Draft Environmental Assessment Addressing the Air Force Special Operations Command AC-130J Formal Training Unit Relocation at Kirtland Air Force Base, New Mexico

November 2022

U.S. Air Force photos by Tommie Horton

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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 Code of Federal Regulations [CFR] §§ 1500–1508) [July 16, 2020, version of the CEQ NEPA regulations (85 Federal Register 43304–43376) and the April 20, 2022, amendments of the 2020 CEQ NEPA regulations (85 Federal Register 23453–23470)], and 32 CFR Part 989, Environmental Impact Analysis Process (EIAP).

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

Written comments and inquiries regarding this document should be directed by mail to the Kirtland AFB NEPA Program Manager, 377 MSG/CEIEC, 2050 Wyoming Boulevard SE, Suite 116, Kirtland AFB, New Mexico 87117-5270, or via email to kirtlandNEPA@us.af.mil.

Public commenting allows the USAF to make better, informed decisions. Letters or other written or oral comments provided may be published in the EA. As required by law, comments provided will be addressed in the EA and made available to the public. Providing personal information is voluntary. Any personal information provided will be used only to identify your desire to make a statement during the public comment portion 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 Personal home addresses and phone numbers will not be published in the EA.

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COVER SHEET

DRAFT ENVIRONMENTAL ASSESSMENT ADDRESSING THE AFSOC AC-130J FORMAL TRAINING UNIT RELOCATION AT KIRTLAND AIR FORCE BASE, NEW MEXICO

Responsible Agencies: United States Air Force (USAF), Air Force Global Strike Command (AFGSC), 377th Air Base Wing.

Affected Location: Kirtland Air Force Base (AFB), New Mexico.

Report Designation: Draft Environmental Assessment (EA).

Abstract: This EA was developed in compliance with USAF's *Environmental Impact Analysis Process* in support of the USAF Proposed Action to relocate the Air Force Special Operations Command (AFSOC) AC-130J Formal Training Unit (FTU) from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58th Special Operations Wing (58 SOW) (Air Education and Training Command [AETC]). The Proposed Action would also include the repositioning of personnel needed to operate and maintain the AFSOC AC-130J, and construction of new and/or modification of existing facilities on the installation to support the relocation.

Currently, AC-130J Initial Qualification Training is conducted under AETC at Kirtland AFB and Mission Qualification training conducted under AFSOC at Hurlburt Field. The purpose of the Proposed Action is to consolidate all AC-130J FTU qualifications at one location and under one Major Command instead of two, saving operational and instructor resources.

Separation of AC-130J FTU Initial Qualification and Mission Qualification by teaching the syllabi at two separate bases causes inefficiencies in both use of training assets and time to train. Currently, student training from Hurlburt Field utilizes Eglin AFB's Range in Florida to conduct part of its Mission Qualification training. However, there is limited capacity at the Eglin AFB Range, constraining student training by forcing longer qualification training periods waiting on range access. The need for the Proposed Action is to provide synergies between the Initial Qualification and Mission Qualification Training stages which would maximize efficiency of use of resources including aircraft, instructors and maintenance personnel, and lower operational and training costs.

Under the No Action Alternative, the USAF would not relocate the AC-130J FTU from Hurlburt Field to Kirtland AFB and organizationally realign the unit under the 58th SOW (AETC). AC-130J qualifications training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and Mission Qualification Training occurring at Hurlburt Field. Training would continue to strain capacity of the Eglin AFB Range constraining student training by forcing longer qualification training periods waiting on range access.

The EA will analyze the potential environmental impacts associated with the Proposed Action and No Action Alternative and will aid in determining whether a Finding of No Significant Impact can be prepared, if an Environmental Impact Statement is required, or if the proposed action should be abandoned. Written comments and inquiries regarding this document should be directed by mail to the Kirtland AFB NEPA Program Manager, 377 MSG/CEIEC, 2050 Wyoming Boulevard SE, Suite 116, Kirtland AFB, New Mexico 87117-5270, or by email to *KirtlandNEPA@us.af.mil*. Letters or other written comments provided may be published in the Final EA. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA; however, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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EXECUTIVE SUMMARY

PROPOSED ACTION

The United States Air Force (USAF) is proposing to relocate the Air Force Special Operations Command (AFSOC) AC-130J Formal Training Unit (FTU) from Hurlburt Field, Florida to Kirtland Air Force Base (AFB), New Mexico and organizationally realign the unit under the 58th Special Operations Wing (58 SOW) (Air Education and Training Command [AETC]). The Proposed Action also includes personnel needed to operate and maintain the AFSOC AC-130J, and construction of new and/or modification of existing facilities on the installation to support the relocation. Students operating the AC-130J aircraft would conduct training from the installation and in existing Special Use Airspace (SUA) (both Military Operations Areas [MOAs] and Restricted Areas) and would conduct live fire training at Melrose Air Force Range (AFR), New Mexico. No new SUA or reconfiguration of existing SUA is proposed or would be required to support the relocation of the AC-130J FTU.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The USAF proposes to relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58 SOW under AETC. This relocation would include the repositioning of AC-130J aircraft, personnel, operational and maintenance squadrons, and related construction activities. Currently, AC-130J Initial Qualification Training is conducted under AETC at Kirtland AFB, New Mexico and Mission Qualification Training is conducted under AFSOC at Hurlburt Field, Florida. The purpose of the Proposed Action is to consolidate all AC-130J FTU qualifications at one location and under one Major Command instead of two, saving operational and instructor resources.

Separation of AC-130J FTU Initial Qualification and Mission Qualification by teaching the syllabi at two separate bases causes inefficiencies in both use of training assets and time to train. Currently, student training from Hurlburt Field utilizes Eglin AFB's Range in Florida to conduct part of its training. However, there is limited capacity at the Eglin AFB Range, constraining student training by forcing longer qualification training periods waiting on range access. The need for the Proposed Action is to provide synergies between the Initial Qualification and Mission Qualification training stages which would maximize efficiency of use of resources including aircraft, instructors, and maintenance personnel, and lower operational and training costs.

ALTERNATIVES CONSIDERED

Description of the Preferred Alternative

Under Alternative 1 (Preferred Alternative), relocation of seven AFSOC AC-130J FTU aircraft from Hurlburt to Kirtland would occur by the second quarter of fiscal year (FY) 2025. To accommodate the AC-130J aircraft and FTU operations, the Preferred Alternative would require both new construction and modification of some existing facilities. Thirteen construction or infrastructure improvement projects are proposed with a total of 314,200 square feet (SF) of ground disturbance and 250,500 SF of new impervious surfaces, to include construction of a temporary and permanent new squadron operations facility and parking, addition to Building 957 for classroom and administration services, renovations to Hangar 1002 for AC-130J AMU, temporary addition to Building 949 for a full motion Weapons Systems Trainer (WST), new electrical equipment room, new simulator complex, addition to Zia Park Dormitory, new administration building, new munitions trailer holding pad, two new earth covered munition storage igloos, new explosive operations building, new small arms storage facility, and renovations to Buildings 737 and 733.

New permanent personnel would include approximately 390 FTU and 25 Base Operating Support (BOS) personnel stationed year-round at Kirtland AFB. Temporary student personnel for Mission Qualification Programmed Flight Training (PFT) courses would include a total of approximately 162 students (150 training days per year), 18 Pilot Instructor Upgrade PFT students (51 training days per year), and 90 Non-Pilot Instructor Upgrade PFT students (9 training days per year).

Addition of the seven AC-130J aircraft would add approximately three sorties per day (Monday through Friday), totaling approximately 750 sorties per year for a total of 4,500 annual airfield operations. This increase in airfield operations represents a 3.5 percent increase over current total airfield operations (127,359). No new airspace or reconfigurations are needed or proposed to support the Preferred Alternative. The AC-130J would operate within SUA (both MOAs and Restricted Areas), and other existing airspace and training areas, including live fire training at Melrose AFR, already designated for C-130 flight operations normally conducted out of Kirtland AFB and Cannon AFB. No changes to ranges would be required or occur under the Preferred Alternative. The type of defensive countermeasures used by the AC-130J, including chaff and flares, would be similar to what is currently used by the MC-130J and HC-130J.

Description of the No Action Alternative

The Council on Environmental Quality (CEQ) regulation 40 CFR Part 1502.14(d) requires the inclusion of a No Action Alternative in the National Environmental Policy Act (NEPA) analysis. Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58 SOW (AETC). AC-130J qualifications training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and Mission Qualification Training occurring at Hurlburt Field. Training would continue to strain capacity of the Eglin AFB Range constraining student training by forcing longer qualification training periods waiting on range access. The No Action Alternative would not meet the purpose of and need for the Proposed Action; however, the USAF Environmental Impact Analysis Process (EIAP) (32 CFR Part 989.8[d]) requires consideration of the No Action Alternative. Therefore, this alternative will be carried forward for detailed analysis in the Environmental Assessment (EA).

SUMMARY OF ENVIRONMENTAL RESOURCES EVALUATED IN THE EA

CEQ regulations, NEPA, and USAF instructions for implementing NEPA, specify that an EA should address those resource areas potentially subject to impacts. In addition, the level of analysis should be commensurate with the anticipated level of environmental impact.

The USAF has concluded that the Preferred Alternative would not affect the following resources: Visual Resources and Transportation. Based on the findings in this EA, no significant adverse impacts would result to the following resources: airspace management, noise, land use, air quality, geology and soils, water resources, biological resources, cultural resources, infrastructure, hazardous materials and wastes, safety, socioeconomics, and environmental justice. No significant adverse cumulative impacts would result from activities associated with the Preferred Alternative when considered with past, present, or reasonably foreseeable future projects.

SUMMARY OF POTENTIAL ENVIRONMENTAL CONSEQUENCES OF THE ACTION ALTERNATIVES

Table ES-1 provides a tabular summary of the potential impacts to the resources associated with each of the alternative actions analyzed.

Table ES-1 Summary of Potential Impacts to Resource Areas

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Airspace Management	The Proposed Action would result in a long-term increase of about 450 AC-130J sorties per year being generated by the United States Air Force on Kirtland Air Force Base. This represents a 3.5 percent increase in airfield operations attended by the Albuquerque International Sunport Air Traffic Control Tower (Sunport Tower), and a fraction of 1 percent increase in aircraft operations in the Naval Air Station-local flying area. These increases are small, and do not amount to a large enough increase to affect the quality of services offered by either the Albuquerque International Sunport Tower or the other controlling agencies that are part of the NAS. No new training airspace would need to be created because existing airspace is sufficient.	Implementation of the No Action Alternative would not result in any new or additional impacts on airspace management.
Noise	Construction projects associated with the Proposed Action would result in a short-term, minor, adverse impacts from noise. Impacts from noise associated with proposed operations at the airfield would not be significant. The Proposed Action would result in increases between 0 and 1 decibel. Generally, DNL changes of 1 decibel are not noticeable to observers.	No new noise would be introduced to the on- and off-installation noise environments; therefore, no new noise impacts would occur with implementation of the No Action Alternative.
Land Use	The Proposed Action would not introduce any new land uses within the cantonment area of the base and would remain compatible with current land uses identified for each planning district. Noise impacts from the Proposed Action to the surrounding land uses, which are predominately residential and commercial, parks and open space, and community golf courses, would not significantly increase. The Proposed Action would not impact land uses under any of the proposed training areas.	No new impacts on land use would occur with implementation of the No Action Alternative.
Air Quality	Under the Proposed Action, emissions of criteria pollutants would be well below the 250 tons per year comparative threshold for all years of activity. Therefore, the Proposed Action would not be expected to result in a significant impact on air quality.	There would be no changes to air emissions at the installation under the No Action Alternative.
Geology and Soils	No impacts to geology, topography and soils, and Geological Hazards are expected from the proposed construction and facility modification activities or proposed operations.	No new impacts on geological resources would occur with implementation of the No Action Alternative.

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Water Resources	The Proposed Action is not expected to impact groundwater levels. No impacts to groundwater or groundwater quality are expected post-construction or during operations of the Proposed Action. Short-term impacts to surface waters would be expected during construction and facility modification activities of the Proposed Action. No permanent bodies of water are located in the proposed project areas; however, during rain events flowing stormwater has the potential to transport sediment and hazardous materials to drainage ditches. With the installation of proper Best Management Practices, no adverse impacts are anticipated. None of the proposed construction or facility modification projects associated with the Proposed Action are located within the 100-year floodplain or directly proximate to any wetland area; therefore, there is no anticipated impact.	No new impacts to water resources would occur with implementation of the No Action Alternative.
Biological Resources	Impacts to vegetation would not be significant under the Proposed Action. Implementation of the Proposed Action is not expected to cause significant impacts to wildlife species or their associated habitat. Construction activities associated with the Proposed Action could cause minor, short-term disturbances to wildlife that may inhabit the proposed project areas. There would be no impact to threatened or endangered species or critical habitat from implementation of the Proposed Action. No federally listed species have been documented on Kirtland Air Force Base. Impacts to state-listed species would be less than significant.	No new impacts to biological resources would occur with implementation of the No Action Alternative. Biological resources would continue to be managed in accordance with the Kirtland Air Force Base Integrated Natural Resources Management Plan.
Cultural Resources	Given the current use of the airspace and the nature of the proposed future use of the project areas, there would be no significant impacts to architectural resources. No traditional cultural properties have been identified at Kirtland Air Force Base or the lands underlying the Special Use Airspace.	Cultural resources would continue to be managed in accordance with the Kirtland Air Force Base Integrated Cultural Resources Management Plan and would be expected to remain as described under affected environment in Section 3.9.2. Therefore, there would be no significant impacts to cultural resources under the No Action Alternative.

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Infrastructure	No impacts from connection of electrical power to the proposed project areas is anticipated. An increase in electrical capacity would be expected due to the increase in personnel and operations from the Proposed Action but would be accommodated by the electrical system. No impacts from construction and connection to natural gas supplies are anticipated. Operationally, ground vehicles to support the Proposed Action would increase the amount of fuel used; however, the daily increases from the added sorties and ground support vehicles would not significantly increase the overall amount of fuel that is supplied to the base. Impacts to the water supply system, sanitary sewer/wastewater, communications, or solid waste management would not be expected from the Proposed Action.	No new impacts to infrastructure would occur with implementation of the No Action Alternative.
Hazardous Materials and Wastes	No adverse impacts to the Environmental Management System program are expected as construction contractors would comply with the installation's Environmental Management System program. The Proposed Action would result in short-term, negligible, adverse impacts should any hazardous materials or petroleum products be released into the environment. The installation of additional aircraft could result in long-term, negligible adverse impacts associated with a minor increase in the use of hazardous materials and petroleum at Kirtland Air Force Base. The Proposed Action would result in a short-term, negligible, adverse impact on the generation of hazardous and petroleum wastes Facilities requiring demolition during modification or building addition activities that have the potential to contain asbestos-containing material, polychlorinated biphenyls, and lead-based paint will be evaluated for toxic substance abatement prior to their demolition or building addition. With Best Management Practices in place, no adverse impacts are anticipated. Implementation of the Proposed Action would not be expected to result in any impacts on or be impacted by Environmental Restoration Program and/or Military Munitions Response Program sites.	Implementation of the No Action Alternative would not result in any new or additional impacts on hazardous materials and wastes.

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Safety	There would be a short-term increase in safety risk to contractors during construction and modification-related activities due to operation of heavy equipment. All construction and modification projects would be conducted in full compliance with anti-terrorism/force protection requirements from design to completion. No construction or modification activities under the Proposed Action would occur with the established quantity-distance arcs at Kirtland Air Force Base. The existing Bird/Wildlife Aircraft Strike Hazard program would continue, and the slight increase in aircraft operations that would occur under the Proposed Action are not expected to significantly increase the risk of Bird/Wildlife Aircraft Strike Hazard. All aircraft would be operated in accordance with standard United States Air Force flight rules, as well as the 58th Operating Group In-flight Guide. Additionally, construction activities under the Proposed Action would not result in any greater safety risk or obstructions to navigation; therefore, no increased risk to aircraft safety is expected under the Proposed Action.	Implementation of the No Action Alternative would not result in any new or additional impacts on safety.
Socioeconomics	Construction expenditures related to the Proposed Action would increase Kirtland Air Force Base's economic impact in the local area and region of influence. During operation of the Proposed Action, additional employment, wages, and local spending would further increase Kirtland Air Force Base's impact on the local economy. These impacts would be minor beneficial impacts.	Implementation of the No Action Alternative would not result in any new or additional impacts on socioeconomics.
Environmental Justice	While the short-term noise and traffic impacts on the minority and low-income populations would be considered disproportionate, the impacts would not be significant. The Proposed Action would not result in increased exposure of children to environmental health risks or safety risks. No disproportionate impacts on elderly persons would be expected.	Implementation of the No Action Alternative would not result in any new or additional impacts on environmental justice or sensitive receptors.

PUBLIC INVOLVEMENT

The USAF solicited public and agency comments during a scoping period from August 24, 2022 through September 22, 2022. Comments received during the scoping period were considered in preparing the Draft EA. The USAF circulated the Draft EA for public review from November 20, 2022 to December 20, 2022. Comments received and responses are provided in Appendix A.

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DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Environmental Assessment for the AC-130J Formal Training Unit Relocation at Kirtland Air Force Base, New Mexico

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Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, implemented by Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations (CFR) § 1500–1508, and 32 CFR § 989, Environmental Impact Analysis Process (EIAP), the United States Air Force (USAF) assessed the potential impacts on the natural and human environment associated with the AC-130J Formal Training Unit (FTU) Relocation at Kirtland Air Force Base (AFB), New Mexico.

Purpose of and Need for Proposed Action

The USAF proposes to relocate the Air Force Special Operations Command (AFSOC) AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58th Special Operations Wing (58 SOW) under Air Education and Training Command (AETC). This relocation would include the repositioning of AC-130J aircraft, personnel, operational and maintenance squadrons, and related construction activities. Currently, AC-130J Initial Qualification Training is conducted under AETC at Kirtland AFB, New Mexico and Mission Qualification Training is conducted under AFSOC at Hurlburt Field, Florida. The purpose of the Proposed Action is to consolidate all AC-130J FTU qualifications (initial and mission) at one active duty AETC location that already has existing MC-130J maintenance and support. In addition, the AC-130J FTU would be combined under one Major Command instead of two, saving operational and instructor resources. This consolidation would allow the command to focus on operational mission execution and streamline training pipeline as well as create an AFSOC C-130J Center of Excellence.

Separation of AC-130J FTU Initial Qualification and Mission Qualification by teaching the syllabi at two separate bases causes inefficiencies in both use of training assets and time to train. Currently, student training from Hurlburt Field utilizes Eglin AFB's Range in Florida to conduct part of its training. However, there is limited capacity at the Eglin AFB Range, constraining student training by forcing longer qualification training periods waiting on range access. The need for the Proposed Action is to provide synergies between the Initial Qualification and Mission Qualification training stages which would maximize efficiency of use of resources including aircraft, instructors, and maintenance personnel, and lower operational and training costs.

Description of the Preferred Alternative

Under Alternative 1 (Preferred Alternative), relocation of seven AFSOC AC-130J FTU aircraft from Hurlburt to Kirtland would occur by the second quarter of fiscal year 2025. To accommodate the AC-130J aircraft and FTU operations, the Preferred Alternative would require both new construction and modification of some existing facilities. Thirteen construction or infrastructure improvement projects are proposed with a total of 314,200 square feet (SF) of ground disturbance and 250,500 SF of new impervious surfaces, to include construction of a temporary and permanent new squadron operations facility and parking, addition to Building 957 for classroom and administration services, renovations to Hangar 1002 for AC-130J AMU,

temporary addition to Building 949 for a full motion Weapons Systems Trainer, new electrical equipment room, new simulator complex, addition to Zia Park Dormitory, new administration building, new munitions trailer holding pad, two new earth covered munition storage igloos, new explosive operations building, new small arms storage facility, and renovations to Buildings 737 and 733.

New permanent personnel would include approximately 390 FTU and 22 base operating support personnel stationed year-round at Kirtland AFB. Temporary student personnel for Mission Qualification Programmed Flight Training (PFT) courses would include a total of approximately 162 students (150 training days per year), 18 Pilot Instructor Upgrade PFT students (51 training days per year), and 90 Non-Pilot Instructor Upgrade PFT students (9 training days per year).

Addition of the seven AC-130J aircraft would add approximately three sorties per day (Monday through Friday). This would total approximately 750 sorties per year, each having an average of six airfield operations for a total of 4,500 annual airfield operations. This increase in airfield operations represents a 3.5 percent increase over current total airfield operations (127,359). No new airspace or reconfigurations are needed or proposed to support the Preferred Alternative. The AC-130J would operate within Special Use Airspace (SUA) (both Military Operations Areas and Restricted Areas), and other existing airspace and training areas, including live fire training at Melrose Air Force Range, already designated for C-130 flight operations normally conducted out of Kirtland AFB and Cannon AFB. No changes to ranges would be required or occur under the Preferred Alternative. The type of defensive countermeasures used by the AC-130J, including chaff and flares, would be similar to what is currently used by the MC-130J and HC-130J.

Alternatives Eliminated from Further Consideration

This Environmental Assessment (EA) has considered all reasonable alternatives under the CEQ regulation, 40 CFR § 1502.14(a), which states that all reasonable alternatives that have been eliminated must be briefly discussed. Four alternatives have been eliminated from further consideration: Alternative 2 – Keesler AFB, Mississippi; Alternative 3 – Maxwell AFB, Alabama; Alternative 4 –Savannah, Georgia; and Alternative 5 – Hurlburt Field, Florida. The Alternative 2 – Keesler AFB, Alterative 3 – Maxwell AFB, and Alternative 4 – Savannah, Georgia each do not meet the purpose and need to consolidate AC-130J FTU qualifications (initial and mission) at one active duty AETC location that already has existing MC-130J maintenance and support and under a single organization with the intent of providing synergies and lower costs. These three alternatives would continue to provide training in a split environment with initial training occurring at a different geographic location. In addition, none of these alternatives have existing MC-130J units. Alternative 5 – Hurlburt Field, Florida would result in continued strain of the Eglin AFB Range capacity resulting in longer qualification training periods and also does not have an existing MC-130J unit. Therefore, only the Preferred Alternative at Kirtland AFB, New Mexico was carried forward for further environmental analysis.

Description of the No Action Alternative

The CEQ regulation 40 CFR § 1502.14(d) requires the inclusion of a No Action Alternative in the NEPA analysis. Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58 SOW (AETC). AC-130J qualifications training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and

Mission Qualification Training occurring at Hurlburt Field. Training would continue to strain capacity of the Eglin AFB Range constraining student training by forcing longer qualification training periods waiting on range access. The No Action Alternative would not meet the purpose of and need for the Proposed Action; however, the USAF EIAP (32 CFR Part 989.8[d]) requires consideration of the No Action Alternative. Therefore, this alternative will be carried forward for detailed analysis in the EA.

Summary of Environmental Findings

The USAF has concluded that the Preferred Alternative would not affect the following resources: Visual Resources and Transportation. Based on the findings in this EA, no significant adverse impacts would result to the following resources: airspace management, noise, land use, air quality, geology and soils, water resources, biological resources, cultural resources, infrastructure, hazardous materials and wastes, safety, socioeconomics, and environmental justice. No significant adverse cumulative impacts would result from activities associated with the Preferred Alternative when considered with past, present, or reasonably foreseeable future projects.

