

**FINDING OF NO SIGNIFICANT IMPACT
FOR THE
ENVIRONMENTAL ASSESSMENT ADDRESSING THE CONSTRUCTION,
OPERATION, AND MAINTENANCE OF A NEW FIRE STATION
AT
KIRTLAND AIR FORCE BASE, NEW MEXICO**



MAY 2012

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14. ABSTRACT The 377 ABW proposes to construct, operate, and maintain a new fire station at Kirtland AFB. The new fire station would be constructed in accordance with Air Force Handbook 32-1084, Facility Requirements, and the Air Force Fire Station Design Guide. The facility would consist of a noncombustible one-story structure with three high-bay, drive-through apparatus stalls; separate men's and women's restrooms with lockers and showers; separate men's and women's sleeping rooms; a separate captain's sleeping room and restroom; and a day room with a kitchen. The existing Fire Station 3 (4,312 square feet) would be demolished once construction of the proposed new Fire Station 3 is complete. The proposed new Fire Station 3 would be approximately 7,320 square feet. The three high-bay, drivethrough apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. Connection to the sanitary sewer would include the installation of a lift station connected to the installation sewer system, which is approximately 4,800 feet southwest of the site. The Proposed Action would provide heating, ventilating and air conditioning systems; a 150-kilowatt emergency generator to provide uninterruptible power supply for emergency power and communications; parking; paving; landscaping; and security provisions. The analysis in the EA considers the Proposed Action and the No Action Alternative. Two site location alternatives to the Proposed Action were considered, but eliminated from detailed analysis due to not meeting the criteria set forth in the Air Force Fire Station Design Guide.		
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FINDING OF NO SIGNIFICANT IMPACT (FONSI)
ADDRESSING CONSTRUCTION, OPERATION, AND MAINTENANCE OF A
NEW FIRE STATION AT KIRTLAND AIR FORCE BASE, NEW MEXICO

Introduction

The U.S. Air Force (USAF) prepared an Environmental Assessment (EA) to identify and evaluate potential environmental impacts from construction, operation, and maintenance of a new fire station to replace Fire Station 3 at Kirtland Air Force Base (AFB), New Mexico. The USAF prepared the EA in accordance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (42 United States Code [U.S.C.] Section 4321–4347), as amended, and the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508).

Based on the analysis contained in the *Environmental Assessment Addressing Construction, Operation, and Maintenance of a New Fire Station at Kirtland Air Force Base, New Mexico*, which is herewith incorporated by reference, the USAF has determined that the Proposed Action has the potential to result in less than significant adverse environmental impacts.

1. Description of Proposed Action and Alternatives

Proposed Action. The USAF proposes to construct, operate, and maintain a new Fire Station 3 just south of the intersection of Pennsylvania Street and Power Line Road. The facility would consist of a non-combustible, one-story structure with three high-bay, drive-through apparatus stalls; separate men's and women's restrooms with lockers and showers; separate men's and women's sleeping rooms; a separate captain's sleeping room and restroom; and a day room with a kitchen. The facility would be constructed according to Air Force Handbook (AFH) 32-1084, *Facility Requirements*, and the *Air Force Fire Station Design Guide*, hereafter referred to as the Fire Station Design Guide.

The new Fire Station 3 would be approximately 7,320 square feet. The three high-bay, drive-through apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors, and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. Connection to the sanitary sewer would include the installation of a lift station connected to the installation sewer system, which is approximately 4,800 feet southwest of the site. The Proposed Action would provide heating, ventilating, and air conditioning (HVAC) systems; a 150-kilowatt (kw) emergency generator (either diesel- or natural gas-powered) to provide uninterruptible power supply (UPS) for emergency power and communications; parking; paving; landscaping; and security provisions.

Daily operations would consist of housing and classroom proficiency training of up to ten firefighters at any one time. The facility would also be used for storage of equipment connected to firefighter training, mobility, and protection.

The Proposed Action would also include the demolition of the existing Fire Station 3 (Building 30116), which is approximately 4,312 square feet. Following demolition, site restoration would include backfill and final grading of the disturbed area to blend with surrounding areas, and seeding as applicable.

In addition to the Proposed Action, the No Action Alternative of not constructing, operating, and maintaining a new fire station was analyzed in the EA.

1.1 Alternatives Considered but Eliminated from Detailed Analysis

A range of alternative site locations were discussed during the preparatory stage of the EA. However, by applying the site-selection criteria, these were not considered viable alternatives due to being outside the 3-minute response radius and the lack of utility hookups and paved roads. The two best site alternatives were considered; however, they were eliminated from further detailed analysis because they did not meet the 3-minute response requirement in accordance with the Fire Station Design Guide.

1.1.1 Site Alternative 1

Site Alternative 1 to the Proposed Action is on Pennsylvania Street, southwest of Tijeras Arroyo Golf Course. The site is level and generally undeveloped. Connection to water would be accessible from the site. Connections to electrical would be approximately 1,280 feet to the north of the site; natural gas would be approximately 750 feet west of the site; and sanitary sewer would be approximately 1,625 feet west of the site. This site does not meet the 3-minute response requirement for responding to critical, high-value facility emergencies and does not provide convenient ingress and egress for firefighting vehicles as outlined in the Fire Station Design Guide. Therefore, this alternative was not carried forward for further detailed analysis in the EA.

1.1.2 Site Alternative 2

Site Alternative 2 to the Proposed Action is on Pennsylvania Street, south of the horse stables. This site is level and generally undeveloped. Connection to utilities including water and sanitary sewer are accessible at the site. Connections to electrical would be approximately 1,560 feet west of the site and natural gas would be approximately 1,100 feet west of the site. This site does not meet the 3-minute response requirement for responding to critical, high-value facility emergencies and does not provide convenient ingress and egress for firefighting vehicles as outlined in the Fire Station Design Guide. Therefore, this alternative was not carried forward for further detailed analysis in the EA.

2. Environmental Analysis

The following summarizes the results of the EA.

Land Use. The Proposed Action would be in compliance with the land use policies presented in the *Kirtland Air Force Base 2010 General Plan*, including the main goals of providing operational support for missions; ensuring the management of human, financial, natural, and constructed resources; and promoting the health, safety, and quality of life of Kirtland AFB's personnel. Implementation of the Proposed Action would require the current land use designation at the proposed new Fire Station 3 location (Open Space) to be changed to Industrial. Demolition of Building 30116 would not require a change to the existing land use designation. No impacts on municipal land use plans or policies, or existing land use viability or continued land occupation would be expected. The Proposed Action would not result in impacts on land use compatibility from noise production.

Noise. Sources of noise under the Proposed Action that could impact populations include construction and demolition activities and the operational noise from the completed facility. Construction and demolition activities at Kirtland AFB would result in impacts on the noise environment; however, these impacts would be temporary and less than significant. Operation and maintenance of the new Fire Station 3 would not produce appreciable noise above ambient noise levels, but noise resulting from

sirens could periodically be heard outside in the vicinity of the proposed facility. Impacts on the noise environment would be expected to be less than significant and would not prevent continued use of the surrounding areas.

Visual Resources. Implementation of the Proposed Action would result in less than significant, temporary, adverse impacts on visual resources. Construction and demolition activities would result in a temporary impact on the overall aesthetic appeal at the proposed new Fire Station 3 site. Construction equipment, materials, and wastes would be visible at the site, other areas of the installation, and off-installation during transport. Following the construction of the proposed new Fire Station 3, the visual landscape of Kirtland AFB would be altered due to the presence of a new facility at a previously undeveloped site. To minimize any potential adverse visual impacts, the proposed new Fire Station 3 would be designed to comply with the architectural compatibility standards as described in the *Kirtland Air Force Base Architectural Compatibility Plan* and the Fire Station Design Guide.

Air Quality. The Proposed Action would generate particulate matter emissions as fugitive dust from ground-disturbing activities (e.g., grading, paving, construction, and demolition). Appropriate fugitive dust-control measures would be employed during construction and demolition activities to suppress emissions. Combustion emissions of all criteria pollutants would result from the operation of construction equipment and portable generators during construction and demolition activities, hauling debris from the project site, and construction workers commuting to the project site. Fugitive dust and combustion emissions associated with construction equipment would produce slightly elevated air pollutant concentrations. However, the impacts would be temporary, fall off rapidly with distance from the project site, and would not result in any long-term impacts. Kirtland AFB is in attainment for all criteria pollutants, except CO. Bernalillo County has been designated as moderate maintenance for CO, and, based on this designation, General Conformity Rule requirements are applicable for CO. The Proposed Action would generate emissions below 10 percent of the emissions inventory for the Albuquerque-Mid Rio Grande Intrastate Air Quality Control Region and the emissions would be temporary. Therefore, the construction and demolition activities associated with the Proposed Action would have less than significant impacts on air quality at Kirtland AFB and on regional or local air quality. Approximately 657 metric tons of carbon dioxide (CO₂) (725 tons) were estimated to be emitted by the Proposed Action. The CO₂ emitted is approximately 0.0011 percent of the New Mexico statewide CO₂. Therefore, the Proposed Action would have negligible contribution towards the New Mexico statewide greenhouse gas inventory.

Geology and Soils. Under the Proposed Action, less than significant impacts on geological resources and soils would be expected. Construction activities would require clearing of vegetation, grading, and paving, which could increase erosion and sedimentation potential. Soil erosion and sedimentation would be minimized for all construction and demolition operations as a result of following an approved sediment- and erosion-control plan and best management practices (BMPs). Soils would be compacted and soil structure would be disturbed and modified as a result of construction activities. Soil productivity, which is the capacity of the soil to produce vegetative biomass, would decline in disturbed areas and would be eliminated in those areas within the footprint of the proposed new Fire Station 3. Loss of soil structure due to compaction could result in changes in drainage patterns. Use of storm water-control measures that favor infiltration would minimize the potential for erosion and sediment production as a result of future storm events. Long-term, beneficial impacts on soils would be expected from the return of the site of Building 30116 to natural conditions and a reduction in storm water runoff and soil erosion from the decrease in impervious surfaces in the vicinity. Construction of the new Fire Station 3 would be in accordance with building code requirements for Kirtland AFB, which would ensure protection from earthquakes. No impacts from geologic hazards would be expected.

