

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 <sup>1</sup>		R-5104B <sup>2</sup>		R-5105 <sup>3</sup>		Pecos MOA		Taiban MOA	
	Day <sup>4</sup>	Night <sup>5</sup>	Day <sup>4</sup>	Night <sup>5</sup>	Day <sup>4</sup>	Night <sup>5</sup>	Day <sup>4</sup>	Night <sup>5</sup>	Day <sup>4</sup>	Night <sup>5</sup>
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: <sup>1</sup>To 18,000 feet

<sup>2</sup>18,000 feet to 23,000 feet

<sup>3</sup>To 10,000 feet

<sup>4</sup>Day operations would be from 7:00 a.m. to 10:00 p.m.

<sup>5</sup>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 <sup>1</sup>	EIS	2019	Proposed <sup>1</sup>	EIS	2019	Proposed <sup>1</sup>	EIS	2019	Proposed <sup>1</sup>	EIS	2019	Proposed <sup>1</sup>
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 <sup>2</sup>	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: <sup>1</sup> 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.

<sup>2</sup> This includes the MC-130, KC-130, and C-130 aircraft.

EIS = Environmental Impact Statement; MOA = Military Operations Area

Source: USAF, 2007.

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).

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**). Therefore, impacts from ordnance use and defensive countermeasures is not analyzed further in this document.

**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 <sup>1</sup>

Notes: <sup>1</sup>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). Under the No Action Alternative, there would be no additional AC-130J aircraft based at Kirtland AFB, no personnel changes or construction would be performed, and no additional training activities would be conducted. 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.

## 2.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Although not part of the strategic basing process, locations other than Kirtland AFB were considered, as they may meet the purpose and need. 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
<b>Airspace Management</b>	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.
<b>Noise</b>	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.
<b>Land Use</b>	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.
<b>Air Quality</b>	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.
<b>Geology and Soils</b>	No impacts to geology, topography and soils, and geological hazards are expected from the proposed construction and facility modification activities or proposed operations of the Proposed Action.	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
<b>Water Resources</b>	<p>The Proposed Action is not expected to impact groundwater levels. In addition, no impacts to groundwater or groundwater quality are expected post-construction or during operations of the Proposed Action.</p> <p>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.</p> <p>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.</p>	<p>No new impacts to water resources would occur with implementation of the No Action Alternative.</p>
<b>Biological Resources</b>	<p>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.</p> <p>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. In addition, impacts to state-listed species would be less than significant.</p>	<p>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.</p>
<b>Cultural Resources</b>	<p>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. Specific adverse effects to historic properties or traditional cultural properties from the proposed AC130-J beddown were not identified during the government-to-government consultation.</p>	<p>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.</p>



Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
<b>Infrastructure</b>	<p>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.</p> <p>No impacts from construction and connection to natural gas supplies are anticipated.</p> <p>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.</p> <p>Impacts to the water supply system, sanitary sewer/wastewater, communications, or solid waste management would not be expected from the Proposed Action.</p>	<p>No new impacts to infrastructure would occur with implementation of the No Action Alternative.</p>
<b>Hazardous Materials and Wastes</b>	<p>No adverse impacts to the EMS program are expected as construction contractors would comply with the installation's EMS program.</p> <p>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.</p> <p>The Proposed Action would result in a short-term, negligible, adverse impact on the generation of hazardous and petroleum wastes</p> <p>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.</p> <p>Implementation of the Proposed Action would not be expected to result in any impacts on or be impacted by ERP and/or MMRP sites</p>	<p>Implementation of the No Action Alternative would not result in any new or additional impacts on hazardous materials and wastes.</p>

Resource Area	Proposed Action: Alternative 1 (Preferred Alternative)	No Action Alternative
<b>Safety</b>	<p>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.</p> <p>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.</p> <p>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.</p>	Implementation of the No Action Alternative would not result in any new or additional impacts on safety.
<b>Socioeconomics</b>	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.
<b>Environmental Justice</b>	<p>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.</p> <p>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.</p>	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.

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## **3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

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### **3.1 SCOPE OF THE ANALYSIS**

#### **3.1.1 Resources Analyzed**

This section describes relevant existing environmental conditions for resources potentially affected by various alternatives described in Chapter 2. In describing the affected environment, a framework for understanding the potential direct, indirect, and cumulative effects of each alternative, including the No Action Alternative, is provided.

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.

#### **3.1.2 Past, Present and Reasonably Foreseeable Actions**

According to Council on Environmental Quality (CEQ) regulations, the cumulative effects analysis of an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). Cumulative effects may occur when there is a relationship between a Proposed Action or alternative and other actions expected to occur in a similar location or during a similar timeframe. The effects may then be incremental and may result in cumulative impacts. Actions overlapping with or in close proximity to the Proposed Action or alternatives can reasonably be expected to have more potential for cumulative effects on “shared resources” than actions that may be geographically separated. Similarly, actions that coincide in the same timeframe tend to offer a higher potential for cumulative effects.

This EA addresses cumulative impacts to assess the incremental contribution of the alternatives to impacts on affected resources from all factors. The USAF has made an effort to identify actions on or near the affected areas that are under consideration and in the planning stage at this time. These actions are included in the cumulative effects analysis, drawn from the level of detail that exists now. Although the level of detail available for those future actions varies, this approach provides the decision-maker with the most current information to evaluate the consequences of the Proposed Action Alternatives.

An effort was made to identify past and present actions in the region and those reasonably foreseeable actions that are in the planning phase at this time. Actions that have a potential to interact with the Proposed Action at Kirtland AFB are included in this cumulative analysis. This approach enables decision-makers to have the most current information available so that they can evaluate the environmental consequences of the FTU relocation at Kirtland AFB and training in associated SUA.

Kirtland AFB is an active military installation that undergoes changes in mission and in training requirements in response to defense policies, current threats, and tactical and technological advances. The installation, like any other major institution (e.g., university, industrial complex), requires new construction, facility improvements, infrastructure upgrades, and maintenance and repairs. In addition, tenant organizations may occupy portions of the installation, conduct aircraft operations, and maintain facilities. All of these actions (i.e., mission changes, facility improvements, and tenant use) will continue regardless of the alternative selected. These projects

could have cumulative impacts on resources within the Region of Influence (ROI) and are listed in **Table 3.1-1**. Other ongoing maintenance and repair activities would occur within the same footprint as current activities (i.e., repairing existing pavements, curbs, sidewalks, and fences; interior building modifications); therefore, they would not introduce any newly disturbed or impervious surfaces and are not included herein.

**Table 3.1-1 Current and Reasonably Foreseeable Actions at Kirtland AFB**

Project Name	Description	Potential Relevance to Proposed Action
Zia Park Area Development	Development of a former housing area, called Zia Park, which encompasses approximately 300 acres of land central to the primary cantonment area of the installation. Construction would include administrative buildings, infrastructure improvements, medical facilities, community services, residential lodging, outdoor recreation space, demolition of several facilities that would be redundant with new construction (e.g., gyms, child development center, dormitory, etc.). Construction projects would be either short-term (1–7 years), mid-term (8–16 years), or long-term (17+ years).	A portion of the Proposed Action would occur within the project vicinity. Potential for construction overlap with the Proposed action.
Demolition and Construction of Military Support Facilities	The USAF proposes to demolish and construct, operate, and maintain several military personnel support facilities in the northwestern portion of the installation. The areas include the Visiting Officer Quarters, the Main Enlisted Dormitory Campus, the Noncommissioned Officer Academy, and Dormitory Campus 2. This project would include the demolition of facilities totaling approximately 498,000 SF and construction of facilities totaling approximately 389,000 SF, resulting in a net decrease of approximately 109,000 SF of building space on the installation. Approximately 36 acres would be impacted by construction and demolition activities.	A portion of the Proposed Action would occur within the project vicinity. Potential for construction overlap with the Proposed action.
Building Demolition at Kirtland AFB	The USAF is in the process of demolishing 23 buildings totaling approximately 105,000 SF to make space available for future construction and to fulfill its mission as installation host through better site utilization. None of the buildings proposed for demolition are currently occupied or used by installation personnel.	A portion of the Proposed Action would occur within the project vicinity.
Security Forces Complex	The USAF proposes to construct, operate, and maintain a 42,500-SF security forces complex to provide adequate space and modern facilities to house all 377 SFG administrative and support functions in a consolidated location. The 377 SFG functions that would be transferred to the new security forces complex include a base operations center with command and control facility, administration and office space, training rooms, auditorium or assembly room, guard mount, hardened armory for weapons and ammunition storage, confinement facilities, law enforcement, logistics warehouse, general storage, vehicle garage with maintenance area, and associated communications functions. One existing building (879 SF) within the footprint of the security forces complex would be demolished. This project would result in an increase of 41,621 SF of building space on the installation.	A portion of the Proposed Action would occur within the project vicinity.

Project Name	Description	Potential Relevance to Proposed Action
21st Explosive Ordnance Division Expansion	The 21st Explosive Ordnance Division proposes facility expansion and site improvements for the Weapons of Mass Destruction Company Complex. This unit currently operates from a 90-acre property leased by the U.S. Army within Kirtland AFB. The current site has seven structures, six of which are substandard and do not have adequate fire protection. The 21st Explosive Ordnance Division proposes to expand this site to a total of 280 acres, add three permanent structures totaling 40,000 SF, demolish five of the six substandard structures (75,000 SF), add two temporary storage containers, tie into nearby utilities, construct water tanks for fire suppression, and construct several concrete pads for training activities. This project would result in a decrease of 35,000 SF of building space on the installation.	A portion of the Proposed Action would occur within the project vicinity.
New Mexico Army National Guard 515th RTI	The New Mexico Army National Guard proposes to relocate their 515th RTI from the Oate Training Complex in Santa Fe to Kirtland AFB. Construction includes a 366,000-SF main campus in the former Zia Park housing area and a 40-acre maneuver and driver's training course with motor pool and classroom near the Tijeras Arroyo Golf Course. The main campus will include an educational facility, billeting, dining facilities, and associated parking	A portion of the Proposed Action would occur within the project vicinity.

Notes: 377 SFG = 377th Security Forces Group; AFB = Air Force Base; RTI = Regional Training Institute; SF = square foot/feet; U.S. = United States; USAF = United States Air Force.

### 3.1.3 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 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 Affected Environment

The ROI for the Proposed Action and alternatives includes airspace in and around Kirtland AFB and the Sunport, within the city of Albuquerque and Bernalillo County. The Federal Aviation Administration (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.

## **3.2.2 Environmental Consequences**

### **3.2.2.1 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.

### **3.2.2.2 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.

### **3.2.3 Reasonably Foreseeable Actions and Cumulative Impacts**

At the installation, airfield airspace operations would not be impacted by any reasonably foreseeable actions; therefore, negligible effects would occur when considered along with the Proposed Action. However, this is consistent with designated airspace use; therefore, it is not anticipated that this action would create more than minimal cumulative impacts. Military aircraft would continue to operate under existing flight rules designed to separate aircraft activities, as would the civil aircraft operating to and from the Sunport. Kirtland AFB and FAA positive control and management would continue to guide operations within the airspace. The existing number of operations would increase (approximately two to three sorties per day); however, this small magnitude of impacts would not be significant and would be the same as those described in **Section 3.2.2, Airspace Management**.

## **3.3 NOISE**

### **3.3.1 Affected Environment**

The ROI for noise includes the vicinity of Kirtland AFB and the Sunport, within the city of Albuquerque and Bernalillo County.

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, as well as listing the total current annual civilian/commercial flight operations. There was a total of 126 different civilian/commercial airframes that use the Sunport, with the most common aircraft being the Boeing 737-700 series (27,672 annual operations), followed by the Cessna 182 and 172 Skyhawk (12,671 and 7,556 annual operations, respectively). For a full breakdown of civilian/commercial aircraft, please see the supporting Noise Report document available on the Kirtland AFB environmental website at: [www.kirtland.af.mil/Home/Environment](http://www.kirtland.af.mil/Home/Environment).



**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
<b>Existing</b>												
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
<i>Existing Military Subtotal</i>	<i>6,038</i>	<i>60</i>	<i>6,098</i>	<i>3,382</i>	<i>2,226</i>	<i>6,098</i>	<i>4,860</i>	<i>540</i>	<i>5,400</i>	<i>14,730</i>	<i>2,866</i>	<i>17,596</i>
<i>Civilian Subtotal</i>	<i>41,572</i>	<i>8,565</i>	<i>50,137</i>	<i>42,022</i>	<i>8,980</i>	<i>51,002</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>83,594</i>	<i>17,545</i>	<i>101,139</i>
<i>Existing Subtotal</i>	<i>47,610</i>	<i>8,625</i>	<i>56,235</i>	<i>45,854</i>	<i>11,246</i>	<i>57,100</i>	<i>4,860</i>	<i>540</i>	<i>5,400</i>	<i>103,184</i>	<i>20,951</i>	<i>124,135</i>

Source: Cardno 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 3.3-3** shows the calculated noise exposure for the 31 POIs from the noise model, under baseline conditions.

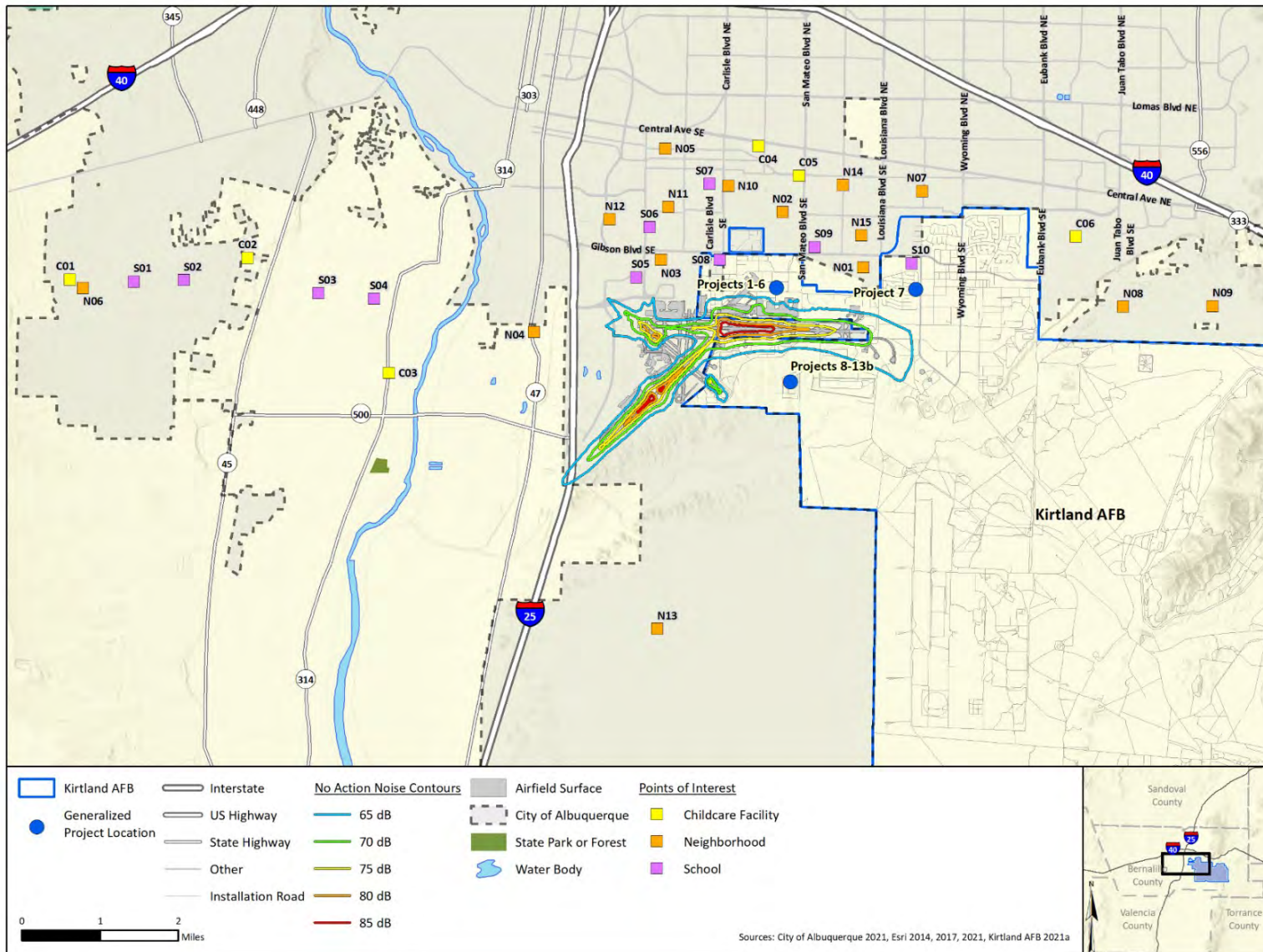
### 3.3.2 Environmental Consequences

#### 3.3.2.1 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 3.3-4** 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 3.3-2** 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.



**Figure 3.3-1 Current DNL Contours at Albuquerque International Sunport**

**Table 3.3-3 DNL at POIs in the Vicinity of Kirtland AFB under Baseline Conditions**

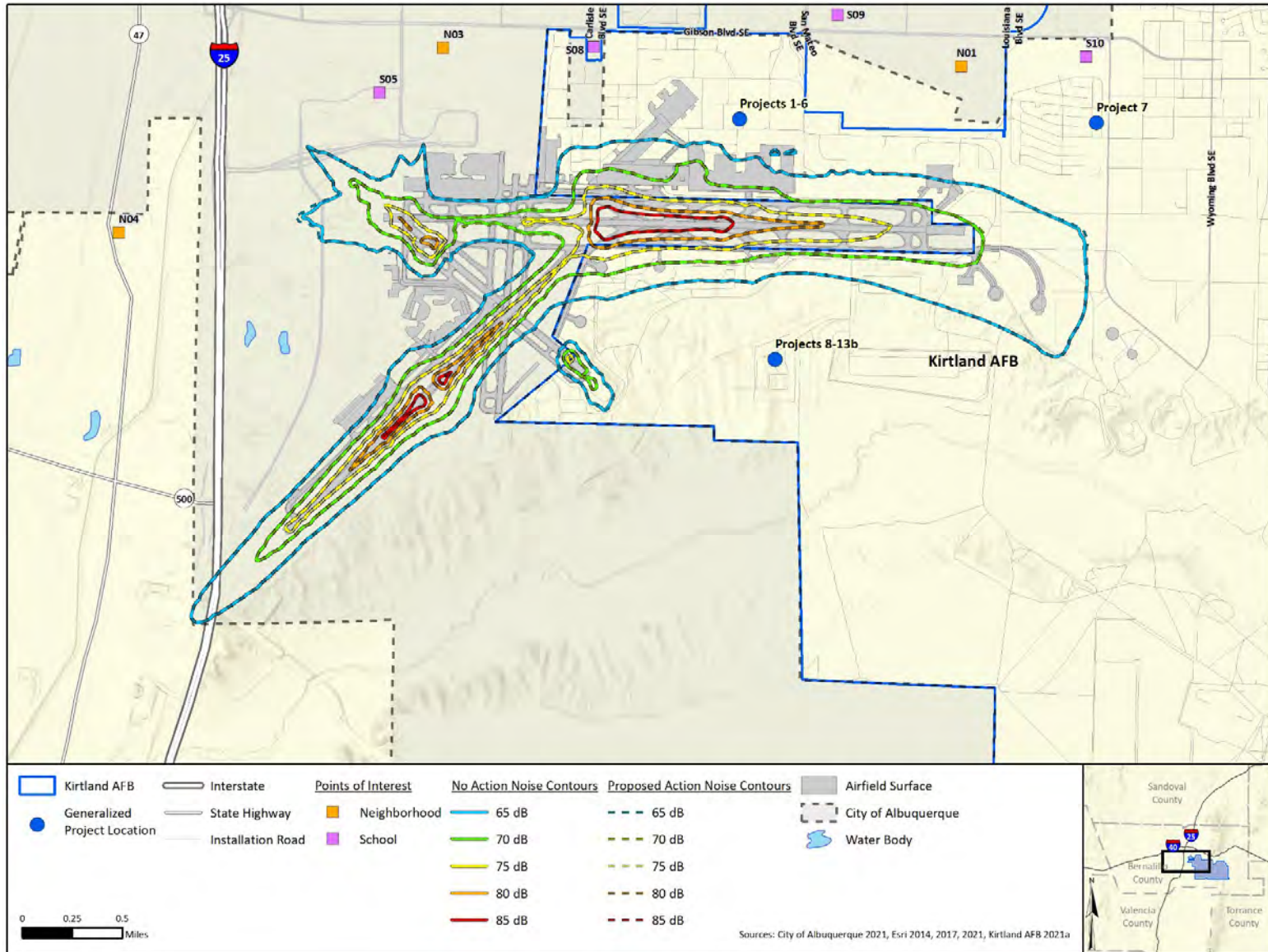
Point of Interest	Name	DNL <sup>1</sup>
N01	Westgate Heights NA	54.2
N02	Parkland Hills NA	46.0
N03	Yale Village NA	44.1
N04	San Jose NA	51.3
N05	University Heights NA	35.2
N06	Westgate Heights NA	41.6
N07	Trumbull Village Association	44.4
N08	Juan Tabo Hills NA	37.4
N09	Four Hills Village HOA	34.3
N10	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: <sup>1</sup>This is the military only DNL contribution in this EA version.