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, CEQ Regulations, and 32 CFR § 989, I conclude that the Preferred Alternative for the AC-130J Formal Training Unit Relocation at Kirtland AFB, New Mexico would not have a significant environmental impact, either by itself or cumulatively with other known projects. Accordingly, an Environmental Impact Statement is not required. This analysis fulfills the requirements of NEPA, the President's CEQ 40 CFR §§ 1500–1508 and the Air Force EIAP regulations 32 CFR § 989. The signing of this Finding of No Significant Impact completes the EIAP.

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JASON F. VATTIONI, Colonel, USAF Date
Commander

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ACRONYMS AND ABBREVIATIONS

377 ABW	377th Air Base Wing
377 MSG/CEIEC	377th Mission Support Group/ Civil Engineering Installation Environmental Compliance
58 OG	58th Operating Group
58 SOW	58th Special Operations Wing
ABCWUA	Albuquerque-Bernalillo County Water Utility Authority
ACAM	Air Conformity Applicability Model
ACM	asbestos-containing material
AEHD-AQD	Albuquerque Environmental Health Department Air Quality Division
AETC	Air Education and Training Command
AFB	Air Force Base
AFGSC	Air Force Global Strike Command
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health
AFR	Air Force Range
AFSOC	Air Force Special Operations Command
AGL	Above Ground Level
APE	Area of Potential Effects
AT/FP	Anti-Terrorism/Force Protection
ATC	Air Traffic Control
BAI	Backup Aircraft Inventory
BASH	Bird/Wildlife Aircraft Strike Hazard
BLM	Bureau of Land Management
BMP	best management practice
BOS	Base Operating Support
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COMAFSOC	Commander, Air Force Special Operations Command
CY	Calendar Year
dB	decibel
dBA	A-weighted decibel
DNL	Day-Night Average Sound Level
DOE	Department of Energy
DoD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EMS	Environmental Management System
EO	Executive Order
ER	Environmental Restoration
ERP	Environmental Restoration Program
FAA	Federal Aviation Administration
FPPA	Farmland Protection Policy Act
FTU	Formal Training Unit
FY	Fiscal Year
GAO	Government Accountability Office
GHG	greenhouse gas
GWP	Global Warming Potential
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resources Management Plan
IFR	Instrument Flight Rules
INRMP	Integrated Natural Resources Management Plan
L_{max}	maximum sound level
LBP	lead-based paint
MEC	Munitions and Explosives of Concern
mgd	million gallons per day
MMRP	Military Munitions Response Program

MOA	Military Operations Area
MPPEH	Material Potentially Presenting an Explosive Hazard
MSA	Munitions Storage Area
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAS	National Airspace System
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMAC	New Mexico Administrative Code
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NOA	Notice of Availability
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyls
PFT	Programmed Flight Training
$PM_{2.5}$	particulate matter less than or equal to2.5 microns in diameter
PM_{10}	particulate matter less than equal to 10 microns in diameter
POI	Point of Interest
PPE	Personal Protective Equipment
PTAI	Primary Training Aircraft Inventory
Q-D	Quantity-Distance
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SEL	Sound Exposure Level
SF	Square Feet
SHPO	State Historic Preservation Office(r)
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
SUA	Special Use Airspace
SWPPP	Stormwater Pollution Prevention Plan
TAI	Training Aircraft Inventory
tpy	tons per year
U.S.	United States
UFC	Unified Facilities Criteria
USAF	United States Air Force
USBLS	United States Bureau of Labor Statistics
USC	United States Code
USCB	United States Census Bureau
USDA-NRCS	United States Department of Agriculture-Natural Resources Conservation Service
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VFR	Visual Flight Rules

1 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

Kirtland Air Force Base (AFB), located southeast of the city of Albuquerque in New Mexico (**Figure 1-1**), is home to the 377th Air Base Wing (377 ABW) of the Air Force Global Strike Command (AFGSC). The installation is a center for research, development, and testing of nonconventional weapons, space and missile technology, and laser warfare. The 377 ABW ensures readiness and training of airmen for worldwide duty, operates the airfield for present and future United States (U.S.) Air Force (USAF) operations, and prepares personnel to deploy worldwide on a moment's notice. The installation encompasses 51,585 acres, of which 44,052 acres are under USAF control.

The USAF proposes to relocate the Air Force Special Operations Command (AFSOC) AC-130J Formal Training Unit (FTU) from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58th Special Operations Wing (58 SOW) (Air Education and Training Command [AETC]), which is a tenant organization currently located at Kirtland AFB. This relocation would occur by fiscal year (FY) 2025 second quarter and would include the repositioning of AC-130J aircraft, personnel, operations squadron, and maintenance squadrons, and related construction activities.

1.2 PURPOSE OF THE PROPOSED ACTION

Currently, AC-130J Initial Qualification Training is conducted under AETC at Kirtland AFB and Mission Qualification Training conducted under AFSOC at Hurlburt Field. The purpose of the Proposed Action is to consolidate all AC-130J FTU qualifications (initial and mission) at one active duty AETC location that already has existing MC-130J maintenance and support. In addition, the AC-130J FTU would be combined under one Major Command instead of two, saving operational and instructor resources. This consolidation would allow the command to focus on operational mission execution and streamline training pipeline as well as create an AFSOC C-130J Center of Excellence.

1.3 NEED FOR THE PROPOSED ACTION

Separation of AC-130J FTU Initial Qualification and Mission Qualification by teaching the syllabi at two separate bases causes inefficiencies in both use of training assets and time to train. Currently student training from Hurlburt Field utilizes Eglin AFB's Range in Florida to conduct part of its Mission Qualification training. However, there is limited capacity at the Eglin AFB Range, constraining student training by forcing longer qualification training periods waiting on range access. The need for the Proposed Action is to provide synergies between the Initial Qualification and Mission Qualification Training stages which would maximize efficiency of use of resources including aircraft, instructors, and maintenance personnel, and lower operational and training costs.

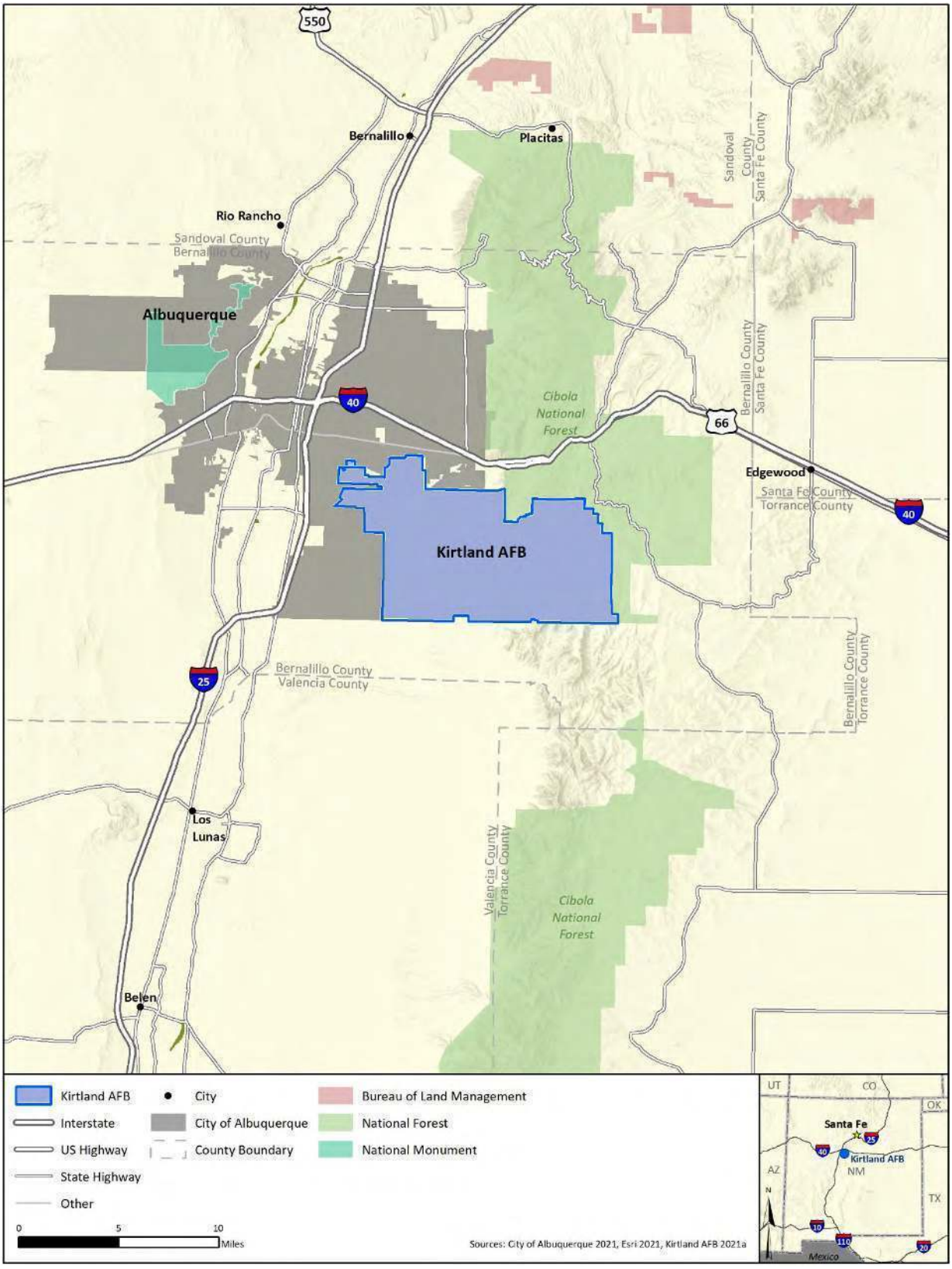

Figure 1-1 Location of Kirtland AFB

1.4 DECISION TO BE MADE

The Environmental Assessment (EA) evaluates whether the Proposed Action would result in significant impacts on the human environment. If significant impacts are identified, Kirtland AFB would undertake mitigation to reduce impacts to below the level of significance, undertake the preparation of an Environmental Impact Statement (EIS) addressing the Proposed Action, or abandon the Proposed Action. This EA is a planning and decision-making tool that will be used to guide Kirtland AFB in implementing the Proposed Action in a manner that complies with all applicable federal, state, and local environmental laws and regulations and is consistent with USAF standards for environmental stewardship. It is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4331 et. seq.), the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] 1500–1508) [July 16, 2020, version of the CEQ NEPA regulations (85 Federal Register 43304–43376) and the April 20, 2022, amendments of the 2020 CEQ NEPA regulations (85 Federal Register 23453–23470)];and the Air Force Environmental Impact Analysis Process (EIAP) Regulations at 32 CFR Part 989.

1.5 INTERGOVERNMENTAL COORDINATION/CONSULTATIONS

1.5.1 Interagency and Intergovernmental Coordination and Consultations

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, as amended by EO 12416, requires federal agencies to provide opportunities for consultation by elected officials of state and local governments that would be directly affected by a federal proposal. In compliance with NEPA, Kirtland AFB will notify relevant stakeholders about the Proposed Action and alternatives (see **Appendix A** for all stakeholder coordination materials). The notification process will provide these stakeholders the opportunity to cooperate with Kirtland AFB and provide comments on the Proposed Action and alternatives.

Per the requirements of Section 106 of the National Historic Preservation Act and implementing regulations (36 CFR Part 800), and Section 7 of the Endangered Species Act and implementing regulations (50 CFR Part 17), including the Migratory Bird Treaty Act, findings of effect and a request for concurrence will be transmitted to the State Historic Preservation Officer (SHPO) and the U.S. Fish and Wildlife Service (USFWS). A brief summary of comments received is shown below. All correspondence with SHPO and USFWS is included in **Appendix A**. Correspondence regarding the findings and concurrence and resolution of any adverse effect will be included in **Appendix A**.

1.5.2 Government to Government Coordination and Consultations

Section 106 of the National Historic Preservation Act requires federal agencies to take into account effects of their undertakings on historic properties. To comply with legal mandates, federally recognized tribes that are historically affiliated with the geographic region will be invited to consult on all proposed undertakings that have a potential to affect properties of cultural, historical, or religious significance to the tribes (see **Appendix A** for all tribal coordination materials).

Scoping letters were provided to Native American tribes whose ancestors were historically affiliated with the land underlying Kirtland AFB and the proposed airspace that would be used, inviting them to consult on the proposed undertakings outlined within this EA.

1.6 PUBLIC AND AGENCY REVIEW OF DRAFT EA

The USAF solicited public and agency comments during a scoping period from August 24 through September 22, 2022. Comments received during the scoping period were considered in preparing the Draft EA. Comments received and responses are provided in Appendix A. A Notice of Availability (NOA) for the Draft EA will be published in *The Albuquerque Journal* announcing the availability of the Draft EA. Letters will be provided to relevant federal, state, and local agencies and Native American tribal governments informing them that the Draft EA is available for review. The publication of the NOA will initiate a 30-day comment period. A copy of the Draft EA will be made available for review at the San Pedro Public Library at 5600 Trumbull Avenue SE, Albuquerque, New Mexico 87108. A copy of the Draft EA will also be made available for review online at *http://www.kirtland.af.mil* under the Environment Information tab. At the closing of the public review period, applicable comments from the general public and interagency and intergovernmental coordination/consultation will be incorporated into the analysis of potential environmental impacts performed as part of the EA, where applicable, and included in **Appendix A** of the Final EA.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 SELECTION STANDARDS

Selection standards were developed to assist Kirtland AFB in determining reasonable alternatives and the basis for eliminating any of them. The following selection standards were used to determine the feasibility of each alternative and to determine which of the alternatives would be the best fit to meet the needs of the project:

- The site should consolidate AC-130J training in a single location under a single organization.
- The site should be an Active Duty AETC location with MC-130J maintenance and support.
- The site must have adequate munitions storage capability or the space and ability to add this capability without impacting the current operations.
- The site must have a runway of sufficient length to support increased take-off distances driven by increased weight of AC-130J airframe.
- The site should have access to a nearby live fire training range.
- The site should have Base Operating Support (BOS) to support active duty assigned personnel and students.

In accordance with 32 CFR Part 989.8(c), alternatives that failed to meet the majority of the selection standards listed above were removed from further consideration.

2.2 PROPOSED ACTION

The USAF is proposing to relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58 SOW (AETC). The Proposed Action also includes personnel needed to operate and maintain the AFSOC AC-130J, and construction of new and/or modification of existing facilities on the installation to support the relocation. Students operating the AC-130J aircraft would conduct training from the installation and in existing Special Use Airspace (SUA) (both military operations area [MOAs] and Restricted Areas) and would conduct live fire training at Melrose Air Force Range (AFR), New Mexico. No new SUA or reconfiguration of existing SUA is proposed or would be required to support the relocation of the AC-130J FTU.

2.3 SCREENING OF ALTERNATIVES

The following potential alternatives that might meet the purpose and need were considered:

Alternative 1 (Preferred Alternative) – Kirtland AFB – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58 SOW (AETC). This relocation would include relocation of AC-130J aircraft, personnel, operations squadron, maintenance squadrons, and related construction activities.

Alternative 2 – Keesler AFB, 403rd Airlift Wing – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Keesler AFB, Biloxi, Mississippi.

Alternative 3 – Maxwell AFB, 908th Airlift Wing – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Maxwell AFB, Montgomery, Alabama.

Alternative 4 – Savannah, Georgia, 165th Airlift Wing – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Savannah, Georgia.

Alternative 5 – Hurlburt Field, Florida – Under this alternative, the 58 SOW would move to Hurlburt Field, Florida.

Table 2-1 provides an overview of the potential alternatives that were considered that may meet the purpose and need and weighed against the selection standards described under **Section 2.1**.

As shown in **Table 2-1**, Alternative 1 best meets the purpose and need and adheres to all of the selection standards. The selection standards of critical importance are the standards that reduce maintenance and disturbance to the local communities and provide more flexibility for minimizing disturbance to current aircraft operations such as parking and taxiing.

Alternatives 2, 3, 4, and 5 would not meet the purpose and need and do not adhere to the majority and most significant selection standards. Therefore, Alternatives 2, 3, 4, and 5 were not carried forward for detailed analysis in this EA (see **Section 2.5**).

Table 2-1 Screening of the Alternatives

Alternative Descriptions	Selection Standards					
	Consolidate AC-130J Training into one Location	Active Duty AETC Location with MC-130J Maintenance and Support	Adequate Munitions Storage Capability	Runway of Sufficient Length	Access to Nearby Firing Range	Base Operating Support
Alternative 1 – Kirtland AFB, NM	Y	Y	Y	Y	Y	Y
Alternative 2 – Keesler AFB, MS	N	N	N	N	Y	Y
Alternative 3 – Maxell AFB, AL	N	N	Y	Y	N	Y
Alternative 4 – Savannah, GA	N	N	N	Y	Y	N
Alternative 5 – Hurlburt Field, FL	Y	N	Y	Y	N	Y

2.4 DETAILED DESCRIPTION OF THE ALTERNATIVE(S)

2.4.1 Alternative 1 (Preferred Alternative)

2.4.1.1 Relocation of the AFSOC AC-130J FTU to Kirtland AFB

The relocation of the AFSOC AC-130J FTU would occur by the second quarter of FY 2025. The proposed force structure would include a total of seven AC-130J Training Aircraft Inventory (TAI) which includes six Primary Training Aircraft Inventory (PTAI) and one Backup Aircraft Inventory (BAI).

The AC-130J (nicknamed “Ghostrider”) is the modern replacement for an aging fleet of C-130 gunships, most recently the AC-130U/W aircraft. It is an air-to-ground (attack) aircraft with many missions to support combat troops on the ground. Its primary mission sets are called “close air support,” “air interdiction,” and “armed reconnaissance.” The AC-130J provides ground forces an expeditionary, direct-fire platform that is persistent, ideally suited for urban operations, and delivers precision low-yield munitions against ground targets.

Example of an AC-130 aircraft
(U.S. Air Force photo by Tommie Horton)

Under current basing conditions, a pilot new to the AC-130 completes his/her FTU-level training in two places. First, the Initial Qualification phase of training occurs at Kirtland AFB. Then, the Mission Qualification phase of training occurs at Hurlburt Field. Under the Proposed Action, both of these phases of the FTU syllabus would be consolidated in one place, Kirtland AFB, to gain efficiency in training. Meeting this additional training requirement local to Kirtland AFB is the reason for the proposed move of the seven AC-130J aircraft from Hurlburt to Kirtland.

2.4.1.2 Construction and Modification of Facilities

To accommodate the AC-130J aircraft and FTU operations, the Proposed Action would require both new construction and modification of some existing facilities. All construction would be located within the Kirtland AFB boundaries. Thirteen construction or infrastructure improvement projects are proposed (see **Figure 2-1**). **Table 2-2** and **Figures 2-2a through 2-2i** summarize the proposed construction and modification projects. Additional project details are located in **Appendix B**.

2.4.1.3 Personnel Changes

Table 2-3 summarizes estimated personnel changes under the Proposed Action, which includes some new permanent personnel at Kirtland AFB as well as some transient personnel assigned temporarily at Kirtland AFB for training, as indicated in the table.

New permanent personnel would include approximately 390 FTU personnel stationed year-round at Kirtland AFB as a result of the proposed AFSOC AC-130J FTU relocation. This would include 28 officers, 324 enlisted, and 38 contractors. Furthermore, an additional approximately 22 BOS personnel would be based at Kirtland AFB year-round as a result of the Proposed Action.

Table 2-2 List of Proposed Projects

EA Project #	Project Name	Description	Year of Implementation	Approximate Total Area of New Ground Disturbance (SF)	Approximate New Impervious Surface (SF)
1	Temporary New Squadron Operations Facility	• Install five modular trailers comprised of administrative offices that include squadron command section, AFE work center, AFE storage, restrooms, kitchen area, and rooms for briefing, mission planning, and conferences. • Construct an approximately 48,000 SF gravel parking area on open, undeveloped land (if needed). • Construct approximately 2,900 SF of paved walkways between trailers and parking area (if constructed). *Estimated project total of 75,900 SF. Includes five 5,000-SF modular trailers (25,000 SF total), approximately 48,000 SF of additional gravel parking (if needed), and approximately 2,900 SF of paved walkways (see **Figure 2-2a**).*	FY 2023	75,900	27,900
2	Permanent New Squadron Operations Facility and Parking	• Construct a new 20,000 SF facility comprised of administrative offices that include squadron command section, AFE work center, AFE storage, restrooms, kitchen area, and rooms for briefing, mission planning, and conferences. • Construct a 4,500 SF entrance/egress from the existing parking lot onto Randolph Avenue. The entrance/egress would be constructed on an area that is primarily landscaped with an existing sidewalk. • Construct 46 new paved parking spaces with driving aisles and landscaping for a total of 9,300 SF on open, undeveloped land. • Construct a new 20,000 SF paved storage area for the Air Force Research Laboratory to replace the area used for the construction of the new Squadron Operations Facility. The new area would be constructed on open, undeveloped land. *Estimated project total of 53,800 SF. Includes 20,000 SF for new facility construction, 4,500 SF for the new entrance/egress, and 9,300 SF for the new paved parking*	FY 2028	53,800	53,800

EA Project #	Project Name	Description	Year of Implementation	Approximate Total Area of New Ground Disturbance (SF)	Approximate New Impervious Surface (SF)
		*area. There will also be a new 20,000 SF paved storage area for the Air Force Research Laboratory (see **Figure 2-2b**).*			
3	Addition to Building 957 for Classroom and Administration	• Construct a 5,000 SF addition to the east side of Building 957 for classroom and administrative space. The new addition would be constructed on open, undeveloped land. *Estimated project total of 5,000 SF for new addition construction (see **Figure 2-2c**).*	FY 2025	5,000	5,000
4	Renovate Hangar 1002 (Island B) for AC-130J AMU	• Renovate Island B in Hangar 1002 to include removal of existing ACM, lead paint, and PCBs; replace HVAC and elevator; upgrade fire protection and electrical systems; construct a fire protected egress from island to exterior of hangar; and install telephone, NIPR, and Wi-Fi (see **Figure 2-2d**).	FY 2024	None	None
5	Temporary Addition to Building 949 for WST	• Install an approximately 3,600 SF temporary structure to the east side of Building 949 to house a full motion WST. The temporary structure would be installed on an area that is an existing concrete hardstand; however, there would be some trenching (approximately 50 SF) for utilities. In addition, a permanent 144 SF electrical equipment room (12 x 12 ft) would be constructed on the existing concrete hardstand on the north side of Building 949 to house electrical transformer(s) and switching in support of the simulators and training devices. The total estimated area of ground disturbance would be approximately 3,800 SF (see **Figure 2-2e**).	FY 2024	3,800	None