Water Resources. Groundwater might be temporarily used for dust suppression during construction and demolition activities, depending on site conditions. The regional aquifer is present under all of Kirtland AFB and ranges in depth from near surface to depths of 200 feet below grade east of the major fault zones in the eastern portion of the installation, and to depths of 350 to 500 feet below grade west of the fault zone. The regional aquifer is used for the installation's water supply. Kirtland AFB has a Water Rights Agreement with the State of New Mexico that allows it to withdraw up to 6,000 acre-feet per year from the underground aquifer, which is equal to approximately 2 billion gallons of water. In 2010, a total of approximately 772 million gallons (approximately 2,369 acre-feet) of water was pumped from these wells. Due to sufficient groundwater supply on Kirtland AFB, less than significant adverse impacts on groundwater availability would be expected from this use.

The Proposed Action would create ground disturbance on a small scale, which could increase storm water runoff and erosion potential during heavy precipitation events. Implementation of BMPs and post-construction restabilization and revegetation would reduce storm water runoff and erosion potential; therefore, adverse impacts on surface waters would be less than significant. Storm water runoff from the proposed new Fire Station 3 would be incorporated into Kirtland AFB's Municipal Separate Storm Sewer System (MS4); therefore, less than significant, long-term, adverse impacts on water resources from storm water runoff due to increased impervious surfaces would be expected. Less than significant adverse impacts on water quality would be expected from implementation of the Proposed Action. BMPs would be implemented to protect against potential petroleum or hazardous materials spills from construction equipment. In the event of a spill, procedures outlined in Kirtland AFB's *Spill Prevention Control and Countermeasures Plan* would be followed to quickly contain and clean up the spill. No direct impacts on floodplains would be expected as the proposed new Fire Station 3 and Building 30116 locations are outside of the 100-year floodplains of the Tijeras Arroyo and the Arroyo del Coyote. Although the quantity of storm water sheet flow from disturbed sites to the intermittent streams on Kirtland AFB could increase during construction and demolition activities, this increase is not anticipated to be significant. Therefore, the Proposed Action would have less than significant indirect impacts on floodplain flow characteristics.

Biological Resources. Implementation of the Proposed Action would result in less than significant impacts on vegetation because the proposed new Fire Station 3 location has been previously disturbed and consist of sparse vegetation. No wetlands are located within or near the new Fire Station 3 location; therefore, no impacts on wetlands would be expected. Noise created during construction and demolition activities could result in adverse impacts on nearby wildlife. These impacts would include subtle, widespread effects from the overall elevation of ambient noise levels, potentially resulting in reduced communications ranges, interference with predator/prey detection, or habitat avoidance. Wildlife species inhabiting the proposed new Fire Station 3 location might be temporarily or permanently displaced from the Proposed Action. Certain wildlife species would be expected to temporarily move to adjacent habitats during construction due to increased noise and ground disturbances and then potentially return to the area once construction activities have ceased. Other species would be permanently displaced due to a loss of habitat from the construction of a new facility. Increased mortality of less-mobile species would be expected as the result of unavoidable direct impacts associated with construction activities. Long-term, beneficial impacts on wildlife and habitat would be expected from the return of the Building 30116 site to natural conditions due to a creation of more wildlife habitat within the site. Overall, impacts on wildlife would be less than significant.

No federally or state-listed threatened or endangered species are known to inhabit the site of Building 30116 or the proposed new Fire Station 3 location. Because of the disturbed nature of these sites, they are not considered to be high-quality wildlife habitat and impacts on threatened and endangered species from construction and demolition activities would be less than significant. The burrowing owl (*Athene cunicularia*) is the only species of concern listed by the U.S. Fish and Wildlife Service (USFWS)

in the vicinity. There are no known burrowing owl nests within the Building 30116 or proposed new Fire Station 3 locations. In addition, owls vary their nesting sites from year to year; therefore, potential exists to directly impact (e.g., burrow damage) or indirectly impact (e.g., noise disturbances) burrowing owls under the Proposed Action. Surveys prior to construction and flagging of nests or relocation of owls would minimize these impacts. Overall, impacts on burrowing owls would be less than significant.

Cultural Resources. There are no known cultural resources within the Area of Potential Effect (APE) of proposed new Fire Station 3; therefore, no adverse impacts on cultural resources would be expected from the implementation of the Proposed Action within this site. The existing Fire Station 3 (Building 30116) was built in 1955 as a fire station for the former Manzano Base. Under the Proposed Action, Building 30116 would be demolished once the new Fire Station 3 is constructed. In 2003, Van Citters: Historic Preservation, LLC (VCHP) was contracted by Kirtland AFB to evaluate the significance of Manzano Base. Only one building located within the Manzano Base Administrative Area was recommended as eligible for the NRHP. The remainder of the buildings, including Building 30116, were previously remodeled from their original International style of architecture and recommended ineligible to the NRHP due to a lack of architectural integrity. In addition, the role of Building 30116 as a fire station was not exceptionally significant within the greater context of Manzano Base history.

In 2005, the New Mexico State Historic Preservation Officer concurred with all of VCHP's eligibility recommendations concerning Manzano Base. Because Building 30116 has been determined not eligible to the NRHP, its demolition would not result in an adverse impact.

Infrastructure. Construction of the proposed new Fire Station 3 would result in less than significant impacts on transportation, electrical, natural gas, liquid fuel, water supply, sanitary sewer and wastewater, storm water, and communications systems. Interruptions of service of these systems might be expected during construction and demolition activities; however, these interruptions would be temporary. The demand for these utilities would negligibly increase during operation of the proposed new Fire Station 3; however, this would be negligible in comparison to the current available capacities of these utilities. In addition, because Building 30116 would be demolished, the added demand of these utilities from the proposed new Fire Station 3 would be partially offset by the reduction in demand from Building 30116. Less than significant adverse impacts on transportation, electrical systems, storm water systems, and communications systems would be expected from the operation and maintenance of the new Fire Station 3 and demolition of Building 30116; and no impacts on water supply systems, sanitary sewer and wastewater systems, natural gas systems, or liquid fuels would be expected.

The Proposed Action would have less than significant adverse impacts on storm water systems due to an increase in storm water runoff and sedimentation during construction activities, and the increase of impervious surfaces from the presence of the proposed new Fire Station 3. BMPs would be employed during construction and demolition activities and operation of the proposed new Fire Station 3 to minimize impacts on the storm water system. Storm water drainage from the new Fire Station 3 would be incorporated into Kirtland AFB's MS4, resulting in an increase in demand for this system. A temporary increase in demand on the solid waste management system would occur due to generation of solid waste during construction and demolition activities; however, this demand is not expected to overburden the system and less than significant impacts would be expected.

Hazardous Materials and Waste. Less than significant impacts on hazardous materials management would be expected from the construction of the proposed new Fire Station 3. Petroleum products and minimal amounts of hazardous materials would be used during construction; however, no new chemicals or toxic substances would be used or stored at the installation. Less than significant impacts would be expected from the generation of hazardous and petroleum wastes during construction and demolition activities. It is anticipated that the quantity of hazardous wastes generated would be negligible, and

would be properly disposed of. BMPs would be used to ensure that contamination from a spill would not occur. Less than significant impacts on hazardous materials and wastes management would be expected from the operation and maintenance of the proposed new Fire Station 3. No Environmental Restoration Program (ERP) sites overlap with the boundaries of the new Fire Station 3 location; therefore, no impacts on ERP sites would be expected from the construction of new Fire Station 3. While an incremental increase in hazardous materials and wastes would be expected from the Proposed Action, adherence to the Pollution Prevention Program and associated plans and use of BMPs would ensure adverse impacts are less than significant.

Less than significant impacts on hazardous materials and hazardous waste management and Kirtland AFB's pollution prevention program would be expected from demolition activities. No impacts from ERP sites would be expected. Short-term, adverse impacts on asbestos, lead-based paint, and polychlorinated biphenyl management would be expected; however, these impacts would be less than significant.

Safety. Construction and demolition activities under the Proposed Action would result in impacts on contractor safety; however, these impacts are expected to be less than significant due to implementation of effective health and safety programs. No impacts on military personnel health and safety would be expected during the construction of the new Fire Station 3 and demolition of Building 30116.

Operation of the proposed new Fire Station 3 would result in significant beneficial impacts on military personnel because personnel assigned to the new Fire Station 3 would no longer be subject to inadequate space; undersized, inadequate restrooms; inadequate heating, cooling, and ventilation; and poor exhaust removal from the apparatus stalls. Potential exposure to ACM and LBP would be eliminated. In addition, the new Fire Station 3 would allow for more effective training of firefighters. Better trained firefighters would ultimately result in safer conditions for military personnel while on deployment. The location of the new Fire Station 3 would also provide improved response time to critical facilities on the installation. Operation and maintenance of the new Fire Station 3 would allow for more effective training for firefighters, resulting in a long-term beneficial impact on military personnel and public health and safety.

Socioeconomics and Environmental Justice. Less than significant impacts on socioeconomics and environmental justice would be expected from the Proposed Action. Relocation of workers required for construction and demolition activities would not be necessary, and no new staff is anticipated to be hired or transferred to Kirtland AFB for operation of the proposed new Fire Station 3. Construction and demolition activities would result in indirect, beneficial impacts from the increase in payroll tax revenues, purchase of materials, and purchases of goods and services in the local area. The Proposed Action would not negatively impact minority populations or children.

BMPs/Mitigation. BMPs associated with implementing the Proposed Action are discussed throughout the EA. Potential construction and demolition BMPs include fencing off work areas, protecting storm water inlets in the project area with hay bales and sand bags to prevent sediment from entering local waterways, and implementing measures to protect against potential petroleum and hazardous materials releases. BMPs that would be implemented after construction include revegetating and restabilizing the post-construction site and implementing storm water control measures favoring infiltration to prevent long-term soil erosion and minimize runoff.

3. Regulations

The Proposed Action would not violate Federal, state, or local environmental regulations.

4. Commitment to Implementation

The USAF affirms their commitment to implement this Proposed Action in accordance with NEPA. Implementation is dependent on funding. The USAF would ensure that adequate funds are requested in future years' budgets to achieve the goals and objectives set forth in this EA.

