th Fighter Squadron (354 FS) and retire assigned A-10C aircraft.
- Convert the 357th Fighter Squadron (357 FS) from an active duty flying squadron to an active association with the 47th Fighter Squadron (47 FS), an AFRC A-10 FTU. Some A-10 aircraft assigned to the 357 FS would be retired, others would be reassigned to the 47 FS.

The Air Force also proposes several unrelated actions that are analyzed in this EA due to overlap in the proposed timing:

- Beddown CAP Cessna 182.
- Relocate RC-26B operations.

- Point of Contact

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Construction / Demolition	2023 Construction Activities - construct one hangar
3.	Construction / Demolition	Construction activities - 2024

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.	Aircraft	Preferred Alternative additional A-10C LTOs
5.	Aircraft	Cessna 182 operations
6.	Aircraft	RC-26B Operations
7.	Aircraft	RC-26B jet engine test cell activities
8.	Personnel	Additional Personnel
9.	Aircraft	Additional A-10C Closed Pattern Ops at Davis-Monthan AFB
10.	Aircraft	Additional A-10C Jet Engine Test Cell Activities

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

2. Construction / Demolition

2.1 General Information & Timeline Assumptions

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: 2023 Construction Activities - construct one hangar

- Activity Description:

Construct 1 hangar

- Activity Start Date

Start Month: 10

Start Month: 2023

- Activity End Date

Indefinite: False

End Month: 12

End Month: 2023

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	0.406190
SO _x	0.000899
NO _x	0.286495
CO	0.402347
PM 10	0.062977

Pollutant	Total Emissions (TONs)
PM 2.5	0.009537
Pb	0.000000
NH ₃	0.000748
CO _{2e}	101.9

2.1 Site Grading Phase

2.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 10

Start Quarter: 1

Start Year: 2023

- Phase Duration

Number of Month: 0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Number of Days: 3

2.1.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 38750
 Amount of Material to be Hauled On-Site (yd³): 1148
 Amount of Material to be Hauled Off-Site (yd³): 1148

- Site Grading Default Settings

Default Settings Used: No
 Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Dumpers/Tenders Composite	5	1
Graders Composite	1	6
Other Construction Equipment Composite	1	8
Rubber Tired Dozers Composite	1	6
Tractors/Loaders/Backhoes Composite	1	7

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 12
 Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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

2.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Dumpers/Tenders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0091	0.0001	0.0581	0.0313	0.0021	0.0021	0.0008	7.6451
Graders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0757	0.0014	0.4155	0.5717	0.0191	0.0191	0.0068	132.91
Other Construction Equipment Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0483	0.0012	0.2497	0.3481	0.0091	0.0091	0.0043	122.61
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1830	0.0024	1.2623	0.7077	0.0494	0.0494	0.0165	239.49
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879
------------------	--------	--------	--------	--------	--------	--------	--------	--------

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.244	000.001	000.142	003.587	000.004	000.003		000.025	00324.960
LDGT	000.262	000.002	000.240	004.095	000.005	000.005		000.026	00419.031
HDGV	001.016	000.004	001.030	015.716	000.025	000.022		000.052	00911.371
LDDV	000.067	000.001	000.106	003.801	000.003	000.002		000.008	00337.674
LDDT	000.114	000.001	000.251	003.075	000.004	000.003		000.008	00380.587
HDDV	000.131	000.004	002.950	001.694	000.059	000.055		000.033	01314.196
MC	003.171	000.002	000.724	012.920	000.023	000.021		000.053	00388.600

2.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM10_{FD} = (20 * ACRE * WD) / 2000$$

- PM10_{FD}: Fugitive Dust PM 10 Emissions (TONs)
- 20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)
- ACRE: Total acres (acres)
- WD: Number of Total Work Days (days)
- 2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

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

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

- VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)
- HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)
- HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)
- HC: Average Hauling Truck Capacity (yd³)
- (1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)
- HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

- Worker Trips Emissions per Phase

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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

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

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

2.2 Building Construction Phase

2.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 10
Start Quarter: 1
Start Year: 2023

- Phase Duration

Number of Month: 3
Number of Days: 0

2.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
Area of Building (ft²): 31000
Height of Building (ft): 20
Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: No
Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	4
Forklifts Composite	2	6
Tractors/Loaders/Backhoes Composite	2	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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

- Vendor Trips

Average Vendor Round Trip Commute (mile): 20

- Vendor Trips Vehicle Mixture (%)

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

2.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Cranes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0754	0.0013	0.5027	0.3786	0.0181	0.0181	0.0068	128.79
Forklifts Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0258	0.0006	0.1108	0.2145	0.0034	0.0034	0.0023	54.454
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0364	0.0007	0.2127	0.3593	0.0080	0.0080	0.0032	66.879

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.244	000.001	000.142	003.587	000.004	000.003		000.025	00324.960
LDGT	000.262	000.002	000.240	004.095	000.005	000.005		000.026	00419.031
HDGV	001.016	000.004	001.030	015.716	000.025	000.022		000.052	00911.371
LDDV	000.067	000.001	000.106	003.801	000.003	000.002		000.008	00337.674
LDDT	000.114	000.001	000.251	003.075	000.004	000.003		000.008	00380.587
HDDV	000.131	000.004	002.950	001.694	000.059	000.055		000.033	01314.196
MC	003.171	000.002	000.724	012.920	000.023	000.021		000.053	00388.600

2.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF_{POL}: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

BA: Area of Building (ft²)

BH: Height of Building (ft)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

- Worker Trips Emissions per Phase

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

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

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

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

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT} : Vender Trips Vehicle Miles Travel (miles)
BA: Area of Building (ft²)
BH: Height of Building (ft)
(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft³)
HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

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

2.3 Architectural Coatings Phase

2.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date

Start Month: 12
Start Quarter: 1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Start Year: 2023

- Phase Duration

Number of Month: 0

Number of Days: 5

2.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information

Building Category: Non-Residential

Total Square Footage (ft²): 31000

Number of Units: N/A

- Architectural Coatings Default Settings

Default Settings Used: No

Average Day(s) worked per week: 5

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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

2.3.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.244	000.001	000.142	003.587	000.004	000.003		000.025	00324.960
LDGT	000.262	000.002	000.240	004.095	000.005	000.005		000.026	00419.031
HDGV	001.016	000.004	001.030	015.716	000.025	000.022		000.052	00911.371
LDDV	000.067	000.001	000.106	003.801	000.003	000.002		000.008	00337.674
LDDT	000.114	000.001	000.251	003.075	000.004	000.003		000.008	00380.587
HDDV	000.131	000.004	002.950	001.694	000.059	000.055		000.033	01314.196
MC	003.171	000.002	000.724	012.920	000.023	000.021		000.053	00388.600

2.3.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

1: Conversion Factor man days to trips (1 trip / 1 man * day)

WT: Average Worker Round Trip Commute (mile)

PA: Paint Area (ft²)

800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

VOC_{AC}: Architectural Coating VOC Emissions (TONs)

BA: Area of Building (ft²)

2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)

0.0116: Emission Factor (lb/ft²)

2000: Conversion Factor pounds to tons

3. Construction / Demolition

3.1 General Information & Timeline Assumptions

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: Construction activities - 2024

- Activity Description:

Construct flight simulators, hangars, LOLAs, munition igloos, ops and training bldgs, armament shop and road extension for ops bldgs.