EA Project #	Project Name	Description	Year of Implementation	Approximate Total Area of New Ground Disturbance (SF)	Approximate New Impervious Surface (SF)
6	New Simulator Complex	• Construct an AC-130J simulator facility (45,000 SF) to house two full motion AC-130J WSTs, two ACTs, a FuT, and a GTR. • Construct a covered paved walkway (900 SF[1]) to Building 950 and an additional parking area (58,500 SF, location to be determined). *Estimated project total of 104,400 SF. Includes 45,000 SF for new facility construction, 900 SF for the new covered walkway (maximum), and 58,500 SF for a new paved parking area (location to be determined) (see **Figure 2-2f**).*	FY 2025	104,400	103,700[1]
7	Addition to Zia Park Dormitory	• Construct an addition to the dormitory already proposed to be built in Zia Park (EA in process). The dormitory design will be increased by 80 rooms to support the AC-130J relocation, increasing the total number of rooms to 432 (178,089 SF or approximately 412 SF per room). *Estimated project total of 33,000 SF for the additional 80 rooms (see **Figure 2-2g**).*	FY 2024	None[2]	None[2]
8	New Administration Building east of MSA Parking Lot	• Construct an administration building to hold the additional manning to support the AC-130J mission move east of the MSA. *Estimated project total of 10,000 SF for new facility construction (see **Figure 2-2h**).*	FY 2025	10,000	10,000
9	New Munitions Trailer Holding Pad	• Construct a 100 x 100 ft (10,000 SF) holding pad south of Building 733 for munition trailers awaiting loading and loaded trailers awaiting transport to the flight line. *Estimated project total of 10,000 SF for the new paved holding pad (see **Figures 2-2h** and **2-2i**).*	FY 2023	10,000	10,000

EA Project #	Project Name	Description	Year of Implementation	Approximate Total Area of New Ground Disturbance (SF)	Approximate New Impervious Surface (SF)
10	Construct Two New Earth Covered Munition Storage Igloos	• Construct two new 25 x 80 ft (2,000 SF) Hayman Earth Covered Munitions Storage Igloos in MSA. An additional 7,000 SF would be included for the aprons and road accessing the igloos. • Construct an unpaved 3,500 SF stormwater drainage system for each igloo. *Estimated project total of 11,000 SF. Includes 4,000 SF for new construction of the igloos, 7,000 SF for the paved aprons and access road, and an additional 7,000 SF of ground disturbance for the stormwater drainage systems (see **Figure 2-2i**).*	FY 2023	18,000	11,000
11	New Explosive Operations Building	• Construct an Explosive Operations Building (6,000 SF) to house munitions builds/teardown and expenditure operations supporting the AC-130J mission. • Construct a 5,400 SF paved access road, a total of 3,700 SF for paved parking areas on the west and east sides of the building, and paved aprons (2,000 SF each) on the north and south sides of the building. *Estimated project total of 19,100 SF. Includes 6,000 SF for new facility construction, 5,400 SF for the new paved access road, 3,700 SF for the new paved parking areas, and 4,000 SF for the new paved aprons (see **Figure 2-2i**).*	FY 2025	19,100	19,100
12	Construct Small Arms Storage Facility	• Construct a small arms storage facility (also called a Butler Building) (100 x 100 ft [10,000 SF]). *Estimated project total of 10,000 SF for new facility construction (see **Figure 2-2h**).*	FY 2023	10,000	10,000

EA Project #	Project Name	Description	Year of Implementation	Approximate Total Area of New Ground Disturbance (SF)	Approximate New Impervious Surface (SF)
13a and 13b	Renovate Buildings 737 and 733	• Renovate the interior of Building 737 and Building 733 (Munitions Maintenance Shops). • Renovations to Building 737 include the removal and replacement of the double-walled oil/water separator located below ground to the southwest of the building (approximately 4,200 SF of disturbance) (see **Figure 2-2h**). *Estimated project total of 4,200 SF of ground disturbance for the replacement of the oil/water separator.*	FY 2023	4,200 SF	None
			Total	**314,200 SF**	**250,500 SF**

Notes: [1]The longest proposed covered walkway from the new facility to Building 950 is estimated to be a maximum of 900 SF (4 feet wide by 225 feet long). The majority of the proposed walkway is paved but uncovered so only 200 SF is estimated to be a new impervious surface. Although the location of the new parking area has not been determined, for the purposes of the EA, it is assumed to be on an undeveloped area.
[2]The additional 80 rooms will be added to the existing footprint.
ACM = asbestos containing material; ACT = Aircraft Cabin Trainer; AFE = Aircrew Flight Equipment; EA = Environmental Assessment; ft = foot/ft; FuT = Fuselage Trainer; FY = Fiscal Year; GTR = Gun Trainer; HVAC = Heating, Ventilation, and Air Conditioning; MSA = Munitions Storage Area; NIPR = Non-Secure Internet Protocol Router; PCB = polychlorinated biphenyl; SF = square foot/feet; WST = Weapons Systems Trainer.
Sources: Kirtland AFB, 2021b – 2021o; 2022a – 2022e.

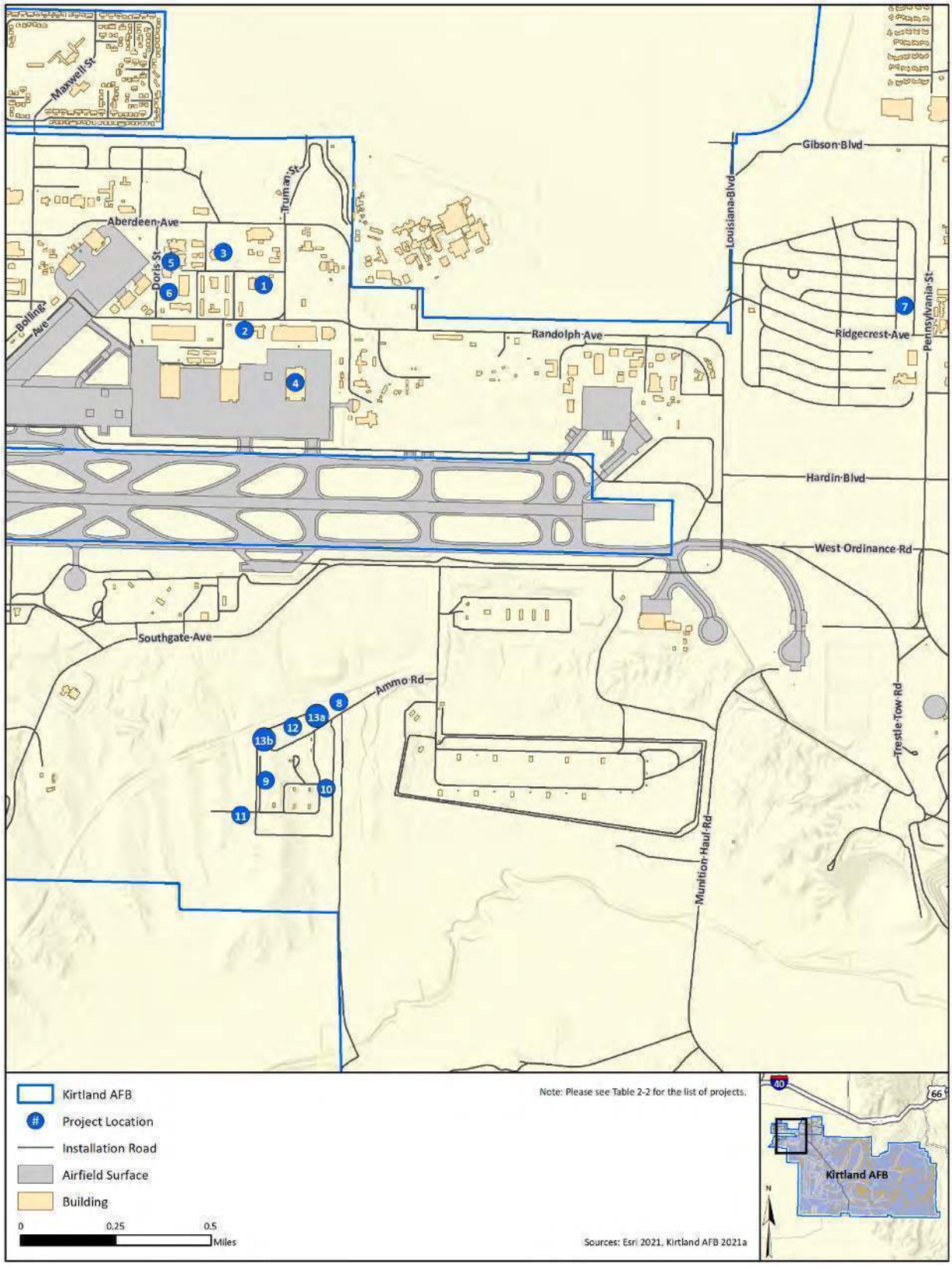

Figure 2-1 Overview of Proposed Project Locations

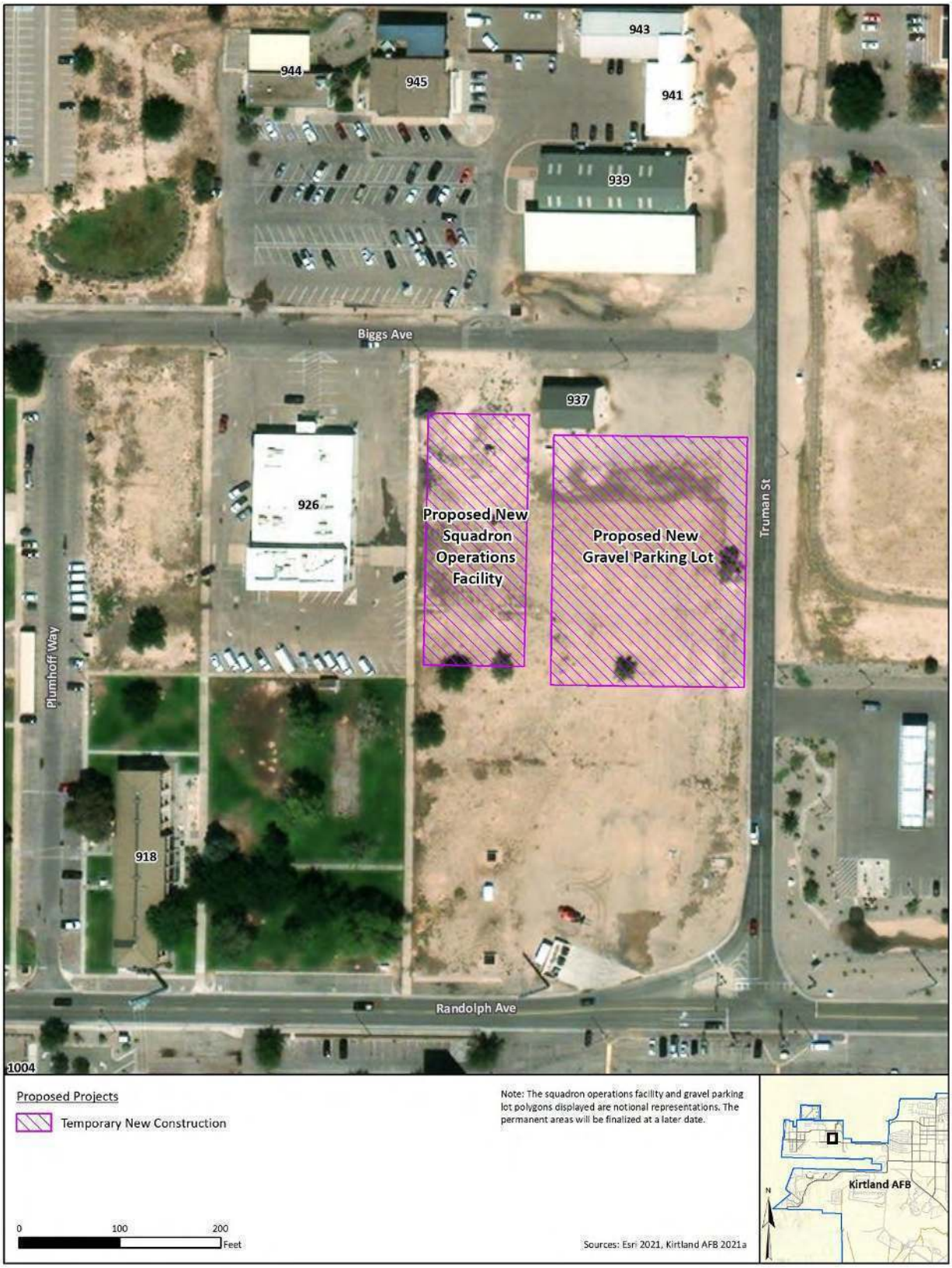

Figure 2-2a Project 1 – Temporary New Squadron Operations Facility

Figure 2-2b Project 2 – Permanent New Squadron Operations Facility and Parking

Figure 2-2c Project 3 – Addition to Building 957 for Classroom and Administration