5. Public Review and Comment

The Draft EA was available for public review and comment from 12 March to 10 April 2012 at Central New Mexico Community College, Montoya Library, 4700 Morris NE, Albuquerque, New Mexico 87102 and Kirtland AFB Library, Building 20204, Kirtland AFB, New Mexico 87117, and <http://www.kirtland.af.mil/>. No public comments were received during this review period. Six responses were received from agencies and their comments were incorporated into the analysis of potential environmental impacts performed as part of this EA, where applicable.

6. Finding of No Significant Impact

Based on the findings of the EA and as stated above, the USAF believes that the Proposed Action would not generate significant controversy or have a significant impact on the quality of the human or natural environment. The Draft EA and proposed FONSI were made available for a 30-day public review and comment period. After reviewing the comments, if the final determination is that the Proposed Action would have no significant impact, the FONSI will be signed and the action will be implemented. An Environmental Impact Statement will not be prepared. This analysis fulfills the requirements of NEPA and the CEQ Regulations.

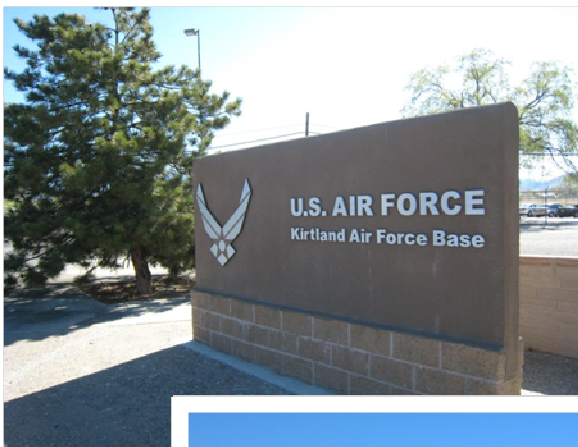
Date

Signature on File; Signed 31 May 12

JOHN C. KUBINEC, Colonel, USAF
Commander
Kirtland Air Force Base

Attachment: Environmental Assessment

FINAL
**ENVIRONMENTAL ASSESSMENT
ADDRESSING THE CONSTRUCTION, OPERATION,
AND MAINTENANCE OF A NEW FIRE STATION
AT
KIRTLAND AIR FORCE BASE, NEW MEXICO**



MAY 2012

ACRONYMS AND ABBREVIATIONS

377 ABW	377th Air Base Wing	EA	Environmental Assessment
377 MSG/ CEANC	377 Mission Support Group/Civil Engineering Environmental Management – Compliance Section	EISA	Energy Independence and Security Act
AAFES	Army and Air Force Exchange Service	ELG	Effluent Limitation Guideline
ACHP	Advisory Council on Historic Preservation	EO	Executive Order
ACM	asbestos-containing material	EOD	Explosive Ordnance Disposal
AEHD	Albuquerque Environmental Health Department	ER	Environmental Restoration
AFB	Air Force Base	ERP	Environmental Restoration Program
AFH	Air Force Handbook	ESA	Endangered Species Act
AFI	Air Force Instruction	FEMA	Federal Emergency Management Act
AFMC	Air Force Materiel Command	FPPA	Farmland Protection Policy Act
AFPAM	Air Force Pamphlet	GHG	greenhouse gas
AFPD	Air Force Policy Directive	HAP	hazardous air pollutant
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health	HMMS	Hazardous Materials Management System
AMRGI	Albuquerque-Mid Rio Grande Intrastate	HVAC	heating, ventilating, and air conditioning
APE	Area of Potential Effect	HWMP	Hazardous Waste Management Plan
AQCB	Air Quality Control Board	I	Interstate
AQCR	Air Quality Control Region	IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
AQD	Air Quality Division	JD	jurisdictional determination
BMP	Best Management Practice	JP-8	jet fuel – type 8
CAA	Clean Air Act	kw	kilowatt
CEQ	Council on Environmental Quality	LA	Laboratory of Anthropology
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	LBP	lead-based paint
CFR	Code of Federal Regulations	LID	low-impact development
CGP	Construction General Permit	MBTA	Migratory Bird Treaty Act
CO	carbon monoxide	MGD	million gallons per day
CO ₂	carbon dioxide	mg/m ³	milligrams per cubic meter
CWA	Clean Water Act	MMRP	Military Munitions Response Program
dBA	A-weighted decibel	MS4	Municipal Separate Storm Sewer System
DOD	Department of Defense	MSA	Metropolitan Statistical Area
DOE	Department of Energy		

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MSL	mean sea level	ppb	parts per billion
NAAQS	National Ambient Air Quality Standards	PPE	personal protective equipment
NEPA	National Environmental Policy Act	ppm	parts per million
NESHAP	National Emissions Standards for Hazardous Air Pollutants	PSD	Prevention of Significant Deterioration
NFA	No Further Action	RCRA	Resource Conservation and Recovery Act
NHPA	National Historic Preservation Act	SAAQS	State Ambient Air Quality Standards
NMAC	New Mexico Administration Code	SDWA	Safe Drinking Water Act
NMDGF	New Mexico Department of Game and Fish	SHPO	State Historic Preservation Officer
NMED	New Mexico Environment Department	SIP	State Implementation Plan
NMED-HWB	NMED Hazardous Waste Bureau	SNL/NM	Sandia National Laboratory/New Mexico
NOA	Notice of Availability	SO ₂	sulfur dioxide
NOI	Notice of Intent	SOF	Special Operations Force
NO ₂	nitrogen dioxide	SSPP	Strategic Sustainability Performance Plan
NO _x	nitrogen oxides	SWMU	Solid Waste Management Unit
NPDES	National Pollutant Discharge Elimination System	SWPPP	Storm Water Pollution Prevention Plan
NRCS	Natural Resources Conservation Service	TMDL	Total Maximum Daily Load
NRHP	National Register of Historic Places	TNW	Traditional Navigable Water
NSPS	New Source Performance Standards	tpy	tons per year
O ₃	ozone	TSCA	Toxic Substances Control Act
ODS	ozone-depleting substance	UFC	Unified Facilities Criteria
OSH	occupational safety and health	UPS	uninterruptible power supply
OSHA	Occupational Safety and Health Administration	USACE	U.S. Army Corps of Engineers
Pb	lead	USAF	U.S. Air Force
PCB	polychlorinated biphenyl	U.S.C.	United States Code
PM _{2.5}	particulate matter equal to or less than 2.5 microns in diameter	USEPA	U.S. Environmental Protection Agency
PM ₁₀	particulate matter equal to or less than 10 microns in diameter	USFWS	U.S. Fish and Wildlife Service
		USGS	U.S. Geological Survey
		UXO	unexploded ordnance
		VCHP	Van Citters: Historic Preservation, LLC
		VOC	volatile organic compound
		µg/m ³	micrograms per cubic meter

FINAL

ENVIRONMENTAL ASSESSMENT
ADDRESSING THE CONSTRUCTION, OPERATION,
AND MAINTENANCE OF A NEW FIRE STATION
AT
KIRTLAND AIR FORCE BASE, NEW MEXICO

377th Air Base Wing
Kirtland Air Force Base, New Mexico

MAY 2012

COVER SHEET
FINAL ENVIRONMENTAL ASSESSMENT
ADDRESSING THE CONSTRUCTION, OPERATION, AND MAINTENANCE
OF A NEW FIRE STATION
AT KIRTLAND AIR FORCE BASE, NEW MEXICO

Proposed Action: The 377th Air Base Wing (377 ABW) proposes to construct, operate, and maintain a new fire station to replace the current Fire Station 3 at Kirtland Air Force Base (AFB).

Report Designation: Final Environmental Assessment (EA).

Responsible Agency: U.S. Air Force (USAF), 377 ABW, Kirtland AFB.

Affected Location: Kirtland AFB, New Mexico.

Abstract: The 377 ABW proposes to construct, operate, and maintain a new fire station at Kirtland AFB. The new fire station would be constructed in accordance with Air Force Handbook 32-1084, *Facility Requirements*, and the *Air Force Fire Station Design Guide*. The facility would consist of a non-combustible, one-story structure with three high-bay, drive-through apparatus stalls; separate men's and women's restrooms with lockers and showers; separate men's and women's sleeping rooms; a separate captain's sleeping room and restroom; and a day room with a kitchen. The existing Fire Station 3 (4,312 square feet) would be demolished once construction of the proposed new Fire Station 3 is complete.

The proposed new Fire Station 3 would be approximately 7,320 square feet. The three high-bay, drive-through apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors, and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. Connection to the sanitary sewer would include the installation of a lift station connected to the installation sewer system, which is approximately 4,800 feet southwest of the site. The Proposed Action would provide heating, ventilating, and air conditioning systems; a 150-kilowatt emergency generator to provide uninterruptible power supply for emergency power and communications; parking; paving; landscaping; and security provisions.

The analysis in the EA considers the Proposed Action and the No Action Alternative. Two site location alternatives to the Proposed Action were considered, but eliminated from detailed analysis due to not meeting the criteria set forth in the *Air Force Fire Station Design Guide*.

For additional information on this EA, contact Kirtland AFB NEPA Program Manager by mail at 377 MSG/CEANQ, 2050 Wyoming Boulevard SE, Suite 125, Kirtland AFB, NM 87117-5270, or by email to nepa@kirtland.af.mil.

**FINAL
ENVIRONMENTAL ASSESSMENT
ADDRESSING THE CONSTRUCTION, OPERATION, AND
MAINTENANCE OF A NEW FIRE STATION
AT KIRTLAND AIR FORCE BASE, NEW MEXICO**

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1. Purpose of and Need for Action

1.1 Introduction

This section describes the purpose of and need for the Proposed Action at Kirtland Air Force Base (AFB), provides summaries of the scope of the environmental review process and the applicable regulatory requirements, and presents an overview of the organization of the document.

Federal agencies are required to consider the environmental consequences of proposed actions in the decisionmaking process under the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] Sections 4321 to 4370d) and the Council on Environmental Quality's (CEQ) implementing regulations for NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508). Kirtland AFB is also required to consider U.S. Air Force (USAF) NEPA-implementing regulation (32 CFR 989), and Department of Defense (DOD) Instruction 4715.9, *Environmental Planning Analysis*. An Environmental Assessment (EA) addressing the Construction, Operation, and Maintenance of a New Fire Station at Kirtland AFB has been prepared in accordance with NEPA. This EA evaluates the potential environmental impacts associated with the construction, operation, and maintenance of a new fire station for the 377th Air Base Wing (377 ABW) at Kirtland AFB.