**Table 3.3-4 Predicted Noise Levels for Construction Equipment**

<b>Construction Equipment</b>	<b>L<sub>max</sub> at 50 feet</b>	<b>L<sub>max</sub> at 500 feet</b>	<b>L<sub>max</sub> at 1,500 feet</b>
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 Current and Proposed DNL Contours at Albuquerque International Sunport**

**Table 3.3-5** 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.

**Table 3.3-5 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

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.

### **3.3.2.2 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.

### **3.3.3 Reasonably Foreseeable Actions and Cumulative Impacts**

The long-term acoustic environment at Kirtland AFB would not be expected to be influenced by the short-term construction activities described under the Proposed Action or those activities described in **Table 3.1-1** and would continue to be dominated by aircraft operations. Construction activities associated with the Proposed Action would result in a short-term, minor, adverse impact on noise; however, impacts from noise from the construction activities would not be significant since they would only occur during the day between 7:00 a.m. to 5:00 p.m., Monday through Friday. Cumulative impacts from noise as a result of these actions would not be significant.

## **3.4 LAND USE**

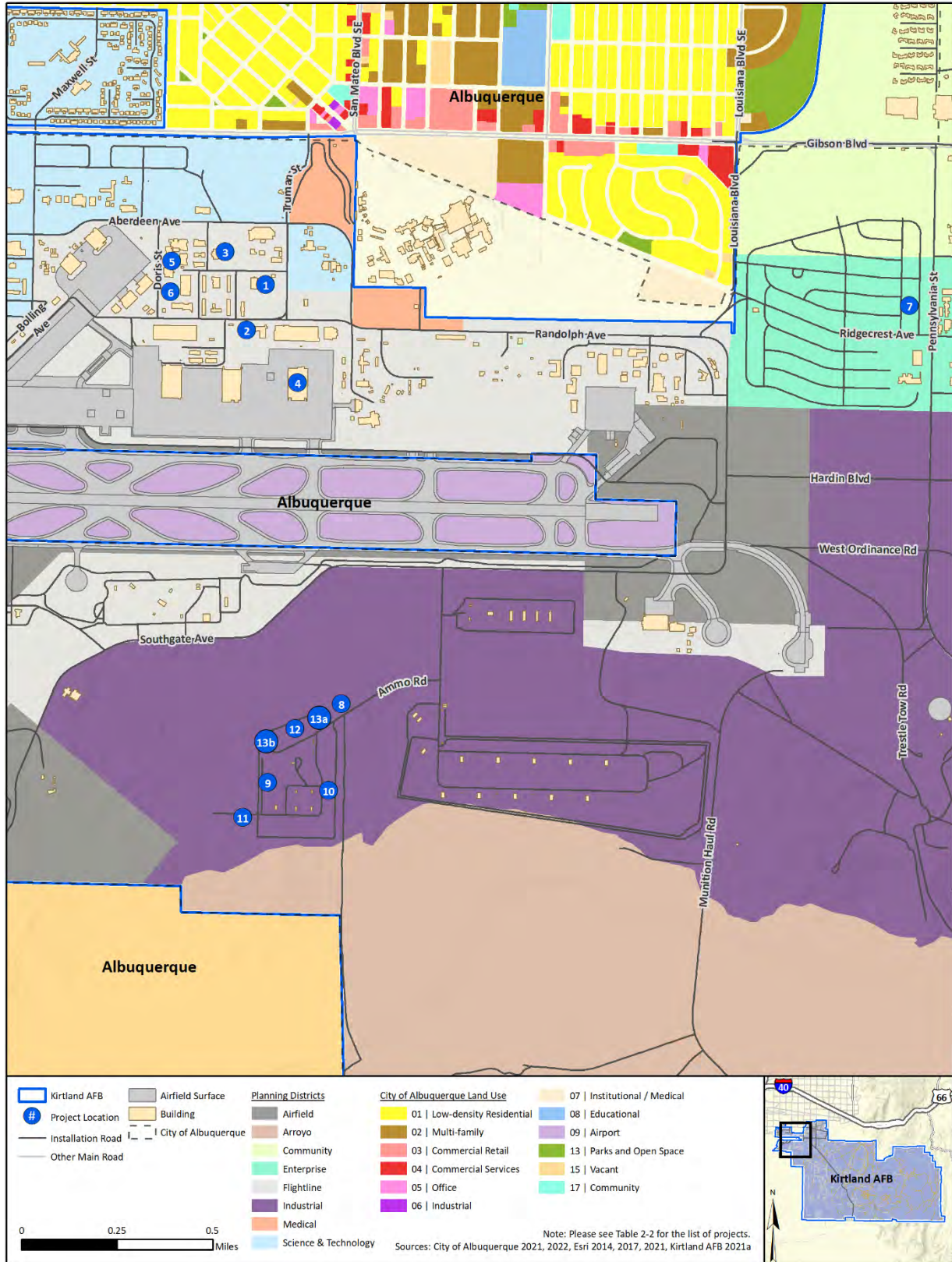
### **3.4.1 Affected Environment**

The ROI for land use includes the vicinity of Kirtland AFB and the Sunport, within the city of Albuquerque and Bernalillo County.

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).





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

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).

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.

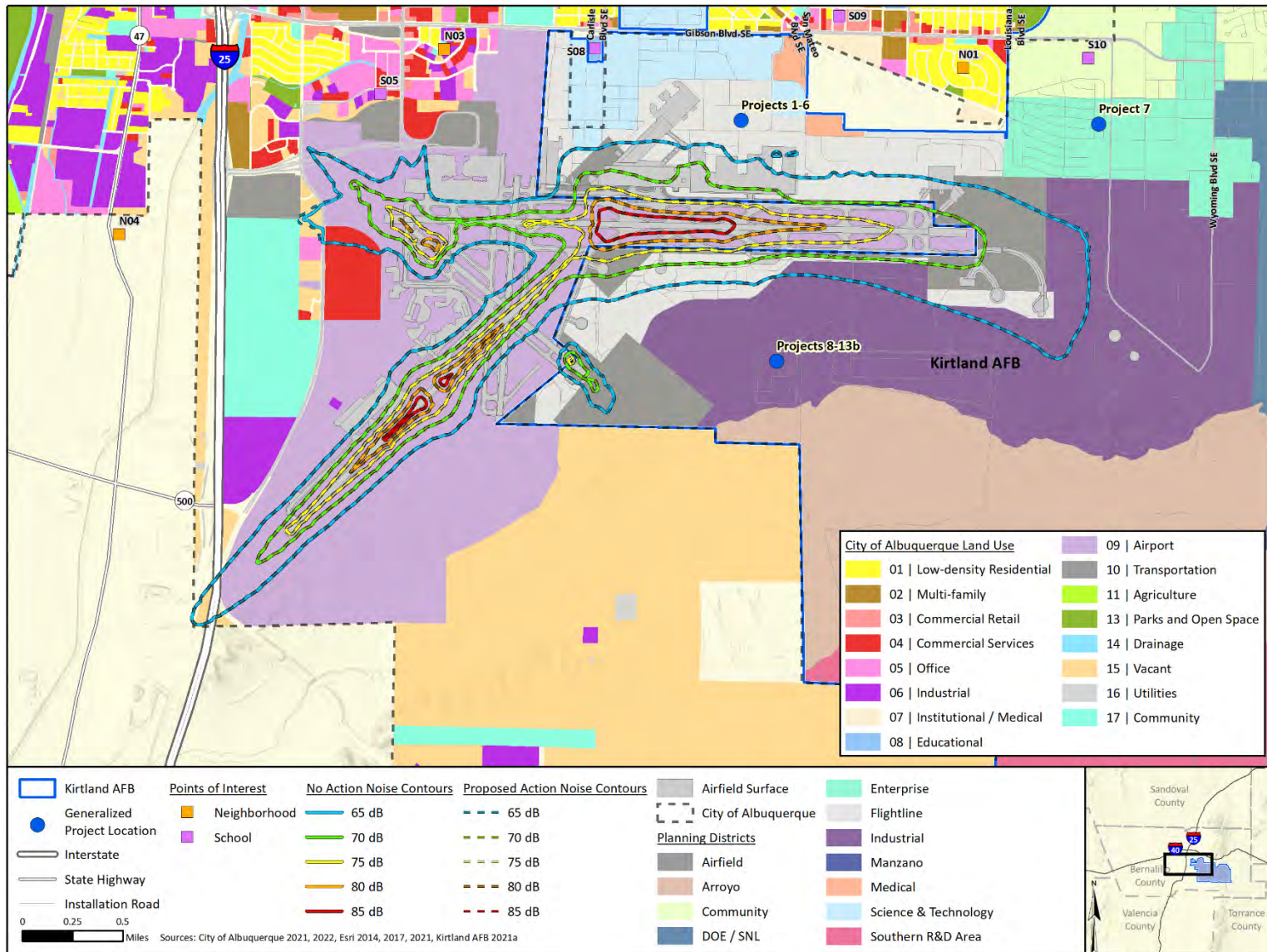
### **3.4.2 Environmental Consequences**

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.

#### **3.4.2.1 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**.



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

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.

#### **3.4.2.2 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.

#### **3.4.3 Reasonably Foreseeable Actions and Cumulative Impacts**

The Proposed Action would result in short-term, negligible, adverse impacts associated with construction activities. Development would not conflict with installation land use or land use in the surrounding area, as described in **Section 3.4.2**. The Proposed Action, when combined with other past, present, and reasonably foreseeable projects on the installation (see **Table 3.1-1**), would not result in significant cumulative impacts to land use but, in fact, would represent an enhancement to the existing area use of land.

### **3.5 AIR QUALITY**

#### **3.5.1 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 <sub>x</sub> (tpy)	VOC (tpy)	CO (tpy)	SO <sub>2</sub> (tpy)	PM <sub>10</sub> (tpy)	PM <sub>2.5</sub> (tpy)
Actual Emissions	7.05	25.98	4.19	0.68	0.31	0.31

*Notes:* CO = carbon monoxide; NO<sub>x</sub> = nitrogen oxides; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; SO<sub>2</sub> = sulfur dioxide; tpy = tons per year; VOC = volatile organic compound.

*Source:* Kirtland AFB, 2022f.

### 3.5.2 Environmental Consequences

#### 3.5.2.1 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 National Ambient Air Quality Standards. 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.

##### 3.5.2.1.1 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 New Mexico Administrative Code (NMAC), Fugitive Dust Control, to prevent the release of fugitive dust. Kirtland AFB would obtain a fugitive dust control construction permit from Albuquerque Environmental Health Department Air Quality Division (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.

### **3.5.2.1.2 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]).

Greenhouse gas (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.

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

	<b>NO<sub>x</sub></b> <b>(tpy)</b>	<b>VOC</b> <b>(tpy)</b>	<b>CO</b> <b>(tpy)</b>	<b>SO<sub>2</sub></b> <b>(tpy)</b>	<b>Pb</b> <b>(tpy)</b>	<b>PM<sub>10</sub></b> <b>(tpy)</b>	<b>PM<sub>2.5</sub></b> <b>(tpy)</b>	<b>GHG</b> <b>(tpy)</b>
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 <sup>1</sup>
<b>2025 Total Emissions</b>	<b>33.828</b>	<b>2.658</b>	<b>16.105</b>	<b>1.873</b>	<b>0.000</b>	<b>4.365</b>	<b>2.159</b>	<b>1,025.2</b>
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 <sup>1</sup>
<b>2028 Total Emissions</b>	<b>33.457</b>	<b>2.058</b>	<b>15.643</b>	<b>1.872</b>	<b>0.000</b>	<b>5.553</b>	<b>2.141</b>	<b>939.2</b>
Comparative Threshold	250	250	250	250	25	250	250	NA
Exceed Threshold?	No	No	No	No	No	No	No	NA

Notes: <sup>1</sup>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<sub>x</sub> = nitrogen oxides; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; SO<sub>2</sub> = 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 carbon dioxide equivalent (CO<sub>2</sub>e) would be emitted from construction activities and 448 tons of CO<sub>2</sub>e would be emitted annually beginning in 2025 resulting from worker commutes.

### 3.5.2.2 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.

### 3.5.3 Reasonably Foreseeable Actions and Cumulative Impacts

Current and reasonably foreseeable projects that may be ongoing in the same timeframe as proposed and alternative actions include the construction in and around the airfield and new military training activities that would occur at Kirtland AFB. Emissions from the cumulative construction and training activities would generally be short-term and limited to the period when those activities are occurring. As Bernalillo County is in attainment for all criteria pollutants, the contribution of the Proposed Action, in combination with past, present, and future activities, would not result in significant cumulative effects to air quality in the region. Therefore, implementation of the Proposed Action combined with the past, present, and reasonably foreseeable future projects, would not result in significant impacts within the ROI.

Emissions of GHGs would increase as a result of the Proposed Action (refer to GHG column in **Table 3.5-2**). Emissions associated with construction would be temporary and cease when the construction is completed. Some small quantities of GHGs may be emitted from stationary sources added to Kirtland AFB as a result of constructing new buildings (e.g., emergency generators) as well as from worker commutes during operations. The 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 from flight operations would occur, as these emissions are global in impact, and would simply transition from the Florida environs to New Mexico. Similar to the Proposed Action, the projects listed in **Table 3.1-1** would generate GHGs and most involve construction, which is of temporary duration. Some long-term benefits may offset the GHGs emitted during construction (for example, energy-efficient buildings or solar generation). While quantification of GHG emissions for all of the cumulative projects is not possible, it can generally be assumed that an overall small increase in GHG emissions, compared to the current levels, may occur for limited timeframes. For the No Action Alternative, there would be no changes in GHG emissions.

Climate change presents a global problem caused by increasing concentrations of GHG emissions. While climate change results from the incremental addition of GHG emissions from millions of individual sources, the significance of an individual source alone is impossible to assess on a global scale beyond the overall need for global GHG emissions reductions to avoid catastrophic global outcomes. Therefore, the quantitative analysis of CO<sub>2</sub>e emissions in this EA is for purposes of disclosing the net increase of GHG emissions from the Proposed Action, which would be additive with those GHGs emitted from the cumulative projects.

## 3.6 GEOLOGICAL RESOURCES

### 3.6.1 Affected Environment

The ROI for geological resources includes the vicinity of Kirtland AFB and the Sunport, within the city of Albuquerque and Bernalillo County, where relevant.

**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 Farmland Protection Policy Act (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).

## **3.6.2 Environmental Consequences**

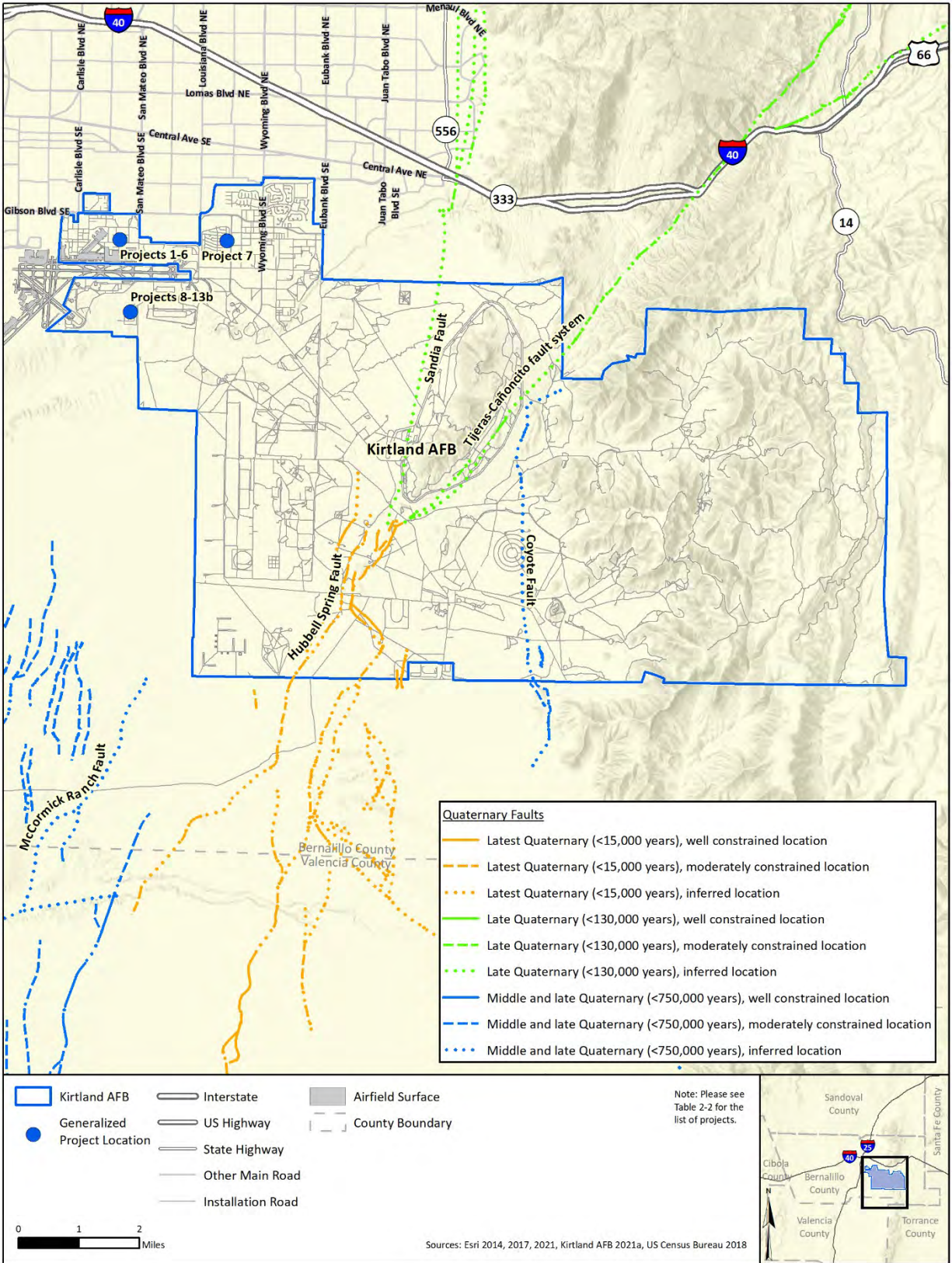
### **3.6.2.1 Proposed Action**

#### **3.6.2.1.1 Construction and Modification Activities**

Implementation of the construction and facility modification activities of the Proposed Action would result in temporary impacts to topography and soil resources. Six of the proposed projects listed in **Table 2-2** would be constructed on undisturbed land, while all other proposed projects are located on previously disturbed land. Generally, impacts would be minimized by erosion control measures and structural engineering design of new buildings.