- Activity Start Date

Start Month: 1

Start Month: 2024

- Activity End Date

Indefinite: False

End Month: 11

End Month: 2024

- Activity Emissions:

Pollutant	Total Emissions (TONs)
VOC	2.948509
SO _x	0.007004
NO _x	2.195795
CO	3.430942
PM 10	5.187156

Pollutant	Total Emissions (TONs)
PM 2.5	0.074176
Pb	0.000000
NH ₃	0.007370
CO _{2e}	784.1

3.1 Site Grading Phase

3.1.1 Site Grading Phase Timeline Assumptions

- Phase Start Date

Start Month: 1

Start Quarter: 1

Start Year: 2024

- Phase Duration

Number of Month: 0

Number of Days: 30

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

3.1.2 Site Grading Phase Assumptions

- General Site Grading Information

Area of Site to be Graded (ft²): 519638
 Amount of Material to be Hauled On-Site (yd³): 17141
 Amount of Material to be Hauled Off-Site (yd³): 11326

- Site Grading Default Settings

Default Settings Used: No
 Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Excavators Composite	1	5.33
Graders Composite	1	5.33
Rubber Tired Dozers Composite	3	4.44
Tractors/Loaders/Backhoes Composite	3	9

- Vehicle Exhaust

Average Hauling Truck Capacity (yd³): 20
 Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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

3.1.3 Site Grading Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Excavators Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Graders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.231	000.001	000.115	003.465	000.004	000.003		000.024	00317.186

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

LDGT	000.244	000.002	000.203	003.885	000.005	000.005		000.026	00410.214
HDGV	000.985	000.004	000.937	014.893	000.024	000.021		000.052	00918.590
LDDV	000.061	000.001	000.092	003.641	000.002	000.002		000.008	00326.251
LDDT	000.068	000.001	000.140	002.502	000.003	000.003		000.008	00371.496
HDDV	000.115	000.004	002.728	001.627	000.050	000.046		000.033	01283.227
MC	003.169	000.002	000.722	012.803	000.023	000.021		000.053	00388.727

3.1.4 Site Grading Phase Formula(s)

- Fugitive Dust Emissions per Phase

$$PM_{10FD} = (20 * ACRE * WD) / 2000$$

PM_{10FD}: Fugitive Dust PM 10 Emissions (TONs)

20: Conversion Factor Acre Day to pounds (20 lb / 1 Acre Day)

ACRE: Total acres (acres)

WD: Number of Total Work Days (days)

2000: Conversion Factor pounds to tons

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF_{POL}: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = (HA_{OnSite} + HA_{OffSite}) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

HA_{OnSite}: Amount of Material to be Hauled On-Site (yd³)

HA_{OffSite}: Amount of Material to be Hauled Off-Site (yd³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

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

3.2 Building Construction Phase

3.2.1 Building Construction Phase Timeline Assumptions

- Phase Start Date

Start Month: 1
 Start Quarter: 1
 Start Year: 2024

- Phase Duration

Number of Month: 11
 Number of Days: 0

3.2.2 Building Construction Phase Assumptions

- General Building Construction Information

Building Category: Office or Industrial
 Area of Building (ft²): 227150
 Height of Building (ft): 14
 Number of Units: N/A

- Building Construction Default Settings

Default Settings Used: No
 Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Cranes Composite	1	7
Dumpers/Tenders Composite	15	0.5
Forklifts Composite	3	8
Generator Sets Composite	1	8
Tractors/Loaders/Backhoes Composite	3	7
Welders Composite	1	8

- Vehicle Exhaust

Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

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

- Worker Trips

Average Worker Round Trip Commute (mile): 20

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Worker Trips Vehicle Mixture (%)

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

- Vendor Trips

Average Vendor Round Trip Commute (mile): 20

- Vendor Trips Vehicle Mixture (%)

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

3.2.3 Building Construction Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Cranes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0715	0.0013	0.4600	0.3758	0.0161	0.0161	0.0064	128.78
Dumpers/Tenders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0091	0.0001	0.0581	0.0313	0.0021	0.0021	0.0008	7.6451
Forklifts Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0246	0.0006	0.0973	0.2146	0.0029	0.0029	0.0022	54.451
Generator Sets Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0303	0.0006	0.2464	0.2674	0.0091	0.0091	0.0027	61.061
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875
Welders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0227	0.0003	0.1427	0.1752	0.0059	0.0059	0.0020	25.653

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.231	000.001	000.115	003.465	000.004	000.003		000.024	00317.186
LDGT	000.244	000.002	000.203	003.885	000.005	000.005		000.026	00410.214
HDGV	000.985	000.004	000.937	014.893	000.024	000.021		000.052	00918.590
LDDV	000.061	000.001	000.092	003.641	000.002	000.002		000.008	00326.251
LDDT	000.068	000.001	000.140	002.502	000.003	000.003		000.008	00371.496
HDDV	000.115	000.004	002.728	001.627	000.050	000.046		000.033	01283.227
MC	003.169	000.002	000.722	012.803	000.023	000.021		000.053	00388.727

3.2.4 Building Construction Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF_{POL}: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = BA * BH * (0.42 / 1000) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

BA: Area of Building (ft²)

BH: Height of Building (ft)

(0.42 / 1000): Conversion Factor ft³ to trips (0.42 trip / 1000 ft³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Vender Trips Emissions per Phase

$$VMT_{VT} = BA * BH * (0.38 / 1000) * HT$$

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)

BA: Area of Building (ft²)

BH: Height of Building (ft)

(0.38 / 1000): Conversion Factor ft³ to trips (0.38 trip / 1000 ft³)

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL}: Vehicle Emissions (TONs)

VMT_{VT}: Vender Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL}: Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

3.3 Architectural Coatings Phase

3.3.1 Architectural Coatings Phase Timeline Assumptions

- Phase Start Date

Start Month: 11
 Start Quarter: 1
 Start Year: 2024

- Phase Duration

Number of Month: 0
 Number of Days: 20

3.3.2 Architectural Coatings Phase Assumptions

- General Architectural Coatings Information

Building Category: Non-Residential
 Total Square Footage (ft²): 220800
 Number of Units: N/A

- Architectural Coatings Default Settings

Default Settings Used: No
 Average Day(s) worked per week: 5

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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

3.3.3 Architectural Coatings Phase Emission Factor(s)

- Worker Trips Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.231	000.001	000.115	003.465	000.004	000.003		000.024	00317.186
LDGT	000.244	000.002	000.203	003.885	000.005	000.005		000.026	00410.214
HdGV	000.985	000.004	000.937	014.893	000.024	000.021		000.052	00918.590
LDDV	000.061	000.001	000.092	003.641	000.002	000.002		000.008	00326.251
LDDT	000.068	000.001	000.140	002.502	000.003	000.003		000.008	00371.496
HDDV	000.115	000.004	002.728	001.627	000.050	000.046		000.033	01283.227
MC	003.169	000.002	000.722	012.803	000.023	000.021		000.053	00388.727

3.3.4 Architectural Coatings Phase Formula(s)

- Worker Trips Emissions per Phase

$$VMT_{WT} = (1 * WT * PA) / 800$$

VMT_{WT}: Worker Trips Vehicle Miles Travel (miles)

1: Conversion Factor man days to trips (1 trip / 1 man * day)

WT: Average Worker Round Trip Commute (mile)

PA: Paint Area (ft²)

800: Conversion Factor square feet to man days (1 ft² / 1 man * day)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

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

- Off-Gassing Emissions per Phase

$$VOC_{AC} = (AB * 2.0 * 0.0116) / 2000.0$$

- VOC_{AC}: Architectural Coating VOC Emissions (TONs)
- BA: Area of Building (ft²)
- 2.0: Conversion Factor total area to coated area (2.0 ft² coated area / total area)
- 0.0116: Emission Factor (lb/ft²)
- 2000: Conversion Factor pounds to tons