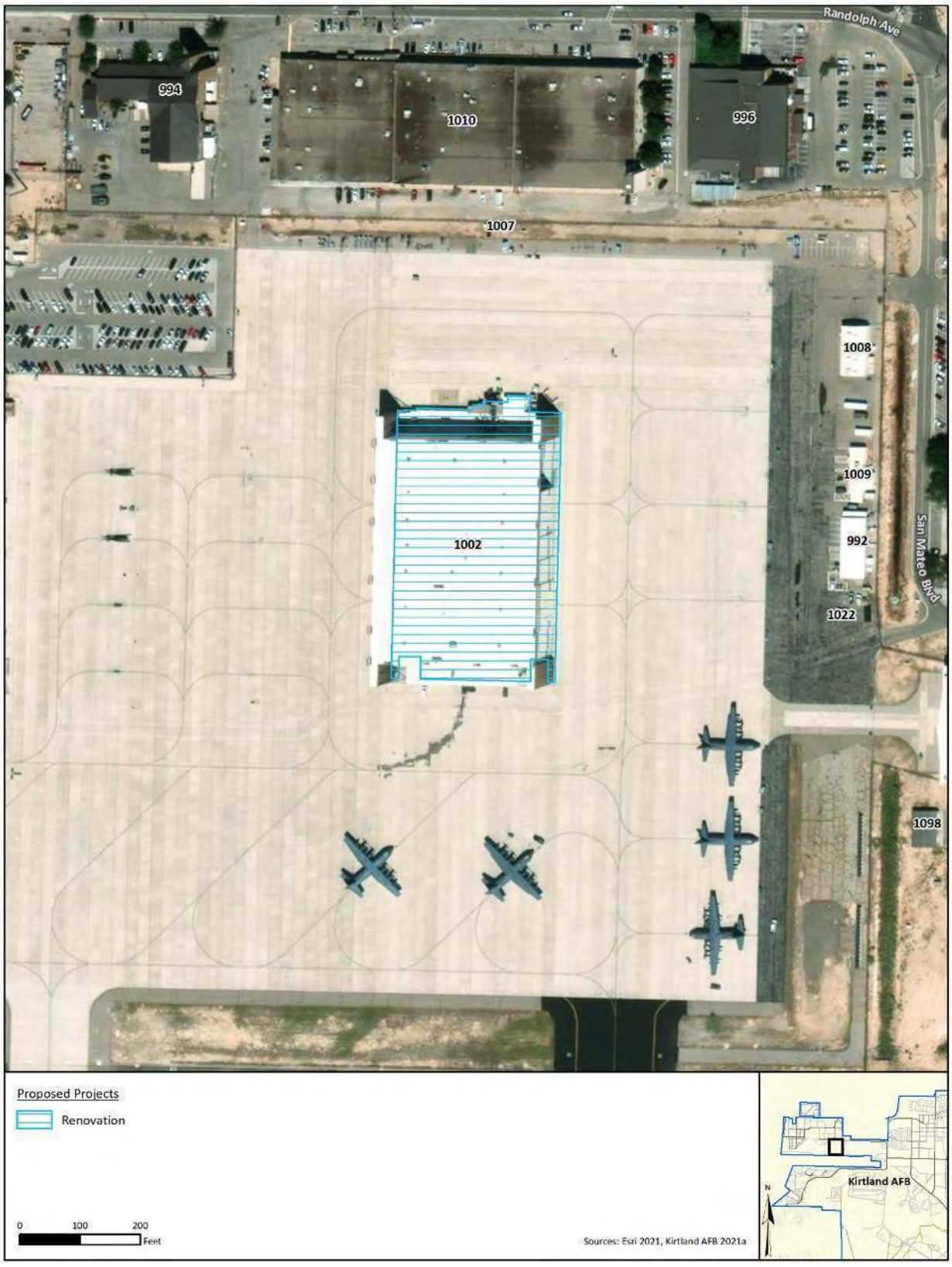

Figure 2-2d Project 4 - Renovate Hangar 1002 (Island B) for AC-130J AMU

Figure 2-2e Project 5 – Addition to Building 949 for Weapons Systems Trainer

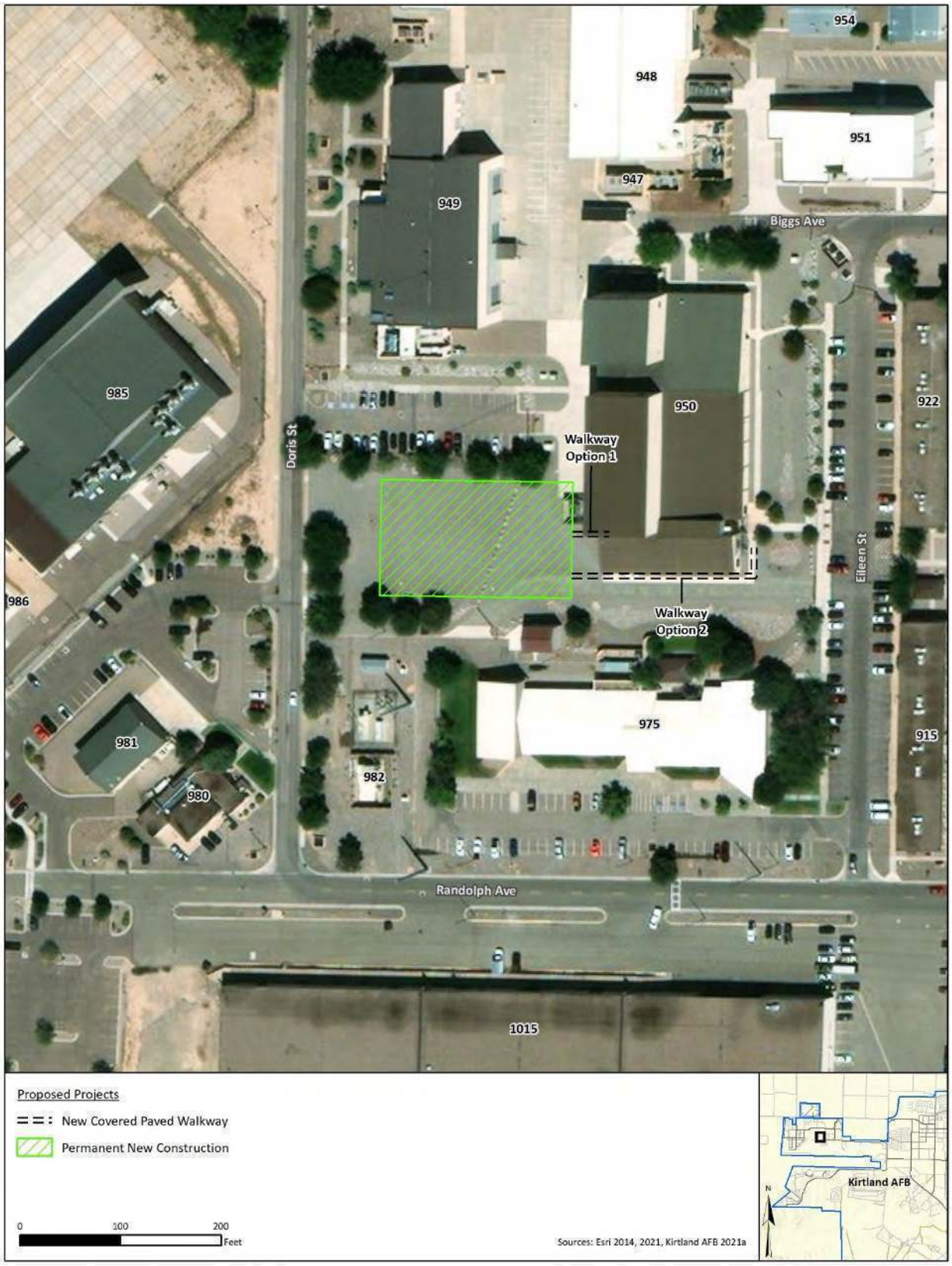

Figure 2-2f Project 6 – New Simulator Complex

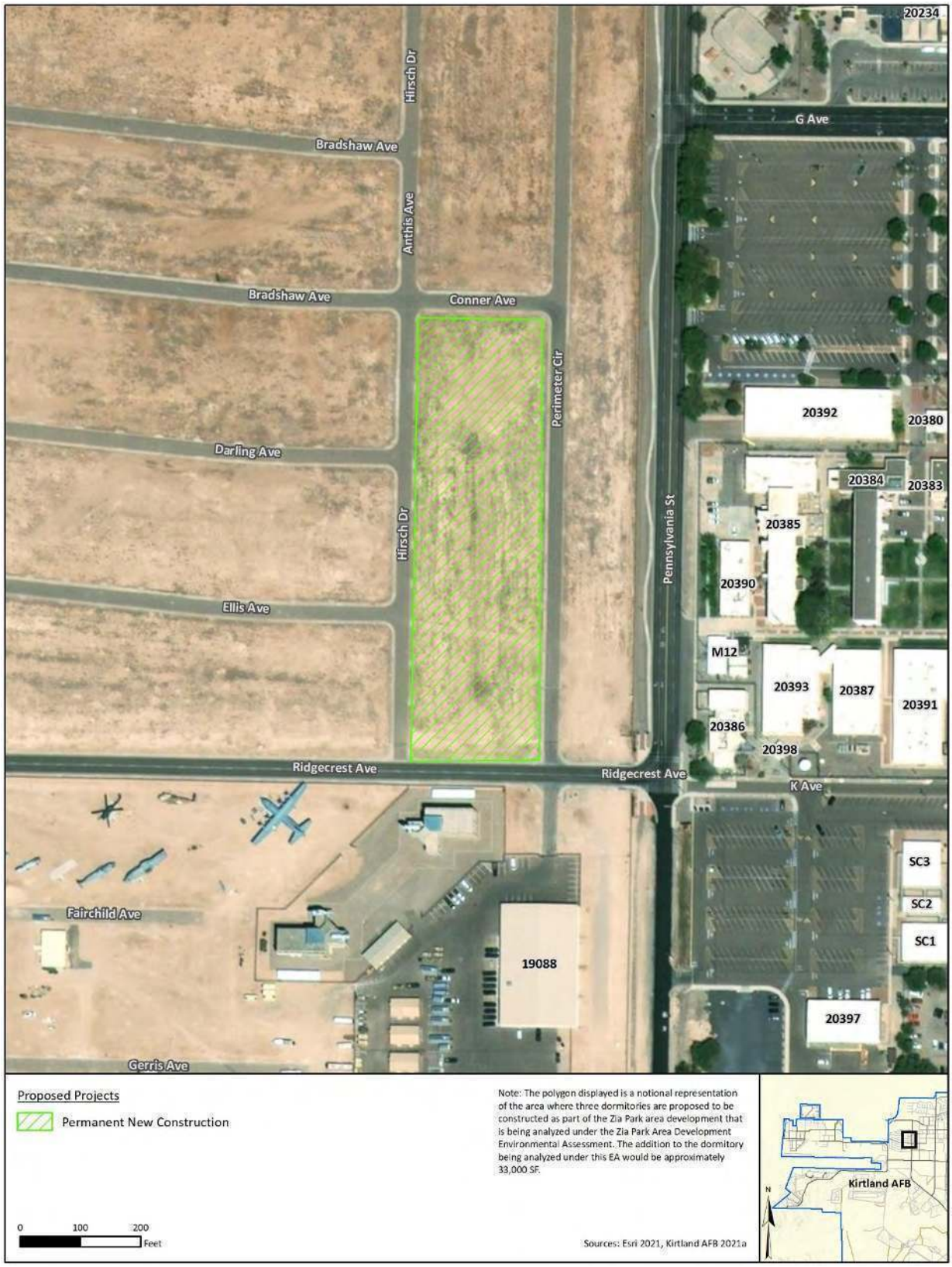

Figure 2-2g Project 7 – Addition to Zia Park Dormitory

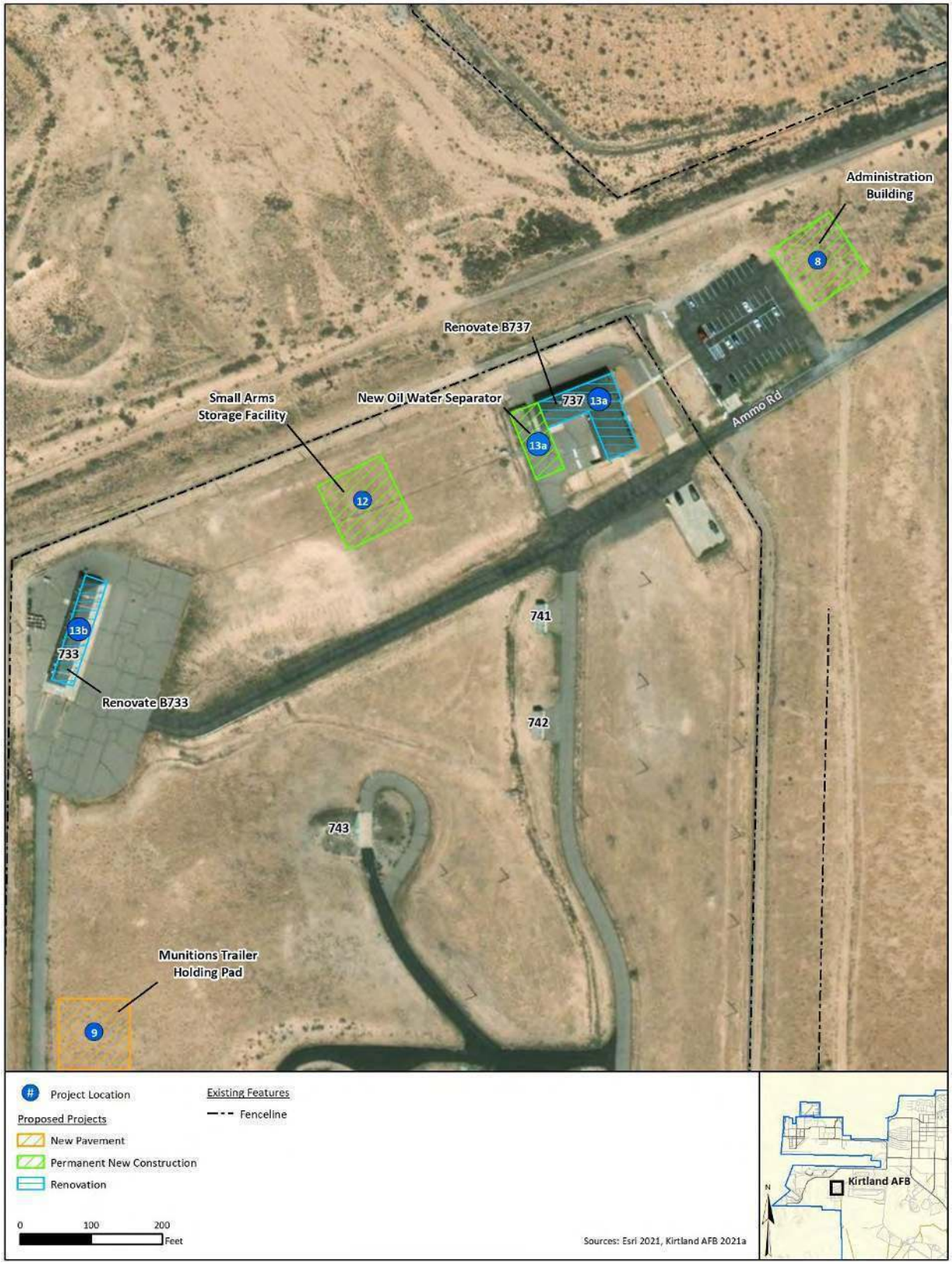

Figure 2-2h MSA North Projects (Projects 8, 9, 12, and 13)

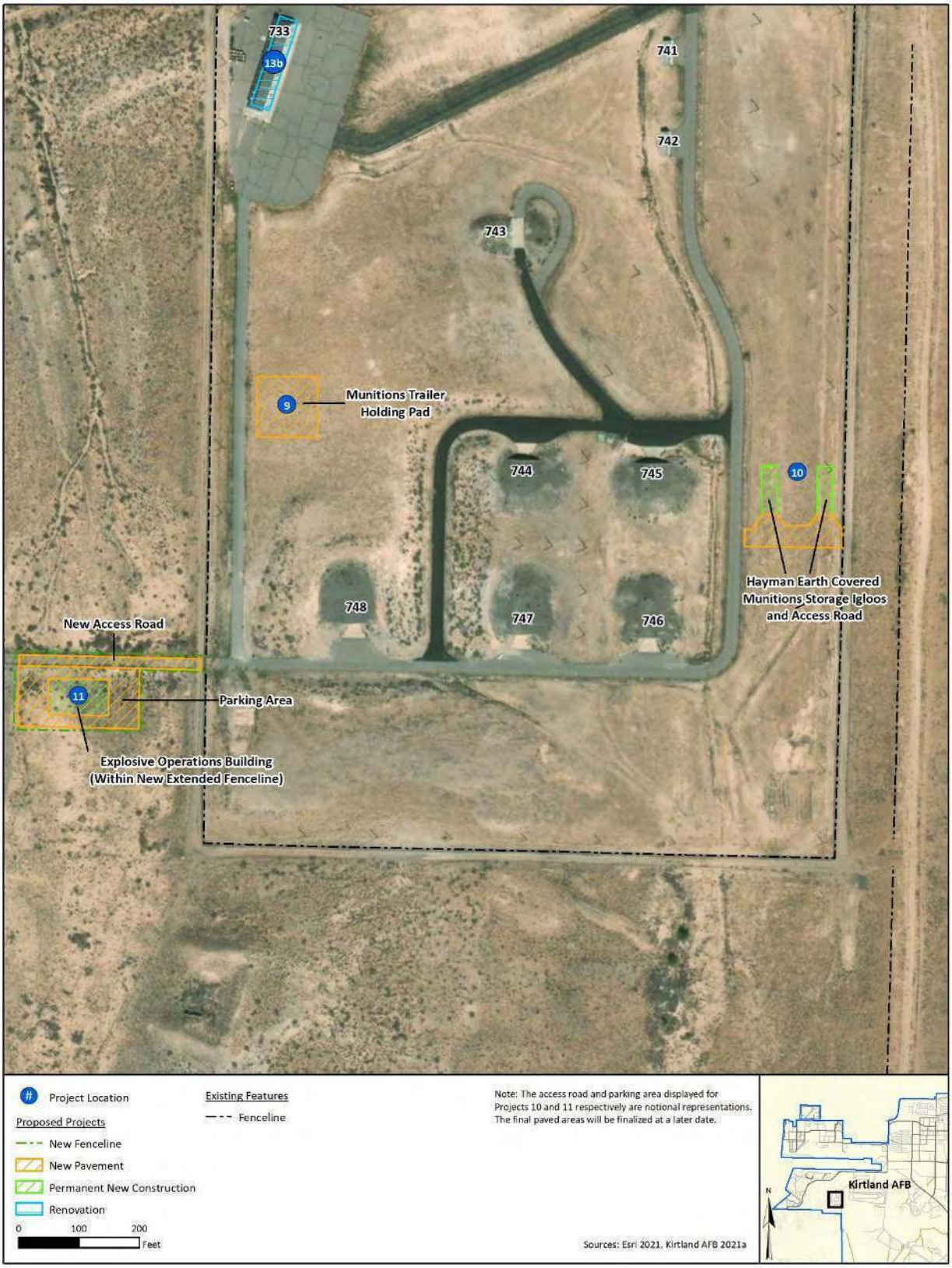

Figure 2-2i MSA South Projects (Projects 9, 10,11, and 13)

Table 2-3 Proposed Estimated Manpower under the Proposed Action

Manpower	Number of Personnel	Training Days per Year
FTU	390	N/A – Based at Kirtland Year-Round
BOS	22	N/A – Based at Kirtland Year-Round
Mission Qualification PFT Students	162	150
Pilot Instructor Upgrade PFT students	18	51
Non-Pilot Instructor Upgrade PFT students	90	9

Notes: BOS = Base Operating Support; FTU = Formal Training Unit; N/A = Not Applicable; PFT = Programmed Flight Training.
Source: Kirtland AFB, 2020a.

New transient personnel assigned temporarily for training would include the following:

- Additional student and instructor personnel visiting Kirtland AFB during training periods. Throughout the year, Mission Qualification Programmed Flight Training (PFT) courses and Instructor Upgrade PFT courses would occur. Mission Qualification PFT courses would occur up to 150 training days (approximately 30 calendar weeks) a year. The 150 training days would be spread out throughout the year. Student personnel for Mission Qualification PFT courses would include a total of approximately 162 students per year (72 officers and 90 enlisted), or 18 crews of 9 individuals. Up to 50 percent of the 162 students are in residence at any one time.
- Instructor Upgrade PFT courses would occur for both pilot instructors and non-pilot instructors. Pilot instructor upgrade training would occur up to 51 training days a year for 18 total students (all officers). Non-pilot instructor upgrade training would occur up to 9 training days (approximately 2 calendar weeks) per year for a total of approximately 90 students (36 officers and 54 enlisted).

2.4.1.4 Airfield Operations

To provide the training needed to ensure combat readiness, AC-130J aircrews would conduct operations in two types of areas: (1) the installation airfield, and (2) training ranges and SUA. Additionally, pilots would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures.

This EA uses three terms to describe different components of aircraft flying activities: *sortie*, *operation*, and *event*. Each has a distinct meaning and commonly applies to a specific set of activities in a particular airspace environment or unit. These terms also provide a means to quantify activities for the purposes of analysis.

A *sortie* consists of a single military aircraft from a take-off through a landing. For this EA, the term sortie is commonly used when summarizing the amount of flight activities from an installation. A sortie can include more than one operation.

The term *operation* can apply to both airfield and airspace activities, and represents the primary analytic and descriptive quantifier of aircraft flight activities presented in this EA. At an airfield, an operation comprises one action such as a landing or a take-off. For airspace and ranges, an operation comprises the use of one airspace unit (e.g., MOA, Restricted Area) by one aircraft. Each time a single aircraft flies in a different airspace unit, one operation is counted for the unit.

Thus, different installations could support the same number of sorties for the same aircraft type but generate different numbers of operations in the airspace due to the configuration of airspace units.

As a subset of operations, the term *event* is used to define specific training elements (e.g., a defensive countermeasure or ordnance delivery event). More than one event may be performed during the use of an airspace unit. During a single sortie, an aircraft could fly in several airspace units, conducting a number of operations and events. For these reasons, the number of operations and events may exceed total sorties and are not additive to one another.

AC-130J flight operations in and around Kirtland AFB would be very similar to those performed by the MC-130J and HC-130J aircraft currently based there. Typical training events for the MC-130J and HC-130J involve an aircraft taking off from Kirtland AFB, going to a training area elsewhere, then returning later for recovery at Kirtland AFB. Pilot proficiency requirements also necessitate practice of some additional landings, often accomplished by landing to a "touch-and-go," then flying a closed pattern to another landing. This allows multiple landing practices. During a normal sortie, one or both of the pilots may need extra landings or instrument approaches. This type of activity will be nearly identical for the AC-130J and will likely be indistinguishable to the average observer.

Current M/HC-130J aircraft based at Kirtland AFB fly about five sorties per day, five days per week (about 1,250 sorties per year). Each of these sorties has at least a takeoff and landing, and there are about 2,500 closed patterns conducted per year as well (with two airfield operations each). Addition of the new AC-130J aircraft would add approximately three more sorties per day and would primarily occur Monday through Friday. This would total approximately 750 sorties per year each having an average of six airfield operations for a total of 4,500 annual airfield operations. **Table 2-4** shows the current operations at Kirtland AFB/Albuquerque International Sunport, hereafter referred to as the Sunport, using civil aircraft data from 2019 as representative of status quo annual operations prior to COVID-19. The proposal to increase the USAF activity with AC-130J aircraft conducting 4,500 annual flight operations represents an increase of about 3.5 percent over the representative current operations.

Table 2-4 Current and Proposed Annual Airfield Operations at Kirtland AFB/Albuquerque International Sunport

	Total Current Operations	Proposed AC-130J Operations
Current Military Aircraft	17,596	N/A
Proposed AC-130J Aircraft	N/A	4,500
Other Aircraft	109,763	N/A
Total Airfield Operations	127,359	131,859
Percent Change at Airfield	N/A	3.5%

Source: Cardno, 2022.

Current M/HC-130J aircraft stationed at Kirtland AFB fly sorties both day and night to meet training requirements for combat missions that will occur at all times of day. For flight training purposes, "after dark" is considered to be the time period from 1 hour after sunset to 1 hour before sunrise. The time of day flown in the dark varies between the units because of their geographic location, and also varies seasonally. "After dark" training is different from "environmental night," which is used to predict changes to the noise environment. "Environmental night" is considered to be after

10:00 p.m. and before 7:00 a.m. and is used in the noise analysis to account for the added intrusiveness of aircraft operations during this time period. The proposed AC-130J sorties would also occur both during the day and night, with generally two sorties per day occurring during the night (10:00 p.m. to 7:00 a.m.) and one sortie per day occurring during the day (7:00 a.m. to 10:00 p.m.).

2.4.1.5 Training Airspace and Range Operations

2.4.1.5.1 Airspace Use

No new airspace or reconfigurations are needed or proposed to support the relocation of the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico. The AC-130J would operate within SUA (both MOAs and Restricted Areas), and other existing airspace and training areas, including live fire training at Melrose AFR, which includes the Pecos and Taiban MOAs, R-5104, and R-5105, near Clovis, New Mexico, proximate to Cannon AFB (**Figure 2-3**). The Melrose AFR is already designated for C-130 flight operations normally conducted out of Kirtland AFB and Cannon AFB. The majority of the flights from Kirtland AFB airfield to this SUA would occur above 10,000 feet mean sea level (MSL).

AC-130J operations resulting from the Proposed Action would result in fewer sorties in the airspace than the operations for the C-130 airframe assessed in previous NEPA analyses. The AC-130J aircraft would fly similar to the other C-130 aircraft currently flying in the airspace. Specifically, environmental impacts to the airspace and range were evaluated in the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007). **Table 2-5** includes the annual aircraft operations for Melrose AFR, Restricted Areas, and MOAs that were analyzed in the previously mentioned EIS. **Table 2-6** compares existing operations with those proposed under this Proposed Action and those analyzed in the 2007 EIS.

2.4.1.5.2 Ordnance Use and Defensive Countermeasures

Approximately 80 percent of the proposed training sorties would include weapons training at Melrose AFR. Normal live fire operations would include munition upload at Kirtland AFB; the weapons would not be chambered or armed until over the impact range. No changes to the range would be required or occur under the Proposed Action.

The type of defensive countermeasures used by the AC-130J within the Pecos and Taiban MOAs, R-5104, and R-5105, including chaff and flares, would be similar to what is currently used by the MC-130J, HC-130J, and existing AC-130J training at Melrose AFR. It is projected that the AC-130J would use approximately 12,500 M-206 flares and approximately 7,800 RR-188 chaff bundles annually under the Proposed Action. This would be an increase of approximately 3,860 flares and an increase of approximately 4,560 chaff bundles compared to what is currently used. However, chaff and flare use would fall within the numbers analyzed and planned for in previous NEPA documents that proposed a larger AC-130 presence at Cannon AFB than currently exists. Environmental impacts for a projected use of 36,000 chaff bundles and 24,000 defensive flares annually were evaluated in the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007).

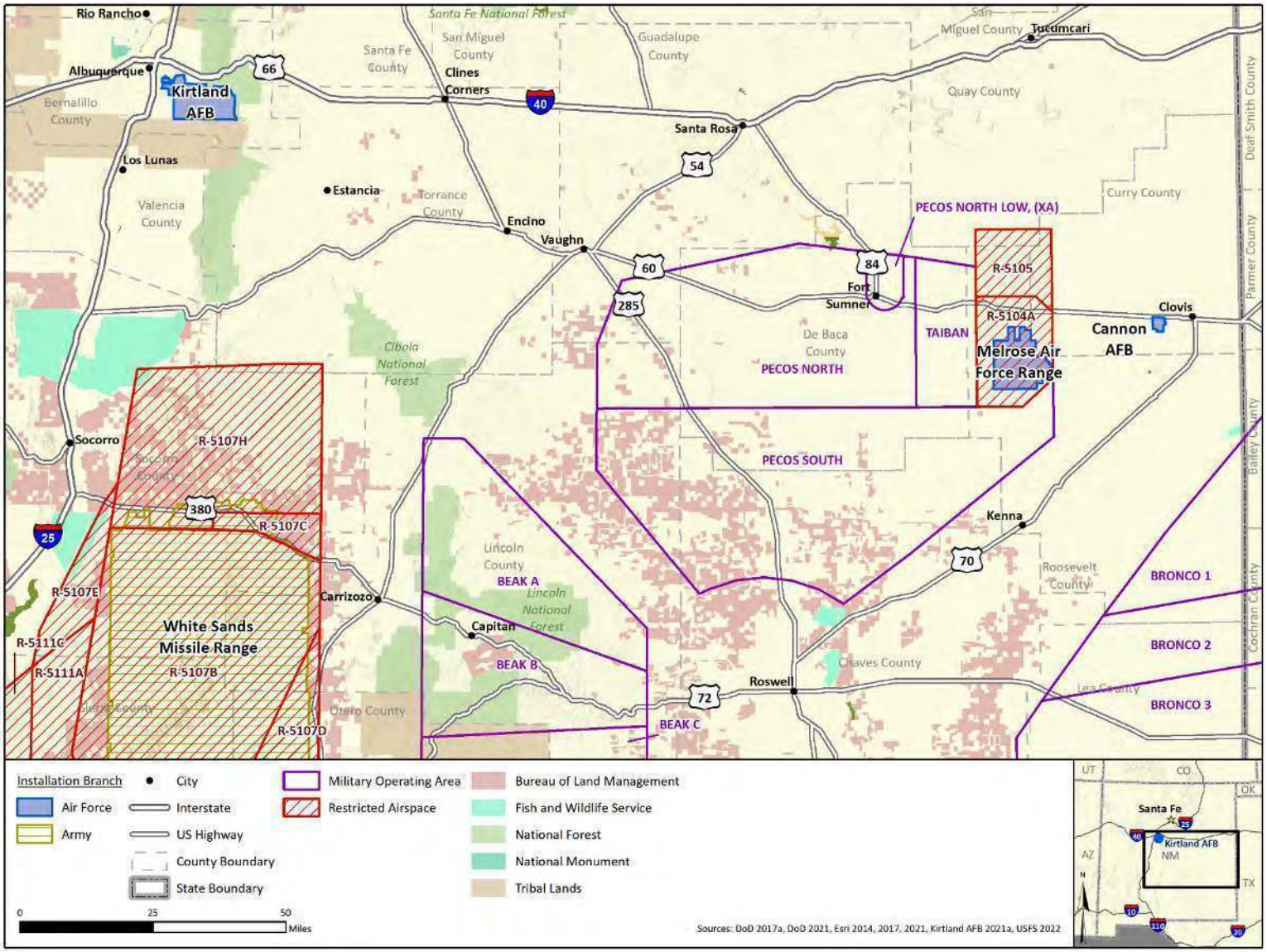

Figure 2-3 Airspace Near Kirtland AFB

Table 2-5 Annual Aircraft Sorties for Melrose AFR Restricted Areas and MOAs Analyzed in the 2007 EIS for AFSOC Assets Beddown at Cannon AFB, New Mexico

Aircraft	R-5104A[1]		R-5104B[2]		R-5105[3]		Pecos MOA		Taiban MOA	
	Day[4]	Night[5]	Day[4]	Night[5]	Day[4]	Night[5]	Day[4]	Night[5]	Day[4]	Night[5]
AC-130	936	312	9	3	936	312	811	437	811	437
MC-130H	468	312	60	39	468	312	507	273	507	273
MC-130P	468	312	60	39	468	312	507	273	507	273
CV-22	750	500	0	0	750	500	1,008	543	813	438
C-47 Type	137	91	0	0	137	91	148	80	148	80
UH-1	113	38	0	0	113	38	130	70	107	57
NSA	456	456	0	0	456	456	130	70	593	319
UAS	90	90	90	90	90	90	-	-	-	-
MC-130W	468	312	60	39	468	312	507	273	507	273
Transient	1,170	300	1,170	300	1,170	300	606	200	1,170	300

Notes: [1]To 18,000 feet
[2]18,000 feet to 23,000 feet
[3]To 10,000 feet
[4]Day operations would be from 7:00 a.m. to 10:00 p.m.
[5]Night operation is considered 10:00 p.m. to 7:00 a.m.
Source: USAF, 2007.

Table 2-6 Proposed Annual Aircraft Sortie-Operations for Melrose AFR Restricted Areas and MOAs Compared to Existing Operations (2019) and those Analyzed in the 2007 EIS for AFSOC Assets Beddown at Cannon AFB, New Mexico

Aircraft	R-5104A			R-5104B			R-5105			Pecos MOA			Taiban MOA		
	EIS	2019	Proposed[1]	EIS	2019	Proposed[1]	EIS	2019	Proposed[1]	EIS	2019	Proposed[1]	EIS	2019	Proposed[1]
AC-130	1,248	291	400	12	21	30	1,248	7	10	1,248	22	30	1,248	6	10
Other C-130 Models[2]	6,531	752	0	3,906	472	0	14,310	146	0	5,325	1,947	0	6,365	743	0
Other Aircraft	4,191	675	0	3,609	449	0	11,970	37	0	2,985	1,703	0	4,025	600	0

Notes: [1] The noise generated from the AC-130J models proposed under this action would be almost identical, or slightly quieter, to the other C-130 aircraft currently flown in the airspace. Some of the C-130 aircraft analyzed in the previous EIS and flown in 2019 are older models (e.g., H/N/P) and therefore slightly louder than the newer J model (which has more efficient propellers) proposed under this action.
[2] This includes the MC-130, KC-130, and C-130 aircraft.
EIS = Environmental Impact Statement; MOA = Military Operations Area

Source: USAF, 2007.