**Regional Geology.** The proposed construction and facility modification activities would not be substantial enough or occur deep enough to impact geological features such as those controlling stormwater infiltration to the local groundwater aquifer or the supporting bedrock. Therefore, no impacts to geology are expected from the proposed construction and facility modification activities.

**Topography and Soils.** The topography of the proposed project areas (total of approximately 314,200 SF) would be temporarily impacted by construction activities due to trenching for infrastructure to support the new buildings and grading needed for site preparation. The overall topography proximate to the proposed project areas is relatively flat, and any trenches created to install infrastructure would be filled and only minimal grading would be required. All modifications to existing facilities would be done on previously disturbed areas and there would be no impact to topography. Short-term impacts on soils would occur from construction-related activities largely via ground disturbance, erosion, and soil compaction for site preparation. Erosion and soil compaction would be controlled by using BMPs such as applying water to limit airborne dust in windy environments and employing soil stabilization techniques, such as re-vegetating graded areas, once site construction and/or modification activities are complete. No impacts would be expected post construction and modification activities.



**Figure 3.6-1 Geological Hazards near Kirtland AFB**

The Proposed Action would disturb an area greater than 0.75-acre requiring a fugitive dust control permit from Bernalillo County to be obtained. Each permit would include site-specific measures for dust control and suppression such as watering and the use of soil stabilization agents, if necessary. Some activities under the Proposed Action may be subject to the Fugitive Dust Control Programmatic Permit (Permit No. 8091-P) held by Kirtland AFB that includes similar requirements for dust control and suppression.

**Geologic Hazards.** The Proposed Action is located in an area that experiences low magnitude earthquakes. No major earthquake has been recorded in the region, and no Federal, State, or local codes require use of specific construction techniques for new construction in the area as the risk of significant damage to structures is moderate. The design of new construction and facility modifications would consider geologic hazards of the region and given the history of low magnitude earthquakes and moderate risk rating provided by the USGS, no impacts are expected.

#### **3.6.2.1.2 Operation Activities**

No impacts to regional geology, topography and soils, or geologic hazards would be expected from the personnel changes or airspace operations of the Proposed Action.

#### **3.6.2.2 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**, and the existing conditions discussed in **Section 3.6.2** would remain unchanged. Therefore, no new impacts on geological resources would occur with implementation of the No Action Alternative.

### **3.6.3 Reasonably Foreseeable Actions and Cumulative Impacts**

Cumulative impacts to geological resources are not likely to occur with the implementation of the Proposed Action. Soil disturbance would occur during construction of most of the projects listed in **Table 3.1-1**. Large-scale installation projects, as well as off-installation projects, would result in incremental impacts to soils in the region. Present and future projects, including the Proposed Action would implement BMPs to reduce soil erosion and sediment transport as outlined in project-specific Stormwater Pollution Prevention Plans (SWPPPs). Incremental impacts to soils from the Proposed Action when added to present and future projects would result in adverse cumulative impacts to soils in the regional area; however, those impacts would be less than significant with the implementation of BMPs as stipulated in the project-specific SWPPPs.

## **3.7 WATER RESOURCES**

### **3.7.1 Affected Environment**

The ROI for water resources includes surface water, groundwater, floodplains, and wetlands in and directly around Kirtland AFB and the Sunport, within the city of Albuquerque and Bernalillo County, where relevant.

**Groundwater.** Kirtland AFB is within the limits of the Rio Grande Underground Water Basin, where the average depth to groundwater is 450 to 550 feet below ground surface. The Rio Grande Basin's source of groundwater is the Santa Fe Aquifer, which has an estimated 2.3 billion acre-feet of recoverable water. The regional aquifer is used for the installation's water supply. Kirtland AFB has a water right that allows it to divert approximately 6,400 acre-feet of water, or approximately 2 billion gallons per year from the aquifer. The proposed project areas, within the

cantonment area, are located west of the Tijeras fault zone with depth to groundwater approximately 485 to 500 feet. Water is drawn from six different wells in the Albuquerque Basin Regional Aquifer within the Santa Fe Formation (Kirtland AFB, 2020b). Water is collected, chlorinated, stored, and distributed to supply the installation with potable water.

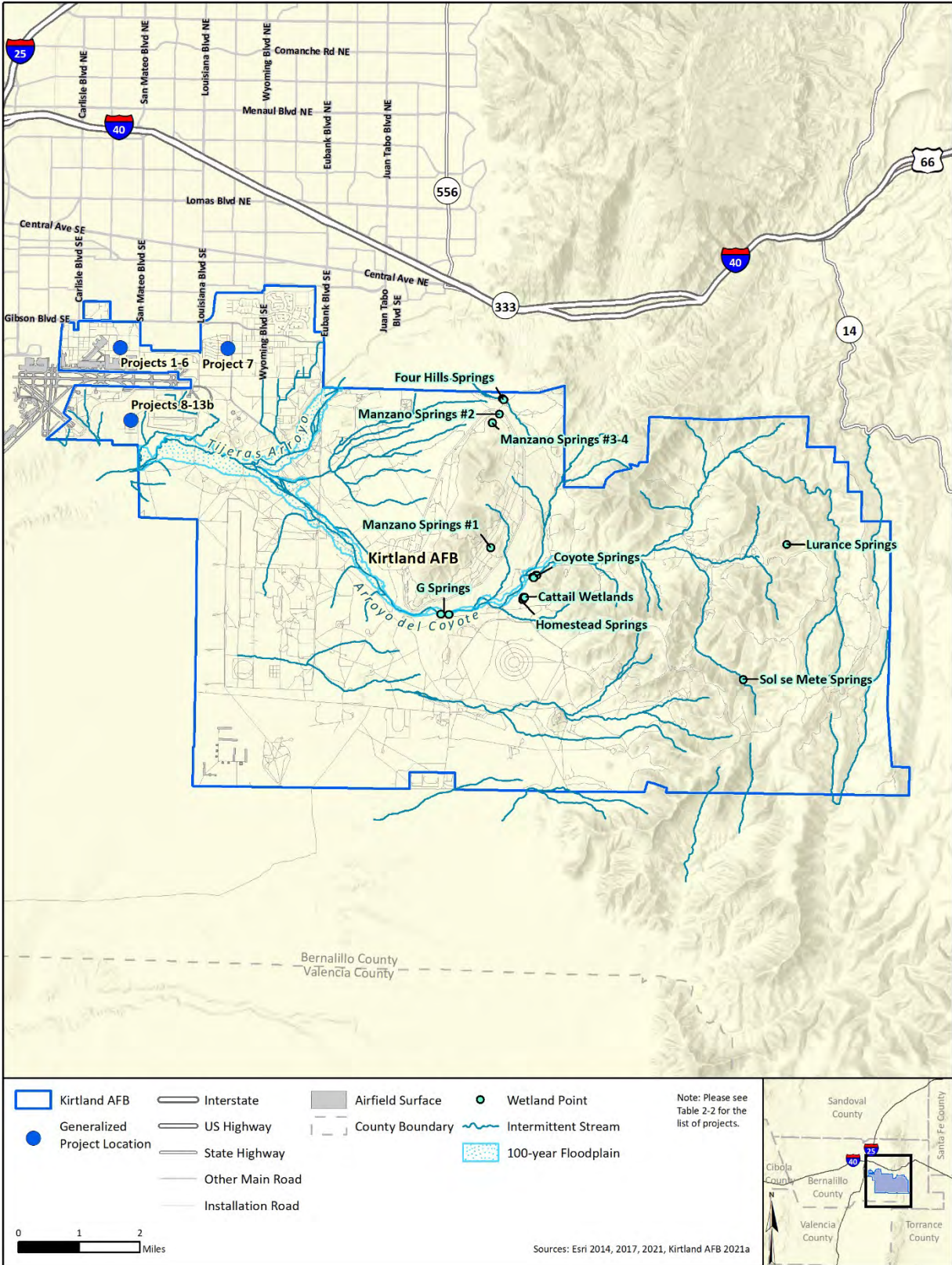
**Surface Water.** Surface water generally flows across the installation in a westerly direction toward the Rio Grande. The two main surface water drainage channels on Kirtland AFB are the Tijeras Arroyo and the smaller Arroyo del Coyote, which joins the Tijeras Arroyo approximately 1 mile west of the Tijeras Arroyo Golf Course (**Figure 3.7-1**). The Tijeras Arroyo, which remains dry most of the year, is the primary surface channel that drains surface water from Kirtland AFB to the Rio Grande. Nearly 95 percent of the precipitation that flows through the Tijeras Arroyo evaporates before it reaches the Rio Grande. In the developed area of the installation, stormwater drains into small culverts towards Gibson Boulevard along the installation boundary. There are also four detention ponds in the area. Stormwater in the Industrial/Laboratory areas discharges through surface runoff to three large culverts that drain toward the Tijeras Arroyo (Kirtland AFB, 2018a).

There are no natural lakes or rivers on Kirtland AFB; however, six man-made ponds have been created on the Tijeras Arroyo Golf Course.

Kirtland AFB operates under three National Pollutant Discharge Elimination System (NPDES) Permits: (1) Multi-Sector General Permit for industrial activities; (2) Municipal Separate Storm Sewer System permit for stormwater conveyances from installation development; and (3) Construction General Permit (CGP) for construction projects. CGPs contain guidelines for erosion and sedimentation control, pollution prevention, and stabilization of construction sites of 1 acre or larger. When construction projects are not subject to NPDES CGP requirements (i.e., due to the size of the project or a waiver granted), the contractor must still implement appropriate BMPs to minimize stormwater pollutants.

**Floodplains.** The 100-year floodplain on the installation is associated with the Arroyo del Coyote and Tijeras Arroyo (**Figure 3.7-1**). The Arroyo del Coyote and Tijeras Arroyo flood infrequently and are characterized by high peak flows, small volumes, and short durations (Kirtland AFB, 2018a).

**Wetlands.** Wetlands are considered "waters of the United States" if they are determined to be jurisdictional by the U.S. Army Corps of Engineers and USEPA. There are 10 wetlands supplied by at least 15 naturally occurring springs on Kirtland AFB (**Figure 3.7-1**); however, no Jurisdictional Determinations have been made concerning these water features.



**Figure 3.7-1 Surface Water, Floodplains, and Wetlands at Kirtland AFB**

## 3.7.2 Environmental Consequences

### 3.7.2.1 Proposed Action

**Groundwater.** Groundwater would not be expected to be encountered during construction and facility modification activities, due to the depth of the groundwater aquifer, as described in **Section 3.7.2**. Temporary impacts to soil would be expected during construction and demolition activities due to ground disturbances that are inherently part of grading, excavating, and other uses of heavy equipment. These soil disturbances could lead to increased surface water runoff during rainfall events and causing increased sediment transportation that could be transferred to groundwater resources. Implementation of BMPs and planning during construction and demolition activities can minimize this impact by controlling the movement of surface water runoff and ensuring no direct access to groundwater recharge points. Drainage control measures could include utilizing temporary construction of barriers such as fiber logs or silt fences and would be placed based on site-specific evaluations on an as-needed basis. The groundwater aquifer has an estimated 2.3 billion acre-feet of recoverable water and Kirtland AFB has a water right that allows it to divert approximately 6,400 acre-feet of water, or approximately 2 billion gallons per year from the aquifer. 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.

**Surface Water.** Short-term impacts 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. As previously discussed regarding potential routes for impacting groundwater, through use of best practices and controls, such impacts can be minimized. Additionally, construction areas of at least 1 acre must adhere to specific requirements under the Kirtland AFB Construction General Permit and are subject to inspections by installation personnel to ensure compliance. Stormwater runoff during construction and modification activities at the proposed project areas would be managed under a project-specific SWPPP.

Post construction, there would be an approximate increase of 250,500 square feet of impervious surfaces across the proposed project areas in the cantonment area. The addition of new impervious surfaces would increase the amount of surface water runoff during precipitation events and could increase the amount of pollutants transported from impervious surfaces to drainage areas and water features on base. The construction and modification of new facilities would include additional stormwater infrastructure and consider BMPs for the additional impervious surface stormwater runoff and incorporate it into the design phase to minimize impacts from increased stormwater runoff. No impacts to surface water are expected during the operational phase of the Proposed Action.

**Floodplains and Wetlands.** 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.

### 3.7.2.2 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**, and the existing conditions discussed in **Section 3.7.2** would remain unchanged. Therefore, no new impacts to water resources would occur with implementation of the No Action Alternative.

### 3.7.3 Reasonably Foreseeable Actions and Cumulative Impacts

The Proposed Action would not result in adverse impacts to water resources. Any potential impacts from stormwater runoff would be managed under a project-specific SWPPP and BMPs. Potable water would be provided from available groundwater supply with sufficient capacity to support the Proposed Action. When added to past, present, and reasonably foreseeable future projects, water demand and use would increase, particularly with a substantial demand from the proposed development projects. These cumulative impacts, however, would not be significant as conservation measures would be put in place during development to reduce impacts to water supplies (low flow faucets and toilets, drip irrigation, xeriscape landscaping). Additionally, cumulative impacts associated with stormwater runoff during construction would be managed under project-specific SWPPPs and construction BMPs. Conservation and a shift to direct use of surface water over the last decade have enabled substantial recovery in Albuquerque's depleted aquifer, providing flexibility in planning for the future. Albuquerque conservation efforts that began in the mid-1990s cut per capita water use nearly in half (Albuquerque Bernalillo County Water Utility Authority, 2016). Groundwater levels are rising due to Albuquerque's use of surface water rather than depending on groundwater for drinking water supply and due to water conservation efforts (USGS, 2019a). Therefore, cumulative impacts to water resources would not be significant under the Proposed Action.

## 3.8 BIOLOGICAL RESOURCES

### 3.8.1 Affected Environment

The ROI for biological resources primarily consists of Kirtland AFB, with additional information presented for the surrounding vicinity of the city of Albuquerque and Bernalillo County, where relevant.

Kirtland AFB lies at the intersection of four major North American biotic provinces: the Great Plains, Great Basin, Rocky Mountains, and Chihuahuan Desert. Vegetation and wildlife found within the installation are influenced by each of these provinces, with the Great Basin being the most dominant influence. Elevations range from approximately 5,000 feet in the west to almost 8,000 feet in the Manzanita Mountains, providing a variety of ecosystems.

Kirtland AFB's Integrated Natural Resources Management Plan (INRMP) (Kirtland AFB, 2018a) provides interdisciplinary strategic guidance for natural resources management on the installation. Implementation of the INRMP ensures that the installation continues to support present and future mission requirements while preserving, improving, and enhancing ecosystem integrity (Kirtland AFB, 2018a).

**Vegetation.** Before the acquisition of land for what is now Kirtland AFB, the area consisted of rangeland used for livestock grazing, ranching, and mining operations. For the most part, these operations ceased when Kirtland AFB occupied the land in the mid-1940s. Since then, some of the vegetation has been cleared for operational developments, while the remainder (particularly within the Withdrawal Area) has mostly remained undisturbed (Kirtland AFB, 2018a).

Based on an analysis of aerial imagery and known project locations, all of the proposed project areas occur in previously disturbed habitats or in developed locations, except for Project 8 (approximately 0.23 acre) and Project 11 (approximately 0.44 acre), which both occur in grassland/sagebrush steppe habitat.

Grassland communities at Kirtland AFB are dominated by a mix of multiple grass species. Grassland habitats on the installation often mix with forb and/or shrub dominated habitats, as well.



The grassland community in the western portion of Kirtland AFB is intermixed with sagebrush steppe habitat. Sand sagebrush is the dominant cover species, with the understory being similar to that of the adjacent grasslands.

Ground cover along and adjacent to the existing road network, including the proposed project areas that occur in previously disturbed land, consists of exposed dirt and an early successional community dominated by non-native grass and forb species, and scattered native plants. Overall, plant cover is sparse within previously disturbed habitats on Kirtland AFB. No water features occur on or near the proposed project areas (Kirtland AFB, 2018a).

**Wildlife.** Wildlife communities at Kirtland AFB are typical of those in urban, woodland, and grassland habitats in the central New Mexico region. Within and in the vicinity of the proposed project areas, species that are common to disturbed, landscaped, or grassland habitats may occur. Species may be transient, inhabit several communities, or exist in transitional areas between vegetation communities. Species common to developed/disturbed areas include, among others, European starling (*Sturnus vulgaris*), rock dove (*Columba livia*), house finch (*Haemorrhous mexicanus*), coyote (*Canis latrans*), various rabbit species and rodents.

Grassland communities at Kirtland AFB contain a multitude of bird species, including, among others: horned lark (*Eremophila alpestris*), scaled quail (*Callipepla squamata*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), Crissal thrasher (*Toxostoma crissale*), lark sparrow (*Chondestes grammacus*), black-throated sparrow (*Amphispiza bilineata*), and western meadowlark (*Sturnella neglecta*). Raptor species known or expected to be found in grassland habitat, particularly for foraging, include the northern harrier (*Circus hudsonius*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*), American kestrel (*Falco sparverius*), prairie falcon (*Falco mexicanus*), and great horned owl (*Bubo virginianus*).

Mammals that occur in grasslands at Kirtland AFB include desert cottontail (*Sylvilagus audubonii*), black-tailed jack rabbit (*Lepus californicus*), spotted ground squirrel (*Xerospermophilus spilosoma*), black-tailed prairie dog (*Cynomys ludovicianus*), kangaroo rats (*Dipodomys* sp.), multiple species of mice, coyote, kit fox (*Vulpes macrotis*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*).

Reptiles and amphibians found on Kirtland AFB in grassland habitats include Woodhouse's toad (*Anaxyrus woodhousii*), red-spotted toad (*Anaxyrus punctatus*), New Mexico spade foot toad (*Spea multiplicata*), western box turtle (*Terrapene ornata*), greater short-horned lizard (*Phrynosoma hernandesi*), lesser earless lizard (*Holbrookia maculata*), bull snake (*Pituophis catenifer*), Western diamondback rattlesnake (*Crotalus atrox*), and glossy snake (*Arizona elegans*) (Kirtland AFB, 2018a).

**Special Status Species.** A USFWS Information for Planning and Consultation Official Species and Habitat List was retrieved on 4 April 2022 under Consultation Code 02ENNM00-2018-SLI-1108 (USFWS, 2022). Although six federally listed species have the potential to occur at Kirtland AFB based on known species ranges (**Table 3.8-1**), there are no federally listed species or critical habitats occurring within the proposed project areas (Kirtland AFB, 2018a). Additionally, as indicated in **Section 2.4.1.5.1**, overflights would occur at 10,000+ MSL. Air operations at such altitudes would be largely undetectable from the ground. Therefore, the species listed in **Table 3.8-1** are not carried forward for further analysis in this EA.

**Table 3.8-1 Federal and State-listed Species with Potential to Occur at Kirtland AFB and Below Special Use Airspace**

Common Name	Scientific Name	Status		Occurrence	
		Federal	State	Proposed Project Areas	Under Airspace
New Mexico meadow jumping mouse	<i>Zapus hudsonius luteus</i>	Endangered	Endangered	None	Potential
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Threatened	SGCN	None	Potential
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Endangered	None	Potential
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened	SGCN	None	Potential
Rio Grande silvery minnow	<i>Hybognathus amarus</i>	Endangered	Endangered	None	Potential
Monarch butterfly	<i>Danaus plexippus</i>	Candidate	-	None	Potential

Notes: SGCN = Species of Greatest Conservation Need.

Sources: Kirtland AFB, 2018a; USFWS, 2022; New Mexico Department of Game and Fish (NMDGF), 2022.