3.4 Paving Phase

3.4.1 Paving Phase Timeline Assumptions

- Phase Start Date

- Start Month: 11
- Start Quarter: 1
- Start Year: 2024

- Phase Duration

- Number of Month: 0
- Number of Days: 20

3.4.2 Paving Phase Assumptions

- General Paving Information

- Paving Area (ft²): 105276

- Paving Default Settings

- Default Settings Used: No
- Average Day(s) worked per week: 5

- Construction Exhaust

Equipment Name	Number Of Equipment	Hours Per Day
Cement and Mortar Mixers Composite	2	8
Dumpers/Tenders Composite	31	0.5
Paving Equipment Composite	2	8
Rollers Composite	2	8

- Vehicle Exhaust

- Average Hauling Truck Round Trip Commute (mile): 20

- Vehicle Exhaust Vehicle Mixture (%)

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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Worker Trips

Average Worker Round Trip Commute (mile): 20

- Worker Trips Vehicle Mixture (%)

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

3.4.3 Paving Phase Emission Factor(s)

- Construction Exhaust Emission Factors (lb/hour)

Excavators Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0584	0.0013	0.2523	0.5090	0.0100	0.0100	0.0052	119.71
Graders Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0714	0.0014	0.3708	0.5706	0.0167	0.0167	0.0064	132.90
Rubber Tired Dozers Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.1747	0.0024	1.1695	0.6834	0.0454	0.0454	0.0157	239.47
Tractors/Loaders/Backhoes Composite								
	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CH ₄	CO _{2e}
Emission Factors	0.0348	0.0007	0.1980	0.3589	0.0068	0.0068	0.0031	66.875

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

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.231	000.001	000.115	003.465	000.004	000.003		000.024	00317.186
LDGT	000.244	000.002	000.203	003.885	000.005	000.005		000.026	00410.214
HDGV	000.985	000.004	000.937	014.893	000.024	000.021		000.052	00918.590
LDDV	000.061	000.001	000.092	003.641	000.002	000.002		000.008	00326.251
LDDT	000.068	000.001	000.140	002.502	000.003	000.003		000.008	00371.496
HDDV	000.115	000.004	002.728	001.627	000.050	000.046		000.033	01283.227
MC	003.169	000.002	000.722	012.803	000.023	000.021		000.053	00388.727

3.4.4 Paving Phase Formula(s)

- Construction Exhaust Emissions per Phase

$$CEE_{POL} = (NE * WD * H * EF_{POL}) / 2000$$

CEE_{POL}: Construction Exhaust Emissions (TONs)

NE: Number of Equipment

WD: Number of Total Work Days (days)

H: Hours Worked per Day (hours)

EF_{POL}: Emission Factor for Pollutant (lb/hour)

2000: Conversion Factor pounds to tons

- Vehicle Exhaust Emissions per Phase

$$VMT_{VE} = PA * 0.25 * (1 / 27) * (1 / HC) * HT$$

VMT_{VE}: Vehicle Exhaust Vehicle Miles Travel (miles)

PA: Paving Area (ft²)

0.25: Thickness of Paving Area (ft)

(1 / 27): Conversion Factor cubic feet to cubic yards (1 yd³ / 27 ft³)

HC: Average Hauling Truck Capacity (yd³)

(1 / HC): Conversion Factor cubic yards to trips (1 trip / HC yd³)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

HT: Average Hauling Truck Round Trip Commute (mile/trip)

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

V_{POL} : Vehicle Emissions (TONs)

VMT_{VE} : Vehicle Exhaust Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Vehicle Exhaust On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Worker Trips Emissions per Phase

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

VMT_{WT} : Worker Trips Vehicle Miles Travel (miles)

WD: Number of Total Work Days (days)

WT: Average Worker Round Trip Commute (mile)

1.25: Conversion Factor Number of Construction Equipment to Number of Works

NE: Number of Construction Equipment

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

V_{POL} : Vehicle Emissions (TONs)

VMT_{VE} : Worker Trips Vehicle Miles Travel (miles)

0.002205: Conversion Factor grams to pounds

EF_{POL} : Emission Factor for Pollutant (grams/mile)

VM: Worker Trips On Road Vehicle Mixture (%)

2000: Conversion Factor pounds to tons

- Off-Gassing Emissions per Phase

$$VOC_P = (2.62 * PA) / 43560$$

VOC_P : Paving VOC Emissions (TONs)

2.62: Emission Factor (lb/acre)

PA: Paving Area (ft²)

43560: Conversion Factor square feet to acre (43560 ft² / acre)² / acre)

4. Aircraft

4.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: Preferred Alternative additional A-10C LTOs

- Activity Description:

Relocate the 66 WPS, 422 TES A-10C OT mission, 66 RQS, 58 RQS, 34 WPS, and 88 TES from Nellis AFB to Davis-Monthan AFB. This alternative would also inactivate the 354 FS and convert the 357 FS to an active association with the 47 FS. This alternative would result in a decrease of 20 PAA A-10C aircraft, but an increase overall in flight operations.

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Start Date

Start Month: 1
Start Year: 2025

- Activity End Date

Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	11.096883
SO _x	2.999115
NO _x	18.640465
CO	46.495928
PM 10	3.049883

Pollutant	Emissions Per Year (TONs)
PM 2.5	2.124594
Pb	0.000000
NH ₃	0.000000
CO _{2e}	8556.3

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

Pollutant	Emissions Per Year (TONs)
VOC	7.636664
SO _x	2.639595
NO _x	11.293595
CO	41.677361
PM 10	2.113360

Pollutant	Emissions Per Year (TONs)
PM 2.5	1.217327
Pb	0.000000
NH ₃	0.000000
CO _{2e}	8296.5

4.2 Aircraft & Engines

4.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: A-10C
Engine Model: TF34-GE-100
Primary Function: Combat
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

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

4.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234
Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234
Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

4.3 Flight Operations

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

4.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	64
Flight Operation Cycle Type:	LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft:	266
Number of Annual Trim Test(s) per Aircraft:	1

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	46.33
Approach [Approach] (mins):	5.46
Climb Out [Intermediate] (mins):	0.96
Takeoff [Military] (mins):	1.33
Takeoff [After Burn] (mins):	0

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

- Trim Test

Idle (mins):	10.95
Approach (mins):	0
Intermediate (mins):	0
Military (mins):	15
AfterBurn (mins):	0

4.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONS

- Aircraft Emissions for Trim per Year

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

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

4.4 Auxiliary Power Unit (APU)

4.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: No

- Auxiliary Power Unit (APU)

Number of APU per Aircraft	Operation Hours for Each LTO	Exempt Source?	Designation	Manufacturer
64	1	No	GTCP 36-50	

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

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
GTCP 36-50	272.6	0.493	0.289	1.216	3.759	0.131	0.037	910.8

4.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

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

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

4.5 Aerospace Ground Equipment (AGE)

4.5.1 Aerospace Ground Equipment (AGE) Assumptions

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 266

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	2	No	Air Compressor	MC-1A - 18.4hp
1	8	No	Bomb Lift	MJ-1B
1	1	No	Generator Set	A/M32A-86D
1	2	No	Heater	H1
1	2	No	Hydraulic Test Stand	MJ-2A
1	2	No	Light Cart	NF-2
1	1	No	Start Cart	A/M32A-60A

4.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MJ-1B	0.0	3.040	0.219	4.780	3.040	0.800	0.776	141.2
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2A	0.0	0.190	0.238	3.850	2.460	0.083	0.076	172.0
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

4.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)

AGE: Total Number of Aerospace Ground Equipment

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

5. Aircraft

5.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: Cessna 182 operations

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Description:

Operations from the beddown of the Civil Air Patrol Cessna 182 , which would provide better training and increase operations missions that the CAP conducts in support of the Air Force. The MQ-9, with the TPE331 engine was used as a surrogate. Default ACAM settings for engine maintenance, APU and AGE were used for the aircraft ops.