Kirtland AFB is just southeast of Albuquerque, New Mexico (see **Figure 1-1**), at the foot of the Manzano Mountains. These mountains define the eastern boundary of an area called East Mesa. Kirtland AFB encompasses approximately 52,000 acres of the East Mesa and has an average elevation of 5,400 feet above mean sea level. Land uses for areas adjacent to the installation include Cibola National Forest to the northeast and east, the Isleta Indian Reservation and Cibola National Forest (including Manzano Wilderness Area) to the south, and residential and business areas of the City of Albuquerque to the west and north.

Kirtland AFB was established in the late 1930s as a training base for the Army Air Corps. In 1941, construction of permanent barracks, warehouses, and a chapel was completed and a B-18 bomber, Kirtland AFB's first military aircraft, arrived. Troops soon followed, and Kirtland AFB grew rapidly with United States' involvement in World War II. The installation served as a training site for aircrews for many of the country's bomber aircraft, including the B-17, B-18, B-24, and the B-29. After World War II, Kirtland AFB shifted from a training facility to a test and evaluation facility for weapons delivery, working closely with both Los Alamos National Laboratory and Sandia National Laboratories. In 1971, Kirtland AFB and its adjoining neighbor to the east, Sandia Army Base, were combined. The two divisions of the installation are still referred to as Kirtland West and Kirtland East, respectively. Kirtland AFB is now operated by the 377 ABW.

The 377 ABW is a unit of the Air Force Materiel Command (AFMC) and is the host unit at Kirtland AFB. The 377 ABW's prime mission is to support more than 150 mission partners with personnel, resources, equipment, and facilities. The installation functions as a test and evaluation center for the Air Force Research Laboratory, Space and Missile Systems Center, and Air Force Operational Test and Evaluation Center; and it is the headquarters for operational organizations, such as the Air Force Inspection Agency and Sandia National Laboratories. Kirtland AFB also functions as a training base for the 58th Special Operations Wing of Air Education and Training Command's 19th Air Force. The 150th Fighter Wing of the New Mexico Air National Guard is also stationed at the installation. The 377 ABW provides fire protection (including crash and rescue) for Albuquerque International Sunport.

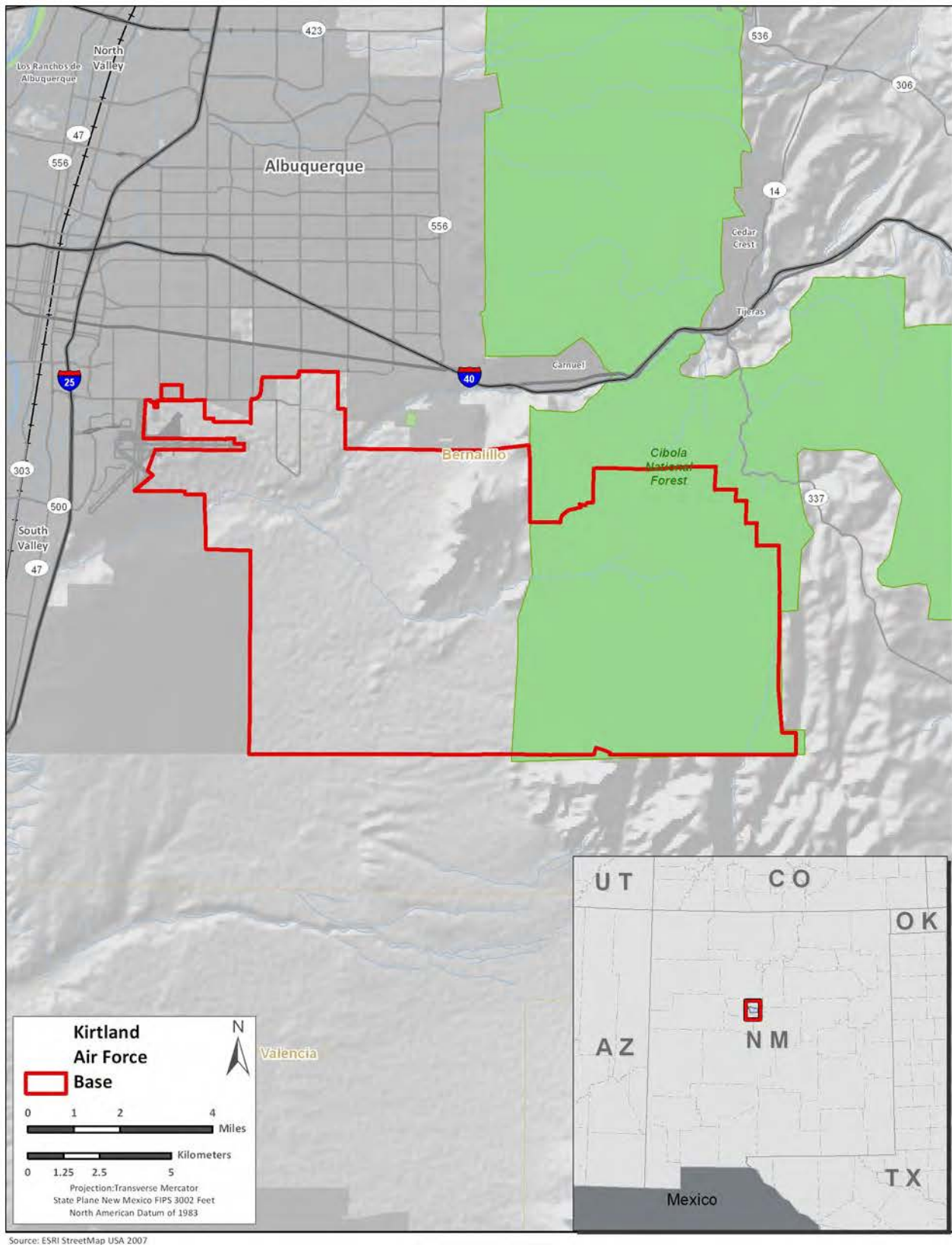


Figure 1-1. Kirtland AFB Location Map

The EA is organized into six sections and three appendices. **Section 1** states the purpose, need, scope, and public involvement efforts for the Proposed Action. **Section 2** contains a detailed description of the Proposed Action and the alternatives considered. **Section 3** describes the existing conditions of the potentially affected environment. **Section 4** identifies the environmental consequences of implementing all reasonable alternatives, including direct, indirect, and cumulative impacts. **Section 5** provides the names of those persons and agencies consulted for the EA. **Section 6** lists the references used to support the analyses.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to construct, operate, and maintain a new, up-to-date fire station at Kirtland AFB in accordance with current standards, as specified in Air Force Handbook (AFH) 32-1084, *Facility Requirements*, and the *Air Force Fire Station Design Guide* (USAF 1997), hereafter referred to as the Fire Station Design Guide.

The need for the Proposed Action is to replace Fire Station 3 (Building 30116) to better serve the southeastern portion of Kirtland AFB and improve response times to critical, high-value facilities. Building 30116 was constructed in 1955 and is extremely deficient in many aspects, including space; structure; heating, ventilating, and air conditioning (HVAC); lighting; utilities; and location. The building's deficient structure and unsuitable dimensions make any remodel or expansion unfeasible to meet current fire station space and facility standards. Major deficiencies in Building 30116 include the following:

- Building 30116 has undersized apparatus stalls that are not drive-through and contain non-rated doors leading from the apparatus stalls to the occupied areas including the kitchen and day room.
- Building 30116 has one less stall than required; therefore, one fire truck must be parked outdoors.
- There are no secondary exits from the office and kitchen where primary access is through the apparatus stalls.
- Vehicle exhaust penetrates into the office, kitchen, day room, and protective clothing lockers where it leaves residues that could have adverse health effects, particularly on food being prepared and consumed.
- Building 30116 has poor heating, cooling, and ventilation, and poor exhaust removal from the apparatus stalls.
- The existing facility has no training room; undersized, inadequate restrooms; undersized kitchen and kitchen storage; no hose storage or drying facilities; no firefighting agent storage; and no locker room for protective clothing.
- The present location of Fire Station 3 is approximately 3.7 miles from recently constructed critical, high-value facilities and does not meet the 3-minute response radius set forth in the Fire Station Design Guide.

1.3 Scope of the EA

Scope consists of the range of actions, alternatives, and impacts to be considered. The scope of the Proposed Action and the range of alternatives to be considered are presented in detail in **Section 2**. In accordance with CEQ regulations implementing NEPA (40 CFR 1500–1508), the No Action Alternative will be analyzed to provide the baseline against which the environmental impacts of implementing the range of alternatives addressed can be compared. This EA identifies appropriate

mitigation measures that are not already included in the Proposed Action or alternatives in order to avoid, minimize, reduce, or compensate for adverse environmental impacts. The EA examines the environmental impacts of the Proposed Action and No Action Alternative on the following resource areas: land use, noise, visual resources, air quality, geology and soils, water resources, biological resources, cultural resources, transportation and infrastructure, hazardous materials and waste, safety, and socioeconomic and environmental justice. The characterization of the affected environment, or baseline environmental conditions, is discussed in **Section 3**; however, per CEQ regulations (40 CFR 1501.7 (a)(3)), only those resource areas that apply to the Proposed Action are analyzed. An analysis of potential direct, indirect, and cumulative impacts on Kirtland AFB associated with the Proposed Action and No Action Alternative is discussed in **Section 4**.

1.3.1 Environmental Laws, Regulations, and Executive Orders

To comply with NEPA (Public Law 91-190, 42 U.S.C. Section 4321 et. seq.), the planning and decisionmaking process involves a study of other relevant environmental laws, regulations, and Executive Orders (EOs). The NEPA process does not replace procedural or substantive requirements of other environmental laws; it addresses them collectively in an analysis, which enables decisionmakers to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated “with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively” (40 CFR 1500.2).

As required in 40 CFR 1500.2(c), the EA contains a list of Federal permits, licenses, and coordination that might be required in implementing the Proposed Action or alternatives (see **Table 1-1**).