Based on data provided in the Biota Information System of New Mexico, there are 16 species listed by New Mexico Department of Game and Fish (NMDGF) as having special state statuses that may occur on Kirtland AFB (NMDGF, 2022). Biological surveys are conducted annually in order to monitor the occurrence of federally listed, state-listed, and other special status species on Kirtland AFB (Kirtland AFB, 2018a). **Table 3.8-2** lists which of those other special status species are known to occur on the installation within the proposed project areas.

**Table 3.8-2 Other Special Status Species with Potential to Occur in the Proposed Project Areas and Below Special Use Airspace**

Common Name	Scientific Name	Status		Occurrence	
		Federal	State	Proposed Project Areas	Under Airspace
Gray Vireo	<i>Vireo vicinior</i>	-	Threatened	Not Likely	Potential
Peregrine Falcon	<i>Falco peregrinus</i>	Species of Concern	Threatened	Potential (foraging)	Yes
Loggerhead Shrike	<i>Lanius ludovicianus</i>	-	New Mexico Species of Greatest Conservation Need	Potential	Yes
Mountain Plover	<i>Charadrius montanus</i>	-	Sensitive Taxa	Not Likely	Potential
Western Burrowing Owl	<i>Athene cunicularia</i>	Species of Concern	-	Potential	Yes
Long-legged Myotis	<i>Myotis volans</i>	-	Sensitive Taxa	Potential (foraging)	Yes
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	-	Sensitive Taxa	Potential (foraging)	Yes
Gunnison's Prairie Dog	<i>Cynomys gunnisoni</i>	-	Sensitive Taxa	Potential	Yes

Common Name	Scientific Name	Status		Occurrence	
		Federal	State	Proposed Project Areas	Under Airspace
Golden Eagle	<i>Aquila chrysaetos</i>	Bald and Golden Eagle Protection Act	-	Potential (foraging)	Yes

Sources: Kirtland AFB, 2018a; NMDGF, 2022.

Of the species in **Table 3.8-2**, the western burrowing owl (*Athene cunicularia*) and/or the Gunnison’s prairie dog (*Cynomys gunnisoni*) have the greatest potential to occur within the proposed project areas. These two species can occupy overlapping territory in developed/disturbed and/or grassland habitats because burrowing owls regularly utilize abandoned prairie dog burrows (Kirtland AFB, 2018a).

The western burrowing owl, a federal species of concern, is a common resident at Kirtland AFB. They generally occur on the installation between March and October before migrating south, although a few birds may occur on the installation during mild winters. Burrowing owl inventories and population monitoring have been conducted every year since 1994, and a migration investigation was conducted to identify where nesting owls at Kirtland AFB go to winter (Kirtland AFB, 2018a). Because burrowing owls use prairie dog burrows for nesting and therefore have a close ecological association, per the INRMP (Kirtland AFB, 2018a), Kirtland AFB’s Prairie Dog Management Plan also considers burrowing owl habitat requirements. The installation identifies and manages locations of nesting burrowing owls, including within the flightline and entire cantonment area, and has developed procedures to relocate owls if necessary. Signage and barriers for nest avoidance are placed where needed, including within developed areas and areas that are regularly mowed.

The state-threatened gray vireo (*Vireo vicinior*) is known to occur and breed on Kirtland AFB. It is most likely to be found within pinyon-juniper woodland habitat to the east (Kirtland AFB, 2018a), and therefore is only expected to occur outside of the proposed project areas.

The peregrine falcon (*Falco peregrinus*) is a federal species of concern and a state-threatened species known to occur and breed on base. An environmental generalist, it utilizes every habitat found on the installation and may also be found in urban environments. Peregrine falcons may forage for birds or small mammals in proposed project areas and/or installation airspace. Normally, it breeds on rocky cliffs, but has been known to breed in hangars near the airport (Kirtland AFB, 2018a).

The loggerhead shrike (*Lanius ludovicianus*), a New Mexico Species of Greatest Conservation Need, has been known to occur and breed on base. It utilizes the juniper woodland habitat, grasslands, and any other open areas. Current nesting areas are located south of Kirtland AFB on Isleta Pueblo. Shrikes have the potential to occur in the footprints for Projects 8 and 11, which contain grassland/shrub habitat.

The mountain plover (*Charadrius montanus*), a federal species of concern, has previously been seen brooding on the installation but is not known to regularly occur. Appropriate nesting habitat for this species is limited on Kirtland AFB; therefore, it is unlikely that the mountain plover uses the installation rangelands during the nesting season. However, the southern grasslands of the

installation may potentially be used as brood-rearing habitat or during migration (Kirtland AFB, 2018a).

Two bat species identified on Kirtland AFB, the long-legged myotis (*Myotis volans*) and Western small-footed myotis (*Myotis ciliolabrum*), are identified by the NMDGF as sensitive taxa. Colonies in abandoned mines typically represent the largest concentrations of a single species that can be found under natural conditions. However, individuals may occur in the surrounding airspace when foraging at night.

On Kirtland AFB, golden eagles (*Aquila chrysaetos*) may be found year-round. These raptors use the installation as wintering grounds, foraging habitat during migration, and as part of their home range or simply for nesting during the breeding season. Golden eagles are best suited to hunting in open or semi-open areas and therefore may be found hunting for small mammals in grasslands and open shrublands on the edges of a proposed project area. Such areas might exist below installation airspace, especially if not currently mitigated by the installation's Bird/Wildlife Aircraft Strike Hazard (BASH) program. Cliffs and short, native vegetation seem to be most attractive to golden eagles and they tend to avoid developed areas of any type (from urban to agricultural) as well as heavily forested regions (Kirtland AFB, 2018a).

**Critical Habitat and Other Habitats of Concern.** Critical habitats are those areas of land, air, or water that are essential for maintaining or restoring threatened or endangered plant or animal populations. The USFWS has not designated or identified any critical habitat on Kirtland AFB. Although not considered critical habitat, surveys and literature indicate that important habitats on the installation include wetlands, which are rare in this region; prairie dog towns, which also provide nesting habitat for the western burrowing owl; and areas between 5,900 and 6,600 feet containing open juniper woodlands, which are used as nesting habitat by the gray vireo (Kirtland AFB, 2018a). There are no wetlands or open juniper woodlands identified as nesting habitat for the gray vireo within the proposed project areas. However, prairie dog towns that provide burrowing owl habitat may occur in the disturbed and/or grassland portions of the proposed project areas.

### 3.8.2 Environmental Consequences

#### 3.8.2.1 Proposed Action

**Vegetation.** Implementation of the Proposed Action would result in both short- and long-term impacts to vegetation. However, as described in **Section 3.8.2**, all of the proposed project areas occur in previously disturbed habitats or in developed locations, except for Project 8 (approximately 0.23 acre) and Project 11 (approximately 0.44 acre), which both occur in grassland/sagebrush steppe habitat. Therefore, the majority of project impacts would occur in previously disturbed or developed areas that would not impact native vegetation. Kirtland AFB encompasses approximately 51,585 acres, 40,378 acres of which are undisturbed (78 percent of the installation) (Kirtland AFB, 2018a). The 0.67 acre of permanent impacts to grassland/sagebrush steppe habitat that would occur from implementation of Projects 8 and 11 would represent an insignificant percentage (<.002 percent of the 40,378 acres of undisturbed land at Kirtland AFB).

In addition, natural resources at Kirtland AFB are managed in accordance with the INRMP (Kirtland AFB, 2018a). Under the Proposed Action, management practices outlined by the INRMP, such as invasive weed control and erosion control, would be implemented to lessen potential impacts to plant communities. Therefore, impacts to vegetation would not be significant under the Proposed Action.

**Wildlife.** As described above, the proposed projects would not result in significant losses of habitat for wildlife. Under the Proposed Action, impacts to wildlife due to construction and/or modification activities would be minor. Noise associated with construction activities can affect birds and other wildlife in multiple ways, including reduced abundance in noisy habitats, changes in vigilance and foraging behavior, and impacts on individual fitness (Shannon, 2016). However, wildlife populations at Kirtland AFB, including birds protected under the Migratory Bird Treaty Act, are already exposed to elevated noise associated with military operations (which would be expected to increase by 1 dB or less under the Proposed Action). As a result, indirect impacts from construction noise would likely be insignificant because the ambient noise levels within the vicinity are elevated under existing conditions and would increase insignificantly from the relatively minor and temporary nature of the proposed construction activities. In addition, if construction and modification activities take place during breeding season for resident and migratory birds (generally between March 1 and September 31, depending on the species), Kirtland AFB would ensure that measures are put in place to protect nesting bird species, so as to avoid take of nests and young, including species protected under the Migratory Bird Treaty Act.

Implementation of the proposed construction and modification projects could eliminate or displace wildlife from the proposed project areas and their vicinities. Individuals of smaller, less mobile, and/or burrowing species could be killed or injured by construction in new project areas, whereas more mobile species (e.g., birds and larger mammal species) would disperse to surrounding areas. Any loss of or indirect impacts to commonly occurring individuals would not represent a significant portion of the population. Construction activities would be temporary, and following construction, wildlife would be able to occupy those portions of the proposed project areas that have not been developed.

Under the Proposed Action, there would be no change in airspace configurations. In addition, the proposed use of munitions is within the limits analyzed in previous NEPA documents. Therefore, there is no expected change in BASH potential (direct harm or death of wildlife species from airspace use) from the Proposed Action. Use of aircraft can cause noise and visual disturbance to wildlife. Impacts to wildlife from aircraft noise and visual stressors can include a startle reflex that induces running or flight, increased expenditure of energy, decreased time and energy spent on life functions such as feeding and mating, increased likelihood of predation, and interruption of breeding or nursing behavior (Larkin, 1996; Efroymson et al., 2000). However, wildlife are already exposed to ongoing airspace impacts at Kirtland AFB and the Proposed Action would not represent a significant change in impacts to wildlife. Therefore, impacts to wildlife would not be significant under the Proposed Action.

**Special Status Species.** As described in **Section 3.8.2**, there are no federally listed species known to occur at Kirtland AFB. Therefore, the Proposed Action will have No Effect on federally listed species. Potential impacts to other special status species that may occur in the proposed project areas and/or be exposed to project effects, as listed in **Table 3.8-2**, are described in the paragraphs below. In general, species that may occur in the vicinity of construction activities could be exposed to increased, temporary noise levels. As previously described, such noise impacts would be insignificant, as wildlife at Kirtland AFB are already exposed to military industrial/training noise. In addition, species that may occur under the airspace proposed for use would be exposed to aircraft training activities but are already exposed and/or habituated to such training impacts.

*Gray vireo and mountain plover.* Habitat does not occur in or near the proposed project areas for either of these species. Therefore, no habitat for these species would be impacted and they would not be exposed to construction-related noises. Both species have the potential to occur under the airspace proposed for use under the Proposed Action. However, as previously described, there

would be no change in airspace configuration and airspace use would not be measurably different from ongoing training to induce significant impacts to avian species.

*Loggerhead shrike.* Habitat may occur in the vicinity of the proposed project areas or in the footprints of Projects 8 and/or 11. Per the INRMP, if construction occurs during nesting season (roughly March 1 to September 31), measures such as pre-activity nesting surveys would be implemented to reduce the likelihood of impacting nesting birds. A small amount of potential shrike habitat may be lost in these areas (Project 8, 0.23 acre; Project 11, 0.44 acre), and would not represent a significant impact in terms of available habitat to the species.

*Long-legged and western small-footed myotis.* No impacts to roosting habitat would occur because on Kirtland AFB, these areas consist of abandoned mines and other undisturbed structures. Aircraft that fly during daylight hours would also not impact foraging for these bat species because they hunt at night. Aircraft sorties that occur at night have the potential to impact foraging bats; however, nighttime sorties already occur in the airspace and the majority of flight activity would be above 10,000 feet MSL, well above activity levels for foraging myotis species.

*Golden eagle and peregrine falcon.* No impacts to either species' nesting habitat would occur under the Proposed Action. Golden eagles and peregrine falcons may forage under the airspace; however, both species are not likely to be measurably impacted by aircraft/airspace use under the Proposed Action, as they are currently exposed to ongoing aircraft training and airspace use.

*Burrowing owl and Gunnison's prairie dog.* These species have the potential for direct disturbance, harm, or loss as a result of construction activities, as they can both occur in disturbed and/or grassland habitats. Measures outlined in the INRMP (Kirtland AFB, 2018a) and the Kirtland AFB Prairie Dog Management Plan, such as pre-activity surveys and/or relocation, would be implemented to manage both species and reduce potential impacts. As such, any impacts to these species would be less than significant.

**Critical Habitat and Other Habitats of Concern.** There is no critical habitat at Kirtland AFB and no critical habitat would be impacted under the Proposed Action. Prairie dog towns are the only other type of habitat of concern that may occur in the proposed project areas. If a prairie dog town is discovered within a proposed project area, they would be addressed per the installation INRMP (Kirtland AFB, 2018a), in accordance with the current Prairie Dog Management Plan. Therefore, impacts to critical habitat or other habitats of concern would not be significant under the Proposed Action.

### **3.8.2.2 No Action Alternative**

Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1**, and the existing conditions discussed in **Section 3.8.2** would remain unchanged. Therefore, no new impacts to biological resources would occur with implementation of the No Action Alternative.

### **3.8.3 Reasonably Foreseeable Actions and Cumulative Impacts**

Cumulative impacts to biological resources are not likely to occur with the implementation of the Proposed Action. All operations would be required to adhere to the Endangered Species Act and Migratory Bird Treaty Act. Section 7 Endangered Species Act consultation has been, is being, or will be performed where required for each project, and cumulative impacts to federally listed species are addressed as part of that process and documented in appropriate consultations with the USFWS. Where appropriate, mitigation measures would be implemented to minimize the likelihood of cumulative habitat loss for federally listed species, take of individuals, and impacts

to birds protected under the Migratory Bird Treaty Act. The impacts of the Proposed Action and those of other demolition and construction projects would be avoided, minimized, and/or compensated to the point that significant cumulative impacts to biological resources would not occur. Therefore, when added to the impacts from other potentially cumulative actions, implementation of the Proposed Action would result in no significant cumulative impacts to biological resources.

### **3.9 CULTURAL RESOURCES**

#### **3.9.1 Affected Environment**

The affected environment for cultural resources is based on the establishment of the Area of Potential Effects (APE) of an undertaking, through consultation with the New Mexico SHPO. An APE is defined in 36 CFR § 800.16(d) as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist.” The APE, and therefore the affected environment for the Proposed Action includes areas where ground-disturbing activities, including new construction, facility modifications, and demolitions would occur, and includes the lands underlying the SUA and other existing airspace and training areas, including land under the proposed flight corridors (see **Figure 2-3**).

Information on cultural resources on lands underlying the SUA and training areas was derived from conducting background research to identify National Register of Historic Places (NRHP) and State Register of Historic Places properties beneath the affected airspace; national historic landmarks; national battlefields; national historic trails; cultural landscapes, historic forts, or historic ranches recorded or known within the same area; and American Indian Reservations, sacred areas, or traditional use areas.

Aircraft operations are most likely to affect historic buildings, structures, and districts where setting is an important aspect of a property’s significance. Visual intrusions can include aircraft overflights which intrude into the viewshed of a cultural resource, thus adversely affecting its setting. The aircraft flying overhead has the potential to adversely affect the setting, feeling, and character of cultural resources within sight of the aircraft. For the SUA, aircraft would be flying above 10,000 feet MSL. A Memorandum of Agreement was signed in 2016 between the State and Federal Military Flying Organizations and the New Mexico Indian Affairs Department regarding military low-level overflights of Tribal Lands (Zunie et al., 2016). The Memorandum of Agreement includes an airspace request communication flow chart to ensure that cultural and ceremonial events will not be affected by low-level overflights.

The release of chaff and flares could have a visual effect from residual materials which remain on the ground or land on structures or at sacred sites. Studies have shown that chaff and its debris do not pose a significant threat to the visual integrity of archaeological and architectural resources (Government Accountability Office [GAO], 1998). Chaff does not accumulate to any great degree and the fibers, if found, were often mistaken for natural elements such as animal fur or plant material. The fibers generally dissipate within a few days due to mechanical breakdown from wind, sediment erosion, and rain or snow. Chaff residual plastic materials are typically 1 inch by 1 inch. Flare residual plastic materials, usually red or blue in color, can be 1 inch by 2 inches or larger. Overall, chaff and flares are unlikely to adversely affect cultural resources. The residual materials from chaff and flares fall to the ground in a dispersed fashion and do not collect in quantities great enough to adversely affect the integrity and subsequent NRHP status of archaeological or architectural resources. Impacts to traditional cultural properties are more difficult to assess, and no studies have been conducted on traditional cultural properties with

regard to chaff and flare residual materials. When a plastic chaff or flare piece is found and identified in conjunction with a cultural resource, the individual finding the piece may be annoyed.

Kirtland AFB consulted with the New Mexico SHPO and the Bureau of Indian Affairs. Government-to-government consultation also occurred with the Tribes and Pueblos that are located beneath or near the affected airspace or may have traditional ties to these lands to include: The Navajo Nation, San Carlos Apache Tribe, Mescalero Apache Tribe of the Mescalero Apache Reservation, Apache Tribe of Oklahoma, Jicarilla Apache Nation, The Hopi Tribe, White Mountain Apache Tribe, Ysleta del Sur Pueblo, Fort Sill Apache Tribe of Oklahoma, Kiowa Tribe of Oklahoma, Comanche Nation of Oklahoma, Pawnee Nation of Oklahoma, Southern Ute Indian Tribe, Ute Mountain Ute Tribe, Wichita and Affiliated Tribes, Tonkawa Tribe of Indian of Oklahoma, Pueblo of Acoma, Pueblo of Cochiti, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Nambe, Ohkay Owingeh Pueblo, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Santo Domingo, Pueblo of Taos, Pueblo of Tesuque, Pueblo of Zia, and Pueblo of Zuni. See Appendix A for all government-to-government correspondence.

### **3.9.1.1 Archaeological Resources**

Kirtland AFB covers 51,585 contiguous acres southeast of Albuquerque, New Mexico. Of these lands, which include Department of Energy (DOE) land, BLM-Albuquerque withdrawn land, and U.S. Forest Service/Cibola National Forest withdrawn land, Kirtland AFB is responsible for the management of 44,052 acres. Kirtland AFB has conducted an installation-wide survey of archaeological and architectural resources (Kirtland AFB, 2018b).

Over 100 archaeological surveys were conducted at Kirtland AFB from 1976 to the present day. These surveys resulted in the recordation of 740 archaeological sites, 251 of which were determined eligible for listing in the NRHP. These sites contain artifacts such as pottery, ground stone, stone tools, and historic artifacts. Many of the archaeological sites on Kirtland AFB contain features including hearths, prehistoric structures, storage pits, historic structures, mines, weapons testing structures, and military training structures. No known cemeteries are present at Kirtland AFB (Kirtland AFB, 2018b).

The Proposed Action includes approximately 315,200 SF of new ground disturbance. The entirety of the APE for the Proposed Action has been recently surveyed for archaeological resources and no archaeological sites were identified (Sisneros, 2022)

One NRHP-listed archaeological site, Fort Sumner, is located beneath the Pecos North MOA within the town of Fort Sumner. However, the exact location is not available as it is sensitive information and is not available to the public (National Park Service [NPS], 2022a). This NRHP-listed archaeological site is located outside of Kirtland AFB.

The Los Ojitos site is located in the vicinity of Fort Sumner and is listed in State Register of Cultural Properties (New Mexico Historic Preservation Division, 2012). However, the exact location is not available as it is sensitive information and is not available to the public. It is possible that this archaeological site underlies the Pecos North MOA. The Los Ojitos site is located outside of Kirtland AFB.