The minimum required altitude for M-206 (or equivalent defensive countermeasure) flare release in New Mexico Training Range Initiative SUA outside Melrose AFR is 2,000 feet above ground level (AGL). When the National Fire Danger Rating System indicates high fire conditions or above, the minimum altitude for flare release in SUA outside Melrose AFR would be raised to above 5,000 feet AGL. Flares and other munitions would be used over Melrose AFR in accordance with the Melrose AFR Operations Condition Matrix Restrictions derived from the new Cannon AFB responsibilities and procedures supplement to Air Force Instruction 13-212 for the maintenance and use of Melrose AFR.

In addition to the defensive countermeasures, the AC-130J also employs other weapons systems, the use of which are one of the focus areas of the Mission Qualification phase of the FTU training syllabus. The proposed operations on Melrose AFR due to the consolidation of the AC-130J FTU at Kirtland AFB would result in fewer sorties in the airspace, and fewer rounds of ordnance on the range than what was analyzed and planned for in the previous *Environmental Assessment for Utilization Enhancements at Melrose Air Force Range* in 2016 (USAF, 2016) and the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007) **(Table 2-7)**.

Table 2-7 Existing and Proposed Annual Munitions Expenditures

Munitions	Existing Expenditures	Proposed Additional Expenditures	Previously Analyzed in Past NEPA
30 mm High Explosive Incendiary	0	93,600	165,000[1]

Notes: [1]Analyzed in the USAF 2016 EA.
mm = millimeter; NEPA = National Environmental Policy Act.
Sources: USAF, 2007, 2016.

2.4.2 No Action Alternative

Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico and organizationally realign the unit under the 58 SOW (AETC). AC-130J qualifications training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and Mission Qualification Training occurring at Hurlburt Field. Training would continue to strain capacity of the Eglin AFB Range constraining student training by forcing longer qualification training periods waiting on range access.

The No Action Alternative would not meet the purpose of and need for the Proposed Action as described in **Section 1.3**; however, the USAF EIAP (32 CFR Part 989.8[d]) requires consideration of the No Action Alternative. Therefore, this alternative will be carried forward for detailed analysis in the EA.

2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

The following alternatives were eliminated from further consideration based upon the selection standards stated in **Section 2.1** and other reasons as explained below.

Alternative 2 – Keesler AFB, 403rd Airlift Wing – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Keesler AFB in Biloxi, Mississippi. At Keesler AFB, an installation under the AETC command, the 81st Training Wing hosts the 2nd Air Force which provides formal technical training for various cyber fields but does not have existing

Mission Qualifications Training, which includes MC-130J maintenance and support operations. This alternative action does not meet the Commander, Air Force Special Operations Command (COMAFSOC) intent to consolidate AC-130J training in a single location under a single organization with the intent of providing synergies and lower costs. AC-130J qualification training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and newly relocated Mission Qualification Training occurring at Keesler AFB. In addition, Keesler AFB lacks adequate munitions storage capability to support AC-130J munitions requirements; Keesler AFB's runway is not long enough to support the increase take-off distances driven by the increased weight of the AC-130J airframe and the location of Keesler AFB near numerous casinos that routinely use lasers on a nightly basis significantly increase the flight safety risk to student pilots.

Alternative 3 – Maxwell AFB, 908th Airlift Wing – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Maxwell AFB in Montgomery, Alabama. Maxwell AFB is an installation under the AETC command but does not have existing Mission Qualifications Training, which includes MC-130J maintenance and support operations. This alternative action does not meet the COMAFSOC intent to consolidate AC-130J training in a single location under a single organization with the intent of providing synergies and lower costs. AC-130J qualification training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and newly relocated Mission Qualification Training occurring at Maxwell AFB. In addition, Maxwell AFB lacks access to a nearby live fire training range forcing students to fly to the Eglin Range to train. This would continue to strain capacity of the Eglin Range constraining student training by forcing longer qualification training periods waiting on range access.

Alternative 4 – Savannah, Georgia, 165th Airlift Wing – Under this alternative, the USAF would relocate the AFSOC AC-130J FTU from Hurlburt Field, Florida to Savannah, Georgia. This alternative action does not meet the COMAFSOC intent to consolidate AC-130J training in a single location under a single organization with the intent of providing synergies and lower costs. AC-130J qualification training would continue to occur in a split environment with Initial Qualification Training occurring at Kirtland AFB and newly relocated Mission Qualification Training occurring at the 165th Airlift Wing. The 165th Airlift Wing is located on a commercial airport that lacks any munitions storage capabilities and is not an AETC location. No BOS is available to support active duty assigned personnel or students.

Alternative 5 – Hurlburt Field, Florida – Under this alternative, the 58 SOW at Kirtland AFB, New Mexico would relocate to Hurlburt Field, Florida. Currently, student training from Hurlburt Field utilizes Eglin AFB's Range in Florida to conduct part of its Mission Qualification training. However, there is limited capacity at the Eglin Range, constraining student training by forcing longer qualification training periods waiting on range access. This would continue to strain capacity of the Eglin Range constraining student training by forcing longer qualification training periods waiting on range access. In addition, this alternative action does not meet the COMAFSOC intent to consolidate AC-130J training in a single location under a single organization with the intent of providing synergies and lower costs.

2.6 COMPARATIVE SUMMARY OF IMPACTS

Table 2-8 presents a summary of the impacts anticipated under the Proposed Action (Alternative 1 [Preferred Alternative]) and No Action Alternative.

Table 2-8 Summary of Potential Impacts to Resource Areas

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Airspace Management	The Proposed Action would result in a long-term increase of about 450 AC-130J sorties per year being generated by the USAF on Kirtland AFB. This represents a 3.5 percent increase in airfield operations attended by the Albuquerque International Sunport Air Traffic Control Tower (Sunport Tower), and a fraction of 1 percent increase in aircraft operations in the NAS-local flying area. These increases are small, and do not amount to a large enough increase to affect the quality of services offered by either the Albuquerque International Sunport Tower or the other controlling agencies that are part of the NAS. No new training airspace would need to be created because existing airspace is sufficient.	Implementation of the No Action Alternative would not result in any new or additional impacts on airspace management.
Noise	Construction projects associated with the Proposed Action would result in a short-term, minor, adverse impacts from noise. Impacts from noise associated with proposed operations at the airfield would not be significant. The Proposed Action would result in increases between 0 and 1 dB. Generally, DNL changes of 1 dB are not noticeable to observers.	No new noise would be introduced to the on- and off-installation noise environments; therefore, no new noise impacts would occur with implementation of the No Action Alternative.
Land Use	The Proposed Action would not introduce any new land uses within the cantonment area of the base and would remain compatible with current land uses identified for each planning district. Noise impacts from the Proposed Action to the surrounding land uses, which are predominately residential and commercial, parks and open space, and community golf courses, would not significantly increase. The Proposed Action would not impact land uses under any of the proposed training areas.	No new impacts on land use would occur with implementation of the No Action Alternative.
Air Quality	Under the Proposed Action, emissions of criteria pollutants would be well below the 250 tons per year comparative threshold for all years of activity. Therefore, the Proposed Action would not be expected to result in a significant impact on air quality.	There would be no changes to air emissions at the installation under the No Action Alternative.
Geology and Soils	No impacts to geology, topography and soils, and geological hazards are expected from the proposed construction and facility modification activities or proposed operations.	No new impacts on geological resources would occur with implementation of the No Action Alternative.

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Water Resources	The Proposed Action is not expected to impact groundwater levels. No impacts to groundwater or groundwater quality are expected post-construction or during operations of the Proposed Action. Short-term impacts to surface waters would be expected during construction and facility modification activities of the Proposed Action. No permanent bodies of water are located in the proposed project areas; however, during rain events flowing stormwater has the potential to transport sediment and hazardous materials to drainage ditches. None of the proposed construction or facility modification projects associated with the Proposed Action are located within the 100-year floodplain or directly proximate to any wetland area; therefore, there is no anticipated impact.	No new impacts to water resources would occur with implementation of the No Action Alternative.
Biological Resources	Impacts to vegetation would not be significant under the Proposed Action. Implementation of the Proposed Action is not expected to cause significant impacts to wildlife species or their associated habitat. Construction activities associated with the Proposed Action could cause minor, short-term disturbances to wildlife that may inhabit the proposed project areas. There would be no impact to threatened or endangered species or critical habitat from implementation of the Proposed Action. No federally listed species have been documented on Kirtland AFB. Impacts to state-listed species would be less than significant.	No new impacts to biological resources would occur with implementation of the No Action Alternative. Biological resources would continue to be managed in accordance with the Kirtland AFB INRMP.
Cultural Resources	Given the current use of the airspace and the nature of the proposed future use of the project areas, there would be no significant impacts to architectural resources. No traditional cultural properties have been identified at Kirtland AFB or the lands underlying the SUA.	Cultural resources would continue to be managed in accordance with the Kirtland AFB ICRMP and would be expected to remain as described under affected environment in Section 3.9.2. Therefore, there would be no significant impacts to cultural resources under the No Action Alternative.

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Infrastructure	No impacts from connection of electrical power to the proposed project areas is anticipated. An increase in electrical capacity would be expected due to the increase in personnel and operations from the Proposed Action but would be accommodated by the electrical system. No impacts from construction and connection to natural gas supplies are anticipated. Operationally, ground vehicles to support the Proposed Action would increase the amount of fuel used; however, the daily increases from the added sorties and ground support vehicles would not significantly increase the overall amount of fuel that is supplied to the base. Impacts to the water supply system, sanitary sewer/wastewater, communications, or solid waste management would not be expected from the Proposed Action.	No new impacts to infrastructure would occur with implementation of the No Action Alternative.
Hazardous Materials and Wastes	No adverse impacts to the EMS program are expected as construction contractors would comply with the installation's EMS program. The Proposed Action would result in short-term, negligible, adverse impacts should any hazardous materials or petroleum products be released into the environment. The installation of additional aircraft could result in long-term, negligible adverse impacts associated with a minor increase in the use of hazardous materials and petroleum at Kirtland AFB. The Proposed Action would result in a short-term, negligible, adverse impact on the generation of hazardous and petroleum wastes Facilities requiring demolition during modification or building addition activities that have the potential to contain ACM, PCBs, and LBP will be evaluated for toxic substance abatement prior to their demolition or building addition. With BMPs in place, no adverse impacts are anticipated. Implementation of the Proposed Action would not be expected to result in any impacts on or be impacted by ERP and/or MMRP sites	Implementation of the No Action Alternative would not result in any new or additional impacts on hazardous materials and wastes.

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
Safety	There would be a short-term increase in safety risk to contractors during construction and modification-related activities due to operation of heavy equipment. All construction and modification projects would be conducted in full compliance with AT/FP requirements from design to completion. No construction or modification activities under the Proposed Action would occur with the established Q-D arcs at Kirtland AFB. The existing BASH program would continue, and the slight increase in aircraft operations that would occur under the Proposed Action are not expected to significantly increase the risk of BASH. All aircraft would be operated in accordance with standard USAF flight rules, as well as the 58 OG In-flight Guide. Additionally, construction activities under the Proposed Action would not result in any greater safety risk or obstructions to navigation; therefore, no increased risk to aircraft safety is expected under the Proposed Action.	Implementation of the No Action Alternative would not result in any new or additional impacts on safety.
Socioeconomics	Construction expenditures related to the Proposed Action would increase Kirtland AFB's economic impact in the local area and ROI. During operation of the Proposed Action, additional employment, wages, and local spending would further increase Kirtland AFB's impact on the local economy. These impacts would be minor beneficial impacts.	Implementation of the No Action Alternative would not result in any new or additional impacts on socioeconomics.
Environmental Justice	While the short-term noise and traffic impacts on the minority and low-income populations would be considered disproportionate, the impacts would not be significant. The Proposed Action would not result in increased exposure of children to environmental health risks or safety risks. No disproportionate impacts on elderly persons would be expected.	Implementation of the No Action Alternative would not result in any new or additional impacts on environmental justice or sensitive receptors.

Notes: 58 OG = 58th Operating Group; ACM = asbestos-containing material; AFB = Air Force Base; AT/FP = Anti-Terrorism/Force Protection; BASH = Bird/Wildlife Aircraft Strike Hazard; BMP = Best Management Practice; dB = decibel; DNL = Day-Night Average Sound Level; EMS = Environmental Management System; ERP = Environmental Restoration Program; ICRMP = Integrated Cultural Resources Management Plan; INRMP = Integrated Natural Resources Management Plan; LBP = Lead-Based Paint; MMRP = Military Munitions Response Program; NAS = National Airspace System; PCB = Polychlorinated Biphenyl; Q-D = Quantity-Distance; ROI = Region of Influence; SUA = Special Use Airspace; USAF = United States Air Force.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 SCOPE OF THE ANALYSIS

3.1.1 Resources Analyzed

The resources in the proposed project areas that were analyzed include airspace management, noise, land use, air quality, geological resources, water resources, biological resources, cultural resources, infrastructure, hazardous materials and wastes, safety, socioeconomics, and environmental justice and sensitive receptors.

The significance of an action is measured in terms of its context and intensity. The context and intensity of potential environmental impacts are described in terms of duration, the magnitude of the impact, and whether they are adverse or beneficial as summarized below:

- ***Short-term or long-term.*** In general, short-term impacts are those that would occur only with respect to a particular activity, for a finite period, or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.
- ***Significant, moderate, minor, negligible, or no impact.*** These relative terms are used to characterize the magnitude or intensity of an impact. Significant impacts are those effects that would result in substantial changes to the environment (as defined by 40 CFR 1508.27) and should receive the greatest attention in the decision-making process. Less than significant impacts are those that would be slight but detectable.
- ***Adverse or beneficial.*** An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment.

3.1.2 Resources Eliminated from Detailed Analysis

Based on the scope of the Proposed Action, environmental resources with few to no impacts were identified and removed from detailed analysis. The following describes those resource areas and why they were eliminated:

- *Visual Resources.* The proposed construction and demolition would be located in or near a developed area of Kirtland AFB property and would be consistent with the types of structures that are currently present. Minor and short-term impacts to the visual landscape could result from temporary construction activities but would not persist following project completion. Therefore, visual resources were dismissed from detailed analysis in this EA.
- *Transportation.* The increase in personnel from the Proposed Action would not appreciably increase the traffic patterns or volumes within the installation or Region of Influence (ROI). In addition, there are no construction projects proposed that would appreciably change the traffic patterns or volumes on base. Therefore, transportation as a resource was not carried forward for detailed analysis in this EA.

3.2 AIRSPACE MANAGEMENT

3.2.1 Regulatory Setting

The Federal Aviation Administration (FAA) is responsible for managing national airspace assets through a variety of regulations and procedures. As necessary, the FAA will coordinate with federal (including military), state, and local community aviation entities to determine the best use of these assets. All aircraft are subject to FAA regulations. The regulations for these categories

are based on the types of flying activity, volume of traffic, hazard potential, national security, and other factors.

3.2.2 Affected Environment

The ROI for the Proposed Action and alternatives includes airspace in and around Kirtland AFB and the Sunport. The FAA designation for both is "ABQ." Kirtland AFB uses runways and taxiways owned by the Sunport through a joint-use lease agreement. Flight activities associated with training areas on the installation use both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) and occur between 50 and 500 feet AGL. All flight activities on or around Kirtland AFB require contact with Sunport Air Traffic Control (ATC).

The Sunport is surrounded by Class C airspace (called "ABQ Class C"), which requires communication with the controlling ATC facility for entry and/or operation. Both the civilian and military aircraft operating at the Sunport must operate in accordance with the rules for Class C airspace. Outside of the ABQ Class C airspace (generally beyond 10 nautical miles or over 9,400 feet MSL), all the aircraft coming to or from the Sunport must comply with all the rules affecting flight in the National Airspace System (NAS), whether for VFR or IFR. This applies to both the civil aircraft using the Sunport and the military aircraft going to/from Kirtland AFB.

The airspace between the ABQ Class C 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 in these areas is the same for military aircraft as for civil aircraft – each has rules for use that are published by FAA. Military aircraft outside of SUA use these parts of the NAS like any other aircraft and are allowed to operate within each airspace class's rules. While operating in the Class A and Class E airspace, military aircraft are controlled by the same agencies controlling civil aircraft, and depending on whether VFR or IFR, they are offered the same levels of control or advisories as are appropriate or required.

3.2.3 Environmental Consequences

3.2.3.1 Proposed Action

The Proposed Action would result in a long-term increase of about 450 AC-130J sorties per year being generated by the USAF on Kirtland AFB. These sorties would require ATC services by the Sunport ATC Tower (Sunport Tower) for normal departure and arrival services, and other operation within the Sunport Class C airspace. Additionally, these sorties, when outside the ABQ Class C airspace would require routine services from enroute agencies operating and controlling traffic within the NAS. This represents a 3.5 percent increase in airfield operations attended by the Sunport Tower, and a fraction of 1 percent increase in aircraft operations in the NAS-local flying area. These increases are small, and do not amount to a large enough increase to affect the quality of services offered by either the Sunport Tower or the other controlling agencies that are part of the NAS.

As described in **Section 2.4.1.5.1**, no new airspace or reconfigurations are needed or proposed to support the relocation of the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico. The AC-130J would operate within SUA (both MOAs and Restricted Areas), and other existing airspace and training areas, including live fire training at Melrose AFR, which includes the Pecos and Taiban MOAs, R-5104, and R-5105, near Clovis, New Mexico, proximate to Cannon AFB (see **Figure 2-3**). AC-130J operations resulting from the Proposed Action would result in fewer sorties in the airspace than the operations for the C-130 airframe assessed in previous NEPA analysis. Specifically, environmental impacts to the airspace and range were

evaluated in the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007). Therefore, analysis of SUA is not analyzed further in this EA.

3.2.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action associated with the relocation of the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1** would not occur, and the existing conditions discussed in **Section 3.2.2** would remain unchanged. Implementation of the No Action Alternative would not result in any new or additional impacts on airspace management.

3.3 NOISE

This discussion of noise includes the types or sources of noise and the associated sensitive receptors in the human environment. Noise in relation to biological resources and wildlife species is discussed in the Biological Resources section (**Section 3.8**).

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air or water, and are sensed by the human ear. Sound is all around us. The perception and evaluation of sound involves three basic physical characteristics:

- Intensity – the acoustic energy, which is expressed in terms of sound pressure, in decibels (dB)
- Frequency – the number of cycles per second the air vibrates, in Hertz
- Duration – the length of time the sound can be detected

Noise is defined as unwanted or annoying sound that interferes with or disrupts normal human activities. Although continuous and extended exposure to high noise levels (e.g., through occupational exposure) can cause hearing loss, the principal human response to noise is annoyance. The response of different individuals to similar noise events is diverse and is influenced by the type of noise, perceived importance of the noise, its appropriateness in the setting, time of day, type of activity during which the noise occurs, and sensitivity of the individual. While aircraft are not the only sources of noise in an urban or suburban environment, they are readily identified by their noise output and are given special attention in this EA.

3.3.1 Basics of Sound and A-Weighted Sound Level

The loudest sounds that can be detected comfortably by the human ear have intensities a trillion times greater than those of sounds barely detectable. This vast range renders a linear scale impractical to represent all sound intensities. The dB is a logarithmic unit used to represent the intensity of a sound, also referred to as the sound level. **Table 3.3-1** provides a comparison of how the human ear perceives changes in loudness on the logarithmic scale. A difference of 3 dB is generally barely perceptible while a difference of 20 dB is typically experienced as a fourfold change in loudness.

Table 3.3-1 Subjective Reponses to Changes in A-Weighted Decibels

Decibel Level	Change in Perceived Loudness
3 dB	Barely perceptible
5 dB	Quite noticeable
10 dB	Dramatic – twice or half as loud
20 dB	Striking – fourfold change

Notes: dB = decibel

All sounds have a spectral content, which means their magnitude or level changes with frequency, where frequency is measured in cycles per second or hertz. To mimic the human ear's non-linear sensitivity and perception of different frequencies of sound, the spectral content is weighted. For example, environmental noise measurements are usually on an "A-weighted" scale that filters out very low and very high frequencies in order to replicate human sensitivity. It is common to add the "A" to the measurement unit in order to identify that the measurement has been made with this filtering process (dBA). In this document, the dB unit refers to A-weighted sound levels.

Noise levels from aircraft operations that exceed background noise levels at an airfield typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude or distance from a receptor, their noise contributions at ground level generally decrease until becoming indistinguishable from the background ambient noise.

3.3.2 Noise Metrics

A metric is a system for measuring or quantifying a particular characteristic of a subject. Since noise is a complex physical phenomenon, different noise metrics help to quantify the noise environment. While the Day-Night Average Sound Level (DNL) and Community Noise Equivalent Level (CNEL) noise metrics are the most commonly used tools for analyzing noise generated at an airfield, the Department of Defense (DoD) has been developing additional metrics (and analysis techniques). These supplemental metrics and analysis tools provide more detailed noise exposure information for the decision process and improve the discussion regarding noise exposure. The following sections summarize the noise metrics used to complete the analysis in this EA.

3.3.2.1 Day-Night Average Sound Level

The DNL metric is the energy-averaged sound level measured over a 24-hour period, with a 10-dB adjustment assigned to noise events occurring after 10:00 p.m. and before 7:00 a.m. (acoustic night) to account for the added intrusiveness of sounds occurring while people are most likely at home or sleeping. The "daytime" and "nighttime" in calculation of DNL are sometimes referred to as "acoustic day" and "acoustic night" and always correspond to the times given above independent of the "day" and "night" used commonly in military aviation, which are directly related to the times of sunrise and sunset.

DNL does not represent a sound level heard at any given time but instead represents long-term exposure. In particular, DNL values are average quantities, mathematically representing the continuous sound level that would be present if all of the variations in sound level that occur over a 24-hour period were averaged to have the same total sound energy. The DNL metric quantifies the total sound energy received and is therefore a cumulative measure, but it does not provide

specific information on the number of noise events or the individual sound levels that occur during the 24-hour day.

Scientific studies have found correlation between the percentages of groups of people highly annoyed and the level of their average noise exposure measured in DNL (Schultz 1979; United States Environmental Protection Agency [USEPA], 1978). DNL has been determined to be a reliable measure of long-term community annoyance with aircraft noise and has become the standard noise metric used by the U.S. Department of Housing and Urban Development, FAA, USEPA, and DoD, Federal Interagency Committee on Noise, American National Standards Institute, and World Health Organization, among others, for measuring noise impacts. In accordance with DoD Instruction 4165.57, DNL noise contours are used for recommending land uses that are compatible with aircraft noise levels. Studies of community annoyance in response to numerous types of environmental noise show that DNL correlates well with impact assessments (Schultz, 1979); there is a relationship between DNL and the level of annoyance experienced.

DoD recommends Land Use Controls beginning at the 65 dB DNL level. Research has indicated that about 87 percent of the population is not highly annoyed by outdoor sound levels below 65 dB DNL (Federal Interagency Committee on Urban Noise, 1980). Most people are exposed to sound levels of 50 to 55 DNL or higher on a daily basis. Therefore, the 65 dB DNL noise contour is used to help determine compatibility of military aircraft operations with local land use, particularly for land use associated with airfields.