Table 1-1. Sample List of Coordination and Permits Associated with the Proposed Action

Agency	Permit/Approval/Condition
U.S. Fish and Wildlife Service (USFWS)	• Endangered Species Act (ESA) Section 7 Coordination • Migratory Bird Treaty Act Coordination
U.S. Army Corps of Engineers (USACE)	• Clean Water Act (CWA) Section 404 Permit
U.S. Environmental Protection Agency (USEPA)	• National Pollutant Discharge Elimination System (NPDES) permit
New Mexico Environment Department (NMED)/ City of Albuquerque, New Mexico	• Applicable air quality permits • Title V Permit
New Mexico Historic Preservation Division	• National Historic Preservation Act (NHPA) Section 106 Consultation

Appendix A contains summaries of the environmental laws, regulations, and EOs that might apply to this project. Where relevant, these laws are described in more detail in the appropriate resource areas presented in **Section 3** of the EA. The scope of the analysis of potential environmental consequences in **Section 4** considers direct, indirect, and cumulative impacts.

1.4 Interagency Coordination and Public Involvement

NEPA requirements help ensure that environmental information is made available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions would be enhanced if proponents provide information to the public and involve the public in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning (IICEP)*, requires the USAF to implement an agency coordination process, which is used for the purpose of facilitating and receiving agency input coordination and implements scoping requirements.

Through the IICEP process, Kirtland AFB provided the Draft EA to relevant Federal, state, and local agencies to share the analyses of the Proposed Action and alternatives and provide them sufficient time to make known their environmental concerns specific to the action. The IICEP process also provides Kirtland AFB the opportunity to cooperate with and consider state and local views in implementing the Federal proposal. Native American tribes were also be notified of the Proposed Action, and provided an opportunity to comment on the Proposed Action. All IICEP, tribal consultation, and public involvement materials related to this EA are included in **Appendix B**. The agencies, tribes, and other stakeholders contacted are also listed in **Appendix B**.

A Notice of Availability (NOA) for the Draft EA was published in *The Albuquerque Journal* on 12 March 2012. The publication of the NOA initiated a 30-day review period. At the closing of the public review period, no comments from the general public had been received. Six responses from government agencies (Department of the Army, Albuquerque District, Corps of Engineers; City of Albuquerque, Air Quality Division [AQD]; Mid-Regional Council of Governments; New Mexico State Historic Preservation Officer [SHPO]; U.S. Department of Agriculture Forest Service; and New Mexico Environmental Department [NMED]) were received. These comments were incorporated into the analysis of potential environmental impacts performed as part of this EA, where applicable. **Appendix B** contains additional details about the public review period.

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2. Description of Proposed Action and Alternatives

As discussed in **Section 1.1**, the NEPA process provides for an evaluation of potential environmental consequences associated with a proposed action and considers alternative courses of action. Reasonable alternatives must satisfy the purpose of and need for the proposed action, as defined in **Section 1.2**. In addition, CEQ regulations also specify the inclusion of a No Action Alternative against which potential impacts would be compared. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, it is analyzed in detail in accordance with CEQ regulations.

2.1 Proposed Action

The 377 ABW at Kirtland AFB, New Mexico, is proposing to construct, operate, and maintain a new Fire Station 3 just south of the intersection of Pennsylvania Street and Power Line Road (see **Figure 2-1**). The facility would consist of a noncombustible, one-story structure with three high-bay, drive-through apparatus stalls; separate men's and women's restrooms with lockers and showers; separate men's and women's sleeping rooms; a separate captain's sleeping room and restroom; and a day room with a kitchen. The facility would be constructed according to AFH 32-1084, *Facility Requirements*, and the Fire Station Design Guide. Building 30116 (4,312 square feet) would be demolished once construction of the proposed new Fire Station 3 is complete. **Figure 2-1** depicts the location of the Proposed Action site location alternatives and the existing Fire Station 3, Building 30116.

The proposed new Fire Station 3 would be approximately 7,320 square feet. The three high-bay, drive-through apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors, and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. Connection to the sanitary sewer would include the installation of a lift station connected to the installation's sewer system, which is approximately 4,800 feet southwest of the site. The Proposed Action would provide HVAC systems, a 150-kilowatt (kw) emergency generator (either diesel- or natural gas-powered) to provide uninterruptible power supply (UPS) for emergency power and communications, parking, paving, landscaping, and security provisions. The new fire station would comply with Kirtland AFB architectural compatibility standards, applicable DOD antiterrorism/force protection requirements; and sustainable design principles as mandated by EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*.

2.1.1 Construction and Demolition

Equipment such as bulldozers, backhoes, front-end loaders, dump trucks, tractor-trailers, concrete mixers, asphalt vehicles, and generators would be required to support the proposed site preparation, construction, and demolition activities. Sufficient amounts of fuels, hydraulics fluids, oils, and lubricants would be stored on site during the project to support contractor vehicles and machinery. No other hazardous materials would be stored on site. All material needs (e.g., steel, concrete, and asphalt) would be supplied by offsite vendors. Construction activities would require small amounts of electricity; however, no natural gas or steam would be required for construction or demolition. If a dust nuisance or hazard has the potential to occur during construction or demolition, Kirtland AFB would supply water to be used for dust control. Water would be applied by water trucks and sprayers.

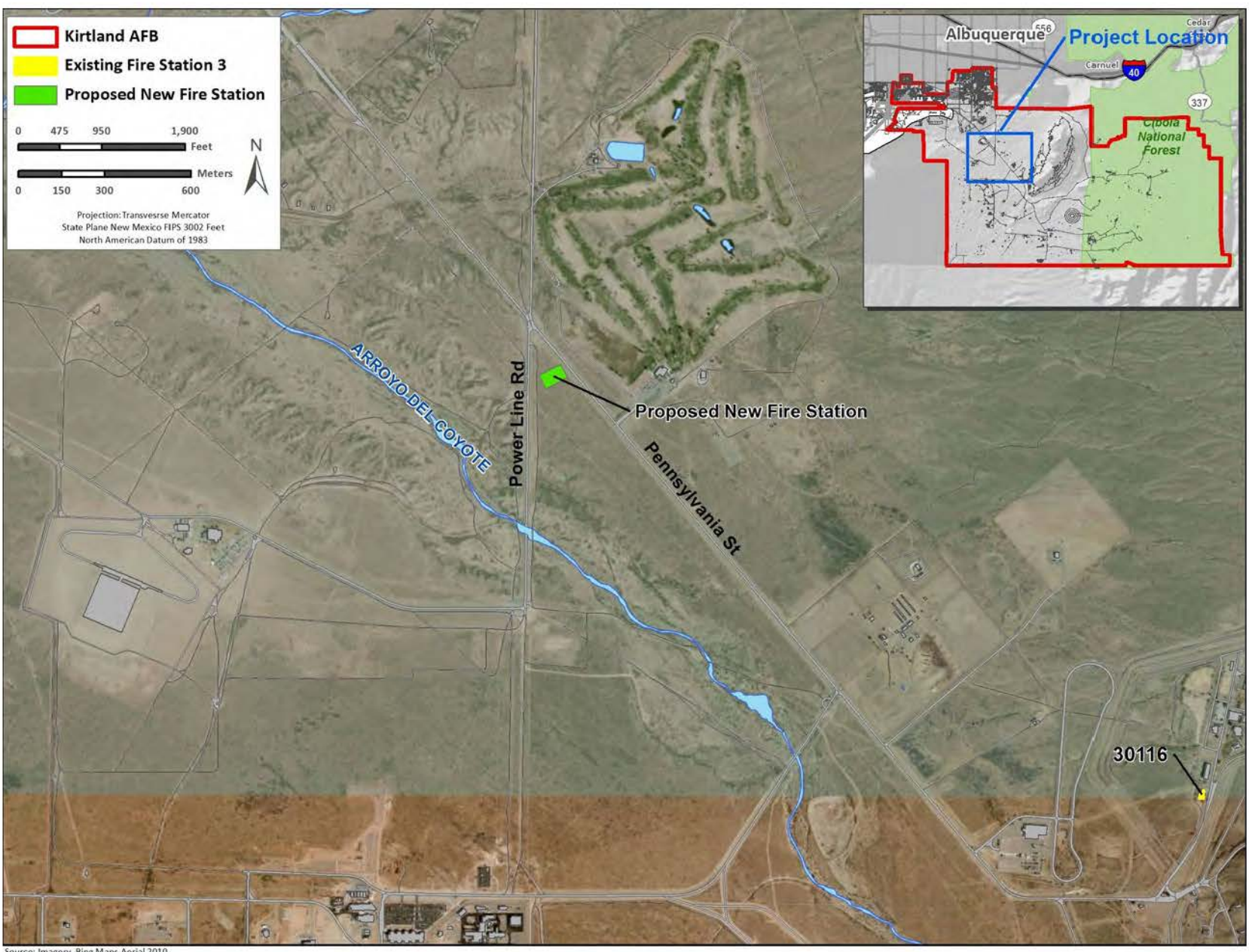


Figure 2-1. Location of Proposed Action and Existing Fire Station 3

Due to the amount of land disturbance that would occur during construction and demolition activities, the Proposed Action would require National Pollutant Discharge Elimination System (NPDES) permit coverage, preparation of a Storm Water Pollution Prevention Plan (SWPPP), and a fugitive dust control construction permit from the Albuquerque Environmental Health Department (AEHD)-AQD. In addition, the proposed emergency generator would need to be evaluated and permitted prior to installation.

The existing 4,312-square-foot Fire Station 3 (Building 30116) would be demolished once construction of the proposed new Fire Station 3 is complete. General demolition activities would include removal of foundations, floor, wall, ceiling and roofing materials, and electrical substations providing power to this facility; and removing, capping, and rerouting sewer, gas, water, and steam lines outside of the work areas, as needed.

Prior to demolition, Building 30116, which was constructed in 1955, would be screened and sampled for the presence of lead-based paint (LBP) and asbestos-containing material (ACM). Building 30116 is known to contain ACM. Asbestos and lead abatement would take place as part of the demolition activities, as appropriate. Demolition activities and asbestos abatement would require the filing of an asbestos notification with the AEHD-AQD at least 10 days prior to the start of the activities. Asbestos- and lead-containing wastes would be managed in accordance with Kirtland AFB's Hazardous Waste Management Plan (HWMP) and all Federal, state, and local rules and regulations. Nonhazardous construction and demolition waste that is not recyclable or reusable would be transported to the Kirtland AFB landfill for disposal. Dumpsters would be provided for municipal solid waste generated by worker activity at the project site. If necessary, hazardous construction and demolition debris would be transported to the Rio Rancho Landfill or the Keers Asbestos Landfill, since the Kirtland AFB landfill accepts only nonhazardous waste.