### **3.9.1.2 Architectural Resources**

Kirtland AFB was established in the late 1930s as a training installation for the Army Air Corps. Construction of the Albuquerque Army Air Base began in January 1941 with permanent barracks, warehouses, and a chapel. Kirtland AFB was expanded in the late 1940s and 1950s with new



buildings, hangars, and the east-west runway, due to its increased role in supporting the nation's defense. Since 1984, 17 historic structure evaluation studies were conducted at Kirtland AFB. A total of 2,189 facilities have been evaluated for NRHP eligibility at Kirtland AFB, 271 of which were determined eligible to the NRHP. Kirtland AFB contains one NRHP-eligible historic district, the Manzano Base, a determination which received SHPO concurrence in 2005 (Kirtland AFB, 2018b; Hanks, 2005).

**Table 3.9-1** lists the architectural resources that would be directly or indirectly impacted by the Proposed Action. There would be no architectural resources impacted by Projects 1, 2, 7, 8, 9, 10, 11, or 12. The Proposed Action would impact three NRHP-eligible architectural resources. Project 4 would involve the renovation of Hangar 1002, an NRHP-eligible building. The renovations would be limited to the building's interior and would include administrative offices, storage areas, restrooms, and a break room. Additional modifications include asbestos removal; heating, ventilation, and air conditioning replacement; and upgrades to the fire protection system and electrical system. Project 5 consists of a temporary addition to Building 949 for WST with a small 144 SF permanent electrical shed added. Two NRHP-eligible resources, Buildings 955 and 956 are within the viewshed (0.25 mile) of Project 5. Project 13a would renovate the interior of Building 733 and Project 13b includes modifications to Building 737 including the removal and replacement of the double-walled oil/water separator located below ground to the southwest of the building.

**Table 3.9-1 Architectural Resources Associated with Proposed Action**

Project #	Building #	Building Name/Use	Date Constructed	NRHP Status	SHPO Concurrence
3	957	Flight Training Classroom	1997	Not evaluated	N/A
4	1002	Hangar	1953	Eligible	9/30/2002
5	949	Flight Simulator Training	1996	Not eligible	9/23/2002
	955*	Flight Simulator Training	1977	Eligible	9/23/2002
	956*	Flight Simulator Training	1981	Eligible	9/23/2002
6	950	Flight Simulator Training	2008	Not evaluated	N/A
13a	737	Munitions Maintenance Shops	1999	Not evaluated	N/A
13b	733	Munitions Maintenance Shops	1999	Not evaluated	N/A

Notes: \*Buildings are located within the viewshed of Project 5.

Source: Kirtland AFB, 2018b.

There are five NRHP-listed architectural resources located beneath the SUA and all underlie the Pecos North MOA. These resources include the De Baca County Courthouse, Fort Sumner Community House/Fort Sumner Woman's Club, Fort Sumner Railroad Bridge, Fort Sumner Cemetery Wall and Entry, and the Fort Sumner State Monument (NPS, 2022a; **Table 3.9-2**). These five architectural resources are also listed in the State Register of Cultural Properties (New Mexico Historic Preservation Division, 2012). Additionally, two architectural resources are listed in the State Register of Cultural Properties: Rodrick Drug Store and Taiban Church (**Table 3.9-2**). The Rodrick Drug Store is located in the town of Fort Sumner and underlies the Pecos North MOA, and the Taiban Church is located in the town of Taiban, underlying the Taiban MOA.

There are no historic trails, national monuments, national sites of remembrance, or historic battlefields located beneath the airspace of the Proposed Action (NPS, 2022b, 2022c, 2022d).

**Table 3.9-2 NRHP-listed and State-listed Architectural Resources Beneath the Airspace**

Resource Identification	County	City/Town	Airspace
De Baca County Courthouse*^	De Baca	Fort Sumner	Pecos North MOA
Fort Sumner Community House/ Fort Sumner Woman’s Club*^	De Baca	Fort Sumner	Pecos North MOA
Fort Sumner Railroad Bridge*^	De Baca	Fort Sumner	Pecos North MOA
Fort Sumner Cemetery Wall and Entry*^	De Baca	Fort Sumner	Pecos North MOA
Fort Sumner State Monument*^	De Baca	Fort Sumner	Pecos North MOA
Rodrick Drug Store^	De Baca	Fort Sumner	Pecos North MOA
Taiban Church^	De Baca	Taiban	Taiban MOA

Notes: \* = NRHP-listed; ^ = State Register-listed.  
 Source: NPS, 2022a; New Mexico Historic Preservation Division, 2012.

**3.9.1.3 Traditional Cultural Properties**

To date, no known traditional cultural properties, Native American burial grounds, or sacred places have been identified at Kirtland AFB (Kirtland AFB, 2018b). However, the Zuni submitted a Traditional Cultural Property Report for Kirtland AFB in 1998 and requested that development and activities be kept away from springs and wetlands on Kirtland AFB (Kirtland AFB, 2018b) Kirtland AFB consulted with the 35 federally recognized Tribal Nations and Pueblos, both in- and out-of-state, which may be historically, culturally, or linguistically affiliated with the area and have an interest in protecting traditional cultural properties and cultural resources located at Kirtland AFB and underlying the SUA.

**3.9.2 Environmental Consequences**

Section 106 of the National Historic Preservation Act (NHPA) empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion in the NRHP. Once cultural resources have been identified, significance evaluation is the process by which resources are assessed relative to established significance criteria and criteria considerations. Cultural resources that have been determined to be eligible for listing in the NRHP are called “historic properties.”

Analysis of potential impacts on cultural resources is based on the following considerations: (1) physically altering, damaging, or destroying all or part of a resource; (2) altering characteristics of the surrounding environment that contribute to resource significance; (3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or (4) neglecting the resource to the extent that it deteriorates or is destroyed. The potential to directly disturb cultural resources can be assessed by identifying the type and location of the proposed action and by determining the exact locations of cultural resources that could be affected. Effects that are farther removed from the immediate project area including visual, audible (noise), or atmospheric changes due to project implementation are harder to quantify.

Only those cultural resources that would reasonably be affected by visual (overflights) and noise intrusions are considered under the SUA. These include architectural resources; archaeological resources with standing structures, such as historic ranches, ghost towns, American Indian settlements; and traditional cultural properties. Prehistoric and historic archaeological sites lacking standing structures are not included as they are generally ground surface or even subsurface deposits that would not be affected by the Proposed Action. Some prehistoric archaeological sites could contain natural structures such as rock shelters or caves. These structures often house petroglyphs or pictographs, which are etched or painted onto the rock

surfaces. However, studies have found that these types of natural formations are not affected any more by noise vibrations, such as sonic booms, than by natural erosion, wind, or seismic activity (Battis, 1983). There would not be a potential for sonic booms to damage structures. Overpressure values are used to provide a general picture of pounds per square feet resulting in supersonic flight. Actual overpressure would vary based on maneuvers (climb/descent, turns, acceleration/deceleration) and specific weather conditions (winds, vertical temperature/pressure profile).

For areas under the airspace, cultural resources with standing structures that are listed in or are eligible for listing in the NRHP or State Registers, national historic landmarks; national battlefields; national historic trails; cultural landscapes, historic forts, or historic ranches recorded or known within the same area; and Tribal Nations and Pueblos, sacred areas, or traditional use areas were considered. These resources are ones typically found in the NRHP or State Register. Conversely, if NRHP-listed properties are not affected by the project elements, then non-listed resources are unlikely to be affected. The USAF recognizes that hundreds of other cultural resources, some documented and some not yet discovered, exist under the airspace. However, aircraft operations are most likely to affect historic structures and districts where setting is an important criterion for significance and where noise vibrations from sonic booms could adversely impact those types of resources.

### **3.9.2.1 Proposed Action**

#### **3.9.2.1.1 Archaeological Resources**

Projects 1, 2, 3, 5, 6, 8, 9, 10, 11, 12, and 13b of the Proposed Action involve ground-disturbing activities. However, the entirety of the APE for the Proposed Action has been recently surveyed for archaeological resources. No archaeological resources were identified during this survey (Sisneros, 2022), and there are no previously recorded archaeological sites within the APE for the Proposed Action (Kirtland AFB, 2018b). In the event of an unanticipated discovery during ground-disturbing operations, the following specific actions would occur. The project manager would cease work immediately and the discovery would be reported to the Kirtland AFB Cultural Resources Manager. The Cultural Resources Manager would secure the location and ensure that all cultural items are left in place, and that no further disturbance is permitted to occur. The Cultural Resources Manager would then contact a qualified archaeologist to inspect the site and would continue to follow Standard Operating Procedure 7.4, Cultural Discoveries, as described in the 2018 Kirtland AFB Integrated Cultural Resources Management Plan (ICRMP) (Kirtland AFB, 2018b). Under the Proposed Action, the AC-130J operations would result in fewer sorties in the airspace than the operations for the C-130 airframe assessed in previous NEPA analysis.

The airspace and range noise was previously evaluated in the *AFSOC Assets Beddown at Cannon Air Force Base, New Mexico Environmental Impact Statement* (USAF, 2007). Therefore, archaeological resources would not be analyzed for noise or airspace impacts under the Proposed Action. Visual intrusions beneath the SUA under the Proposed Action would be minimal and would not represent an increase sufficient to cause adverse impacts to the settings of archaeological resources. Due to the high altitude of the overflights, the aircraft would not be readily visible to observers on the ground. For the Proposed Action, aircraft would be flying at an altitude above 10,000 feet MSL. At these altitudes, aircraft would not have a visual impact to archaeological resources on the ground.

No additional ground disturbance would occur under the SUA due to the Proposed Action. Use of ordnance and defensive countermeasures would occur in areas already used for these activities. Flares deployed from the aircraft would not pose a visual intrusion either, as flares

are small in size and burn only for a few seconds and the high relative altitude of the flights would make them virtually undetectable to people on the ground. Overall, flares are unlikely to adversely affect cultural resources. Therefore, the introduction of material to archaeological sites or standing structures from the use of flares would not have an adverse effect on these resources.

Under these conditions, there would be no significant impacts to archaeological resources or adverse effects to historic properties with implementation of the Proposed Action.

The New Mexico SHPO concurred with the finding of no adverse effect to historic properties pursuant to 36CFR800.4(d)(1) (Moffson, 2022).

### **3.9.2.1.2 Architectural Resources**

Project 4 of the Proposed Action calls for the renovation of Hangar 1002, an NRHP-eligible building. Because the renovations would be limited to the building's interior, the Proposed Action would not impact the character-defining features of the historic property. Project 5 consists of a temporary addition to Building 949 for WST with a small 144 SF permanent electrical shed added. Two NRHP-eligible resources, Buildings 955 and 956 are within the viewshed of Project 5; however, the setting of these buildings and associated viewshed are not character-defining characteristics that determine their eligibility and would not be impacted.

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 architectural resources or historic properties from any of the construction projects associated with the Proposed Action.

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. 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. This would be a 1 dB increase from 39 dB to 40 dB in a change to the setting of the NRHP-listed architectural resources.

There are five NRHP-listed architectural resources located beneath the SUA and all underlie the Pecos North MOA. Two State Register of Cultural Properties are located beneath the SUA consisting of Rodrick Drug Store (Pecos North MOA) and the Taiban Church (Taiban MOA). However, the proposed use of the airspace would be similar to ongoing training operations. 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.

Visual intrusions to architectural resources under the Proposed Action would be similar to archaeological resources discussed above; therefore, there would be no significant impacts to architectural resources.

Use of ordnance and defensive countermeasures under the Proposed Action to architectural resources would be similar to the archaeological resources discussed above; therefore, there would be no significant impacts to architectural resources.

Thus, there would be no significant impacts to architectural resources or adverse effects to historic properties at Kirtland AFB or beneath the SUA with the implementation of the Proposed Action.

The New Mexico SHPO concurred with the finding of no adverse effect to historic properties pursuant to 36CFR800.4(d)(1) (Moffson, 2022).

### **3.9.2.1.3 Traditional Cultural Properties**

No traditional cultural properties have been identified at Kirtland AFB or the lands underlying the SUA. Government-to-government consultation was conducted between Kirtland AFB and the federally recognized Tribal Nations and Pueblos, both in- and out-of-state, which may be historically, culturally, or linguistically affiliated with the area and have an interest in protecting cultural resources located at Kirtland AFB and underlying the SUA. Consultation was conducted for this action in recognition of their status as sovereign nations, to provide information regarding Tribal concerns per Section 106 of the NHPA as well as information on traditional resources that may be present on or near the installation and beneath the SUA. An initial government-to-government consultation letter was sent on August 24, 2022 to the 35 federally recognized Tribal Nations and Pueblos.

To date, seven responses have been received from federally recognized Tribal Nations and Pueblos associated with Kirtland AFB and the lands underlying the SUA (see Appendix A). Specific adverse effects to historic properties or traditional cultural properties from the proposed AC130-J beddown were not identified during the government-to-government consultation.

### **3.9.2.2 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. 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.

### **3.9.3 Reasonably Foreseeable Actions and Cumulative Impacts**

Cumulative impacts to cultural resources are not likely to occur with the implementation of the Proposed Action. The areas of proposed construction have been previously surveyed and no archaeological resources were found. In the event of an unanticipated discovery during ground-disturbing operations, the following specific actions would occur. The project manager would cease work immediately and the discovery would be reported to the Kirtland AFB Cultural Resources Manager. The Cultural Resources Manager would follow Standard Operating Procedure 7.4, Cultural Discoveries, as described in the 2018 Kirtland AFB ICRMP (Kirtland AFB, 2018b). No structural damage to NRHP-listed archaeological or architectural resources would be anticipated, and visual intrusion would not cause adverse impacts to the settings of cultural resources underlying the airspace. No traditional cultural properties have been previously identified at Kirtland AFB or the lands underlying the SUA. However, government-to-government consultation is being conducted between Kirtland AFB and the federally recognized Tribal Nations and Pueblos, both in- and out-of-state, which may be historically, culturally, or linguistically affiliated with the area and have an interest in protecting cultural resources located at Kirtland AFB and underlying the SUA. Other ongoing or planned training activities would have a similar minimal impact to cultural resources and have or would be coordinated with the SHPO to ensure protection of these resources. Therefore, cumulative impacts to cultural resources would not be significant under the Proposed Action.

## 3.10 INFRASTRUCTURE

### 3.10.1 Affected Environment

The ROI for infrastructure primarily consists of Kirtland AFB, with additional information presented for the surrounding vicinity of the city of Albuquerque and Bernalillo County, where relevant.

**Electrical System.** Kirtland AFB purchases electrical power from the Western Area Power Administration. Electric lines are placed above and below ground, feeding the 20 substations on the installation. The installation's average yearly consumption is approximately 407,010 kilowatt hours (Kirtland AFB, 2016).

**Natural Gas and Propane.** Natural gas is supplied by Coral Energy and delivered in New Mexico Gas Company pipelines supplying the industrial complex, family housing, and heating plants on the installation. There are approximately 496,000 linear feet of natural gas mains (Kirtland AFB, 2016). Rural portions of the installation do not receive natural gas service and rely on propane, which is delivered to and stored in local propane storage tanks.

**Liquid Fuel.** Liquid fuels are supplied to Kirtland AFB by contractors. The primary liquid fuels supplied include JP-8 (jet propellant [fuel] – type 8), diesel, and unleaded gasoline. Fuels are purchased in bulk, delivered to the installation by tanker truck, and stored in various-sized storage tanks across the installation. Liquid fuels at Kirtland AFB are primarily used to power military aircraft and ground-based vehicles (Kirtland AFB, 2016).

**Water Supply System.** Water is supplied to Kirtland AFB by six groundwater wells and two distribution systems that have a collective water-pumping maximum capacity of 8.1 million gallons per day (mgd). The installation pumps an average of 5.5 mgd of treated, potable water through 160 miles of distribution mains (Kirtland AFB, 2016). There are also approximately 50 miles of non-potable water pipeline serving the Tijeras Golf Course and providing water for fire protection. In 2017 (the most recent date for which this information was available) (Kirtland AFB, 2016), Kirtland AFB pumped a total of 744 million gallons (2,283 acre-feet) of water from these wells. The installation can also purchase water from the Albuquerque-Bernalillo County Water Utility Authority to meet demand during peak periods; however, the amount of water purchased from the city has been negligible since 1998. The 2019 GAO report identified Kirtland AFB as being at risk of water scarcity and vulnerable to drought and desertification (GAO, 2019).

**Sanitary Sewer/Wastewater System.** Approximately 491,000 linear feet of sanitary system mains transports wastewater to the Albuquerque Bernalillo County Water Utility Authority treatment facility. The permissible discharge rate for Kirtland AFB is fixed at 70.805 million gallons per month. The installation discharges an average of approximately 42 million gallons per month (Kirtland AFB, 2016). Some facilities in remote areas and other portions of the installation are not serviced by the sanitary sewer system; these facilities use isolated, onsite septic systems to dispose of wastewater.

**Communications System.** The communication network on Kirtland AFB was constructed as two separate systems that were later connected to provide redundancy. The main information transfer node is located on the west side of the installation. The Communication Main Switch Facility is located on the east side of the installation.

**Solid Waste Management.** Solid waste generated at Kirtland AFB is collected by a contractor and disposed of at the city of Albuquerque's Cerro Colorado Landfill. The Cerro Colorado Landfill receives approximately 6,574 cubic yards per year from Kirtland AFB (Kirtland AFB, 2020b).

Kirtland AFB operates a construction and demolition waste-only landfill on the installation. This landfill accepts only construction and demolition waste from permitted contractors working on the installation and has a net waste capacity of 7.2 million cubic yards (Kirtland AFB, 2016). As of 31 December 2020, the remaining capacity of this landfill was 2.11 million cubic yards (Kirtland AFB, 2022g). In 2019 and 2020, an average of 134,000 cubic yards of construction and demolition waste per year was deposited in this landfill (Kirtland AFB, 2022g).

### **3.10.2 Environmental Consequences**

#### **3.10.2.1 Proposed Action**

**Electrical System.** New electrical infrastructure would be constructed to support the increased use of electrical power. New substations would be constructed where appropriate to step down voltage to distribution lines supplying power to the newly constructed or modified buildings. Western Area Power Administration would provide electrical service and would be tapped from existing transmission lines to provide permanent power. Rooftop solar panels could be installed on select buildings to offset utility costs as a BMP. Disruption of service to surrounding areas could occur during construction and interconnection; however, this is expected to be a short-term inconvenience. 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.

**Natural Gas and Propane.** Coral Energy would provide natural gas to the proposed project areas via the New Mexico Gas Company pipelines. Buried natural gas lines would be constructed to provide service to the individual facilities proposed for construction and connected from existing pipelines. Facilities to be modified as part of the Proposed Action would have natural gas connected from existing pipelines as needed. Disruption of gas service to surrounding areas could occur during construction and connection to existing natural gas lines; however, this would be a short-term inconvenience. No impacts from construction and connection to natural gas supplies are anticipated.

**Liquid Fuel.** Liquid fuels would continue to be supplied to Kirtland AFB by contractors and stored in various-sized storage tanks across the installation. There would be no impacts to liquid fuel consumption or supply from the proposed facility construction or modification activities. The Proposed Action would increase the number of sorties from the airfield by two to three sorties per training day. This would increase the volume of fuel needed to operate aircraft for the additional training. 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.

**Water Supply System.** The Proposed Action would require the installation of water lines to the newly constructed facilities and the addition of water lines to facility modifications, as necessary. Low flow fixtures would be implemented to new construction as a BMP for water conservation efforts. The new lines would be connected to the existing water supply system on base. Water pressure or water to specific sites during construction could be impacted, but it would be temporary and localized during the construction and modification phase. Pursuant to USAF regulations, the AC-130J aircraft would be washed every 30 days. Each wash consumes 135,000 gallons of water. The Proposed Action would relocate seven AC-130J aircraft to Kirtland AFB, therefore requiring the use of 11,340,000 gallons of water for washing annually.