3.3.2.2 Sound Exposure Level

The Sound Exposure Level (SEL) metric is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. SEL provides a measure of total sound energy of the entire acoustic event, but it does not directly represent the sound level heard at any given time. During an aircraft flyover, SEL captures the total sound energy from the beginning of the acoustic event to the point when the receiver no longer hears the sound. It then condenses that energy into a 1-second period of time and the metric represents the total sound exposure received. The SEL has proven to be a good metric to compare the relative exposure of transient sounds, such as aircraft overflights, and is the recommended metric for sleep disturbance analysis (DoD Noise Working Group, 2009). In this EA, SEL is used in aircraft comparison and sleep disturbance analyses.

3.3.2.3 Maximum Sound Level

The highest A-weighted sound level measured during a single event where the sound level changes value with time (e.g., an aircraft overflight) is called the maximum A-weighted sound level or L_{max}. During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. L_{max} defines the maximum sound level occurring for a fraction of a second. For aircraft noise, the “fraction of a second” over which the maximum level is defined is generally 1/8 second (American National Standards Institute, 1988). For sound from aircraft overflights, the SEL is usually greater than the L_{max} because an individual overflight takes seconds and the L_{max} occurs instantaneously. In this EA, L_{max} is used in the analysis of construction activities.

3.3.3 Noise Modeling and Methodology

Computer modeling provides a tool to assess potential noise impacts. DNL noise contours are generated by a computer model that draws from a library of actual aircraft noise measurements. Noise contours produced by the model allow a comparison of existing conditions and proposed changes or alternative actions, even when the aircraft studied are not currently operating from the base. For these reasons, on-site noise monitoring is seldom used at military air installations, especially when the aircraft mix and operational tempo are not uniform.

The noise environment for this EA was modeled using NOISEMAP. NOISEMAP analyzes all the operational data (types of aircraft, number of operations, flight tracks, altitude, speed of aircraft, engine power settings, and engine maintenance run-ups), environmental data (average humidity and temperature), and surface hardness and terrain. The result of the modeling is noise contours; lines connecting points of equal value (e.g., 65 dB DNL and 70 dB DNL). Noise zones cover an area between two noise contours and are usually shown in 5-dB increments (e.g., 65–69 dB DNL, 70–74 dB DNL, and 75–79 dB DNL). DNL airfield contours comprise all aircraft events occurring during an average day, which are a function of both the sound energy of each event as well as the frequency and period of day at which each event occurs. As described in **Section 3.3.2.3,** SEL provides the total sound energy of an acoustic event normalized to 1 second allowing comparison of the energy across disparate events.

Actions adding new aircraft operations to an existing airfield among existing flight activity may be screened by comparing both the SELs of proposed aircraft and the relative number of proposed operations to determine the potential to significantly increase DNL at the airfield. For proposed actions where new aircraft would generate SELs quieter than existing aircraft and where the number of operations, when considered equal in energy to existing flight activity, would cause a non-significant change to DNL, the Proposed Action would not result in a significant change in the noise environment. This analysis also considers how the increase in frequency of overflight operations could affect the noise environment. This EA utilizes the NOISEMAP software to conduct such an analysis.

In addition to the primary policy metric, DNL, there are other supplemental metrics available for use when appropriate. The Defense Noise Working Group has established criteria for the use of each, so that they are used when appropriate. Completed modeling shows that these are not required in this situation, due to the small magnitude of change in the results. The following is a brief description of why each is not included.

Aircraft Comparison. Aircraft comparisons are typically made using comparisons of single-event L_{max} and SEL. In this case, the Proposed Action scenario increases the use of C-130 aircraft, variants of which already operate at Kirtland AFB and are acoustically identical. Therefore, these comparisons would be indistinguishable and are not included.

Annoyance. Changes to prediction of Percent Highly Annoyed Population are not used often but are based on the changes to DNL at particular locations. Modeling results showed too small a change as to make this a useful metric.

Speech Interference. This is a metric that attempts to quantify the number of times during the 15-hour acoustic day (7:00 a.m. local until 10:00 p.m. local) that a proposed action would add to the number of times per hour that a normal indoor conversation would be interrupted by an aircraft event. The standard is the number of events per 15-hour day that rise above 75 dB L_{max}. Based on the Defense Noise Working Group standard, the number of events proposed to be added is too low to increase this number to a reportable level.

Sleep Disturbance. This is a metric that attempts to quantify the number of times per hour, during the 9-hour acoustic night period (10:00 p.m. local until 7:00 a.m. local), that an average person might be awakened. The standard is to count events with SEL over 90 dB. Based on the Defense Noise Working Group standard, the number of events proposed to be added is too low to increase this number to a reportable level.

Classroom Speech Interference. This is a metric that attempts to quantify the number of times during the typical school day (uses an 8-hour standard) that a teacher's speech may be interrupted by an aircraft event over an L_{max} of 75 dB (assumes windows closed, resulting in 50 dB in classroom). Defense Noise Working Group specifies screening for schools in areas with the 8-hour Equivalent Sound Level greater than 60 dB. In this case, the schools analyzed did not rise above this threshold requiring Classroom Speech Interference analysis.

3.3.4 Regulatory Setting

Decibels provide a relative measure of sound intensity. Several factors influence sound propagation including obstacles and climatic conditions. As a rule of thumb, it takes about 10 times the intensity to sound twice as loud. A useful general reference is that the just-noticeable difference in sound intensity for the human ear is about 1 dB. Normal conversation at a 3-foot distance is around 60 dB. The Occupational Safety and Health Administration (OSHA) allows exposure to 90 dB for up to 8 hours a day but only 2 hours for 100 dB. The National Institute for Occupational Safety and Health has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dB for 8 hours to minimize occupational noise induced hearing loss (OSHA, 2020).

3.3.5 Affected Environment

The ambient sound environment at Kirtland AFB is affected mainly by USAF and civilian aircraft operations, and automotive vehicles. In the heavily developed northwestern portion of the installation, the commercial and military aircraft operations at the Sunport are the primary source of noise. Secondary sources of noise, such as vehicle travel, industrial activities, and military training, also contribute to the louder ambient sound environment of the northwestern portion of the installation compared to other portions of Kirtland AFB. The ambient sound environment of the remaining portions of the installation is quieter because development is less concentrated. Intermittent noises from military training and military vehicles dominate the ambient sound environment of these portions of Kirtland AFB.

Most sensitive noise receptors that could potentially be exposed to noise from installation activities are on or proximate to the northwestern and northern portions of Kirtland AFB. For example, several schools, medical centers, hospitals, and residential neighborhoods for the city of Albuquerque as well as all Kirtland AFB housing and community functions are on, within, or proximate to the northern and northwestern portions of the installation. The one exception is the Pueblo of Isleta (a federally recognized tribe) located along the southern boundary of the installation.

Table 3.3-2 summarizes the modeled annual military flight operations of aircraft based at Kirtland AFB. **Table 3.3-3** summarizes the modeled current annual civilian/commercial flight operations that operate out of the Sunport.

Table 3.3-2 Annual Airfield Operations for Based Military Airfield Operations at Kirtland AFB – Current

Aircraft	Departure			Arrival			Closed Pattern Ops			Grand Total		
	Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total
Existing												
HC/MC-130J	1,238	12	1,250	500	750	1,250	4,500	500	5,000	6,238	1,262	7,500
CV-22	1,310	13	1,323	882	441	1,323	-	-	-	2,192	454	2,646
HH-60	2,005	20	2,025	1,350	675	2,025	0	0	0	3,355	695	4,050
UH-1	1,485	15	1,500	1,100	400	1,500	360	40	400	2,945	455	3,400
Existing Subtotal	*6,038*	*60*	*6,098*	*3,832*	*2,266*	*6,098*	*4,860*	*540*	*5,400*	*14,730*	*2,866*	*17,596*

Source: Cardno 2022.

Table 3.3-3 Annual Airfield Operations for Civil/Commercial Aircraft at the Sunport – Current

Aircraft	Departure			Arrival			Grand Total		
	Day	Night	Total	Day	Night	Total	Day	Night	Total
1985 1-ENG COMP	24	1	25	25		25	49	1	50
1985 BUSINESS JET	25		25	24		24	49	0	49
A-7E Corsair	1		1	3		3	4	0	4
Aerostar PA-60	61	2	63	61		61	122	2	124
Airbus A300F4-600 Series	474	79	553	293	265	558	767	344	1,111
Airbus A319-100 Series	894	136	1,030	926	110	1,036	1,820	246	2,066
Airbus A320-200 Series	481	375	856	457	412	869	938	787	1,725
Airbus A321-200 Series	41	17	58	42	16	58	83	33	116
Airbus A340-600 Series	6		6	4		4	10	0	10
BEECH MENTOR (BE45) PT6A-25 NM	15		15	15		15	30	0	30
Boeing 717-200 Series	24	3	27	25	2	27	49	5	54
Boeing 737-700 Series	11,565	2,225	13,790	10,808	3,074	13,882	22,373	5,299	27,672
Boeing 737-8	37	14	51	33	17	50	70	31	101
Boeing 737-900 Series	563	414	977	941	40	981	1,504	454	1,958
Boeing 757-200 Series	299	258	557	273	292	565	572	550	1,122
Boeing 757-300 Series			0	1	2	3	1	2	3
Boeing 767-300 ER	494	216	710	479	241	720	973	457	1,430
Boeing 777-200-ER	2		2	2		2	4	0	4
Boeing MD-11	104	1	105	101	3	104	205	4	209
Boeing MD-88	12	4	16	14		14	26	4	30
Bombardier Challenger 300	49	1	50	52	1	53	101	2	103

Aircraft	Departure			Arrival			Grand Total		
	Day	Night	Total	Day	Night	Total	Day	Night	Total
Bombardier Challenger 350	36	2	38	37	2	39	73	4	77
Bombardier Challenger 600	47	3	50	47	1	48	94	4	98
Bombardier CRJ-200-ER	209	135	344	302	56	358	511	191	702
Bombardier CRJ-900	1,324	308	1,632	1,373	280	1,653	2,697	588	3,285
Bombardier Global 5000	18	1	19	20	1	21	38	2	40
Bombardier Global 5500	1,162	240	1,402	1,121	318	1,439	2,283	558	2,841
Bombardier Learjet 25	11		11	7		7	18	0	18
Bombardier Learjet 31	26	4	30	29	3	32	55	7	62
Bombardier Learjet 35	302	51	353	285	86	371	587	137	724
Bombardier Learjet 35A/36A (C-21A)			0	1		1	1	0	1
Bombardier Learjet 40	15	1	16	16	1	17	31	2	33
Bombardier Learjet 45	66	2	68	65	3	68	131	5	136
Bombardier Learjet 55	6	2	8	9	1	10	15	3	18
Bombardier Learjet 60	58	6	64	61	5	66	119	11	130
Bombardier Learjet 70	9		9	9	1	10	18	1	19
Bombardier Learjet 75	40	3	43	45	1	46	85	4	89
CAIC China Aviation Industry Corp MA-60	3		3	3		3	6	0	6
Cessna 172 Skyhawk	3,577	228	3,805	3,626	125	3,751	7,203	353	7,556
Cessna 182	5,046	1,141	6,187	5,000	1,484	6,484	10,046	2,625	12,671
Cessna 206	253	7	260	244	2	246	497	9	506
Cessna 207 (Turbo) Stationair (FAS)	2		2	2		2	4	0	4
Cessna 208 Caravan	1,907	207	2,114	2,191	5	2,196	4,098	212	4,310
Cessna 210 Centurion	157	8	165	160	3	163	317	11	328
Cessna 310	44	3	47	64	1	65	108	4	112
Cessna 340	86	149	235	216	6	222	302	155	457
Cessna 402	828	115	943	901	4	905	1,729	119	1,848
Cessna 414	20	2	22	25		25	45	2	47
Cessna 421 Piston	31		31	29	1	30	60	1	61
Cessna 441 Conquest II	51	1	52	55	1	56	106	2	108
Cessna 500 Citation I	14	2	16	15	1	16	29	3	32
Cessna 501 Citation ISP	43	1	44	47		47	90	1	91
Cessna 550 Citation II	151	5	156	150	7	157	301	12	313
Cessna 560 Citation Excel	213	6	219	216	8	224	429	14	443
Cessna 560 Citation V	128	14	142	141	10	151	269	24	293
Cessna 650 Citation III	15	1	16	17	1	18	32	2	34

Aircraft	Departure			Arrival			Grand Total		
	Day	Night	Total	Day	Night	Total	Day	Night	Total
Cessna 680-A Citation Latitude	42	2	44	41	4	45	83	6	89
Cessna 750 Citation X	28	2	30	32	1	33	60	3	63
CESSNA CITATION 510	39	2	41	41	1	42	80	3	83
Cessna CitationJet CJ/CJ1 (Cessna 525)	351	12	363	366	15	381	717	27	744
CIRRUS SF-50 Vision	49	1	50	49	1	50	98	2	100
Cirrus SR20	78	2	80	71	5	76	149	7	156
Cirrus SR22 Turbo (FAS)	193	10	203	195	9	204	388	19	407
Convair CV-580			0	1		1	1	0	1
DAHER TBM 900/930	74		74	74		74	148	0	148
Dassault Falcon 10	4		4	3	1	4	7	1	8
Dassault Falcon 2000	37	4	41	37	5	42	74	9	83
Dassault Falcon 20-D	10	2	12	12	1	13	22	3	25
Dassault Falcon 50-EX	17	4	21	18	2	20	35	6	41
Dassault Falcon 8X	1		1	1	1	2	2	1	3
DeHavilland DHC-6-200 Twin Otter	19	1	20	22		22	41	1	42
Dornier 328 Jet	14	2	16	16	1	17	30	3	33
EADS Socata TB-9 Tampico	106	5	111	111	3	114	217	8	225
EADS Socata TBM-700	17		17	22		22	39	0	39
Eclipse 500 / PW610F	392	11	403	431	5	436	823	16	839
Embraer EMB120 Brasilia	15	7	22	16	6	22	31	13	44
Embraer ERJ135	7	3	10	9	1	10	16	4	20
Embraer ERJ145-LR	425	27	452	441	11	452	866	38	904
Embraer ERJ170	165	2	167	161	5	166	326	7	333
Embraer ERJ190	2		2		1	1	2	1	3
Embraer Legacy 450 (EMB-545)	20	3	23	24	1	25	44	4	48
Embraer Phenom 100 (EMB-500)	62	2	64	62	4	66	124	6	130
Embraer Phenom 300 (EMB-505)	92	4	96	96	3	99	188	7	195
Gulfstream G150	25		25	27		27	52	0	52
Gulfstream G200	73	9	82	84	3	87	157	12	169
Gulfstream G550	271	24	295	280	10	290	551	34	585
Gulfstream G650	9		9	9		9	18	0	18
Gulfstream III (FAS)		1	1	1	1	2	1	2	3
Gulfstream IV-SP	43	8	51	49	4	53	92	12	104
Hawker Beechcraft Corp Beechjet 400A	55	1	56	61	2	63	116	3	119
Hawker HS-125 Series 600	1		1	1		1	2	0	2

Aircraft	Departure			Arrival			Grand Total		
	Day	Night	Total	Day	Night	Total	Day	Night	Total
Hawker HS748-2B	6		6	5		5	11	0	11
Honda HA-420 Hondajet	36	1	37	50	1	51	86	2	88
Israel IAI-1124 Westwind I	8	2	10	10		10	18	2	20
Israel IAI-1125 Astra	7	2	9	10	2	12	17	4	21
Kawasaki Heavy Industries C-1	87	4	91	90	5	95	177	9	186
Lancair Legacy 2000 (FAS)	2		2	2		2	4	0	4
Lockheed C-130 Hercules	6		6	6		6	12	0	12
Mitsubishi MU-300 Diamond	11		11	10		10	21	0	21
Mooney M20-K	219	7	226	221	9	230	440	16	456
Piaggio P.180 Avanti	27		27	29		29	56	0	56
Pilatus PC-12	1,328	534	1,862	1,449	453	1,902	2,777	987	3,764
Piper PA-24 Comanche	186	3	189	186	2	188	372	5	377
Piper PA-27 Aztec	38	1	39	37	1	38	75	2	77
Piper PA-28 Cherokee Series	231	9	240	236	7	243	467	16	483
Piper PA-31 Navajo	47	7	54	73		73	120	7	127
Piper PA-31T Cheyenne	30	1	31	26		26	56	1	57
Piper PA-32 Cherokee Six	44	6	50	48	1	49	92	7	99
Piper PA-34 Seneca	56	3	59	56	4	60	112	7	119
Piper PA-42 Cheyenne Series	47		47	59	1	60	106	1	107
Piper PA46-TP Meridian	211	5	216	233	2	235	444	7	451
Raytheon Beech 1900-D	22	2	24	20	2	22	42	4	46
Raytheon Beech Baron 58	805	20	825	805	22	827	1,610	42	1,652
Raytheon Beech Bonanza 36	268	69	337	327	6	333	595	75	670
Raytheon Hawker 1000	1		1	3		3	4	0	4
Raytheon Hawker 4000 Horizon	2		2	2		2	4	0	4
Raytheon Hawker 900	125	10	135	137	9	146	262	19	281
Raytheon King Air 100	16	1	17	14	1	15	30	2	32
Raytheon King Air 90	1,557	890	2,447	1,662	875	2,537	3,219	1,765	4,984
Raytheon Premier I	99	14	113	117	7	124	216	21	237
Raytheon Super King Air 200	920	368	1,288	837	458	1,295	1,757	826	2,583
Raytheon Super King Air 300	1,237	59	1,296	1,200	110	1,310	2,437	169	2,606
Rockwell Sabreliner 40	7		7	7		7	14	0	14
Rockwell Twin Commander 500	20	1	21	21	1	22	41	2	43
SOCATA TBM 850	60	1	61	62	1	63	122	2	124
SR-71	1		1			0	1	0	1

Aircraft	Departure			Arrival			Grand Total		
	Day	Night	Total	Day	Night	Total	Day	Night	Total
Grand Total	**41,572**	**8,565**	**50,137**	**42,022**	**8,980**	**51,002**	**83,59**	**17,545**	**101,139**

Source: FAA, 2022.

As part of the noise study to support this EA, 31 points of interest (POIs) were chosen to represent sensitive noise receptors. This included calculating the geometric center of neighborhoods that were proximate to the installation, as well as locating a number of schools and childcare facilities that could be affected by noise generated by the Proposed Action. These locations are shown in **Figure 3.3-1**. Also shown in **Figure 3.3-1** are the baseline noise contours for current airfield conditions at Kirtland AFB. **Table 3.3-4** shows the calculated noise exposure for the 31 POIs from the noise model, under baseline conditions.

3.3.6 Environmental Consequences

3.3.6.1 Proposed Action

The Proposed Action would result in a short- and long-term, minor to negligible, adverse impact on noise. Specifically, construction projects associated with the Proposed Action would result in a short-term, minor, adverse impact on noise. Construction activities would be conducted during the daytime hours of 7:00 a.m. to 5:00 p.m. Use of heavy equipment can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, graders, and other construction equipment. Noise decreases with distance; therefore, adverse impacts from construction noise are typically confined to within 0.5 mile of a project area. **Table 3.3-5** presents noise levels associated with common types of construction equipment, which can exceed the ambient sound levels by 20 to 25 dB in an urban environment and up to 30 to 35 dB in a remote area. The nearest sensitive receptors to construction under the Proposed Action are the residential area to the north of the airfield in the Parkland Hills neighborhood and Wherry Elementary School. These locations are both approximately 1,700 feet from the construction project locations. During construction, the noise level would range from 70 dB to 40 dB from construction activities. This would be further reduced by attenuation from being within a building, which generally provides a 25 dB reduction in noise with windows closed, and a 15 dB reduction in noise with windows open. Given that construction would be temporary and done during daytime hours, there would be no long-term adverse impacts to the noise environment from any of the construction projects associated with the Proposed Action.

The increase in airfield operations would also have impacts on the local noise environment.

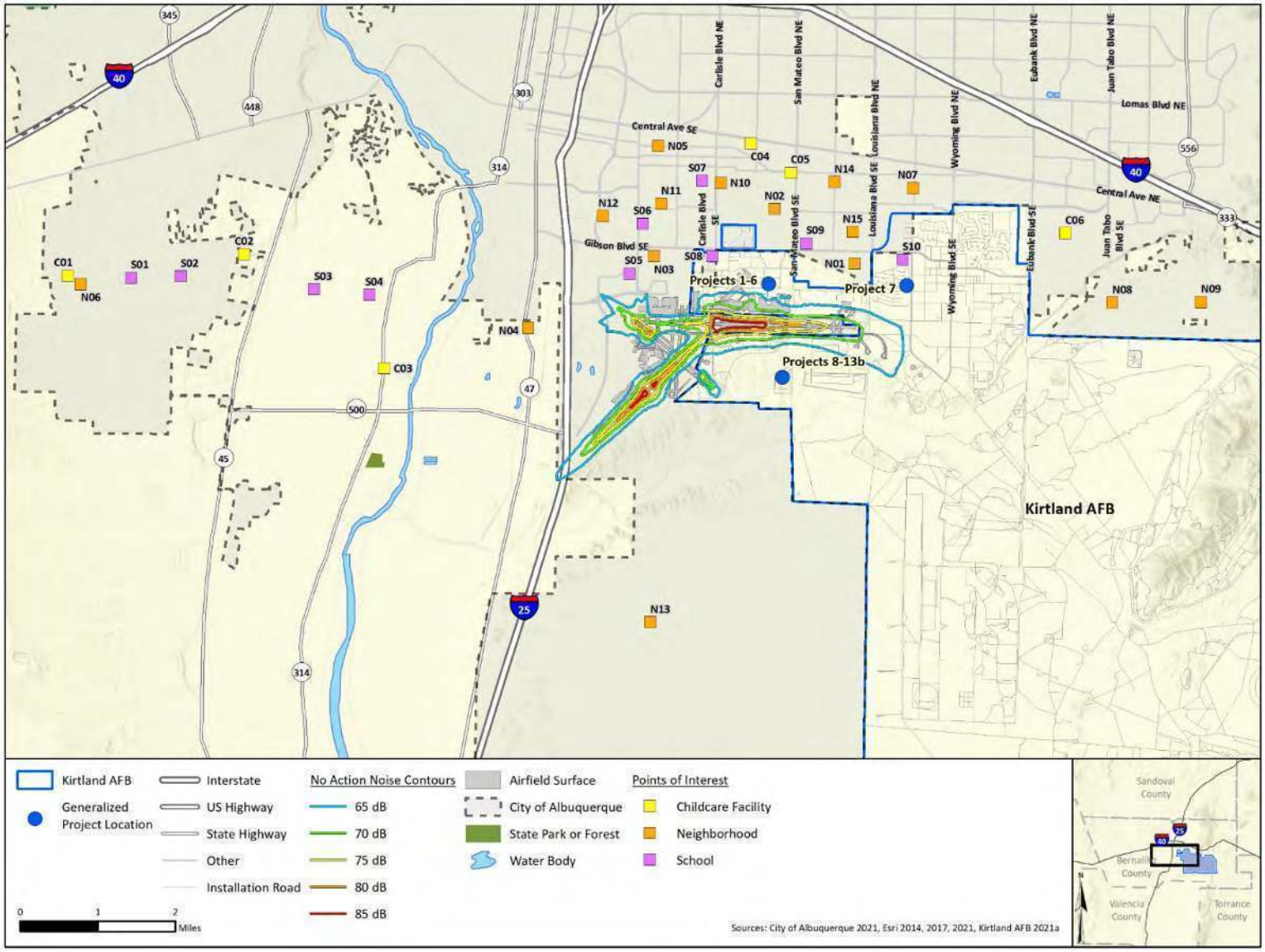

Figure 3.3-1 Current DNL Contours at Albuquerque International Sunport

Table 3.3-4 DNL at POIs in the Vicinity of Kirtland AFB under Baseline Conditions

Point of Interest	Name	DNL[1]
N01	Westgate Heights NA	54.2
N02	Parkland Hills NA	46.0
N03	Yale Village NA	44.1
N04	San Jose NA	51.3
N05	University Heights NA	35.2
N06	Westgate Heights NA	41.6
N07	Trumbull Village Association	44.4
N08	Juan Tabo Hills NA	37.4
N09	Four Hills Village HOA	34.3
N10	Southeast Heights NA	41.1
N11	Victory Hills NA	43.7
N12	Clayton Heights Lomas del Cielo NA	43.0
N13	Mesa Del Sol NA	29.1
N14	South San Pedro NA	42.6
N15	Elder Homestead NA	49.0
C01	Child Development Center	41.0
C02	Pequenos Corazones	44.5
C03	Los Solecitos Academy	41.7
C04	Caterpillar Clubhouse Daycare	37.0
C05	Little Flower Learning Center	40.0
C06	Manzano Mesa Child Development Center	43.2
S01	Carlos Rey Elementary	41.9
S02	Truman Middle	42.9
S03	Mary Ann Binford Elementary	44.0
S04	Rio Grande High	44.7
S05	Kit Carson Elementary	49.6
S06	Ernie Pyle Middle	43.8
S07	New America School	39.7
S08	Health Leadership High	46.1
S09	Cien Aguas International School	53.6
S10	Mission Achievement & Success	50.2

Note: [1]This is the military only DNL contribution in this EA version.