To the extent possible, materials would be diverted from landfills and either recycled or reused. Materials such as site-generated scrap metals, wiring, clean ductwork, and structural steel would be separated and recycled off site. Cardboard wastes would be separated for pickup and would be recycled as a function of the Kirtland AFB Qualified Recycling Program. Miscellaneous salvageable metals would be transported to the Defense Reutilization Marketing Office for recycling or reuse. In addition, clean fill material, ground-up asphalt, and broken-up cement would be diverted from the landfill and reused whenever possible. Weights of all materials diverted for recycling or reuse would be reported to the Kirtland AFB Qualified Recycling Program to be credited toward the DOD-mandated construction and demolition diversion rate of 50 percent. Following demolition, site restoration would include backfill and final grading of the disturbed area to blend with surrounding areas, and seeding as applicable.

2.1.2 Operation and Maintenance of New Fire Station

Daily operations would consist of housing and classroom proficiency training of up to ten firefighters at any one time. The facility would also be used for storage of equipment connected to firefighter training, mobility, and protection.

Maintenance activities would include general housekeeping activities within the administrative support areas and the apparatus stalls (e.g., hosing floors, sanitizing) and landscape maintenance of the exterior grounds. The only maintenance on the fire trucks that would be conducted at this facility would consist of washing.

2.2 Site-Selection Criteria

In accordance with 32 CFR Part 989.8(c), the development of site-selection criteria is an effective mechanism for the identification, comparison, and evaluation of reasonable alternatives. The following site-selection criteria were developed to be consistent with the purpose of and need for the Proposed Action and to address pertinent mission, environmental, safety, and health factors. These site-selection criteria were used to identify reasonable alternatives for analysis in this EA.

- The new fire station shall meet the requirements of the Fire Station Design Guide, AFH 32-1084, DOD Unified Facilities Criteria (UFC) Minimum Antiterrorism Standards for Buildings, and current structural codes.
- Per the Fire Station Design Guide, the firefighting vehicle's response time to facilities shall meet the 3-minute response requirement for emergencies.
- The new fire station shall be sited in a prominent and visible location near existing utilities. The location shall provide convenient access for both firefighters and the general public.
- The new fire station shall be sited to ensure that access roadways and service entrances accommodate vehicle sizes anticipated for fire station operations and the potential for future expansion.

A range of alternative site locations were discussed during the preparatory stage of this EA. However, by applying the site-selection criteria, these were not considered viable alternatives due to being outside the 3-minute response radius and the lack of nearby utility hookups and paved roads. The two best site alternatives were considered; however, they were eliminated from further detailed analysis because they did not meet the 3-minute response requirement in accordance with the Fire Station Design Guide (see **Section 2.4**).

2.3 No Action Alternative

CEQ regulations specify the inclusion of the No Action Alternative in the alternatives analysis (40 CFR 1502.14). The No Action Alternative is analyzed to provide a baseline of the existing conditions against which the potential environmental and socioeconomic impacts of the Proposed Action and alternative actions can be compared. Under the No Action Alternative, the 377 ABW would not construct a new Fire Station 3. Maintenance and repair of Building 30116 would increase to uneconomical levels. The life-safety deficiencies would continue and other deficiencies would worsen with age and further erode the ability of firefighters and equipment to respond to critical emergencies. Response time from the present location would continue to be excessive (greater than 3 minutes), particularly to critical, high-value facilities where a few seconds of response time could mean the difference in preventing injuries and major losses.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

2.4.1 Site Alternative 1

Site Alternative 1 to the Proposed Action is on Pennsylvania Street, southwest of Tijeras Arroyo Golf Course (see **Figure 2-2**). The site is level and generally undeveloped. Connection to water would be available at the site. Connections to electrical would be approximately 1,280 feet to the north; natural gas would be approximately 750 feet to the west; and sanitary sewer would be approximately 1,625 feet to the west of the site. Site Alternative 1 does not meet the 3-minute response requirement for responding to critical, high-value facility emergencies and does not provide convenient ingress and egress for

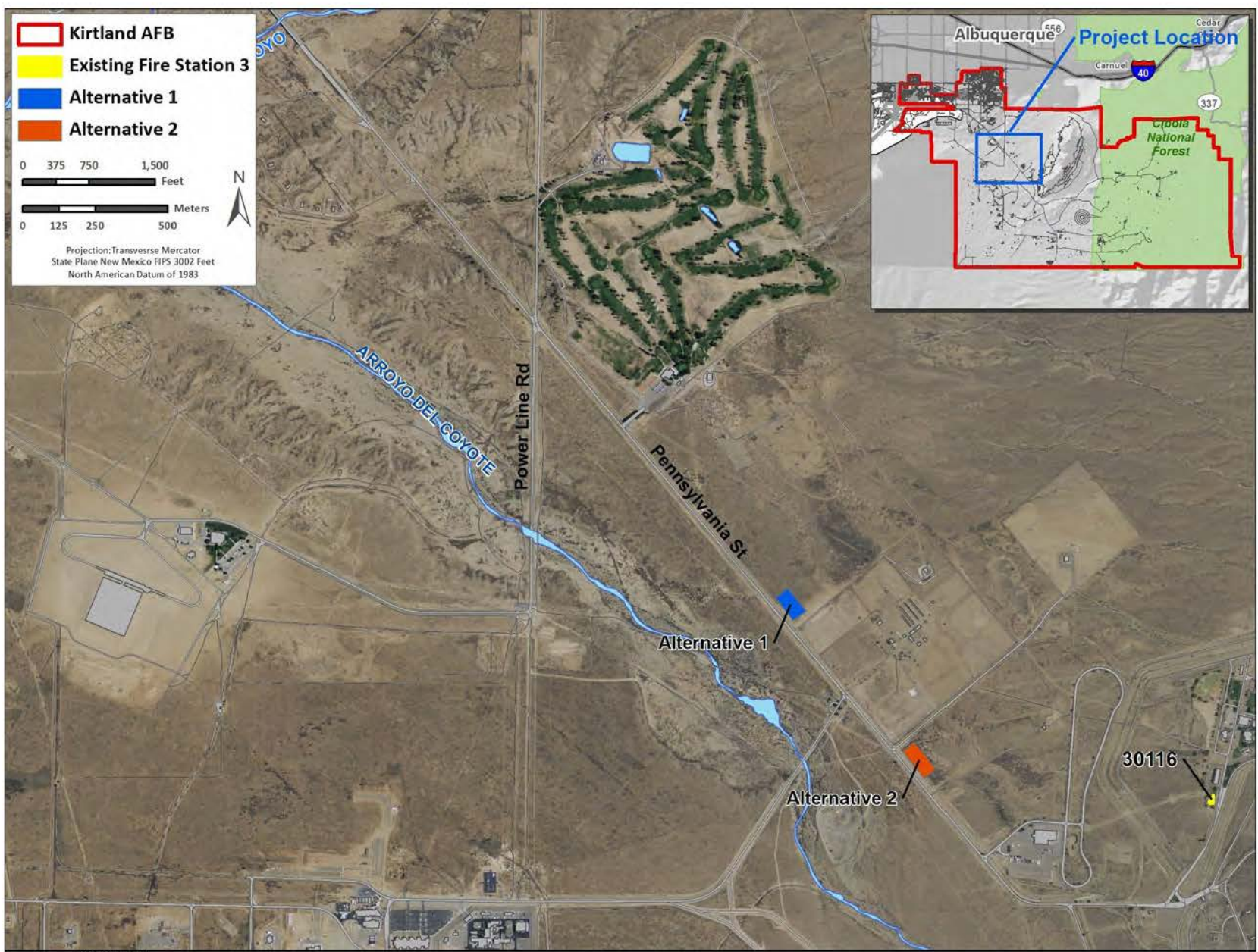


Figure 2-2. Location of Alternatives Considered but Dismissed and Existing Fire Station 3

firefighting vehicles as discussed in **Section 2.1**. Therefore, this alternative was not carried forward for further detailed analysis in this EA.

2.4.2 Site Alternative 2

Site Alternative 2 to the Proposed Action is on Pennsylvania Street, south of the horse stables (see **Figure 2-2**). This site is level and generally undeveloped. Connection to utilities including water and sanitary sewer are available at the site. Connections to electrical would be approximately 1,560 feet west of the site and natural gas would be approximately 1,100 feet west of the site. Site Alternative 2 does not meet the 3-minute response requirement for responding to critical, high-value facility emergencies and does not provide convenient ingress and egress for firefighting vehicles as discussed in **Section 2.1**. Therefore, this alternative was not carried forward for further detailed analysis in this EA.

3. Description of the Affected Environment

All potentially relevant resource areas were initially considered for analysis in this EA. In compliance with NEPA and CEQ guidelines, the discussions of the affected environment in **Section 3** and the environmental consequences in **Section 4** focus only on those resource areas considered potentially subject to impacts and with potentially significant environmental issues. This section includes land use, noise, visual resources, air quality, geology and soils, water resources, biological resources, cultural resources, infrastructure, hazardous materials and waste, safety, and socioeconomics and environmental justice. Airspace management is not addressed in this EA because the Proposed Action does not involve any resources that would impact airspace.

3.1 Land Use

3.1.1 Definition of the Resource

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, “labels,” and definitions vary among jurisdictions. Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational. USAF installation land use planning commonly uses 12 general land use categories: Airfield, Aircraft Operations and Maintenance, Industrial, Administrative, Community (Commercial), Community (Service), Medical, Housing (Accompanied), Housing (Unaccompanied), Outdoor Recreation, Open Space, and Water (USAF 1998).

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. According to Air Force Pamphlet (AFPAM) 32-1010, *Land Use Planning*, land use planning is the arrangement of compatible activities in the most functionally effective and efficient manner (USAF 1998). Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning within the civilian sector include written master plans/management plans, policies, and zoning regulations. The USAF comprehensive planning process also uses master planning and functional analysis, which determines the degree of connectivity among installation land uses and between installation and off-installation land uses, to determine future installation development and facilities planning.

In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its “permanence.”