During FY 2020, more than 23,000 individuals were employed by Kirtland AFB, of which 3,505 were active-duty personnel. With a maximum of 412 additional personnel being relocated to

Kirtland AFB, this represents an approximately 11 percent increase of active-duty personnel at the base. Based on estimates by the USGS, the average American used 82 gallons of water per day in 2015 (USGS, 2019b). The addition of 412 personnel to Kirtland AFB would increase water usage by approximately 12,331,160 gallons annually. However, the increase in water consumption would be more than sufficiently serviced by the base's current water supply, which has the capability of pumping an additional 2.6 mgd. The installation has the option to purchase additional water from the Albuquerque-Bernalillo County Water Utility Authority to meet peak demand but has not had to for decades. The base currently pumps approximately 700 million gallons annually, which is approximately 35 percent of its allowable groundwater allocation from the Santa Fe Aquifer.

Kirtland AFB also operates a groundwater treatment system pursuant to the Resource Conservation and Recovery Act (RCRA) corrective action provisions in Park 6 of Kirtland AFB's 2010 Hazardous Waste Treatment Facility Operating Permit Number NM9570024423. The groundwater treatment system is associated with the Kirtland AFB Bulk Fuels Facility release site (Solid Waste Management Units ST-106/SS-111) and includes a pump and treat system as an interim measure to address ethylene dibromide in the groundwater. Groundwater is pumped from four extraction wells and is piped underground for treatment at the groundwater treatment system on base that removes ethylene dibromide. The treated water is pumped to the lined main pond at the Kirtland AFB Tijeras Arroyo Golf Course or routed to one of two injection wells located on base. In 2021, 265 million gallons of groundwater was extracted and treated, 119 million gallons was injected back into the aquifer, and 145 million gallons was diverted to the golf course for irrigation (Kirtland AFB, 2022h).

Though the GAO reports that Kirtland AFB is at risk of water scarcity, the current water supply would be able to support the additional personnel that would be stationed at Kirtland AFB as part of the Proposed Action. As such, the installation would continue to monitor any climate change related impacts to water supply for the installation and address, as needed. Therefore, adverse impacts to the water supply system would not be expected from the Proposed Action.

**Sanitary Sewer/Wastewater System.** New wastewater pipelines would be installed to support the new facilities and facility modifications. Wastewater from the new construction and facility modifications would be piped to the Albuquerque Bernalillo County Water Utility Authority treatment facility. The permissible discharge rate for Kirtland AFB is fixed at 70.805 million gallons per month. Currently, Kirtland AFB discharges approximately 42 million gallons per month. The additional wastewater generated from the Proposed Action, including additional permanent personnel residing on base, would not impact the wastewater system as there is sufficient discharge capacity for the base. Therefore, no impacts from the Proposed Action on the sanitary sewer or wastewater system are expected.

**Communications System.** The Proposed Action would require the installation of new communications lines to the newly constructed facilities and new communication lines as needed for the facility modifications. During construction, impacts to the communication system would be temporary and localized. Post construction impacts to the communications systems as a result of the Proposed Action are not expected.

**Solid Waste Management.** Solid waste generated from construction and facility modification activities would be disposed of in the landfill on the installation, specifically for construction and demolition solid waste. The landfill has 2.11 million cubic yards of capacity remaining and would not be impacted by the solid waste generated as part of Proposed Action.



Solid waste generated from facilities and personnel post construction would be collected by the same contractor that services the rest of the base. The additional waste generated from the relocation of the AFSOC AC-130J FTU to Kirtland AFB would not generate enough additional waste such that contractor services would become insufficient. Therefore, impacts to the solid waste management system would not be expected from the Proposed Action.

### **3.10.2.2 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**, and the existing conditions discussed in **Section 3.10.2** would remain unchanged. Therefore, no new impacts to infrastructure would occur with implementation of the No Action Alternative.

### **3.10.3 Reasonably Foreseeable Actions and Cumulative Impacts**

The Proposed Action would require additional infrastructure for water, wastewater, electricity, natural gas, communications, and solid waste removal. While the proposed development would increase the volume of water, electricity, and natural gas use, these increases would be less than significant as existing regional utility providers have sufficient supply. When added to the Proposed Action, projects listed in **Table 3.1-1** would increase the need for additional infrastructure and utility services, particularly large development projects. The immediate area would benefit from improved utility services; however, there would be an increased demand on utility supplies. Cumulative impacts associated with infrastructure and utility services would be both beneficial and adverse but less than significant.

## **3.11 HAZARDOUS MATERIALS AND WASTES**

### **3.11.1 Affected Environment**

The ROI for hazardous materials and waste primarily consists of Kirtland AFB, with additional information presented for the surrounding vicinity of the city of Albuquerque and Bernalillo County, where relevant

**Environmental Management System.** Kirtland AFB has implemented an Environmental Management System (EMS) program in accordance with International Organization for Standardization 14001 Standards; EO 13834, *Regarding Efficient Federal Operations* [revoking EO 13693]; and AFI 32-7001, *Environmental Management*. The EMS policy prescribes to protect human health, natural resources, and the environment by implementing operational controls, pollution prevention environmental action plans, and training.

All personnel, to include contractors, are made aware of the Kirtland AFB EMS program. All project-related activities should be conducted in a manner that is consistent with relevant policy and objectives identified in the installation's EMS program. Project Managers shall ensure that all personnel are aware of environmental impacts associated with their activities and reduce those impacts by practicing pollution prevention techniques.

**Hazardous Materials and Petroleum Products.** Contractors proposing to use hazardous materials on the installation shall notify the 377th Mission Support Group/Civil Engineering Installation Environmental Compliance (377 MSG/CEIEC) Hazardous Material Program by submitting a completed Hazardous Material Worksheet and a list of all materials along with their associated Safety Data Sheets prior to use. The Kirtland AFB Spill Prevention, Control, and Countermeasures (SPCC) Plan provides operating procedures to prevent the occurrence of spills,

control measures to prevent spills from entering surface waters, and countermeasures to contain and cleanup the effects of an oil spill that could impact surface waters (Kirtland AFB, 2018c).

Kirtland AFB has identified the Environmental Office as the responsible entity to oversee hazardous material tracking on the installation. Part of their responsibilities is to control the procurement and use of hazardous materials to support USAF missions, ensure the safety and health of personnel and surrounding communities, and minimize USAF dependence on hazardous materials. The Kirtland AFB Environmental Office is charged with managing hazardous materials to reduce the amount of hazardous waste generated on the installation in accordance with the Kirtland AFB Hazardous Waste Management Plan (HWMP) (Kirtland AFB, 2021p). Typical hazardous materials used within the installation include solvents, paints, adhesives, sealants, petroleum/oils/lubricants, and batteries. Contractors bringing hazardous materials onto the installation must notify the Kirtland AFB Environmental Office's Hazardous Material Program Team by submitting a completed Hazardous Material Worksheet and a list of all materials along with their associated Safety Data Sheets.

There are no records of hazardous material or petroleum product spills within the proposed project areas. However, chlordane was sold until 1988 as an insecticide for treating termites within residential homes and low levels of chlordane have been identified in soil samples at various housing areas throughout Kirtland AFB (Kirtland AFB, 2017). A health risk assessment conducted at Zia Park, where Project 7 is located, determined existing levels of chlordane at that location is very low and does not pose an unacceptable risk (Legendre, 2010). It is possible that residual chlordane may be present in on-site soils at other locations on former housing sites. Any hazardous waste created by residential or recreational areas would have been characterized as household waste, however, and not subject to RCRA.

**Hazardous and Petroleum Wastes.** The 377 MSG/CEIEC Hazardous Waste Program is responsible for implementing the hazardous waste management program at Kirtland AFB through waste characterization; establishing collection sites; receiving and processing hazardous waste for turn-in; reporting, tracking logs, and manifesting; regulatory interface; recordkeeping; and hosting and conducting inspections (Kirtland AFB, 2021p).

Kirtland AFB is a large-quantity generator of hazardous waste (USEPA ID #NM9570024423). The installation's HWMP provides guidance for waste identification, storage, transportation, and disposal and establishes the procedures to comply with applicable federal, state, and local standards for solid waste and hazardous waste management. The Kirtland AFB HWMP describes the roles and responsibilities of all entities at Kirtland AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. While numerous units are responsible for various functions of generation and management of hazardous waste, it is ultimately the waste generators (host and tenant organizations and on-site contractors) who are responsible for ensuring that hazardous waste management functions comply with the HWMP (Kirtland AFB, 2021p).

**Toxic Substances.** Toxic substances include asbestos-containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs), all of which are typically found in building and utility infrastructure. The presence of toxic substances, including describing their locations, quantities, and condition, assists in determining the significance of a proposed action.

Concrete on Kirtland AFB does not contain ACM or LBP (Underwood, 2020), and roads, aprons, pads, sidewalks, curb and gutters, taxiways, driveways, duct banks, parking lots, shoulders, gates, retaining walls, and flag poles within the proposed project areas are not areas of concern for toxic substances. The potential for ACM, LBP, and PCBs is therefore not an issue of concern

for the proposed project areas that involve new construction, and these are dismissed from further consideration.

Hangar 1002, where renovations are planned, is known to contain existing ACM, LBP, and PCBs. Projects 3, 5, 13a, 13b (Buildings 957, 949, 737, and 733, respectively) are existing structures proposed for modification or an addition; however, these structures were all built between 1996 and 1999 and have a limited potential to contain ACM, LBP, and PCBs.

**Environmental Restoration Program (ERP).** Kirtland AFB has 58 active ERP sites that include known and suspected soil and groundwater contamination associated with landfills, oil/water separators, drainage areas, septic systems, fire training areas, and spill areas. Kirtland AFB has seven active Military Munitions Response Program (MMRP) sites, comprising 3,238.3 acres. These sites are former impact areas that are primarily located along the outer perimeter and center of the installation. The sizes, types of munitions debris, and potential for unexploded ordnance varies by location (Kirtland AFB, 2013).

Additionally, the DOE actively manages 11 open Environmental Restoration (ER) sites on Kirtland AFB property, including three groundwater areas of concern and eight solid waste management units. None of the ER sites located within or adjacent (defined as within 0.5 mile of the proposed project areas) to the proposed project areas and are not carried forward for review.

**Figure 3.11-1** presents the location of ERP and MMRP sites on Kirtland AFB. There are no active ERP or MMRP sites located within the proposed project areas. There is one MMRP site located adjacent and four active ERP sites located adjacent to the proposed project areas. The ERP and MMRP sites and their proximity to the proposed project areas are summarized in **Table 3.11-1**.

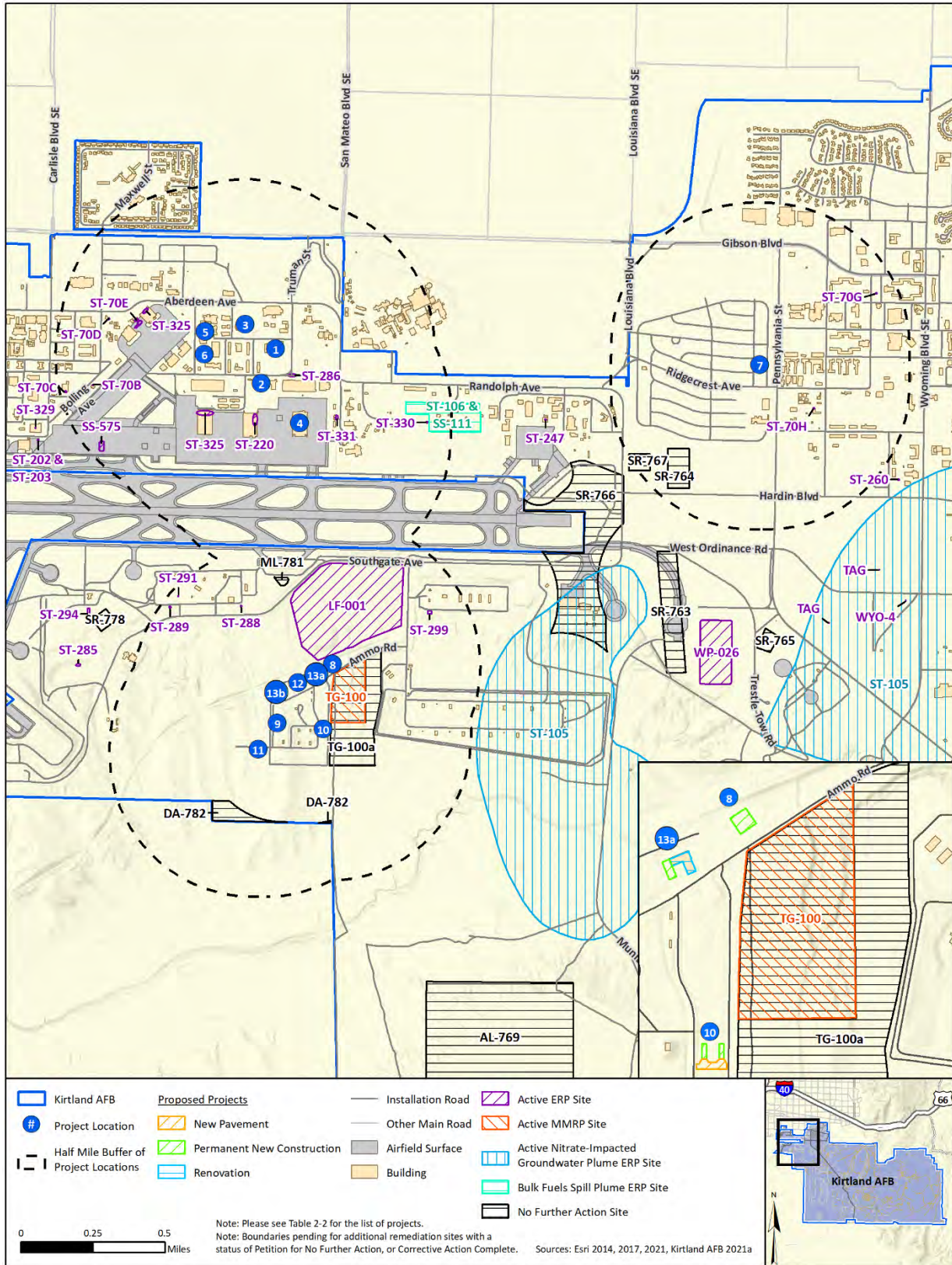
A description of the active ERP and MMRP sites is provided below:

**ERP Site LF-001** – Landfill No. 1, located north and northeast of Projects 8, 12, 13a, and 13b (**Figure 3.11-1**), was operated as a trench-and-fill landfill from 1951 to 1975. Investigations have determined that aluminum, antimony, beryllium, chromium, cobalt, iron, lead, manganese, mercury, nickel, thallium, vanadium, anthracene, benzo(a)pyrene, benzo(k)fluoranthene, 1,4-dichlorobenzene, benzo(a)anthracene, benzo(b)fluoranthene, bis(2-ethylhexyl) phthalate, fluorine, indeno (1,2,3-c,d) pyrene, naphthalene, phenol, and pyrene are present in the soil. New Mexico Environment Department (NMED) selected an evapotranspiration cover as the recommended corrective measure for this site (Kirtland AFB, 2020c). The 2006 Corrective Measures Implementation Report noted that the activities completed included construction of the final evapotranspiration cover and associated drainage/erosion control system, installation of temporary stormwater controls and site fencing, performing required testing and inspections, grading, and site seeding/revegetation. A voluntary long-term monitoring and maintenance program is conducted using one upgradient and three downgradient wells and monthly inspections are conducted to ensure the integrity of the evapotranspiration cover and erosion control. Regular maintenance activities and monthly monitoring, as well as monitoring after every 0.5-inch rainfall event are conducted. In addition, groundwater in the vicinity of the landfill is sampled on an annual basis. The samples are analyzed for inorganics and volatile organic compounds. No concentrations above USEPA maximum contaminant levels have been observed since the landfill was capped (Kirtland AFB, 2020c).

**Table 3.11-1 Active ERP and MMRP Sites Within or Adjacent to the Proposed Action Areas**

ERP/MMRP Site No.	Site Title	Site Status	Proximity to Proposed Action Area
LF-001	Landfill No. 1	Active	Adjacent
SS-575	Transient Alert Pad	Petition for NFA	Adjacent
ST-70B	Building 377 OWS	CA Complete	Adjacent
ST-70C	Building 381 OWS	CA Complete	Adjacent
ST-70D	Building 471 OWS	CA Complete	Adjacent
ST-70E	Building 481 and 482 OWS	Active	Adjacent
ST-70G	Building 20205 OWS	CA Complete	Adjacent
ST-70H	Building 20375 OWS	CA Complete	Adjacent
ST-106 & SS-111	Bulk Fuels Facility Spill source	Active	Adjacent
ST-220	Building 1001 Plating and Anodizing	Petition for NFA	Adjacent
ST-286	East Storm Sewer System	Petition for NFA	Adjacent
ST-288	Building 614 Septic System	Petition for NFA	Adjacent
ST-289	Building 617/620 Septic System	Petition for NFA	Adjacent
ST-291	Building 617 Septic System	Petition for NFA	Adjacent
ST-299	Building 751 Septic System	Petition for NFA	Adjacent
ST-325	Building 1000 H-3/H-53 Phase dock floor drain	Petition for NFA	Adjacent
ST-330	Building 1032 Septic System	Petition for NFA	Adjacent
ST-331	Building 1000 C-130 Maintenance Shop Storm Sewer System	Petition for NFA	Adjacent
TG-100	Bomb Target	Active	Adjacent

Notes: Adjacent – within 0.5 mile of proposed project areas.  
 CA = Corrective Action; NFA = No Further Action; OWS = oil/water separator



**Figure 3.11-1 Kirtland AFB Active ERP Sites and MMRP Sites**

**ERP Site ST-70E** – Former oil/water separator for Buildings 481 and 482 located west of Project 5 and northwest of Project 6 (see **Figure 3.11-1**). Petroleum hydrocarbon contamination was found to be present in soils and soil vapor adjacent to the oil/water separator. The concentrations of contaminants in groundwater at the site have been below applicable contaminant thresholds. The site is currently being remediated with soil vapor extraction methods (Kirtland AFB, 2021q).

**ERP Site ST-106 & SS-111** – The Bulk Fuels Facility Spill, located approximately 0.25 miles east of Project 4 (see **Figure 3.11-1**), is a groundwater plume located in the northwestern portion of Kirtland AFB. The groundwater plume is trending north and east away from the installation toward the city of Albuquerque. The facility and associated infrastructure operated from 1953 until 1999. During this time, the fueling area was separated into a tank holding area where bulk shipments of fuel were received and a fuel loading area where individual fuels trucks were filled. The facility was removed from service in 1999 after the discovery of fuel leaking in subsurface piping at the rail unloading point. It was initially believed that the leak only affected surface soil within the immediate area; however, through further investigation, the installation learned that the leaked fuel reached the groundwater table. As part of the remediation process, soil vapor extraction units were installed to remediate soil contamination and numerous groundwater and soil vapor monitoring wells were installed on and off the installation to further investigate the contamination. These wells are sampled quarterly as part of the regular sampling schedule performed on the plume and concentrations for all compounds analyzed in the effluent samples collected were below their respective project screening levels (Kirtland AFB, 2018d).

**MMRP Site TG-100** – The 14.8-acre Bomb Target munitions response area, located southeast of Projects 8 and 13a, and northeast of Project 10 (see **Figure 3.11-1**), is classified as an air-to-ground range in an area located within the broad floodplain of the Tijeras Arroyo. Ordnance used at this site included 100-pound practice bombs and incendiary bombs based on the presence of tail fins, incendiary bombs and other debris (Kirtland AFB, 2013). The initial 159 target anomalies removed from the site as part of remediation efforts are the primary sources of potential Munitions and Explosives of Concern (MEC)/Material Potentially Presenting an Explosive Hazard (MPPEH) at this site and may have resulted in the potential presence of MEC/MPPEH on and below the ground surface (Kirtland AFB, 2020d). Further remediation efforts were conducted in 2019 to remove additional MEC/MPPEH. Although soil sampling results found no chemicals of potential concern (explosive constituents, metals, and semi-volatile organic compounds) in the soil, on-going monitoring and soil sampling will be conducted until the site is fully restored and released by the USEPA (Kirtland AFB, 2020d).