- Activity Start Date

Start Month: 1
Start Year: 2025

- Activity End Date

Indefinite: Yes
End Month: N/A
End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.924816
SO _x	0.029266
NO _x	0.218665
CO	0.689404
PM 10	0.061997

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.055743
Pb	0.000000
NH ₃	0.000000
CO _{2e}	88.5

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

Pollutant	Emissions Per Year (TONs)
VOC	0.924816
SO _x	0.029266
NO _x	0.218665
CO	0.689404
PM 10	0.061997

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.055743
Pb	0.000000
NH ₃	0.000000
CO _{2e}	88.5

5.2 Aircraft & Engines

5.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: MQ-9
Engine Model: TPE-331
Primary Function: Unmanned Aerial Vehicle
Aircraft has After burn: No
Number of Engines: 1

- Aircraft & Engine Surrogate

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

5.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	112.00	90.97	1.07	2.86	61.52	2.68	2.41	3234
Approach	250.00	0.74	1.07	9.92	6.96	2.40	2.16	3234
Intermediate	409.00	0.17	1.07	11.86	0.98	1.47	1.32	3234

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Military	458.00	0.13	1.07	12.36	0.76	1.75	1.57	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

5.3 Flight Operations

5.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	2
Flight Operation Cycle Type:	LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft:	720
Number of Annual Trim Test(s) per Aircraft:	12

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	14.6
Approach [Approach] (mins):	5.05
Climb Out [Intermediate] (mins):	1.22
Takeoff [Military] (mins):	1.28
Takeoff [After Burn] (mins):	0

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

- Trim Test

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

5.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

5.4 Auxiliary Power Unit (APU)

5.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

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

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

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
-------------	-----------	-----	-----------------	-----------------	----	-------	--------	------------------

5.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

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

APU_{POL}: Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

5.5 Aerospace Ground Equipment (AGE)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

5.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 720

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
---------------------	------------------------------	----------------	----------	-------------

5.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
-------------	-----------	-----	-----------------	-----------------	----	-------	--------	------------------

5.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)

AGE: Total Number of Aerospace Ground Equipment

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

6. Aircraft

6.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: RC-26B Operations

- Activity Description:

The RC-26B would be relocated to D-M AFB to create space for an impending large-scale increase in international F-16 training at Morris ANGB.

- Activity Start Date

Start Month: 1

Start Year: 2025

- Activity End Date

Indefinite: Yes

End Month: N/A

End Year: N/A

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	4.262221
SO _x	0.718088
NO _x	32.279356
CO	7.694320
PM 10	0.903198

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.863924
Pb	0.000000
NH ₃	0.000000
CO _{2e}	1162.0

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

Pollutant	Emissions Per Year (TONs)
VOC	1.819341
SO _x	0.047735
NO _x	0.333262
CO	1.308853
PM 10	0.101281

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.091057
Pb	0.000000
NH ₃	0.000000
CO _{2e}	144.3

6.2 Aircraft & Engines

6.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: C-26B
Engine Model: TPE331-12UA-701G
Primary Function: General - Turboprop
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

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

6.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	112.00	90.97	1.07	2.86	61.52	2.68	2.41	3234
Approach	250.00	0.74	1.07	9.92	6.96	2.40	2.16	3234
Intermediate	409.00	0.17	1.07	11.86	0.98	1.47	1.32	3234
Military	458.00	0.13	1.07	12.36	0.76	1.75	1.57	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

6.3 Flight Operations

6.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 1
Flight Operation Cycle Type: LTO (Landing and Takeoff)
Number of Annual Flight Operation Cycles for all Aircraft: 720
Number of Annual Trim Test(s) per Aircraft: 12

- Default Settings Used: No

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	14.6
Approach [Approach] (mins):	3.03
Climb Out [Intermediate] (mins):	1.36
Takeoff [Military] (mins):	1.05
Takeoff [After Burn] (mins):	0

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

- Trim Test

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

6.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM} : Aircraft Emissions (TONs)

$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

$AEPS_{APPROACH}$: Aircraft Emissions for Approach Power Setting (TONs)

$AEPS_{INTERMEDIATE}$: Aircraft Emissions for Intermediate Power Setting (TONs)

$AEPS_{MILITARY}$: Aircraft Emissions for Military Power Setting (TONs)

$AEPS_{AFTERBURN}$: Aircraft Emissions for After Burner Power Setting (TONs)

6.4 Auxiliary Power Unit (APU)

6.4.1 Auxiliary Power Unit (APU) Assumptions

- Default Settings Used: Yes

- Auxiliary Power Unit (APU) (default)

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

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

- Auxiliary Power Unit (APU) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
-------------	-----------	-----	-----------------	-----------------	----	-------	--------	------------------

6.4.3 Auxiliary Power Unit (APU) Formula(s)

- Auxiliary Power Unit (APU) Emissions per Year

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

APU_{POL} : Auxiliary Power Unit (APU) Emissions per Pollutant (TONs)

APU: Number of Auxiliary Power Units

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL} : Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

6.5 Aerospace Ground Equipment (AGE)

6.5.1 Aerospace Ground Equipment (AGE) Assumptions

- Default Settings Used: Yes

- AGE Usage

Number of Annual LTO (Landing and Take-off) cycles for AGE: 720

- Aerospace Ground Equipment (AGE) (default)

Total Number of AGE	Operation Hours for Each LTO	Exempt Source?	AGE Type	Designation
1	10	No	Air Compressor	MC-1A - 18.4hp
1	1	No	Air Conditioner	MA-3D - 120hp

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1	11	No	Generator Set	A/M32A-86D
1	1	No	Heater	H1
1	3	No	Hydraulic Test Stand	MJ-2A
1	10	No	Light Cart	NF-2
1	0.25	No	Start Cart	A/M32A-60A

6.5.2 Aerospace Ground Equipment (AGE) Emission Factor(s)

- Aerospace Ground Equipment (AGE) Emission Factor (lb/hr)

Designation	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
MC-1A - 18.4hp	1.1	0.267	0.008	0.419	0.267	0.071	0.068	24.8
MA-3D - 120hp	7.1	0.053	0.050	4.167	0.317	0.109	0.105	161.7
A/M32A-86D	6.5	0.294	0.046	6.102	0.457	0.091	0.089	147.0
H1	0.4	0.100	0.011	0.160	0.180	0.006	0.006	8.9
MJ-2A	0.0	0.190	0.238	3.850	2.460	0.083	0.076	172.0
NF-2	0.0	0.010	0.043	0.110	0.080	0.010	0.010	22.1
A/M32A-60A	0.0	0.270	0.306	1.820	5.480	0.211	0.205	221.1

6.5.3 Aerospace Ground Equipment (AGE) Formula(s)

- Aerospace Ground Equipment (AGE) Emissions per Year

$$AGE_{POL} = AGE * OH * LTO * EF_{POL} / 2000$$

AGE_{POL}: Aerospace Ground Equipment (AGE) Emissions per Pollutant (TONs)

AGE: Total Number of Aerospace Ground Equipment

OH: Operation Hours for Each LTO (hour)

LTO: Number of LTOs

EF_{POL}: Emission Factor for Pollutant (lb/hr)

2000: Conversion Factor pounds to tons

7. Aircraft

7.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Pima

Regulatory Area(s): NOT IN A REGULATORY AREA

- Activity Title: RC-26B jet engine test cell activities

- Activity Description:

Default ACAM settings for RC-26B jet engine test cell activities for 1 aircraft - stationary source operations.