Table 3.3-5 Predicted Noise Levels for Construction Equipment

Construction Equipment	L_{max} at 50 feet	L_{max} at 500 feet	L_{max} at 1,500 feet
Backhoe	78	58	48
Chain Saw	84	64	54
Compactor (Ground)	83	63	53
Concrete Mixer Truck	79	59	49
Concrete Pump Truck	81	61	51
Concrete Saw	90	70	60
Crane	81	61	51
Dozer	82	62	52
Excavator	81	61	51
Front End Loader	79	59	49
Grapple (Backhoe)	87	67	57
Impact Pile Drive	101	81	71
Jack Hammer	89	69	59
Pavement Scarifier	90	70	60
Pneumatic Tools	85	65	55
Vacuum Excavator	85	65	55

Source: Federal Highway Administration, 2006.

Figure 3.3-2 shows the combined Proposed Action noise contours resulting from the military airfield operations (Nmap and Rotorcraft Noise Model outputs) with the civil airfield operations (from the AEDT outputs), showing the DNL noise contours in A-weighted decibels, every 5 dB down to 65 dB. Note that the highest DNL levels (over 85 dB) occur on the runways, and that the contours for the 75 dB level are confined mainly to the runway/taxiway environment. This figure shows both the No Action contours (solid colors) and the Proposed Action contours (dashed lines overlaying). The Proposed Action contours are very nearly the same as those in the No Action, due to the small increase proposed and the magnitude of the existing operations. At great magnification they are distinct, but at this scale, in most places, the contours have moved less than the width of the line as drawn.

Table 3.3-6 lists the DNL values at each of those POIs for the No Action scenario and the Proposed Action scenario, along with the difference. Again, DNL for POIs is normally reported in whole integers in order to not indicate greater precision than is appropriate. In this case, they are reported in tenths only to show the magnitude of the increase, which averages about 0.1 dB at all of these points. Because of these extremely minor changes, the Proposed Action would likely be unnoticeable from existing conditions at Kirtland AFB. Therefore, changes to the noise environment would not be significant with implementation of the Proposed Action.

As described in **Section 2.4.1.5.1**, AC-130J operations resulting from the Proposed Action would result in fewer sorties in the airspace than the operations for the C-130 airframe assessed in previous NEPA analysis. Specifically, environmental impacts to the airspace and range were evaluated in the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007). While the Proposed Action does add sorties to the SUA, it is well below the capacity analyzed in 2007 and would have no additional impact to the noise environment as reported in the 2007 findings. Therefore, analysis of noise within the SUA is not analyzed further in this EA.

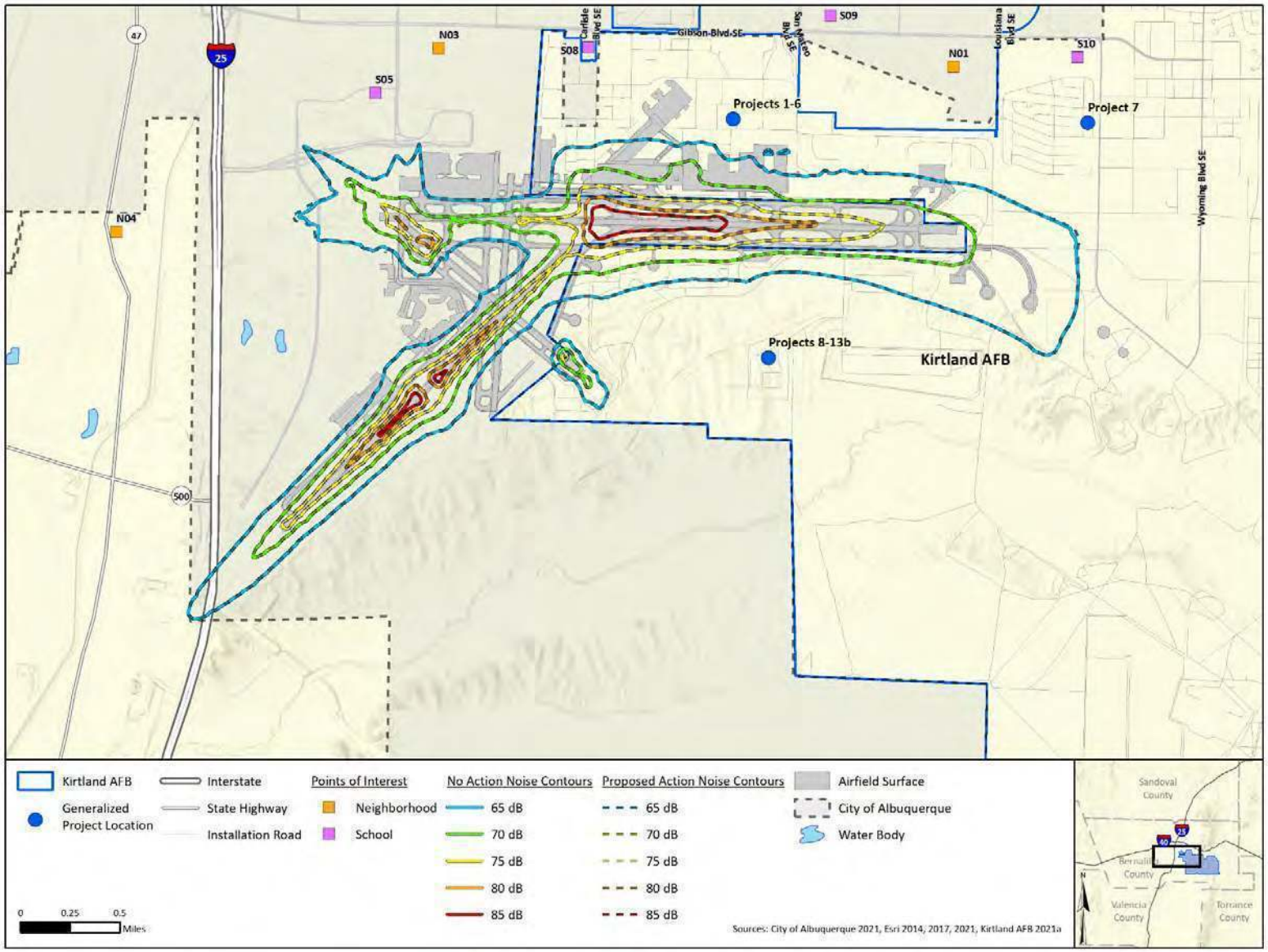

Figure 3.3-2 Current and Proposed DNL Contours at Albuquerque International Sunport

Table 3.3-6 DNL at POIs in the Vicinity of Kirtland AFB under Proposed Action Conditions

POI ID	Type of POI	POI Name	No Action	Proposed Action	Delta
C01	Childcare Facility	Child Development Center	47.7	47.8	0.1
C02	Childcare Facility	Pequenos Corazones	48.0	48.0	-
C03	Childcare Facility	Los Solecitos Academy	48.2	48.3	0.1
C04	Childcare Facility	Caterpillar Clubhouse Daycare	48.4	48.4	-
C05	Childcare Facility	Little Flower Learning Center	48.0	48.3	0.3
C06	Childcare Facility	Manzano Mesa Child Development Center	48.1	48.1	-
N01	Neighborhood	Westgate Heights	57.0	57.0	-
N02	Neighborhood	Parkland Hills	52.3	52.4	0.1
N03	Neighborhood	Yale Village	54.9	55.0	0.1
N04	Neighborhood	San Jose	59.0	59.2	0.2
N05	Neighborhood	University Heights	49.6	49.6	-
N06	Neighborhood	Westgate Heights	48.6	48.7	0.1
N07	Neighborhood	Trumbull Village Association	49.2	49.2	-
N08	Neighborhood	Juan Tabo Hills	48.1	48.1	-
N09	Neighborhood	Four Hills Village Homeowners Association	42.0	42.0	-
N10	Neighborhood	Southeast Heights	51.4	51.5	0.1
N11	Neighborhood	Victory Hills	52.4	52.6	0.2
N12	Neighborhood	Clayton Heights Lomas del Cielo	48.4	48.6	0.2
N13	Neighborhood	Mesa Del Sol	47.9	47.9	-
N14	Neighborhood	South San Pedro	49.8	49.9	0.1
N15	Neighborhood	Elder Homestead	52.8	53.0	0.2
S01	School	Truman Middle	48.6	48.7	0.1
S02	School	Mary Ann Binford Elementary	49.0	49.0	-
S03	School	Rio Grande High	51.0	51.1	0.1
S04	School	Ernie Pyle Middle	52.6	52.6	-
S05	School	Health Leadership High	56.4	56.4	-
S06	School	Mission Achievement & Success	51.6	51.8	0.2
S07	School	Bandelier Elementary	50.3	50.3	-
S08	School	Kirtland Elementary	56.2	56.3	0.1
S09	School	Cesar Chavez Community School	56.2	56.3	0.1
S10	School	Wherry Elementary	54.9	55.0	0.1

3.3.6.2 No Action Alternative

Under the No Action Alternative, the Proposed Action associated with the relocation of the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1** would not occur, and the existing conditions discussed in **Section 3.3.6** would remain unchanged. No new noise would be introduced to the on- and off-installation noise environments; therefore, no new noise impacts would occur with implementation of the No Action Alternative.

3.4 LAND USE

3.4.1 Regulatory Setting

Land use comprises the natural conditions and/or human-modified activities occurring at a particular location. Natural conditions comprise those geographic characteristics that have a direct effect on the development potential of the landscape (e.g., rivers, steep slopes, and soil conditions). Human-modified land use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other developed use areas. General land use patterns characterize the types of uses within a particular area including agricultural, residential, military, and recreational. Land ownership is a categorization of land according to type of owner. The major land ownership categories include private, state, and federal. Many urban areas use management plans and zoning regulations to determine the type and extent of land use allowable in specific areas and to protect specially designated or environmentally sensitive areas. Resources used to define land use include all land use plans, policies, and zoning limitations in the ROI.

3.4.2 Affected Environment

Land use at Kirtland AFB consists of 12 planning districts. Of the 12 planning districts, only 8 are located within the cantonment area, and proximate to the location of the Proposed Action (**Figure 3.4-1**). The cantonment area of the installation consists of the Flightline, Science and Technology, Medical, Industrial, Community, Enterprise, Airfield, and Arroyo planning districts (Kirtland AFB, 2016).

All Proposed Action construction/modification projects, as listed in **Table 2-2**, are within the cantonment area of the installation. Proposed Projects 1 through 6 are located within the Flightline Planning District. Land uses within the Flightline District are primarily industrial and utilitarian, with facilities and land uses dedicated to the support of airfield operations (Kirtland AFB, 2016). Facilities within this district include aircraft hangars, aircraft maintenance units, squadron operations, aerospace ground equipment, back shops, Hot Cargo Pad 5, and administrative facilities directly related to flight operations or aircraft maintenance (Kirtland AFB, 2016). Project 7 is located in the Enterprise Planning District, which is predominately comprised of administrative buildings. Projects 8 through 13b are all located in the Industrial Planning District, which is the least developed district and predominately industrial and light industrial land uses. Development within the district includes munition storage areas, a combat arms range, and large joint use facility (Kirtland AFB, 2016).

Land use categories outside the installation boundaries near the city of Albuquerque are shown in **Figure 3.4-1**. The Cibola National Forest borders Kirtland AFB on the northeastern side of the installation. The city of Albuquerque borders the installation to the northwest and west. Predominant land use abutting the installation within the city limits includes residential, commercial and retail, parks and open spaces, and community lands uses such as golf courses (City of Albuquerque, 2022). The land to the south of the installation boundary is Pueblo of Isleta tribal land (Albuquerque/Bernalillo County, 2013).

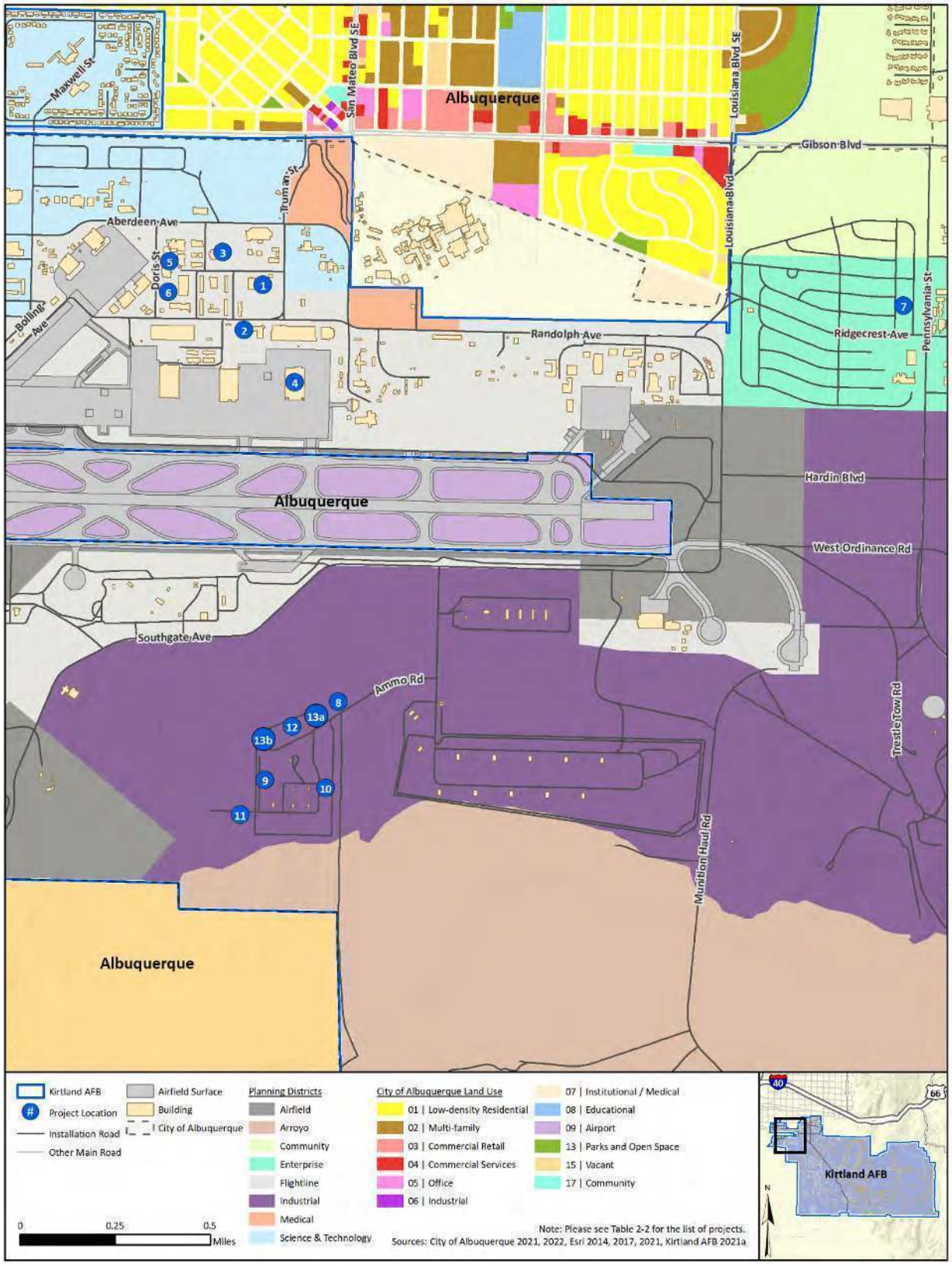

Figure 3.4-1 Land Use by Planning District at Kirtland AFB

Land use outside the installation but underneath training areas needed for relocation of the AFSOC AC-130J FTU are shown in **Figure 2-3**. Land use underneath Restricted Airspace includes generally open space and Bureau of Land Management (BLM) land. No National Forest or National Monuments are located under Restricted Airspace. Land use under MOAs where training will occur, including Pecos MOAs, Taiban, Melrose AFR, R-5104A, and R-5105, includes BLM land and the town of Fort Sumner. No National Parks or National Monuments are beneath these training areas.

3.4.3 Environmental Consequences

As described in **Chapter 2.0**, the key elements of the Proposed Action are facility construction and modifications, personnel changes, and flight and training activities. For land use, consequences are associated with increases in noise due to a change in aircraft type and use. Potential effects to land use patterns from noise and construction and modification activities are considered. No impacts to land use would be expected from the personnel changes or airspace operations of the Proposed Action.

3.4.3.1 Proposed Action

The proposed aircraft and mission change, as well as facility construction and modifications, would increase the intensity of land use within the Flightline Planning District as the area is already developed and would develop a portion of the Industrial Planning District which is the least developed District on base. However, the Proposed Action would not introduce any new land uses within the cantonment area of the base and would remain compatible with current land uses identified for each planning district, as described in **Section 3.4.2**, and the Kirtland AFB Installation Development Plan (Kirtland AFB, 2016).

Land use surrounding the installation would not be affected by the proposed new construction and modifications, because all construction and modification activities would occur within the installation boundaries. Land use surrounding the installation would be impacted by noise associated with the relocation of the AFSOC AC-130J FTU, as an additional two to three sorties per training day would occur under the Proposed Action. Noise impacts would extend to areas outside of the base boundaries (**Figure 3.4-2**) and would at most increase noise by approximately 1 dB. Any increases in noise levels above the baseline would remain well below the FAA significance level of 65 dB, which is compatible with land uses sensitive to noise such as residences, transient lodging, and medical facilities. Therefore, noise impacts from the Proposed Action to the surrounding land uses, which are predominately residential and commercial, parks and open space, and community golf courses, would not significantly increase. Noise impacts are described in full detail in **Section 3.3**.

The Proposed Action would not impact land uses under any of the proposed training areas. Most of the land underneath training airspace is open space or BLM land. As described in **Section 2.4.1.5.1**, no new airspace or reconfigurations are needed or proposed to support the relocation of the AFSOC AC-130J FTU from Hurlburt Field, Florida to Kirtland AFB, New Mexico. AC-130J operations resulting from the Proposed Action would result in fewer sorties in the airspace than the operations for the C-130 airframe assessed in previous NEPA analysis. As stated in Section 3.2.3.1, environmental impacts to the airspace and range were evaluated in the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007). Therefore, analysis of SUA is not analyzed further in this EA.

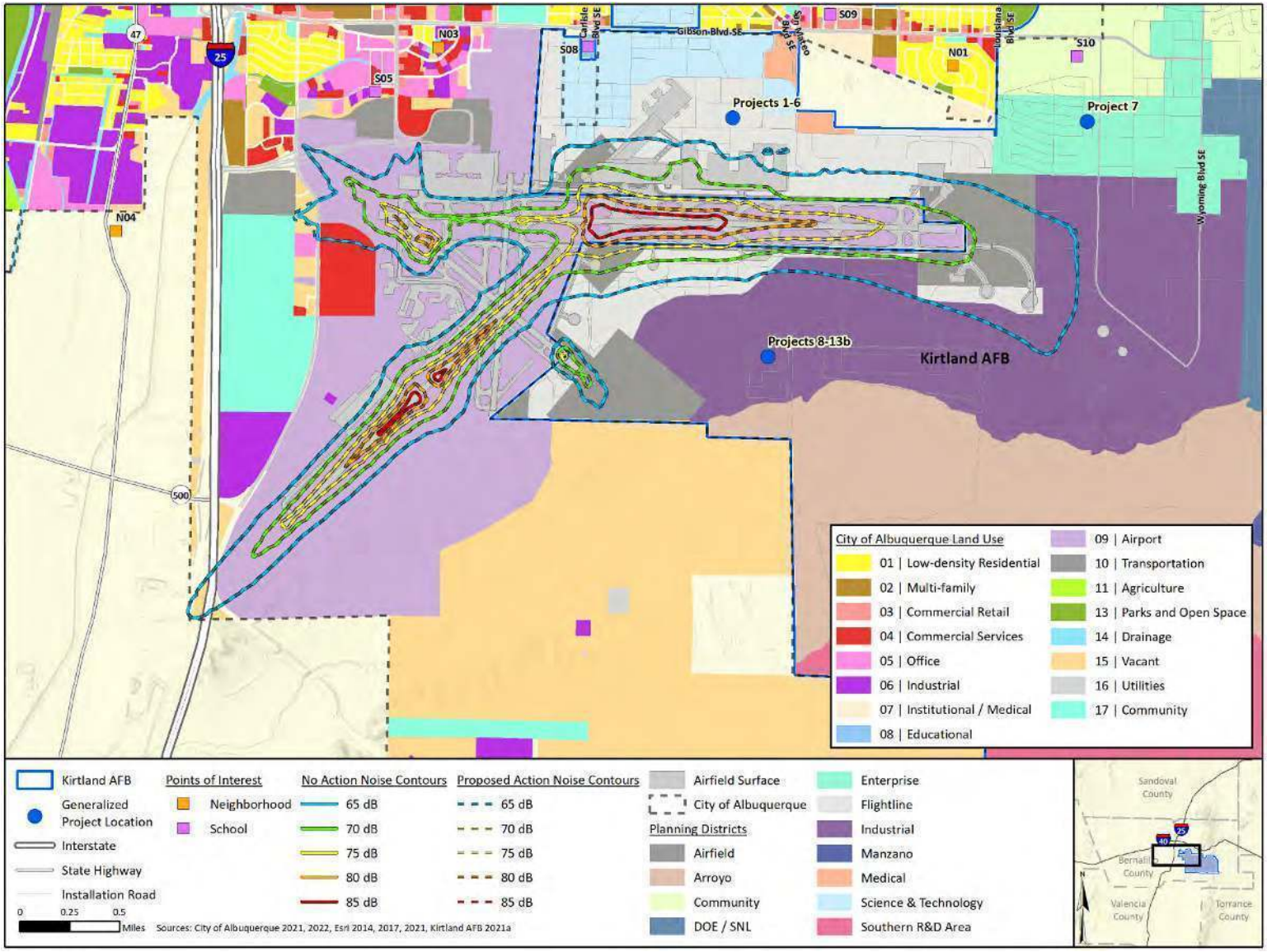

Figure 3.4-2 Noise Impacts to Land Use at Kirtland AFB and its Surrounding Areas

3.4.3.2 No Action Alternative

Under the No Action Alternative, the Proposed Action associated with the relocation of the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1** would not occur, and the existing conditions discussed in **Section 3.4.2** would remain unchanged. Therefore, no new impacts on land use would occur with implementation of the No Action Alternative.