## **3.11.2 Environmental Consequences**

### **3.11.2.1 Proposed Action**

**Environmental Management System.** FTU personnel associated with the proposed AFSOC AC-130J FTU relocation would operate under the existing 58 SOW, which participates in the EMS program and would continue to do so under the Proposed Action. Contractors associated with construction activities would be made aware of the installation's EMS program by reviewing the environmental commitment statement and ensuring construction activities are conducted in accordance with the policy and objectives of the EMS program. All contractors would be made aware of environmental impacts and would reduce those impacts by practicing pollution prevention techniques and complying with existing standard operating procedures and applicable federal and state laws governing the use, generation, storage, and transportation of hazardous materials. The Proposed Action would not alter the EMS program and there would be no adverse impacts to the EMS program resulting from implementation of the Proposed Action.

**Hazardous Materials and Petroleum Products.** The Proposed Action may have short-term and long-term negligible adverse impacts on hazardous materials and petroleum products at Kirtland AFB. The proposed relocation of aircraft is not expected to result in a change in the types of hazardous materials and petroleum products in use. Because implementation of the Proposed Action would result in seven additional aircraft at Kirtland AFB, an increase in the use of hazardous materials and petroleum products is anticipated, although the additional volume is not anticipated to be sufficient to require new aboveground storage tanks. If petroleum storage tanks are required by the Proposed Action, the tanks would be installed in accordance with applicable laws and regulations, and the NDED would be notified. Additionally, 58 SOW would continue to participate in the EMS and its associated programs that facilitate the responsible management of hazardous materials at Kirtland AFB. In the event new aboveground storage tanks or increased quantities of petroleum products require an increase in available storage capacity or storage areas, the SPCC Plan would be amended to include the increased capacity. Through ongoing participation in EMS and SPCC programs at Kirtland AFB, the specific types and quantities of hazardous materials and petroleum products present would continue to be monitored and tracked.

Construction equipment would utilize hazardous materials and petroleum products such as fuel, solvents, hydraulic fluid, oil, antifreeze, and other hazardous materials in small quantities. These products might also be used for minor equipment servicing and repair activities. Under the Proposed Action, the handling and storage of any hazardous materials and petroleum products would be carried out in compliance with applicable laws and regulations. Implementation of the Proposed Action would adhere to applicable management plans (i.e., SPCC Plan). The severity of a potential impact from an accidental release would vary based upon the extent of a release and the substance(s) involved.

The Proposed Action would result in short-term, negligible, adverse impacts should any hazardous materials or petroleum products be released into the environment during construction activities. 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.

**Hazardous and Petroleum Wastes.** The Proposed Action is anticipated to result in an increase in the generation of hazardous or petroleum wastes due to the additional aircraft present at Kirtland AFB; this may have a short-term and long-term negligible adverse impact on hazardous and petroleum wastes. Any additional petroleum waste produced for maintenance activities would be managed under the existing base-wide SPCC Plan.

Construction activities requiring the use of hazardous materials and petroleum products results in the generation of hazardous wastes and used petroleum products. Under the Proposed Action, hydraulic fluids and petroleum products, such as diesel and gasoline, would be used in the vehicles and equipment supporting construction. Implementation of BMPs and environmental protection measures would reduce the potential for an accidental release of these materials. All construction equipment would be maintained according to the manufacturer's specifications and drip mats would be placed under parked equipment as needed.

Unknown, potentially hazardous wastes and petroleum products could possibly be discovered or unearthed during implementation of the Proposed Action. In such cases, contractors would immediately cease work, contact appropriate installation personnel, and await sampling and analysis results before taking any further action. If contamination is encountered, state and/or federal agencies would be notified, as appropriate. All generated or unknown hazardous and petroleum wastes would be handled, stored, and disposed of in accordance with applicable laws, regulations, and management plans (i.e., HWMP). The Proposed Action would result in a short-

term, negligible, adverse impact on the generation of hazardous and petroleum wastes. Construction activities are not anticipated to result in long-term impacts from hazardous wastes, as they are temporary activities that would be required to comply with all applicable management plans and appropriate disposal practices.

**Toxic Substances.** Facilities requiring demolition during modification or building addition activities that have the potential to contain ACM, PCBs, and LBP would be evaluated for toxic substance abatement prior to their demolition or building addition. Prior to initializing the demolition activity, notification would be provided in compliance with the AEHD-AQD regulations for National Emissions Standards for Hazardous Air Pollutants related to asbestos. Any regulated ACM, PCB, and/or LBP from demolition activities would be disposed of at a permitted site in accordance with federal and state laws. With BMPs in place, no adverse impacts are anticipated.

**Environmental Restoration Program.** The Proposed Action does not occur within any active ERP or MMRP sites. Approximately 15 of the sites have received or have pending NMED approval of No Further Action status or Corrective Action complete and are considered to be clean; therefore, no impact would be expected to occur from or to the Proposed Action in these areas and they are not discussed further.

Projects 8–13 are adjacent to the active ERP Site LF-001 and MMRP Site TG-100 (see **Figure 3.11-1**). Projects 1–6 are adjacent to the active ERP Sites ST-70E and ST-106 & SS-111 (see **Figure 3.11-1**). No construction or demolition activities are proposed within the ERP and MMRP sites and there is no potential for contamination from these sites to migrate into the proposed project areas. Therefore, implementation of the Proposed Action would not be expected to result in any impacts on or be impacted by ERP and/or MMRP sites.

### **3.11.2.2 No Action Alternative**

Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1**, and the existing conditions discussed in **Section 3.11.2** would continue. Therefore, implementation of the No Action Alternative would not result in any new or additional impacts on hazardous materials and wastes.

### **3.11.3 Reasonably Foreseeable Actions and Cumulative Impacts**

The Proposed Action is not expected to result in significant to impacts associated with the use, handling, transportation, or disposal of hazardous materials or waste. Contractors would comply with standard operating procedures and applicable federal and state laws related to managing hazardous materials and toxic substances. The present and future projects listed in **Table 3.1-1** would generate some hazardous waste during construction; however, the same regulations that would apply to the Proposed Action would be required for these actions. As such, cumulative impacts to hazardous materials and waste management are expected to be less than significant.

## **3.12 SAFETY**

Safety addresses the ground safety, explosive safety, and flight safety associated with the proposed AFSOC AC-130J FTU relocation to Kirtland AFB. Ground safety considers issues associated with facility construction/modification, operations and maintenance activities, emergency response, and anti-terrorism/force protection (AT/FP). Ground safety also considers the safety of personnel, facilities, and the public that may be placed at risk from flight operations in the vicinity of the airfield and in the airspace. Although ground and flight safety are addressed independently, it should be noted that in the immediate vicinity of the runway, risks associated with safety-of-flight issues are interrelated with ground safety concerns.



### 3.12.1 Affected Environment

The ROI for safety primarily consists of Kirtland AFB and areas immediately adjacent to the Sunport, with additional information presented for the surrounding vicinity of the city of Albuquerque and Bernalillo County, where relevant. The affected environment for ground, explosive, and aircraft safety includes the airfield at Kirtland AFB and surrounding areas; as well as airspace utilized during training and operations. Airspace utilized by Kirtland AFB are described in detail in **Section 3.2, Airspace Management**.

**Contractor Safety.** All contractors performing construction and demolition activities at Kirtland AFB are responsible for following federal and state of New Mexico safety regulations and are required to conduct construction and demolition activities in a manner that does not increase risk to workers or the public.

**Public Safety.** The Albuquerque Fire Rescue provides emergency and medical response for the city of Albuquerque, including the vicinity around Kirtland AFB. Kirtland AFB has its own emergency services department. The emergency services department provides the installation with fire suppression, crash response, rescue, emergency medical response, hazardous substance protection, and emergency response planning and community health and safety education. Albuquerque Fire Rescue and Kirtland AFB maintain a mutual services agreement for emergency response.

**AT/FP.** AT/FP standards and guidelines have evolved and postdate many of the facilities at numerous military installations, including Kirtland AFB. Thus, under current conditions, many units do not fully comply with all present AT/FP standards. However, as new construction occurs, AT/FP standards are incorporated to the maximum extent practicable.

**Explosive Safety.** The 58 SOW controls, maintains, and stores all ordnance and munitions required for mission performance. Quantity-distance (Q-D) arcs have been created and are maintained in accordance with all USAF explosive safety directives. Ample storage facilities currently exist at Kirtland AFB and all facilities are approved for the ordnance they store.

**Aircraft Safety.** Current aircraft based at Kirtland AFB include MC-130J and HC-130J. The Kirtland AFB BASH program tracks bird and wildlife strikes that occur during training and operations of aircraft at the installation. Between October 2016 and September 2021, 293 bird/wildlife strikes were documented at Kirtland AFB. Of the 293 documented strikes, 1 incident was classified as Class C, 1 incident as Class D, 18 incidents as Class E, and 273 incidents were not classified (Kirtland AFB, 2022i).

Aircraft based at Kirtland AFB utilize various airspace as described in **Section 3.2, Airspace Management**. Flight operations are conducted in compliance with USAF standard flight rules and the 58th Operating Group (58 OG) Inflight Guide.

### 3.12.2 Environmental Consequences

#### 3.12.2.1 Proposed Action

**Contractor Safety.** Thirteen construction or modifications projects would occur under the Proposed Action. There would be a short-term increase in safety risk to contractors during construction and modification-related activities due to operation of heavy equipment, increases in noise levels, and increases in dust and particulate matter. Project 4, a proposed renovation of Island B located in Hangar 1002, which includes removal of ACM, LBP, and PCBs has the potential to pose increased health risk to renovation contractors due to possible exposure to the

toxic substances; however, all contractors would use appropriate PPE, as applicable. All contractors would follow federal and state of New Mexico safety regulations and are required to conduct construction and demolition activities in a manner that does not increase risk to workers or the public; therefore, no increase in adverse impacts due to the Proposed Action are expected.

**Public Safety.** Construction and modification activities under the Proposed Action would occur entirely within Kirtland AFB boundaries and would be conducted in accordance with federal and state regulations and in a manner that would not result in any greater safety risk to the public. Additionally, construction and modifications would not result in an increase in obstructions to aircraft navigation. The mutual aid agreement between Kirtland AFB and Albuquerque Fire Rescue would remain in place; therefore, no adverse impacts to safety are expected under the Proposed Action.

**Military Personnel Safety.** Military personnel involved in construction and modification-related activities would comply with all Air Force Occupational and Environmental Safety, Fire Protection, and Health and USAF Mishap Prevention program requirements in order to minimize safety risks to personnel and to comply with all federal safety regulations. Additionally, military personnel involved in the operation and maintenance of AC-130J aircraft would continue to comply with all USAF and 58 OG flight requirements.

**AT/FP.** All construction and modification projects would be conducted in full compliance with AT/FP requirements from design to completion.

**Explosive Safety.** No construction or modification activities under the Proposed Action would occur with the established Q-D arcs at Kirtland AFB. The 58 SOW would continue to store and maintain all explosives and munitions in accordance with USAF explosive safety directives (Air Force Manual 91-201), and all munitions maintenance would be carried out by trained, qualified personnel using USAF-approved technical data; therefore, no increases to explosive risk are anticipated under the Proposed Action.

**Aircraft Safety.** Under the Proposed Action, 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. AC-130J aircraft would conduct approximately 4,500 annual flight operations, resulting in an increase of about 3.5 percent over the representative current operations. 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.

### **3.12.2.2 No Action Alternative**

Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1**, and the existing conditions discussed in **Section 3.12.2** would continue. Therefore, implementation of the No Action Alternative would not result in any new or additional impacts on safety.

### **3.12.3 Reasonably Foreseeable Actions and Cumulative Impacts**

Cumulative impacts to safety resources are not likely to occur under the Proposed Action. Construction-related projects under the Proposed Action would be short term in duration. Any

current or foreseeable project listed in **Table 3.1-1** that has a construction component would be coordinated with construction activities occurring under the Proposed Action, as appropriate, to eliminate any potential conflicts. All construction activities under the Proposed Action and projects listed in **Table 3.1-1** adhere to all applicable occupational safety requirements. Any current or foreseeable project with a construction component within the established Q-D arcs would adhere to Air Force Manual 91-201, *Explosive Safety Standards*. Additionally, no current or foreseeable project would create an obstruction to aircraft take-off, landing, or navigation and would therefore not impact aircraft safety.

### 3.13 SOCIOECONOMICS

#### 3.13.1 Affected Environment

Bernalillo County is considered the ROI for socioeconomic effects of the Proposed Action (**Figure 3.13-1**). Socioeconomic data provided in this section are presented for Bernalillo County, the state of New Mexico, and the U.S. to characterize baseline socioeconomic conditions, which are used to gauge the level of impacts that are associated with project activities. Additional data are presented for the City of Albuquerque in some locations for reference. To the south of Kirtland AFB and the City of Albuquerque are the Pueblo of Isleta tribal lands and Reservation. The Reservation includes areas within the boundaries of Bernalillo, Valencia, and Tarrant Counties. Data are also presented for the Pueblo of Isleta for reference. Data have been collected from documents published by federal, state, and local agencies and from state and national databases (e.g., U.S. Census Bureau [USCB] and U.S. Bureau of Labor Statistics [USBLS]).

##### 3.13.1.1 Population

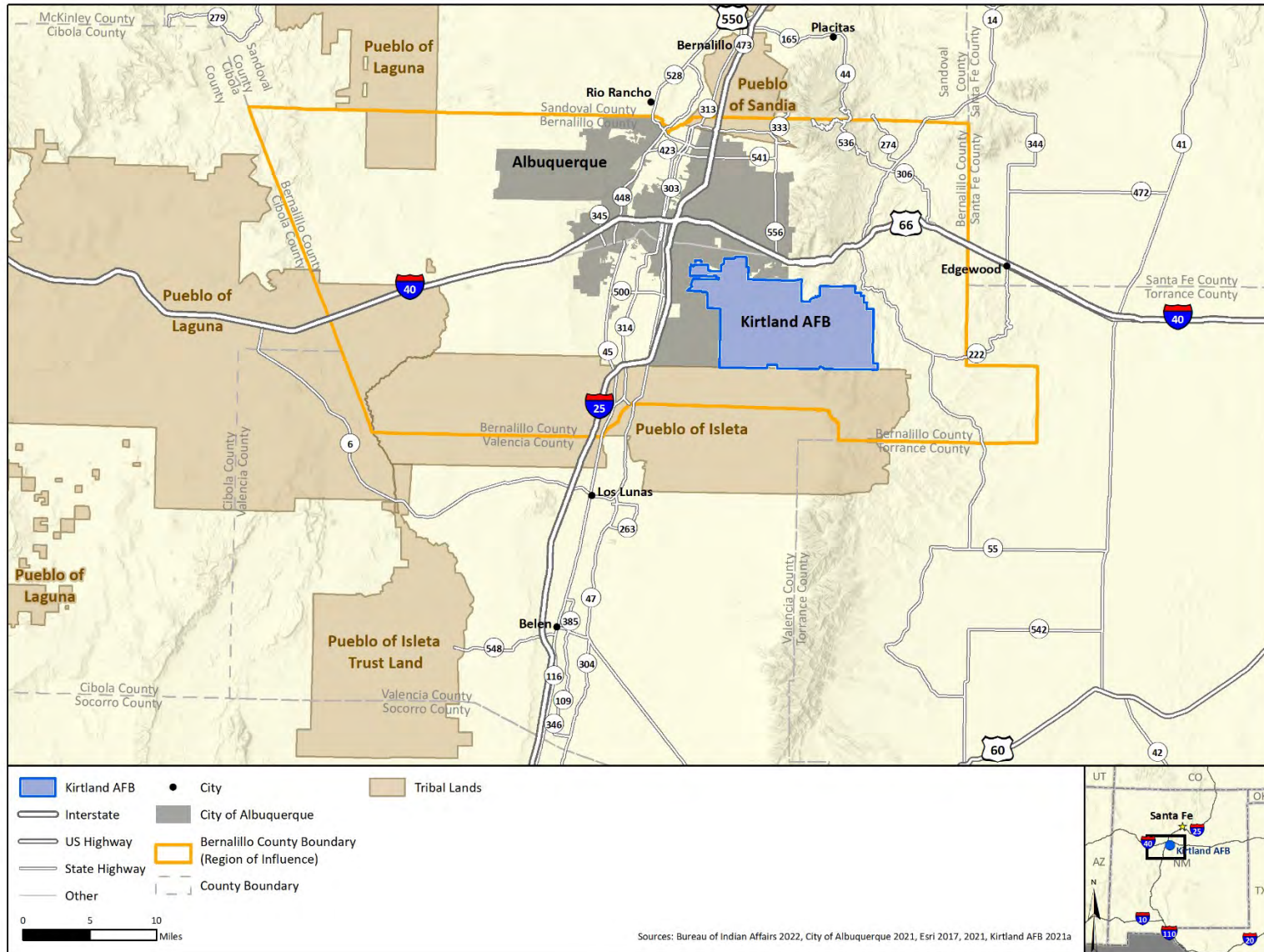
According to the 2020 U.S. Census, the population of Bernalillo County was 676,444 people (USCB, 2020a). The state of New Mexico's population totaled 2,117,522 in 2020 (USCB, 2020a).

The population of Bernalillo County grew 19 percent from 2000 to 2010 and 2.1 percent from 2010 to 2020. The growth rate between 2000 and 2020 was higher than the growth rate of the state of New Mexico (13.2 percent) and of the U.S. (9.7 percent) but between 2010 and 2020 the growth rate was lower than state of New Mexico (2.8 percent) and of the U.S. (7.4 percent). **Table 3.13-1** presents the 2000, 2010, and 2020 population data (USCB, 2000, 2020a).

**Table 3.13-1 Population in the Region of Influence as Compared to the City of Albuquerque, New Mexico, and the United States (2000 to 2020)**

Location	2000	2010	2020	Percent Change (2000 – 2010)	Percent Change (2010 – 2020)	Total Percent Change (2000 – 2020)
United States	281,421,906	308,745,538	331,449,281	9.7%	7.4%	17.8%
Pueblo of Isleta	3,183	3,271	4,387	2.8%	34.1%	37.8%
New Mexico	1,819,046	2,059,179	2,117,522	13.2%	2.8%	16.4%
Bernalillo County	556,678	662,564	676,444	19.0%	2.1%	21.5%
City of Albuquerque	448,607	545,852	564,559	21.7%	3.4%	25.8%

Source: USCB, 2000, 2020a.



**Figure 3.13-1 Socioeconomics ROI**

**3.13.1.2 Employment and Earnings Characteristics**

The three largest industries in Bernalillo County in terms of percentage of the workforce employed within the industry are: the educational services, and health care and social assistance industry (26.7 percent); the professional, scientific, and management, and administrative and waste management services industry (14.7 percent); and the retail trade industry (10.7 percent). The construction industry employs 22,068 workers which represents 6.9 percent of the workforce (USCB, 2020b). In March 2022, the USBLS reported a 4.0 percent unemployment rate in Bernalillo County while the U.S. had a lower unemployment rate of 3.6 percent (USBLS, 2022a, 2022b). **Table 3.13-2** presents labor force and unemployment data for Bernalillo County, the city of Albuquerque, the state of New Mexico, and the U.S.

**Table 3.13-2 Employment in the Region of Influence as Compared to the City of Albuquerque, New Mexico, and the United States (March 2022)**

Location	Civilian Labor Force	Employed	Unemployed	Unemployment Rate
United States	164,409,000	158,458,000	5,952,000	3.6%
New Mexico	1,671,424	897,974	50,412	5.3%
Bernalillo County	336,684	323,159	13,525	4.0%
City of Albuquerque	441,063	422,886	18,177	4.1%

Source: USBLS, 2022a, 2022b, 2022c, 2022d.