- Activity Start Date

Start Month: 1

Start Year: 2025

- Activity End Date

Indefinite: Yes

End Month: N/A

End Year: N/A

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.025713
SO _x	0.003696
NO _x	0.036478
CO	0.027489
PM 10	0.006966

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.006261
Pb	0.000000
NH ₃	0.000000
CO _{2e}	11.2

7.2 Aircraft & Engines

7.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: C-26B
Engine Model: TPE331-12UA-701G
Primary Function: General - Turboprop
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

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

7.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	112.00	90.97	1.07	2.86	61.52	2.68	2.41	3234
Approach	250.00	0.74	1.07	9.92	6.96	2.40	2.16	3234
Intermediate	409.00	0.17	1.07	11.86	0.98	1.47	1.32	3234
Military	458.00	0.13	1.07	12.36	0.76	1.75	1.57	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

7.3 Aircraft Engine Test Cell

7.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 2

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 12 (default)
Idle Duration (mins): 12 (default)
Approach Duration (mins): 27 (default)
Intermediate Duration (mins): 9 (default)
Military Duration (mins): 12 (default)
After Burner Duration (mins): 0 (default)

7.3.2 Aircraft Engine Test Cell Emission Factor(s)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- See Aircraft & Engines Emission Factor(s)

7.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$$\text{TestCellPS}_{\text{POL}} = (\text{TD} / 60) * (\text{FC} / 1000) * \text{EF} * \text{NE} * \text{ARU} / 2000$$

TestCellPS_{POL}: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Total Number of Engines (For All Aircraft)

ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year

$$\text{TestCell} = \text{TestCellPS}_{\text{IDLE}} + \text{TestCellPS}_{\text{APPROACH}} + \text{TestCellPS}_{\text{INTERMEDIATE}} + \text{TestCellPS}_{\text{MILITARY}} + \text{TestCellPS}_{\text{AFTERBURN}}$$

TestCell: Aircraft Engine Test Cell Emissions (TONs)

TestCellPS_{IDLE}: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)

TestCellPS_{APPROACH}: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)

TestCellPS_{INTERMEDIATE}: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)

TestCellPS_{MILITARY}: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)

TestCellPS_{AFTERBURN}: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

8. Personnel

8.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: Additional Personnel

- Activity Description:

Proposed action would result in an overall increase of 646 personnel.

- Activity Start Date

Start Month: 1

Start Year: 2025

- Activity End Date

Indefinite: Yes

End Month: N/A

End Year: N/A

- Activity Emissions:

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Pollutant	Emissions Per Year (TONs)
VOC	0.399804
SO _x	0.002300
NO _x	0.225239
CO	5.247089
PM 10	0.007034

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.006448
Pb	0.000000
NH ₃	0.036463
CO _{2e}	520.0

8.2 Personnel Assumptions

- Number of Personnel

Active Duty Personnel:	95
Civilian Personnel:	62
Support Contractor Personnel:	0
Air National Guard (ANG) Personnel:	0
Reserve Personnel:	489

- Default Settings Used: Yes

- Average Personnel Round Trip Commute (mile): 20 (default)

- Personnel Work Schedule

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

8.3 Personnel On Road Vehicle Mixture

- On Road Vehicle Mixture (%)

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

8.4 Personnel Emission Factor(s)

- On Road Vehicle Emission Factors (grams/mile)

	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	Pb	NH ₃	CO _{2e}
LDGV	000.221	000.001	000.100	003.291	000.004	000.003		000.024	00309.498
LDGT	000.230	000.002	000.178	003.679	000.005	000.005		000.026	00401.828
HDGV	000.960	000.004	000.856	014.076	000.024	000.021		000.051	00923.477
LDDV	000.058	000.001	000.086	003.577	000.003	000.002		000.008	00314.547
LDDT	000.064	000.001	000.129	002.423	000.003	000.003		000.008	00365.414
HDDV	000.101	000.004	002.540	001.568	000.042	000.039		000.032	01254.683
MC	003.166	000.002	000.720	012.654	000.023	000.021		000.053	00388.847

8.5 Personnel Formula(s)

- Personnel Vehicle Miles Travel for Work Days per Year

$$VMT_p = NP * WD * AC$$

VMT_p: Personnel Vehicle Miles Travel (miles/year)

NP: Number of Personnel

WD: Work Days per Year

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AC: Average Commute (miles)

- Total Vehicle Miles Travel per Year

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

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

- Vehicle Emissions per Year

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

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

9. Aircraft

9.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add
- Activity Location
 - County: Pima
 - Regulatory Area(s): Rillito, AZ
- Activity Title: Additional A-10C Closed Pattern Ops at Davis-Monthan AFB
- Activity Description:
 - Additional A-10C Closed Pattern Ops at Davis-Monthan AFB
- Activity Start Date
 - Start Month: 1
 - Start Year: 2025
- Activity End Date
 - Indefinite: Yes
 - End Month: N/A
 - End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.005295
SO _x	0.001341
NO _x	0.009113
CO	0.023843
PM 10	0.006474

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.005825
Pb	0.000000
NH ₃	0.000000
CO _{2e}	4.1

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- Activity Emissions [Test Cell part]:

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO _x	0.000000
NO _x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH ₃	0.000000
CO _{2e}	0.0

9.2 Aircraft & Engines

9.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: A-10C
Engine Model: TF34-GE-100
Primary Function: Combat
Aircraft has After burn: No
Number of Engines: 2

- Aircraft & Engine Surrogate

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

9.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234
Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234
Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

9.3 Flight Operations

9.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft: 64
Flight Operation Cycle Type: CP (Close Pattern)
Number of Annual Flight Operation Cycles for all Aircraft: 23
Number of Annual Trim Test(s) per Aircraft: 0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins): 0
Approach [Approach] (mins): 1.66
Climb Out [Intermediate] (mins): 0.96
Takeoff [Military] (mins): 0.48
Takeoff [After Burn] (mins): 0

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

- Trim Test

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

9.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC} : Aircraft Emissions (TONs)

AEM_{IDLE_IN} : Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT} : Aircraft Emissions for Idle-Out Mode (TONs)

$AEM_{APPROACH}$: Aircraft Emissions for Approach Mode (TONs)

$AEM_{CLIMBOUT}$: Aircraft Emissions for Climb-Out Mode (TONs)

$AEM_{TAKEOFF}$: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

$AEPS_{POL}$: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM} : Aircraft Emissions (TONs)

$AEPS_{IDLE}$: Aircraft Emissions for Idle Power Setting (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

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

10. Aircraft

10.1 General Information & Timeline Assumptions

- Add or Remove Activity from Baseline? Add

- Activity Location

County: Pima

Regulatory Area(s): Rillito, AZ

- Activity Title: Additional A-10C Jet Engine Test Cell Activities

- Activity Description:

Additional Jet Engine Test Cell Activities - Stationary Source

- Activity Start Date

Start Month: 1

Start Year: 2025

- Activity End Date

Indefinite: Yes

End Month: N/A

End Year: N/A

- Activity Emissions:

Pollutant	Emissions Per Year (TONs)
VOC	0.332242
SO _x	0.089956
NO _x	0.829117
CO	1.040920
PM 10	0.268434

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.241312
Pb	0.000000
NH ₃	0.000000
CO _{2e}	271.9

10.2 Aircraft & Engines

10.2.1 Aircraft & Engines Assumptions

- Aircraft & Engine

Aircraft Designation: A-10C

Engine Model: TF34-GE-100

Primary Function: Combat

Aircraft has After burn: No

Number of Engines: 2

- Aircraft & Engine Surrogate

Is Aircraft & Engine a Surrogate? No

Original Aircraft Name:

Original Engine Name:

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

10.2.2 Aircraft & Engines Emission Factor(s)

- Aircraft & Engine Emissions Factors (lb/1000lb fuel)

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234
Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234
Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

10.3 Aircraft Engine Test Cell

10.3.1 Aircraft Engine Test Cell Assumptions

- Engine Test Cell

Total Number of Aircraft Engines Tested Annually: 128

- Default Settings Used: Yes

- Annual Run-ups / Test Durations

Annual Run-ups (Per Aircraft Engine): 1 (default)
Idle Duration (mins): 19.69 (default)
Approach Duration (mins): 0 (default)
Intermediate Duration (mins): 0 (default)
Military Duration (mins): 26.25 (default)
After Burner Duration (mins): 0 (default)

10.3.2 Aircraft Engine Test Cell Emission Factor(s)

- See Aircraft & Engines Emission Factor(s)

10.3.3 Aircraft Engine Test Cell Formula(s)

- Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

$$\text{TestCellPS}_{\text{POL}} = (\text{TD} / 60) * (\text{FC} / 1000) * \text{EF} * \text{NE} * \text{ARU} / 2000$$

TestCellPS_{POL}: Aircraft Engine Test Cell Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Total Number of Engines (For All Aircraft)

ARU: Annual Run-ups (Per Aircraft Engine)

2000: Conversion Factor pounds to TONs

- Aircraft Engine Test Cell Emissions per Year

$$\text{TestCell} = \text{TestCellPS}_{\text{IDLE}} + \text{TestCellPS}_{\text{APPROACH}} + \text{TestCellPS}_{\text{INTERMEDIATE}} + \text{TestCellPS}_{\text{MILITARY}} + \text{TestCellPS}_{\text{AFTERBURN}}$$

TestCell: Aircraft Engine Test Cell Emissions (TONs)

TestCellPS_{IDLE}: Aircraft Engine Test Cell Emissions for Idle Power Setting (TONs)

TestCellPS_{APPROACH}: Aircraft Engine Test Cell Emissions for Approach Power Setting (TONs)

TestCellPS_{INTERMEDIATE}: Aircraft Engine Test Cell Emissions for Intermediate Power Setting (TONs)

TestCellPS_{MILITARY}: Aircraft Engine Test Cell Emissions for Military Power Setting (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

TestCellPS_{AFTERBURN}: Aircraft Engine Test Cell Emissions for After Burner Power Setting (TONs)

This Page Intentionally Blank

Fuzzy MOA ACAM ROCA and Detail Report

This Page Intentionally Blank

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

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): Santa Cruz
Regulatory Area(s): Nogales, AZ

b. Action Title: Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2025

e. Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Fuzzy MOA to train. Additional low altitude (below 3000 ft AGL) flight for A-10C and HH-60 are analyzed.

f. Point of Contact:

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: applicable
 not applicable

Conformity Analysis Summary:

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Nogales, AZ			
VOC	0.01		
NOx	7.2		
CO	4.3		
SOx	0.7		
PM 10	2.8	100	No
PM 2.5	1.6	100	No

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

Pb	0.000		
NH3	0.000		
CO2e	1,963		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Lesley Hamilton, Consultant

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: DAVIS-MONTHAN AFB
State: Arizona
County(s): Santa Cruz
Regulatory Area(s): Nogales, AZ

- **Action Title:** Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 1 / 2025

- Action Purpose and Need:

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations from Nellis AFB to Davis-Monthan AFB, Arizona in support of Nellis AFB increase in fighter aircraft. Two other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

- Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Fuzzy MOA to train. Additional low altitude (below 3000 ft AGL) flight for A-10C is analyzed.

- Point of Contact

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Low altitude A-10C sortie time in Fuzzy MOA

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

2. Aircraft

2.1 General Information & Timeline Assumptions

- **Add or Remove Activity from Baseline?** Add

- Activity Location

County: Santa Cruz

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Regulatory Area(s): Nogales, AZ

- **Activity Title:** Low altitude A-10C sortie time in Fuzzy MOA

- **Activity Description:**

Time spent at 3000 feet or below while training in Tombstone MOA

- **Activity Start Date**

Start Month: 1

Start Year: 2025

- **Activity End Date**

Indefinite: Yes

End Month: N/A

End Year: N/A

- **Activity Emissions:**

Pollutant	Emissions Per Year (TONs)
VOC	0.009561
SO _x	0.085251
NO _x	0.852512
CO	0.175283
PM 10	0.211933

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.190421
Pb	0.000000
NH ₃	0.000000
CO _{2e}	257.7

- **Activity Emissions [Aerospace Ground Equipment (AGE) part]:**

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO _x	0.000000
NO _x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH ₃	0.000000
CO _{2e}	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- **Aircraft & Engine**

Aircraft Designation: A-10C

Engine Model: TF34-GE-100

Primary Function: Combat

Aircraft has After burn: No

Number of Engines: 2

- **Aircraft & Engine Surrogate**

Is Aircraft & Engine a Surrogate? No

Original Aircraft Name:

Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- **Aircraft & Engine Emissions Factors (lb/1000lb fuel)**

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234
Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	49
Flight Operation Cycle Type:	LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft:	49
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	0
Takeoff [Military] (mins):	36
Takeoff [After Burn] (mins):	0

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

- Trim Test

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

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

Jackal Low MOA ACAM ROCA and Detail Report

This Page Intentionally Blank

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

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): Graham; Pinal
Regulatory Area(s): West Central Pinal, AZ; Hayden (Pinal County), AZ; Hayden AZ; Miami, AZ; Phoenix, AZ; San Manuel (Pinal County), AZ; Phoenix-Mesa, AZ; West Pinal, AZ

b. Action Title: Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2025

e. Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Jackal Low MOA to train. Low altitude (below 3000 ft AGL) flight for A-10C and HH-60 are analyzed.

f. Point of Contact:

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: applicable
 not applicable

Conformity Analysis Summary:

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
West Central Pinal, AZ			
VOC	0.01	100	No
NOx	5.9	100	No
CO	3.4		
SOx	0.5	100	No

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

PM 10	2.3	100	No
PM 2.5	1.3	100	No
Pb	0.000	100	No
NH3	0.000	100	No
CO2e	1,610		
Hayden (Pinal County), AZ			
VOC	0.01		
NOx	5.9		
CO	3.4		
SOx	0.5	100	No
PM 10	2.3		
PM 2.5	1.3		
Pb	0.02	25	No
NH3	0.000		
CO2e	1,610		
Hayden AZ			
VOC	0.01		
NOx	5.9		
CO	3.4		
SOx	0.5		
PM 10	2.3	100	No
PM 2.5	1.3		
Pb	0.02	25	No
NH3	0.000		
CO2e	1,610		
Miami, AZ			
VOC	0.01		
NOx	5.9		
CO	3.4		
SOx	0.5		
PM 10	2.3	100	No
PM 2.5	1.3		
Pb	0.000		
NH3	0.000		
CO2e	1,610		
Phoenix, AZ			
VOC	0.01		
NOx	5.9		
CO	3.4		
SOx	0.5		
PM 10	2.3	70	No
PM 2.5	1.3		
Pb	0.000		
NH3	0.000		
CO2e	1,610		
San Manual (Pinal County), AZ			
VOC	0.01		
NOx	5.9		
CO	3.4		
SOx	0.5	100	No
PM 10	2.3		
PM 2.5	1.3		
Pb	0.000		
NH3	0.000		