3.1.2 Existing Conditions

Surrounding Land Use. Kirtland AFB is in the southwestern portion of Bernalillo County, New Mexico (see **Figure 1-1**). It is bound on the west and north by the City of Albuquerque, on the northeast and east by the Cibola National Forest, and on the south by Isleta Indian Reservation (Isleta Pueblo). The Albuquerque International Sunport, the City of Albuquerque’s airport, abuts Kirtland AFB’s northwestern border and allows use of its runways by the installation. The region surrounding Kirtland AFB includes

both urban and rural areas with most development occurring north of the installation. Generalized land uses north of the installation include residential (single- and multi-family), parks/recreation, and pockets of industrial/manufacturing, public/institutional (hospital and medical center), and commercial (retail and service). Open space (vacant/other and low-impact recreation) are to the northeast and east; open space and forest or vacant land are to the south; and a mixture of open space (vacant/other and parks/recreation), transportation/utilities, and public/institutional (Zia Rifle and Pistol Club) are to the west (KAFB 2011a, City of Albuquerque 2008). Several proposed and active developments within the City of Albuquerque, such as Mesa del Sol and Valle del Sol to the southwest and residential developments to the north, pose potential constraints to training at Kirtland AFB. Training including certain flying activities and testing conducted by associate organizations on the installation could be impacted by encroachment of these developments (KAFB 2011a).

On-Installation Land Use. Kirtland AFB is approximately 52,000 acres, and most of the land is owned by the USAF, but several other ownerships and leases also apply. The U.S. Department of Energy (DOE) occupies the largest amount of land area of any associate organization at Kirtland AFB. The DOE owns and operates facilities on approximately 7,500 acres at Kirtland AFB, primarily in the eastern portion of the occupied area (see description below), and the northeastern and southwestern portions of the installation.

The most heavily developed area of Kirtland AFB is the occupied area in the northwestern portion of the installation. The occupied area is commonly referred to in terms of its east or west sides; the west side is the site of the original Kirtland AFB, while the east side included the former Sandia and Manzano Bases. Recent installation planning and infrastructure efforts have focused on unifying the formerly segregated western and eastern portions of the occupied area into a more unified installation (KAFB 2011a).

Airfield operations and aircraft support facilities are concentrated in the airfield complex area, which is in the western portion of the occupied area adjacent to the Albuquerque International Sunport and its runways. Several associate organizations, including the Air Force Research Laboratory; the New Mexico Air National Guard; the Space and Missiles Systems Center, Detachment 12; and the 58th Special Operations Wing are also in this area. The remaining intensive development at Kirtland AFB, including administrative, housing, medical, recreation, and commercial services uses, is in the eastern portion of the occupied area. A majority of the 377 ABW's buildings are in this area, as well as the facilities of other major associate organizations, including Sandia National Laboratories, the Air Force Operational Test and Evaluation Center, Defense Threat Reduction Agency, and Air Force Safety Center. Most housing areas and their associated community uses are at the northeastern border of the occupied area, adjacent to existing off-installation neighborhoods.

The southern and western portions of Kirtland AFB, which represent approximately 80 percent of the installation's total land area, are largely dedicated to military training and operational facilities. Some facilities in these areas of Kirtland AFB include the Star Fire Optical Range, High Energy Research Test Facility, and the Lovelace Respiratory Research Institute. Sandia National Laboratories also operates and maintains several facilities elsewhere on the installation for research, testing, and evaluation of various weapons, communications, and energy systems. While most recreational facilities are in the occupied area, the Tijeras Arroyo Golf Course is in the southwestern portion of the installation. No outdoor recreation is permitted in the eastern portion of the installation (KAFB 2007a).

Kirtland AFB has 10 land use designations: Aircraft Operations/Maintenance, Airfield, Administration and Research, Community (includes commercial and service functions), Military Family Housing (now privatized housing), Industrial, Medical, Outdoor Recreation, Open Space, and Associate-Owned (KAFB 2011a). All land south of the occupied area is designated as Open Space.

In the Kirtland AFB Future Land Use Plan, presented in the *Kirtland Air Force Base 2010 General Plan* (hereafter referred to as the General Plan), land use zones have been established to guide the type and location of development at the installation. Future land use plans include the following general land use recommendations:

- Expand and concentrate Airfield uses along the flightline. Industrial and Aircraft Operations/Maintenance land uses would also be appropriate along or near the flightline.
- Concentrate Administration and Research land uses in the western portion (surrounding the Air Force Research Laboratory campus) and in the eastern portion (north of Sandia National Laboratories and DOE).
- Concentrate Community land uses in the northeastern portion, adjacent to Administration and Research land uses, with the intention of creating a mixed-use “town site” that would become the functional and symbolic center of the installation.
- Implement several transportation-related projects, including establishment of a new arterial between the western and eastern portions of the installation, extension of Eubank Boulevard onto the installation, and construction of a new entry gate on Eubank Boulevard, to improve circulation (KAFB 2011a).

The proposed new Fire Station 3 site is on undeveloped land along Pennsylvania Street, just south of the intersection of Power Line Road and Pennsylvania Street. The proposed site is surrounded by roadways to the west, north, and east, and open space to the south. The Tijeras Arroyo Golf Course is directly northeast of the proposed site across Pennsylvania Street. Arroyo del Coyote, a wash that traverses the installation, is approximately 0.3 miles southwest of the proposed new Fire Station 3 site. The current land use designation of the proposed new Fire Station 3 site is Open Space (KAFB 2011a).

Building 30116 is within the southwestern portion of the former Manzano Base, approximately 1.7 miles southeast of the proposed new Fire Station 3 site. There are two structures north of Building 30116, but it is otherwise generally surrounded by undeveloped land.

3.2 Noise

3.2.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. How an individual responds to the sound source will determine if the sound is viewed as music to one’s ears or as annoying noise. Affected receptors are specific (e.g., schools, churches, or hospitals) or broad (e.g., nature preserves or designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Noise Metrics and Regulations. Although human response to noise varies, measurements can be calculated with instruments that record instantaneous sound levels in decibels. A-weighted decibel (dBA) is used to characterize sound levels that can be sensed by the human ear. “A-weighted” denotes the adjustment of the frequency range to what the average human ear can sense when experiencing an audible

event. The threshold of audibility is generally within the range of 10 to 25 dBA for normal hearing. The threshold of pain occurs at the upper boundary of audibility, which is normally in the region of 135 dBA (USEPA 1981a). **Table 3-1** compares common sounds and shows how they rank in terms of the effects of hearing. As shown, a whisper is normally 30 dBA and considered to be very quiet while an air conditioning unit 20 feet away is considered an intrusive noise at 60 dBA. Noise levels can become annoying at 80 dBA and very annoying at 90 dBA. To the human ear, each 10 dBA increase seems twice as loud (USEPA 1981b).

Table 3-1. Sound Levels and Human Response

Noise Level (dBA)	Common Sounds	Effect
10	Just audible	Negligible*
30	Soft whisper (15 feet)	Very quiet
50	Light auto traffic (100 feet)	Quiet
60	Air conditioning unit (20 feet)	Intrusive
70	Noisy restaurant or freeway traffic	Telephone use difficult
80	Alarm clock (2 feet)	Annoying
90	Heavy truck (50 feet) or city traffic	Very annoying Hearing damage (8 hours)
100	Garbage truck	Very annoying*
110	Pile drivers	Strained vocal effort*
120	Jet takeoff (200 feet) or auto horn (3 feet)	Maximum vocal effort
140	Carrier deck jet operation	Painfully loud

Source: USEPA 1981b and *HDR extrapolation

Under the Noise Control Act of 1972, the Occupational Safety and Health Administration (OSHA) established workplace standards for noise. The minimum requirement states that constant noise exposure must not exceed 90 dBA over an 8-hour period. The highest allowable sound level to which workers can be constantly exposed to is 115 dBA and exposure to this level must not exceed 15 minutes within an 8-hour period. The standards limit instantaneous exposure, such as impact noise, to 140 dBA. If noise levels exceed these standards, employers are required to provide hearing protection equipment that will reduce sound levels to acceptable limits.

Construction Sound Levels. Building construction and demolition work can cause an increase in sound that is well above the ambient level. A variety of sounds are emitted from loaders, trucks, saws, and other work equipment. **Table 3-2** lists noise levels associated with common types of construction equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

3.2.2 Existing Conditions

Ambient Noise Environment. The ambient noise environment at Kirtland AFB is affected mainly by USAF and civilian aircraft operations and military vehicles. The commercial and military aircraft operations at Albuquerque International Sunport are the primary source of noise at the installation.

Table 3-2. Predicted Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Clearing and Grading	
Bulldozer	80
Grader	80–93
Truck	83–94
Roller	73–75
Excavation	
Backhoe	72–93
Jackhammer	81–98
Building Construction	
Concrete mixer	74–88
Welding generator	71–82
Pile driver	91–105
Crane	75–87
Paver	86–88

Source: USEPA 1981b

Noise from aircraft operations is present throughout the northwestern portion of Kirtland AFB as a result of operations at the Albuquerque International Sunport. The noise contours from aircraft operations extend along the runways to the east, west, and southwest. Although the Proposed Action Site and Building 30116 demolition locations are outside of the noise contours, elevated noise levels from intermittent aircraft flyovers likely dominate the noise environment.

Vehicle use associated with military operations at Kirtland AFB consists of passenger vehicles, delivery trucks, and military off- and on-road vehicles. Passenger vehicles compose most of the vehicles present at Kirtland AFB and the surrounding community roadways. Traffic from installation personnel are a contributing source to the ambient sound environment around the proposed new Fire Station 3 and Building 30116 demolition locations. Contributors include vehicles traveling along Pennsylvania Street and the other roadways within the installation boundary. The cumulative ambient sound environment of the proposed new Fire Station 3 and Building 30116 locations are likely comparable to a suburban residential area.

3.3 Visual Resources

3.3.1 Definition of the Resource

Visual resources include the natural and man-made physical features that give a particular landscape its character that influences the visual appeal of an area for residents and visitors. The features that form the overall visual impression a viewer receives include landforms, vegetation, water, color, adjacent scenery, scarcity, and man-made modifications. Resources such as designated scenic rivers, roads, recreational areas, or other public lands create important visual aesthetic features for the public. In general, a feature observed within a landscape can be considered as “characteristic” (or character defining) if it is inherent

to the composition and function of the landscape. Landscapes do change over time, so the assessment of the environmental impacts of a proposed action on a given landscape area must be made relative to the “characteristic” features currently composing the landscape or area.