**Table 3.13-3** presents income information for Bernalillo County as well as for comparison locations. Median household income, mean household income, median earnings for workers, and per capita income in Bernalillo County were all lower than national levels but were higher than levels for the state of New Mexico.

**Table 3.13-3 Incomes in the Region of Influence as Compared to the City of Albuquerque, New Mexico, and the United States**

Location	Median Household Income	Mean Household Income	Median Earnings for Workers	Per Capita Income
United States	\$64,994	\$91,547	\$36,280	\$35,384
Pueblo of Isleta	\$44,239	\$54,494	\$28,896	\$18,817
New Mexico	\$51,243	\$70,241	\$30,357	\$27,945
Bernalillo County	\$54,308	\$74,163	\$32,142	\$31,229
City of Albuquerque	\$53,936	\$72,426	\$32,361	\$31,103

Source: USCB, 2020b.

**3.13.1.3 Housing**

According to the USCB, Bernalillo County had 22,583 vacant housing units and a rental vacancy rate of 7.1 percent in 2020. The median value of owner-occupied housing units and the median gross rent in Bernalillo County were lower than in the U.S. but higher than in the state of New Mexico or the city of Albuquerque (see **Table 3.13-4**).

**Table 3.13-4 Housing in the Region of Influence as Compared to the City of Albuquerque, New Mexico, and the United States**

Location	Total Housing Units	Vacant Housing Units	Rental Vacancy Rate	Median Value of Owner-Occupied Housing Units	Median Gross Rent	Persons per Household
United States	138,432,751	16,078,532	5.8%	\$229,800	\$1,096	2.6
Pueblo of Isleta	1,661	311	0.0%	\$75,800	\$438	3.3
New Mexico	943,568	150,813	8.3%	\$175,700	\$857	2.6
Bernalillo County	295,111	22,583	7.1%	\$205,500	\$892	2.5
City of Albuquerque	247,926	18,225	7.3%	\$204,100	\$889	2.4

Source: USCB, 2020c.

### 3.13.1.4 Schools

**Table 3.13-5** presents information on schools in Bernalillo County. According to the National Center for Education Statistics, over the 2019–2020 and 2020–2021 school years, there were 248 schools with 98,987 students in Bernalillo County (National Center for Education Statistics, 2020, 2021). The average student teacher ratio in the county was 13.5 students per teacher.

**Table 3.13-5 Public and Private Schools in the Region of Influence**

School Type	Number of Schools	Number of Students	Number of Teachers	Student Teacher Ratio
Public	203	91,323	6,628.3	13.8
Private	45	7,664	691.9	11.1
Total	248	98,987	7,320.2	13.5

Note: Public School data is from the 2020–2021 school year and Private School data is from the 2019–2020 school year.

Source: National Center for Education Statistics, 2020, 2021.

### 3.13.1.5 Kirtland AFB

During FY 2020, more than 23,000 individuals were employed by Kirtland AFB, of which 3,505 were active-duty personnel. Direct payroll expenditures from the installation totaled \$2.26 billion. When non-payroll expenditures associated with Kirtland AFB and local job creation value are included, total economic impact exceeded \$7.4 billion, with local economic impact representing approximately \$4.6 billion of that total (Kirtland AFB, 2020e).

## 3.13.2 Environmental Consequences

### 3.13.2.1 Proposed Action

**Population.** During construction of the Proposed Action, the increased demand for construction workers could lead to a temporary increase in the area’s population. However, the population increase would be minor as the local workforce would support much of the construction activity. Population changes are considered neither adverse nor beneficial as a larger population may

increase demands on public services, but they may bring in additional tax revenues that offset service costs.

During operation of the Proposed Action, approximately 390 FTU personnel would be newly stationed at Kirtland AFB year-round and an additional 22 BOS personnel would be based there. In the most extreme scenario, all 412 personnel would come from outside the ROI and would bring a family. According to the DoD *Demographics Profile of the Military Community*, active-duty USAF personnel have an average of 1.2 family members, so if each of the 412 personnel moved to the ROI with their family, the total population increase would be 906, which is 0.1 percent of the population of Bernalillo County (DoD, 2020). Additional temporary population changes would occur due to students visiting the installation.

**Employment and Earnings.** Construction activities would temporarily support employment in the ROI through the direct hiring of construction workers and through jobs created in supporting industries due to construction spending on supplies and materials in the ROI. The hiring of local workers and the wages paid to workers in the ROI would be a temporary beneficial impact.

During operation of the Proposed Action, 412 permanent jobs would be created in the ROI from the FTU and BOS personnel positions. While many of the personnel would come from outside the ROI, once they settle in the ROI, their wages would stimulate and benefit the local economy. An estimated 270 students would visit the installation per year for training. Visitors would spend money on food, lodging, and transportation which would further stimulate and benefit the local economy.

**Housing.** Many construction workers that would be hired for the Proposed Action would come from the local workforce; however, if construction workers from outside the ROI move to the area in search of jobs, there would be some increased demand for housing. Bernalillo County has a large supply of vacant housing units (22,583) and the rental vacancy rate is above the national average (see **Table 3.13-4**). This would be a negligible temporary impact.

During operation of the Proposed Action, the 412 new permanent employees would stimulate the local housing market and increase demand for renting and purchasing homes. If all 412 employees moved from outside the ROI and needed new housing this would represent 0.1 percent of the total housing units in Bernalillo County and would have a negligible impact on housing availability and affordability.

**Schools.** The temporary increase in construction employment created by the Proposed Action could potentially induce non-local workers to move to the ROI. If those workers bring their school-aged children, this increased enrollment could impact schools. Impacts are expected to be minor as the local construction industry would be able to support most of the required workforce.

The 412 new permanent employees that would be required during operations would likely come from outside the ROI and their children would be additions to the local school enrollment. According to the DoD *Demographics Profile of the Military Community*, 61.4 percent of the average 1.2 family members are children (DoD, 2020). This would lead to roughly 0.74 children per employee which would total 305 children. If all the children were school age, this would represent a 0.3 percent increase in the number of students in Bernalillo County which would be a minor impact.

**Kirtland AFB.** 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.

### **3.13.2.2 No Action Alternative**

Under the No Action Alternative, the USAF would not relocate the AFSOC AC-130J FTU from Hurlburt Field to Kirtland AFB, as described in **Section 2.4.1**, and the existing conditions discussed in **Section 3.13.2** would continue. Therefore, implementation of the No Action Alternative would not result in any new or additional impacts on socioeconomics.

### **3.13.3 Reasonably Foreseeable Actions and Cumulative Impacts**

Current and foreseeable projects listed in **Table 3.1-1** include several construction projects as well as projects increasing the permanent employment in the ROI and the increase in visitation for training activities. The increase in demand for construction may lead to a higher likelihood of requiring workers from outside the ROI which would increase demand for housing. The increased employment and visitation in the ROI would stimulate and benefit the local economy which would offset any increased demand for public services. Together with the Proposed Action, the increased employment and wages in the ROI and increased visitation and spending would be a minor benefit to the ROI.

## **3.14 ENVIRONMENTAL JUSTICE AND SENSITIVE RECEPTORS**

### **3.14.1 Affected Environment**

For the purpose of this analysis, the environmental justice ROI includes the areas near Kirtland AFB within which potential impacts from the Proposed Action on minority, low-income, Tribal Nations, child, and elderly populations could occur. The proposed activities most likely to disproportionately affect environmental justice populations and affect sensitive receptor populations would be exposure to increased noise and traffic during construction or exposure to increased noise from aircraft operations. Therefore, the ROI for environmental justice and sensitive receptors includes the U.S. Census block groups that are within 0.5 mile of the proposed construction projects and the Census block groups around Kirtland AFB that experience noise levels of 65 dB DNL (**Table 3.14-1**). Census block groups are statistical divisions of census tracts, which typically have between 600 and 3,000 people and are the smallest geographical unit for which the USCB publishes sample data. A block group is considered to be a minority area if 50 percent or more of its population is American Indian or Alaskan Native, Asian or Pacific Islander, Black, or Hispanic, or if the percentage of the minority population is meaningfully greater than the minority population percentage in the general population or reference area (CEQ, 1997). For this analysis, the reference area is Bernalillo County. Using the low-income threshold criteria analysis, a Census block group is considered to be a low-income area if the percentage of households with incomes below the poverty line is greater than the reference area of Bernalillo County (**Table 3.14-1**). **Figure 3.14-1** shows the minority and low-income block groups in Bernalillo County.

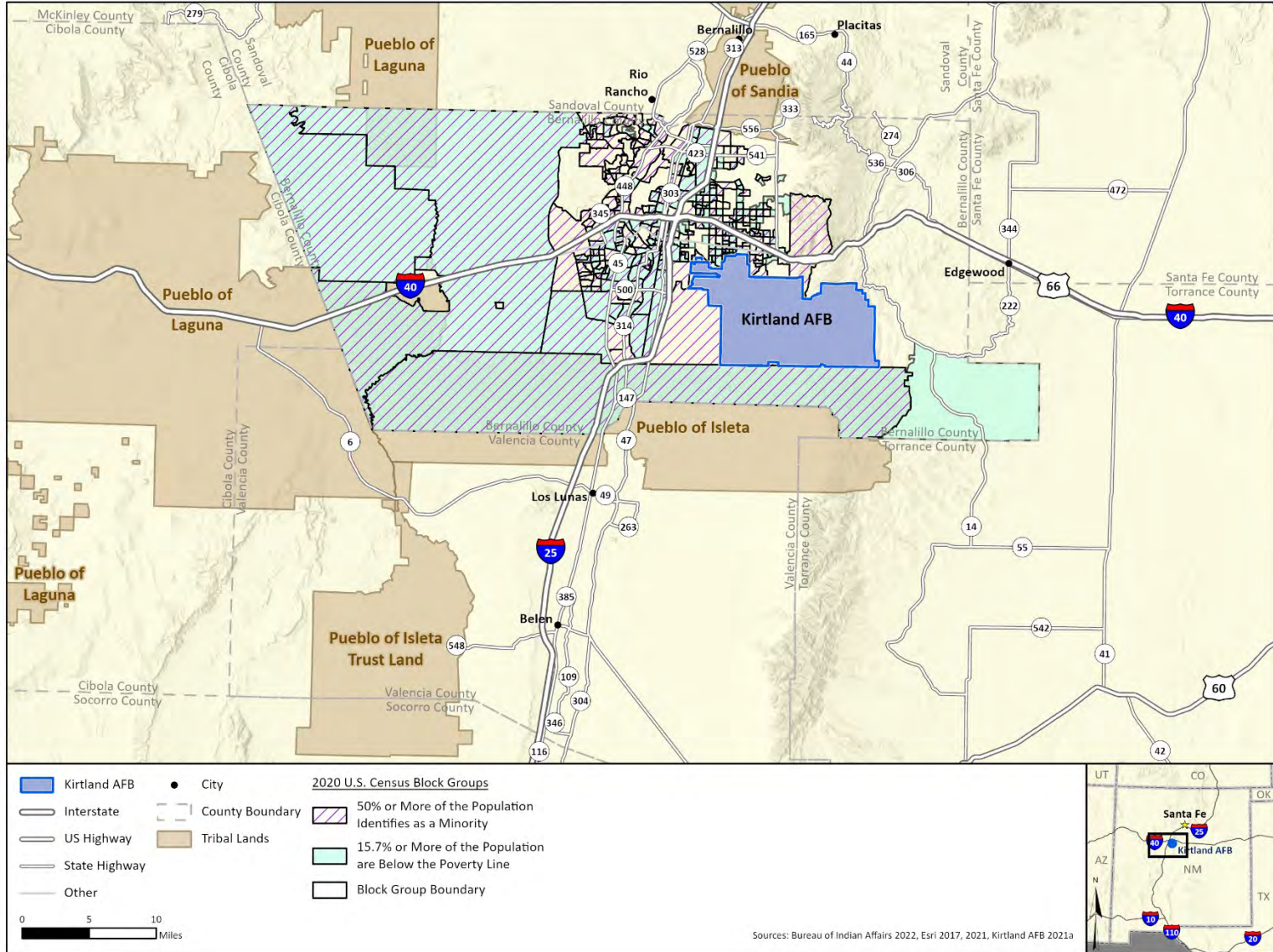
Of the 14 block groups in the ROI, 11 are minority areas and 8 are low-income areas. Seven of the block groups are both a minority area and a low-income area. The ROI as a whole, has a higher percentage of minority residents and low-income residents than Bernalillo County.



**Table 3.14-1 Minority and Low-income Populations in the Region of Influence**

Geographic Area	Total Population	Percent Minority	Minority Area?	Total Households	Percent of Households Below the Poverty Level	Low-Income Area?
<b>New Mexico</b>	<b>2,097,021</b>	<b>63.3%</b>	<b>NA</b>	<b>792,755</b>	<b>17.8%</b>	<b>NA</b>
<b>Bernalillo County (Reference Area)</b>	<b>679,037</b>	<b>62.2%</b>	<b>NA</b>	<b>272,528</b>	<b>15.7%</b>	<b>NA</b>
<b>ROI Total (All Block Groups)</b>	<b>19,110</b>	<b>69.4%</b>	<b>Yes</b>	<b>7,152</b>	<b>18.9%</b>	<b>Yes</b>
Census Tract 9.04, Block Group 2	2,419	62.8%	Yes	993	16.7%	Yes
Census Tract 9.06, Block Group 1	1,470	62.4%	Yes	775	41.0%	Yes
Census Tract 9.06, Block Group 3	560	63.8%	Yes	195	37.9%	Yes
Census Tract 11.01, Block Group 1	1,859	53.6%	Yes	803	11.3%	No
Census Tract 11.01, Block Group 3	2,236	47.3%	No	983	9.8%	No
Census Tract 12.02, Block Group 1	921	89.9%	Yes	432	9.0%	No
Census Tract 13, Block Group 4	1,447	89.4%	Yes	506	24.7%	Yes
Census Tract 40.01, Block Group 1	745	73.8%	Yes	174	0.0%	No
Census Tract 40.01, Block Group 2	1,766	84.1%	Yes	590	26.3%	Yes
Census Tract 40.01, Block Group 4	1,652	83.1%	Yes	588	19.0%	Yes
Census Tract 45.01, Block Group 1	2,220	92.8%	Yes	651	24.9%	Yes
Census Tract 9800, Block Group 1	786	43.3%	No	298	0.0%	No
Census Tract 9800, Block Group 2	275	33.5%	No	106	16.0%	Yes
Census Tract 9800, Block Group 4	754	51.1%	Yes	58	0.0%	No

Note: NA = Not applicable.  
 Sources: USCB 2020d, 2020e.



**Figure 3.14-1 Minority and Low-income Areas in Bernalillo County**

Tribal Nations may suffer adverse effects where there are greater percentages of American Indians or Alaskan Natives in impacted areas than in the reference area, where current or ancestral lands held by the tribe are impacted, where important cultural practices or ceremonies may be impacted, or where subsistence consumption of fish and wildlife may be impacted. American Indian populations in the State of New Mexico, Bernalillo County, and the Pueblo of Isleta Reservation are shown in **Table 3.14-2**. Of the 14 block groups in the ROI, 3 have a higher percentage of American Indian than Bernalillo County. The Pueblo of Isleta Reservation is 88.4 percent American Indian.

**Table 3.14-2 American Indian Populations in the Region of Influence**

Geographic Area	Total Population	American Indian Population	Percent American Indian
<b>New Mexico</b>	<b>2,097,021</b>	<b>195,166</b>	<b>9.3%</b>
<b>Pueblo of Isleta</b>	<b>4,387</b>	<b>3,877</b>	<b>88.4%</b>
<b>Bernalillo County (Reference Area)</b>	<b>679,037</b>	<b>31,591</b>	<b>4.7%</b>
<b>ROI Total (All Block Groups)</b>	<b>19,110</b>	<b>784</b>	<b>4.1%</b>
Census Tract 9.04, Block Group 2	2,419	99	4.1%
Census Tract 9.06, Block Group 1	1,470	304	20.7%
Census Tract 9.06, Block Group 3	560	135	24.1%
Census Tract 11.01, Block Group 1	1,859	0	0.0%
Census Tract 11.01, Block Group 3	2,236	52	2.3%
Census Tract 12.02, Block Group 1	921	0	0.0%
Census Tract 13, Block Group 4	1,447	119	8.2%
Census Tract 40.01, Block Group 1	745	26	3.5%
Census Tract 40.01, Block Group 2	1,766	20	1.1%
Census Tract 40.01, Block Group 4	1,652	22	1.3%
Census Tract 45.01, Block Group 1	2,220	0	0.0%
Census Tract 9800, Block Group 1	786	0	0.0%
Census Tract 9800, Block Group 2	275	0	0.0%
Census Tract 9800, Block Group 4	754	7	0.9%

Note: NA = Not applicable.

Sources: USCB, 2020d, 2020e.

The environmental justice analysis reviews impacts described in the other resource sections to determine their potential to impact minority populations, low-income populations, or Tribal Nations. Primary impacts would occur within the described ROI; however, because the different resources have different areas of potential affect, the ROI may be different depending on the resource analyzed and the impact type.

Locations where sensitive receptors are likely to be present in concentrated numbers are identified for both children and the elderly. Schools and childcare facilities are identified as locations where children are likely to be present and may be vulnerable to impacts. Hospitals and elderly care facilities are identified as locations where the elderly are likely to be present and may be vulnerable to impacts.

## 3.14.2 Environmental Consequences

### 3.14.2.1 Proposed Action

For the purposes of analysis of environmental justice populations in this EA, the race, ethnicity, and poverty characteristics of the ROI are examined to determine if a minority or low-income population could be disproportionately affected by the potential impacts of the Proposed Action. The potential for disproportionate impacts on minority and low-income populations are determined by comparing the percentage of each population in the ROI with the percentage of each population in the community of comparison. If the percentage of minority population, low-income population, or American Indian population within the ROI is greater than or equal to the percentages for the community of comparison, then disproportionate impacts on that population could be present if the Proposed Action has a potential to substantially impact that population. However, if the percentage of minority population, low-income population, or American Indian population within the ROI is less than the percentages for the community of comparison, there would likely be no disproportionate impacts (USAF, 2014).

For all child and elderly populations, disproportionate impacts are inherent. Child and elderly populations could be disproportionately impacted to a greater extent because of their vulnerabilities from age-related physiological differences in types and levels of exposure and, therefore, the evaluation of environmental impacts on these populations is different from the evaluation of the general environmental impacts on adults and other populations.

With respect to environmental justice populations, the proposed construction and modification of facilities would generate short- and long-term, minor noise and traffic that could be experienced by people within the ROI. As discussed in **Section 3.3**, construction noise impacts would be temporary lasting only the length of construction and during daytime hours. There would be a temporary increase in traffic on roadways near the project area during construction; however, construction traffic is not expected to occur during peak travel times and roadways would remain open during construction activities. Additionally, early coordination would ensure necessary safety precautions are taken and nearby residents, commuters, and installation personnel have been notified of the construction. Therefore, while the short-term noise and traffic impacts on the minority populations, low-income populations, and Tribal Nations would be considered disproportionate, the impacts would not be significant.

During operation of the Proposed Action, aircraft noise levels around Kirtland AFB would increase as a result of the estimated 3.5 percent increase in airfield operations. **Figure 3.14-2** shows current and proposed noise contours in relation to minority and low-income populations and other sensitive receptors in the ROI. As described in **Section 3.3**, noise levels would not increase more than 1 dB DNL for any of the identified POIs and any adverse impacts would be less than significant. Impacts in training airspace and at ranges are expected to fall below levels analyzed in previous NEPA documents. There would be no significant impacts to the Pueblo of Isleta from noise due to the high altitude of the overflights.