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

CO2e	1,610		
Phoenix-Mesa, AZ			
VOC	0.01	100	No
NOx	5.9	100	No
CO	3.4		
SOx	0.5		
PM 10	2.3		
PM 2.5	1.3		
Pb	0.000		
NH3	0.000		
CO2e	1,610		
West Pinal, AZ			
VOC	0.01		
NOx	5.9		
CO	3.4		
SOx	0.5		
PM 10	2.3	100	No
PM 2.5	1.3		
Pb	0.000		
NH3	0.000		
CO2e	1,610		
Phoenix-Mesa, AZ			
VOC	0.01	100	No
NOx	5.9	100	No
CO	3.4		
SOx	0.5		
PM 10	2.3		
PM 2.5	1.3		
Pb	0.000		
NH3	0.000		
CO2e	1,610		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Lesley Hamilton, Consultant

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: DAVIS-MONTHAN AFB

State: Arizona

County(s): Graham; Pinal

Regulatory Area(s): West Central Pinal, AZ; Hayden (Pinal County), AZ; Hayden AZ; Miami, AZ; Phoenix, AZ; San Manual (Pinal County), AZ; Phoenix-Mesa, AZ; West Pinal, AZ

- **Action Title:** Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 1 / 2025

- Action Purpose and Need:

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations from Nellis AFB to Davis-Monthan AFB, Arizona in support of Nellis AFB increase in fighter aircraft. Two other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

- Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Jackal Low MOA to train. Low altitude (below 3000 ft AGL) flight for A-10C is analyzed.

- Point of Contact

Name: Lesley Hamilton

Title: Consultant

Organization: Stantec GS

Email: Lesley.Hamilton@cardno-gs.com

Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Low altitude A-10C sortie time in Jackal Low MOA

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

2. Aircraft

2.1 General Information & Timeline Assumptions

- **Add or Remove Activity from Baseline?** Add

- **Activity Location**

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

County: Graham; Pinal

Regulatory Area(s): West Central Pinal, AZ; Hayden (Pinal County), AZ; Hayden AZ; Miami, AZ; Phoenix, AZ; San Manual (Pinal County), AZ; Phoenix-Mesa, AZ; West Pinal, AZ; Phoenix-Mesa, AZ

- **Activity Title:** Low altitude A-10C sortie time in Jackal Low MOA

- **Activity Description:**

Time spent at 3000 feet or below while training in Tombstone MOA.

- **Activity Start Date**

Start Month: 1

Start Year: 2025

- **Activity End Date**

Indefinite: Yes

End Month: N/A

End Year: N/A

- **Activity Emissions:**

Pollutant	Emissions Per Year (TONs)
VOC	0.007610
SO _x	0.067853
NO _x	0.678530
CO	0.139511
PM 10	0.168681

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.151559
Pb	0.000000
NH ₃	0.000000
CO _{2e}	205.1

- **Activity Emissions [Aerospace Ground Equipment (AGE) part]:**

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO _x	0.000000
NO _x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH ₃	0.000000
CO _{2e}	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- **Aircraft & Engine**

Aircraft Designation: A-10C

Engine Model: TF34-GE-100

Primary Function: Combat

Aircraft has After burn: No

Number of Engines: 2

- **Aircraft & Engine Surrogate**

Is Aircraft & Engine a Surrogate? No

Original Aircraft Name:

Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- **Aircraft & Engine Emissions Factors (lb/1000lb fuel)**

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234
Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234
After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	39
Flight Operation Cycle Type:	LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft:	39
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	0
Takeoff [Military] (mins):	36
Takeoff [After Burn] (mins):	0

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

- Trim Test

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

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

This Page Intentionally Blank

Morenci MOA ACAM ROCA and Detail Report

This Page Intentionally Blank

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

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): Greenlee; Graham
Regulatory Area(s): Morenci (Greenlee County), AZ

b. Action Title: Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2025

e. Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Morenci MOA to train. Additional low altitude (below 3000 ft AGL) flight for A-10C and HH-60 are analyzed.

f. Point of Contact:

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: _____ applicable
 _____ not applicable

Conformity Analysis Summary:

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Morenci (Greenlee County), AZ			
VOC	0.01		
NOx	2.8		
CO	1.5		
SOx	0.3	100	No
PM 10	1.0		
PM 2.5	0.6		
Pb	0.000		
NH3	0.000		
CO2e	769		

**AIR CONFORMITY APPLICABILITY MODEL REPORT
RECORD OF CONFORMITY ANALYSIS (ROCA)**

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Lesley Hamilton, Consultant

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: DAVIS-MONTHAN AFB
State: Arizona
County(s): Greenlee; Graham
Regulatory Area(s): Morenci (Greenlee County), AZ

- **Action Title:** Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 1 / 2025

- Action Purpose and Need:

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations from Nellis AFB to Davis-Monthan AFB, Arizona in support of Nellis AFB increase in fighter aircraft. Two other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

- Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Morenci MOA to train. Additional low altitude (below 3000 ft AGL) flight for A-10C is analyzed.

- Point of Contact

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Low altitude A-10C sortie time in Morenci MOA

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

2. Aircraft

2.1 General Information & Timeline Assumptions

- **Add or Remove Activity from Baseline?** Add

- Activity Location

County: Greenlee; Graham
Regulatory Area(s): Morenci (Greenlee County), AZ

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- **Activity Title:** Low altitude A-10C sortie time in Morenci MOA

- **Activity Description:**

Time spent at 3000 feet or below while training in Tombstone MOA

- **Activity Start Date**

Start Month: 1

Start Year: 2025

- **Activity End Date**

Indefinite: Yes

End Month: N/A

End Year: N/A

- **Activity Emissions:**

Pollutant	Emissions Per Year (TONs)
VOC	0.003122
SO _x	0.027837
NO _x	0.278371
CO	0.057235
PM 10	0.069203

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.062178
Pb	0.000000
NH ₃	0.000000
CO _{2e}	84.1

- **Activity Emissions [Aerospace Ground Equipment (AGE) part]:**

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO _x	0.000000
NO _x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH ₃	0.000000
CO _{2e}	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- **Aircraft & Engine**

Aircraft Designation: A-10C

Engine Model: TF34-GE-100

Primary Function: Combat

Aircraft has After burn: No

Number of Engines: 2

- **Aircraft & Engine Surrogate**

Is Aircraft & Engine a Surrogate? No

Original Aircraft Name:

Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- **Aircraft & Engine Emissions Factors (lb/1000lb fuel)**

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234
Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234
Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234
------------	------	------	------	------	------	------	------	------	------

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

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

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	0
Takeoff [Military] (mins):	36
Takeoff [After Burn] (mins):	0

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

- Trim Test

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

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)

Tombstone MOA ACAM ROCA and Detail Report

This Page Intentionally Blank

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

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): Cochise
Regulatory Area(s): Paul Spur/Douglas (Cochise County), AZ; Douglas (Cochise County), AZ

b. Action Title: Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

c. Project Number/s (if applicable):

d. Projected Action Start Date: 1 / 2025

e. Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Tombstone MOA to train. Low altitude (below 3000 ft AGL) flight for A-10C and HH-60 are analyzed.

f. Point of Contact:

Name: Lesley Hamilton
Title: Consultant
Organization: Stantec GS
Email: Lesley.Hamilton@cardno-gs.com
Phone Number:

2. Analysis: Total combined direct and indirect emissions associated with the action were estimated through ACAM on a calendar-year basis for the “worst-case” and “steady state” (net gain/loss upon action fully implemented) emissions. General Conformity under the Clean Air Act, Section 1.76 has been evaluated for the action described above according to the requirements of 40 CFR 93, Subpart B.