3.5 AIR QUALITY

3.5.1 Regulatory Setting

Air quality is defined by the concentration of various pollutants in the atmosphere at a given location. Under the Clean Air Act, "criteria pollutants" include carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide, ozone (O_3), lead, suspended particulate matter (measured less than or equal to 10 microns in diameter [PM_{10}] and suspended particulate matter less than or equal to 2.5 microns in diameter [$PM_{2.5}$]). The USEPA has established National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for criteria pollutants. Additionally, the General Conformity Rule (40 CFR 93, Subpart B) applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of the relevant pollutants (or their precursors) exceed specified thresholds.

The New Mexico Environment Department (NMED) Air Quality Bureau oversees programs for permitting the construction and operation of new or modified stationary source air emissions in the state of New Mexico. The NMED Air Quality Bureau has delegated authority over air quality in Bernalillo County to the Albuquerque Environmental Health Department Air Quality Division (AEHD-AQD). AEHD-AQD has also promulgated fugitive dust control permits and open burn program requirements in the New Mexico Administrative Code (NMAC).

Climate Change and Greenhouse Gases (GHGs). GHGs are gases that trap heat in the atmosphere. These emissions are generated by both natural processes and human activities. The accumulation of GHGs in the atmosphere contributes to global climate change. Primary GHGs include carbon dioxide (CO_2), methane, nitrous oxide, and fluorinated gases. Each GHG has an estimated global warming potential (GWP). Specifically, it is a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The GWP of a particular gas provides a relative basis for calculating its CO_2 equivalent (CO_2e). CO_2 has a global warming potential of 1 and is, therefore, the standard by which all other GHGs are measured. The potential effects of proposed GHG emissions are by nature global and result in cumulative impacts because most individual anthropogenic sources of GHG emissions are not large enough to have a noticeable effect on climate change. Therefore, the impact of proposed GHG emissions to climate change is discussed in the context of cumulative impacts in **Section 4.2.4**.

3.5.2 Affected Environment

The ROI for air quality includes Kirtland AFB, in Bernalillo County, New Mexico, which is within the Albuquerque-Mid Rio Grande Intrastate Air Quality Control Region 152. Bernalillo County is in attainment for all criteria pollutants. As a result, the General Conformity Rule would not apply to the Proposed Action.

Kirtland AFB operates under Title V Operating Permit #527-RN1 and is also considered a synthetic minor source of hazardous air pollutants under Title I, Section 112 of the Clean Air Act. The stationary sources covered include fueling operations, storage tanks, mulcher, painting operations, generators, test cells, a soil vapor extraction unit, and a construction and demolition waste landfill.

Mobile source emissions are generated by aircraft, vehicles, equipment, and other sources that move or have the potential to move from place to place. Vehicle emissions include both government-owned vehicles and privately owned vehicles. Equipment emissions come from forklifts, backhoes, tractors, and other onsite construction equipment. Aerospace Ground Equipment used to service aircraft include generators, light carts, compressors, bomb lifts, hydraulic test stands, and other portable equipment required for aircraft operations.

The 2021 Stationary Source Air Emissions Inventory for Kirtland AFB is found in **Table 3.5-1**.

Table 3.5-1 Calendar Year 2021 Stationary Source Air Emissions Inventory for Kirtland AFB

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
Actual Emissions	7.05	25.98	4.19	0.68	0.31	0.31

Notes: CO = carbon monoxide; NO_x = nitrogen oxides; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_2 = sulfur dioxide; tpy = tons pers year; VOC = volatile organic compound.
Source: Kirtland AFB, 2022f.

3.5.3 Environmental Consequences

3.5.3.1 Proposed Action

Potential impacts to air quality are evaluated with respect to the extent, context, and intensity of the impact in relation to relevant regulations, guidelines, and scientific documentation. The CEQ defines significance in terms of context and intensity in 40 CFR Part 1508.27. This requires that the significance of an action be analyzed with respect to the setting of the action and be based relative to the severity of the impact. For attainment area criteria pollutants, the project air quality analysis used the USEPA's Prevention of Significant Deterioration stationary source permitting threshold of 250 tons per year as an initial indicator of the local significance of potential impacts to air quality, except for lead which is 25 tons per year. It is important to note that these indicators can only provide a clue to the potential impacts to air quality.

The Prevention of Significant Deterioration permitting threshold represents the level of potential new emissions below which a new or existing minor, non-listed stationary source may acceptably emit without triggering the requirement to obtain a permit. Thus, if the intensity of any net emissions increase for a project alternative is below 250 tons per year in the context of an attainment criteria pollutant, the indication is the air quality impacts would not be significant for that pollutant.

Air Conformity Applicability Model (ACAM) (version 5.0.17a) was used to provide emissions estimates for construction, the AC-130J airfield operations and maintenance activities, and worker commutes. ACAM provides estimated air emissions from proposed actions for specific criteria and precursor pollutants 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.

3.5.3.1.1 Construction Activities

Construction to support the AC-130J transition would occur from FY 2023 through FY 2028. During this time, demolition, construction, and modification activities would take place, involving additions

to several existing buildings, additional parking, a new simulator complex, and several other new buildings.

Construction of infrastructure to support the AC-130J mission would generate temporary emissions and the air pollutant of greatest concern is particulate matter, such as fugitive dust. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of activity. Fugitive dust emissions would be produced from the ground disturbance associated with the Proposed Action. Fugitive dust air emissions would be greatest during the initial site grading and excavation and would vary daily depending on the work phase, level of activity, and prevailing weather conditions. Particulate matter emissions would also be produced from the combustion of fuels in vehicles and equipment needed for construction.

Construction activities would incorporate best management practices (BMPs) and environmental control measures (e.g., wetting the ground surface) to minimize fugitive particulate matter emissions. Additionally, work vehicles are assumed to be well maintained and to use diesel particulate filters to reduce particulate matter emissions. Construction activities would comply with 20.11.20 NMAC, Fugitive Dust Control, to prevent the release of fugitive dust. Kirtland AFB would obtain a fugitive dust control construction permit from AEHD-AQD. Application for the fugitive dust which would outline specific dust control measures that would be implemented during construction. These BMPs and environmental control measures could reduce uncontrolled particulate matter emissions from a construction site by approximately 50 percent depending upon the number of BMPs and environmental control measures implemented, and the potential for particulate matter emissions. Per 20.11.20.12 NMAC, the Kirtland AFB would also use reasonably available fugitive dust control measures during any construction activity associated with the Proposed Action, whether or not a fugitive dust control permit was required.

3.5.3.1.2 Operation Activities

Once aircraft are relocated, the additional flight operations of the AC-130J aircraft would be implemented. For purposes of analyzing potential air quality impacts from aircraft emissions of criteria air pollutants, this section considered the volume of air extending up to the mixing height (3,000 feet AGL) and coinciding with the spatial distribution of the ROIs. The mixing height is the altitude at which the lower atmosphere will undergo mechanical or turbulent mixing, producing a nearly uniform air mass. The height of the mixing level determines the volume of air within which pollutants can disperse. Pollutants that are released above the mixing height typically will not disperse downward and thus will have little or no effect on ground level concentrations of pollutants. Mixing heights at any one location or region can vary by the season and time of day, but for air quality applications, mixing height is typically defined as 3,000 feet AGL as an acceptable default value (40 CFR § 93.153[c][2]).

GHG emissions would be relevant for all of the atmospheric horizon. GHG emissions from the entire flight path of aircraft are applicable because mixing height is not relevant for these pollutants; however, flight operations for the AC-130J are anticipated to be similar to those performed at Hurlburt Field in Florida. For this reason, no net change in GHG emissions related to the aircraft operations would occur, as these emissions are global in impact, and would simply transition from the Florida environs to New Mexico.

During operations, emissions of criteria pollutants and GHGs would be directly produced from activities such as combustion emissions from personal vehicles used for worker commutes and stationary sources added to Kirtland AFB as a result of constructing new buildings (e.g., emergency generators). An additional 390 personnel would commute to the installation during the

work week and aircraft operations of the AC-130J would occur, as described in **Section 2.4.1**. Construction of all the proposed projects described in **Table 2-2** is not anticipated to be complete prior to the relocation of AC-130J aircraft. As a result, the analysis assumed construction activities occurred simultaneously with aircraft operations and total emissions for calendar year (CY) 2025 and CY 2028 include both construction and airfield flight operations at Kirtland AFB, and no construction projects are anticipated to occur in CY 2026 and 2027. After CY 2028, construction would be complete and the annual AC-130J flight operations would remain static. These activities would have long-term, minor impacts on air quality. Kirtland AFB's existing fugitive dust control programmatic permit for routine ground maintenance activities, Permit No. 8091-P, would provide coverage for future maintenance activities related to infrastructure and facilities constructed under the Proposed Action. **Table 3.5-2** summarizes the anticipated air emissions from construction activities and aircraft operations, including commuting personnel, and **Appendix C** contains the ACAM report.

Table 3.5-2 Estimated Annual Air Emissions from Construction and Operation Associated with the Proposed Action

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	Pb (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	GHG (tpy)
Estimated Annual Air Emissions – 2023 Construction	2.990	0.948	3.442	0.008	0.000	7.174	0.124	730.0
Comparative Threshold	250	250	250	250	25	250	250	NA
Exceed Threshold?	No	No	No	No	No	No	No	NA
Estimated Annual Air Emissions – 2024 Construction	1.552	0.693	1.939	0.004	0.000	1.149	0.057	433.1
Comparative Threshold	250	250	250	250	25	250	250	NA
Exceed Threshold?	No	No	No	No	No	No	No	NA
Estimated Annual Air Emissions – 2025 Construction	2.066	1.139	2.769	0.006	0.000	0.459	0.083	577.6
Estimated Annual Air Emissions – 2025 Commuter Emissions	0.427	0.469	5.212	0.003	0.000	0.010	0.009	447.6
Estimated Annual Air Emissions – 2025 Flight Operations	31.335	1.050	8.124	1.864	0.000	3.896	2.068	0.00[1]
2025 Total Emissions	33.828	2.658	16.105	1.873	0.000	4.365	2.159	1,025.2
Comparative Threshold	250	250	250	250	25	250	250	NA
Exceed Threshold?	No	No	No	No	No	No	No	NA
Estimated Annual Air Emissions – 2028 Construction	1.696	0.540	2.307	0.005	0.000	1.647	0.065	491.6
Estimated Annual Air Emissions – 2028 Commuter Emissions	0.427	0.469	5.212	0.003	0.000	0.010	0.009	447.6
Estimated Annual Air Emissions – 2028 Flight Operations	31.335	1.050	8.124	1.864	0.000	3.896	2.068	0.00[1]
2028 Total Emissions	**33.457**	**2.058**	**15.643**	**1.872**	**0.000**	**5.553**	**2.141**	**939.2**
Comparative Threshold	250	250	250	250	25	250	250	NA
Exceed Threshold?	No	No	No	No	No	No	No	NA

Notes: [1]GHG emissions for flight operations for the AC-130J are anticipated to be similar to those performed at Hurlburt Field in Florida. For this reason, no net change in GHG emissions would occur, as these emissions are global in impact, and would simply transition from the Florida environs to New Mexico.
CO = carbon monoxide; GHG = greenhouse gas; NO_x = nitrogen oxides; Pb = lead; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compound.

As noted in **Section 3.5.1**, Bernalillo County is designated by USEPA as attainment for all criteria pollutants. Emissions of criteria pollutants would be well below the 250 tons per year comparative threshold for the criteria pollutants other than lead and the 25 tons per year comparative threshold for lead, for all years of activity. Therefore, the Proposed Action would not be expected to result in a significant impact on air quality.

Climate Change and Greenhouse Gases. Under the Proposed Action approximately 2,232 tons of CO_2e would be emitted from construction activities and 448 tons of CO_2e would be emitted annually beginning in 2025 resulting from worker commutes.

3.5.3.2 No Action Alternative

Under the No Action Alternative, no aircraft would be added to Kirtland AFB and no associated demolition/modification/construction activities would occur. There would be no changes to air emissions at the installation under the No Action Alternative.

3.6 GEOLOGICAL RESOURCES

3.6.1 Regulatory Setting

Geological resources consist of the Earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of geology, topography and physiography, soils, and, where applicable, geologic hazards. Geology is the study of the Earth's composition and provides information on the structure and configuration of surface and subsurface features. Topography and physiography pertain to the general shape and arrangement of the land surface, including its height and the position of its natural and man-made features.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types, in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential, affect their abilities to support certain applications or uses. In appropriate cases, soil properties must be examined for their compatibility with particular construction activities or types of land use.

Prime farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. The intent of the FPPA is to minimize the extent that federal programs contribute to the unnecessary conversion of high-quality farmland to non-agricultural uses. The FPPA also ensures that federal programs are administered in a manner that, to the extent practicable, is compatible with private, state, and local government programs and policies to protect farmland. The implementing procedures of the FPPA (7 CFR Part 658) require federal agencies to evaluate the adverse effects (direct and indirect) of their activities on farmland, which includes prime farmland, unique farmland, and farmland of statewide or local importance, and to consider alternative actions that could avoid adverse effects.

Geological hazards include earthquake activity or seismicity and are generally caused by displacement across active faults. Earthquakes are more prevalent in areas with a high-level of tectonic activity such as volcanic regions and fault zones. Landslides or mudslides are also commonly associated with tectonically active zones. Landslides include a wide range of ground movements and are typically caused by multiple, overlapping environmental factors (e.g., rockfalls, deep failure of slopes, land modifications, earthquakes, and storms).

3.6.2 Affected Environment

Regional Geology. The Rio Grande Rift is a zone of faults and sediment-filled basins extending from south-central Colorado across New Mexico and into northern Mexico. The rift is a defining physiographic feature of central New Mexico and the approximately 3,000-square-mile Albuquerque Basin (also referred to as the Middle Rio Grande Basin). This basin is comprised of three discrete sub-basins each containing more than 14,000 feet of rift-filled valley deposition accrued over millions of years. Along the margins of the basin, sediment deposits thin out to depths as low as 3,000 feet in areas where tectonic activity formed and uplifted mountains (United States Geological Survey [USGS], 2003).

Kirtland AFB is situated near the east-central edge of the Albuquerque Basin, along the margins of the Sandia and Manzanita Mountains. The geology of Kirtland AFB is defined by the vertical displacement between the rock units exposed at the top of these mountains and areas west and southwest towards the Rio Grande River (hereafter, referred to as Rio Grande) and its tributaries. The subsurface environment underlying Kirtland AFB is complex because of the gradual filling of the basin with sediments deposited by river and stream (fluvial), slopes and mountain fronts (alluvial-colluvial), wind (eolian), and volcanic activity in the form of lava or ash. Sediment deposition was further complicated by the large-scale faulting of the Albuquerque Basin that occurred approximately 5 to 11 million years ago (Sandia National Lab, 2017).

The portion of the Albuquerque Basin underlying Kirtland AFB is primarily composed of poorly consolidated alluvial-colluvial sediments. The exposed bedrock in the eastern part of the installation generally consists of igneous (i.e., granite) and metamorphic rock, overlain by non-corresponding deposits of marine carbonate rock (i.e., limestone, sandstone, and shale) (Kirtland AFB, 2018a).

Topography and Soils. The east-central portion of the Albuquerque Basin (locally referred to as East Mesa) extends west and southwest from the steep foothills and slopes of the Sandia and Manzanita Mountains to the gently sloping areas near the Rio Grande. Similarly, the topography of Kirtland AFB ranges from the mountainous terrain of the Cibola National Forest Withdrawn Area in the east to the relatively flat mesa in the west. Elevations range from nearly 8,000 feet above mean sea level in the Manzanita Mountains to approximately 5,200 feet above mean sea level on the mesa. The greatest change in elevation occurs in the centrally located Coyote Canyon and along the far eastern boundary of Kirtland AFB. The ground surface slope across the installation generally occurs in a west to southwest direction.

Regionally, the soils of the Albuquerque Basin vary from fine-grained clays and silts near river channels to well-drained sands and sandy loams on plateaus and highlands. Soils associated with Kirtland AFB predominately consist of sand and loam with varying amounts of gravel, cobble, or stone. Nearly all soils on the installation are well drained, and some are susceptible to erosion, particularly in areas with topographic relief (U.S. Department of Agriculture-Natural Resources Conservation Service [USDA-NRCS], 2022a). **Table 3.6-1** shows the soil characteristics for soils that exist within the proposed project areas of the Proposed Action.

Table 3.6-1 Soil Characteristics within Proposed Project Areas

Soil Series	Slope	Runoff
Bluepoint-Kokan association	5-15%	Medium
Latene sandy loam	1-5%	Low
Madurez-Wink association	1-7%	Very low to low
Tijeras gravelly fine sandy loam	1-5%	Low
Wink fine sand loam	0-5%	Very low

None of the soils listed in **Table 3.6-1** are classified as prime farmland, unique farmland, or farmland of statewide or local importance pursuant to the FPPA (USDA-NRCS, 2022b). Additionally, Kirtland AFB is not currently utilized for agriculture, nor is any agricultural use planned in the future.

Proposed Projects 1 through 6 are located within the Latene sandy loam and Wink fine sand loam soil series characterized by minimal slope and low runoff potential. Project 7 is located within the Madurez-Wink association and the Tijeras gravelly fine sandy loam soil series, with up to 7 percent slope and low runoff potential. Proposed Projects 8 through 13b lie within the Bluepoint-Kokan association, with a soil substrate that has up to a 15 percent slope and a medium runoff potential.

Geological Hazards. The Tijeras-Cañoncito fault system, more commonly known as the Tijeras fault zone, consists of several northeast-oriented, sub-vertical faults that form the eastern edge of the Albuquerque Basin. The Tijeras fault zone is part of this regionally extensive group of faults. The southern end of the Tijeras fault zone converges with the southern Sandia and Hubbell Spring fault zones beneath Kirtland AFB near Tijeras Arroyo, southeast of the proposed project areas (USGS, 2022). These fault features are shown in **Figure 3.6-1**. Frequent, low magnitude and intensity earthquakes are common occurrences for these faults. The Sandia Fault is approximately 3.5 miles from the closest project (Project 7) of the Proposed Action.

Accordingly, the USGS rates the seismic hazard of this area as “moderate” based upon a measurement of expected building damage in an earthquake scenario. Similarly, the International Conference of Building Officials Uniform Building Code classifies the region as having a moderate potential for damage to structures from seismic activity (USGS, 2018).

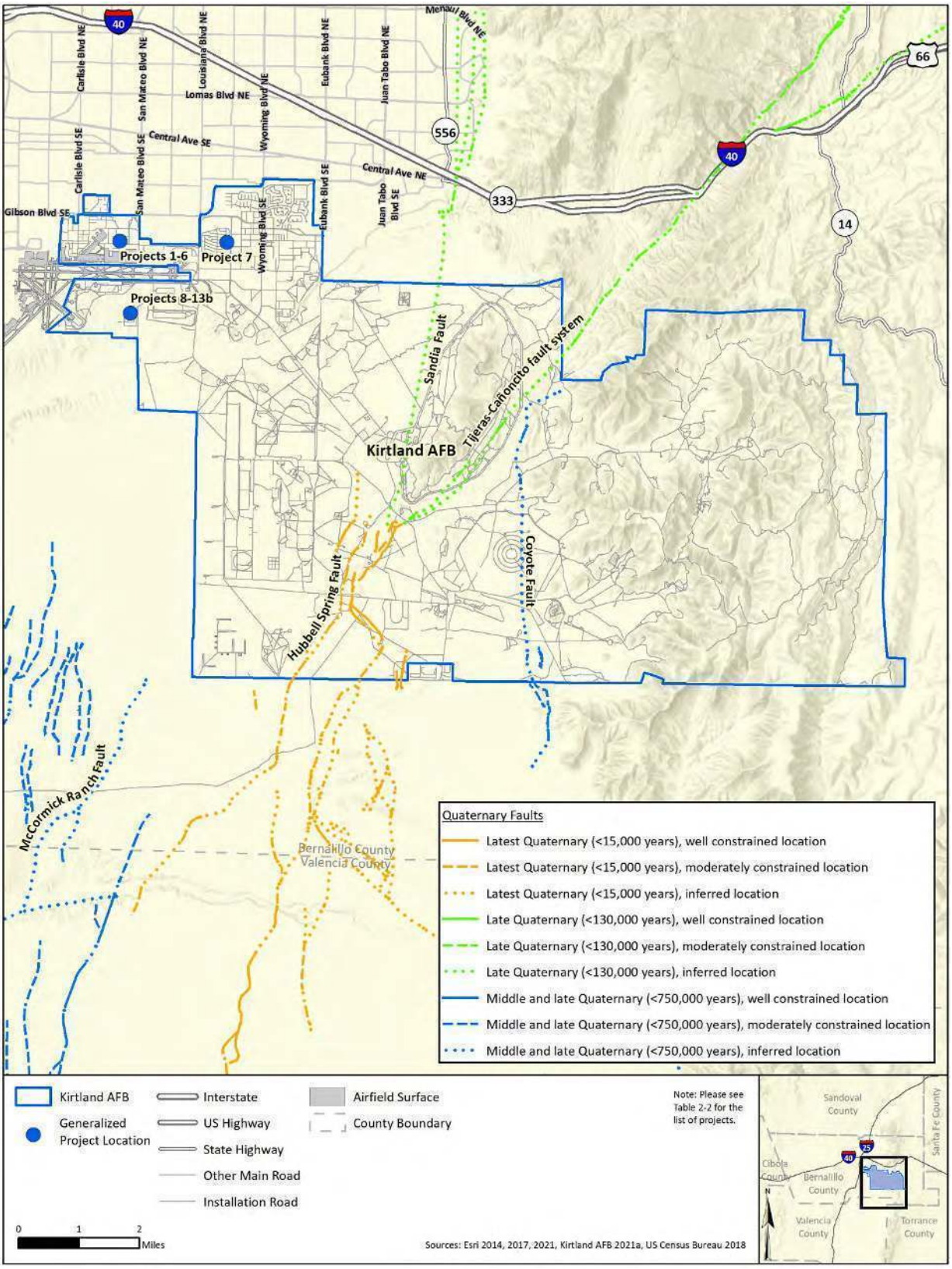

Figure 3.6-1 Geological Hazards near Kirtland AFB