Based on the analysis, the requirements of this rule are: applicable
 not applicable

Conformity Analysis Summary:

2026 - (Steady State)

Pollutant	Action Emissions (ton/yr)	GENERAL CONFORMITY	
		Threshold (ton/yr)	Exceedance (Yes or No)
Paul Spur/Douglas (Cochise County), AZ			
VOC	0.02		
NOx	11.1		
CO	5.5		
SOx	1.0		
PM 10	3.8	100	No
PM 2.5	2.5		
Pb	0.000		

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

NH3	0.000		
CO2e	3,047		
Douglas (Cochise County), AZ			
VOC	0.02		
NOx	11.1		
CO	5.5	100	No
SOx	1.0	100	No
PM 10	3.8		
PM 2.5	2.5		
Pb	0.000		
NH3	0.000		
CO2e	3,047		

None of estimated emissions associated with this action are above the conformity threshold values established at 40 CFR 93.153 (b); Therefore, the requirements of the General Conformity Rule are not applicable.

Lesley Hamilton, Consultant

DATE

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

1. General Information

- Action Location

Base: DAVIS-MONTHAN AFB

State: Arizona

County(s): Cochise

Regulatory Area(s): Paul Spur/Douglas (Cochise County), AZ; Douglas (Cochise County), AZ

- **Action Title:** Fourth Generation Missions Regional Realignment, Davis-Monthan AFB, Arizona

- **Project Number/s (if applicable):**

- **Projected Action Start Date:** 1 / 2025

- Action Purpose and Need:

The Air Force proposes to relocate a number of A-10 aircraft and missions, HH-60 aircraft and missions, Joint Terminal Attack Controller (JTAC) training, and Guardian Angel operations from Nellis AFB to Davis-Monthan AFB, Arizona in support of Nellis AFB increase in fighter aircraft. Two other proposed actions at Davis-Monthan AFB unrelated to the movements described above that are occurring on approximately the same timelines and are therefore included in this analysis. These actions consist of assignment of two Civil Air Patrol (CAP) Cessna 182 aircraft and the transfer of one RC-26B aircraft from the Morris Air National Guard Base (ANGB) located at the Tucson International Airport (Arizona).

- Action Description:

The Tombstone, Outlaw/Jackal/Morenci and Ruby/Fuzzy Military Operations Areas (MOAs) are accessible for training within 125 miles of Davis-Monthan AFB. A-10C and HH-60 aircraft would fly to Tombstone MOA to train. Low altitude (below 3000 ft AGL) flight for A-10C is analyzed.

- Point of Contact

Name: Lesley Hamilton

Title: Consultant

Organization: Stantec GS

Email: Lesley.Hamilton@cardno-gs.com

Phone Number:

- Activity List:

	Activity Type	Activity Title
2.	Aircraft	Low altitude A-10C sortie time in Tombstone MOA

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

2. Aircraft

2.1 General Information & Timeline Assumptions

- **Add or Remove Activity from Baseline?** Add

- Activity Location

County: Cochise

Regulatory Area(s): Douglas (Cochise County), AZ; Paul Spur/Douglas (Cochise County), AZ

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

- **Activity Title:** Low altitude A-10C sortie time in Tombstone MOA

- **Activity Description:**

Time spent at 3000 feet or below while training in Tombstone MOA

- **Activity Start Date**

Start Month: 1

Start Year: 2025

- **Activity End Date**

Indefinite: Yes

End Month: N/A

End Year: N/A

- **Activity Emissions:**

Pollutant	Emissions Per Year (TONs)
VOC	0.010536
SO _x	0.093950
NO _x	0.939503
CO	0.193169
PM 10	0.233559

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.209852
Pb	0.000000
NH ₃	0.000000
CO _{2e}	284.0

- **Activity Emissions [Aerospace Ground Equipment (AGE) part]:**

Pollutant	Emissions Per Year (TONs)
VOC	0.000000
SO _x	0.000000
NO _x	0.000000
CO	0.000000
PM 10	0.000000

Pollutant	Emissions Per Year (TONs)
PM 2.5	0.000000
Pb	0.000000
NH ₃	0.000000
CO _{2e}	0.0

2.2 Aircraft & Engines

2.2.1 Aircraft & Engines Assumptions

- **Aircraft & Engine**

Aircraft Designation: A-10C

Engine Model: TF34-GE-100

Primary Function: Combat

Aircraft has After burn: No

Number of Engines: 2

- **Aircraft & Engine Surrogate**

Is Aircraft & Engine a Surrogate? No

Original Aircraft Name:

Original Engine Name:

2.2.2 Aircraft & Engines Emission Factor(s)

- **Aircraft & Engine Emissions Factors (lb/1000lb fuel)**

	Fuel Flow	VOC	SO _x	NO _x	CO	PM 10	PM 2.5	CO _{2e}
Idle	390.00	39.45	1.07	2.10	106.70	8.13	7.32	3234
Approach	920.00	2.19	1.07	5.70	16.30	6.21	5.59	3234
Intermediate	460.00	23.35	1.07	2.60	78.00	8.93	8.04	3234
Military	2710.00	0.12	1.07	10.70	2.20	2.66	2.39	3234

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

After Burn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3234
------------	------	------	------	------	------	------	------	------	------

2.3 Flight Operations

2.3.1 Flight Operations Assumptions

- Flight Operations

Number of Aircraft:	54
Flight Operation Cycle Type:	LFP (Low Flight Pattern)
Number of Annual Flight Operation Cycles for all Aircraft:	54
Number of Annual Trim Test(s) per Aircraft:	0

- Default Settings Used: No

- Flight Operations TIMs (Time In Mode)

Taxi [Idle] (mins):	0
Approach [Approach] (mins):	0
Climb Out [Intermediate] (mins):	0
Takeoff [Military] (mins):	36
Takeoff [After Burn] (mins):	0

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

- Trim Test

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

2.3.2 Flight Operations Formula(s)

- Aircraft Emissions per Mode for Flight Operation Cycles per Year

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

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

TIM: Time in Mode (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

FOC: Number of Flight Operation Cycles (for all aircraft)

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Flight Operation Cycles per Year

$$AE_{FOC} = AEM_{IDLE_IN} + AEM_{IDLE_OUT} + AEM_{APPROACH} + AEM_{CLIMBOUT} + AEM_{TAKEOFF}$$

AE_{FOC}: Aircraft Emissions (TONs)

AEM_{IDLE_IN}: Aircraft Emissions for Idle-In Mode (TONs)

AEM_{IDLE_OUT}: Aircraft Emissions for Idle-Out Mode (TONs)

AEM_{APPROACH}: Aircraft Emissions for Approach Mode (TONs)

AEM_{CLIMBOUT}: Aircraft Emissions for Climb-Out Mode (TONs)

DETAIL AIR CONFORMITY APPLICABILITY MODEL REPORT

AEM_{TAKEOFF}: Aircraft Emissions for Take-Off Mode (TONs)

- Aircraft Emissions per Mode for Trim per Year

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

AEPS_{POL}: Aircraft Emissions per Pollutant & Power Setting (TONs)

TD: Test Duration (min)

60: Conversion Factor minutes to hours

FC: Fuel Flow Rate (lb/hr)

1000: Conversion Factor pounds to 1000pounds

EF: Emission Factor (lb/1000lb fuel)

NE: Number of Engines

NA: Number of Aircraft

NTT: Number of Trim Test

2000: Conversion Factor pounds to TONs

- Aircraft Emissions for Trim per Year

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

AE_{TRIM}: Aircraft Emissions (TONs)

AEPS_{IDLE}: Aircraft Emissions for Idle Power Setting (TONs)

AEPS_{APPROACH}: Aircraft Emissions for Approach Power Setting (TONs)

AEPS_{INTERMEDIATE}: Aircraft Emissions for Intermediate Power Setting (TONs)

AEPS_{MILITARY}: Aircraft Emissions for Military Power Setting (TONs)

AEPS_{AFTERBURN}: Aircraft Emissions for After Burner Power Setting (TONs)