3.3.2 Existing Conditions

Military and civilian airfields compose much of the visual environment of Kirtland AFB. The prominent visual features of the installation include hangars, maintenance and support facilities, and aircraft. Off installation, the visual environment varies from urban to rangeland to forest. To the north and west of Kirtland AFB are urban areas of the City of Albuquerque; to the northeast and east open spaces, forests, and rangeland are the prominent visual features; and south of Kirtland AFB are Isleta Pueblo lands, which are generally open space, forests, or vacant land (KAFB 2003).

The proposed new Fire Station 3 location is in the southern portion of Kirtland AFB near the intersection of Power Line Road and Pennsylvania Street. The site is approximately 2.2 miles southeast of the nearest Albuquerque International Sunport runway and is away from the urbanized, busy areas of Kirtland AFB. The most prominent visual features in the area of the proposed new Fire Station 3 are the Tijeras Arroyo Golf Course on the opposite (north) side of Pennsylvania Street and a mountainscape to the south of the site. The proposed new Fire Station 3 location is currently undeveloped. Photograph C3 in **Appendix C** shows the current visual conditions at the proposed new fire station location.

Fire Station 3 (Building 30116) is within the Manzano Base Historic District. The historic district consists of several buildings built in the late 1940s and early 1950s to support top secret weapons storage. The buildings include dormitories, recreational areas, and administrative spaces. The most prominent visual feature near the Manzano Base Historic District is the Manzano Mountains, immediately to the east with open space to the north. Industrial buildings and associated parking areas are visible to the east and south of Manzano Base Historic District. Photographs C1 and C2 in **Appendix C** show the current visual conditions of Building 30116.

3.4 Air Quality

3.4.1 Definition of the Resource

In accordance with Federal Clean Air Act (CAA) requirements, the air quality in a given region or area is measured by the concentration of criteria pollutants in the atmosphere. The air quality in a region is a result of not only the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological “air basin,” and the prevailing meteorological conditions.

Ambient Air Quality Standards. Under the CAA, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to affect human health and the environment. The NAAQS represent the maximum allowable concentrations for ozone (O₃) measured as either volatile organic compounds (VOCs) or total nitrogen oxides (NO_x), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM₁₀] and particulate matter equal to or less than 2.5 microns in diameter [PM_{2.5}]), and lead (Pb) (40 CFR Part 50). The CAA also gives the authority to states to establish air quality rules and regulations. The State of New Mexico has adopted the NAAQS and promulgated additional State Ambient Air Quality Standards (SAAQS) for criteria pollutants. In some cases, the SAAQS are more stringent than the Federal primary standards. **Table 3-3** presents the USEPA NAAQS and SAAQS for the federally listed criteria pollutants.

Table 3-3. National and State Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard		Secondary Standard
		Federal	State	
CO	8-hour ⁽¹⁾	9 ppm (10 mg/m ³)	8.7 ppm	None
	1-hour ⁽¹⁾	35 ppm (40 mg/m ³)	13.1 ppm	None
Pb	Rolling 3-Month Average	0.15 µg/m ³ ⁽²⁾	--	Same as Primary
NO ₂	Annual Arithmetic Mean	53 ppb ⁽³⁾	50 ppb	Same as Primary
	1-hour	100 ppb ⁽⁴⁾	100 ppb	None
PM ₁₀	24-hour ⁽⁵⁾	150 µg/m ³	--	Same as Primary
PM _{2.5}	Annual Arithmetic Mean ⁽⁶⁾	15 µg/m ³	--	Same as Primary
	24-hour ⁽⁷⁾	35 µg/m ³	--	Same as Primary
O ₃	8-hour ⁽⁸⁾	0.075 ppm (2008 Standard)	--	Same as Primary
	8-hour ⁽⁹⁾	0.08 ppm (1997 Standard)	--	Same as Primary
	1-hour ⁽¹⁰⁾	0.12 ppm	--	Same as Primary
SO ₂	Annual Arithmetic Mean	0.03 ppm	0.02 ppm	0.5 ppm (3-hour) ⁽¹⁾
	24-hour ⁽¹⁾	0.14 ppm	0.10 ppm	0.5 ppm (3-hour) ⁽¹⁾
	1-hour	75 ppb ⁽¹¹⁾	--	None

Sources: USEPA 2011a and State of New Mexico 2009

Notes: Parenthetical values are approximate equivalent concentrations.

- Not to be exceeded more than once per year.
- Final rule signed 15 October 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
- The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of cleaner comparison to the 1-hour standard.
- To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective 22 January 2010).
- Not to be exceeded more than once per year on average over 3 years.
- To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
- To attain this standard, the 3-year average of the weighted annual of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³ (effective 17 December 2006).
- To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective 27 May 2008).
- To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
 - The 1997 standard – and the implementation rules for that standard – will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
 - USEPA is in the process of reconsidering these standards (set in March 2008).
- USEPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard (anti-backsliding).
 - The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
- Final rule signed on 2 June 2010. To attain this standard, the 3-year average of the 99th percentile of daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Key: ppm = parts per million; ppb = parts per billion; mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter

Attainment versus Nonattainment and General Conformity. The USEPA classifies the air quality in an Air Quality Control Region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. Areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than the NAAQS; nonattainment indicates that criteria pollutant levels exceed NAAQS; maintenance indicates that an area was previously designated nonattainment but is now attainment; and an unclassified air quality designation by USEPA means that there is not enough information to appropriately classify an AQCR, so the area is considered attainment. USEPA has delegated the authority for ensuring compliance with the NAAQS in New Mexico to the NMED Air Quality Bureau. The NMED Air Quality Bureau has delegated authority over air quality in Bernalillo County to the Albuquerque-Bernalillo County Air Quality Control Board (AQCB). In accordance with the CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS.

The General Conformity Rule requires that any Federal action meet the requirements of a SIP or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS. The General Conformity Rule applies only to significant actions in nonattainment or maintenance areas.

Federal Prevention of Significant Deterioration. Federal Prevention of Significant Deterioration (PSD) regulations apply in attainment areas to a major stationary source, (i.e., source with the potential to emit 250 tons per year [tpy] of any criteria pollutant), and a significant modification to a major stationary source, (i.e., change that adds 15 to 40 tpy to the facility’s potential to emit depending on the pollutant). Additional PSD major source and significant modification thresholds apply for greenhouse gases (GHGs), as discussed in the Greenhouse Gas Emissions subsection. PSD permitting can also apply to a proposed project if all three of the following conditions exist: (1) the proposed project is a modification with a net emissions increase to an existing PSD major source, (2) the proposed project is within 10 kilometers of national parks or wilderness areas (i.e., Class I Areas), and (3) regulated stationary source pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 microgram per cubic meter or more (40 CFR 52.21[b][23][iii]). A Class I area includes national parks larger than 6,000 acres, national wilderness areas and national memorial parks larger than 5,000 acres, and international parks. PSD regulations also define ambient air increments, limiting the allowable increases to any area’s baseline air contaminant concentrations, based on the area’s Class designation (40 CFR 52.21[c]).

Title V Requirements. Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A Title V major stationary source has the potential to emit more than 100 tpy of any one criteria air pollutant, 10 tpy of a hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality. Section 112 of the CAA defines the sources and kinds of HAPs.

Greenhouse Gas Emissions. GHGs are gaseous emissions that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The most common GHGs emitted from natural processes and human activities include carbon dioxide (CO₂), methane, and nitrous oxide. GHGs are primarily produced by the burning of fossil fuels and through industrial and biological processes. On 22 September 2009, the USEPA issued a final rule for mandatory GHG reporting from large GHG emissions sources in the United States. The purpose of the rule is to collect comprehensive and accurate data on CO₂ and other GHG emissions that can be used to inform future policy decisions. In general, the

threshold for reporting is 25,000 metric tons or more of CO₂ equivalent emissions per year but excludes mobile source emissions. The first emissions report is due in 2011 for 2010 emissions. GHG emissions will also be factors in PSD and Title V permitting and reporting, according to a USEPA rulemaking issued on 3 June 2010 (75 Federal Register 31514). GHG emissions thresholds of significance for permitting of stationary sources are 75,000 tons CO₂ equivalent per year and 100,000 tons CO₂ equivalent per year under these permit programs.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, was signed in October 2009 and requires agencies to set goals for reducing GHG emissions. One requirement within EO 13514 is the development and implementation of an agency Strategic Sustainability Performance Plan (SSPP) that prioritizes agency actions based on lifecycle return on investment. Each SSPP is required to identify, among other things, “agency activities, policies, plans, procedures, and practices” and “specific agency goals, a schedule, milestones, and approaches for achieving results, and quantifiable metrics” relevant to the implementation of EO 13514. On 26 August 2010, DOD released its SSPP to the public. This implementation plan describes specific actions the DOD will take to achieve its individual GHG reduction targets, reduce long-term costs, and meet the full range of goals of the EO. All SSPPs segregate GHG emissions into three categories: Scope 1, Scope 2, and Scope 3 emissions. Scope 1 GHG emissions are those directly occurring from sources that are owned or controlled by the agency. Scope 2 emissions are indirect emissions generated in the production of electricity, heat, or steam purchased by the agency. Scope 3 emissions are other indirect GHG emissions that result from agency activities but from sources that are not owned or directly controlled by the agency. The GHG goals in the DOD SSPP include reducing Scope 1 and Scope 2 GHG emissions by 34 percent by 2020, relative to FY 2008 emissions, and reducing Scope 3 GHG emissions by 13.5 percent by 2020, relative to FY 2008 emissions. The first GHG air quality emissions report is due in 2011 for 2010 emissions.

3.4.2 Existing Conditions

Kirtland AFB is in Bernalillo County, New Mexico, which is within the Albuquerque-Mid Rio Grande Intrastate (AMRGI) AQCR 152. The AMRGI AQCR also includes portions of Sandoval and Valencia counties, New Mexico (USEPA 2002a). As defined by 40 CFR 81.332, Kirtland AFB is in an area that is designated as attainment/unclassified for all criteria pollutants except CO. Bernalillo County has been designated as moderate maintenance for CO (USEPA 2002b, USEPA 2011b). According to 40 CFR Part 81, no Class I areas are within 10 kilometers of Kirtland AFB (USEPA 2011c)

The most recent emissions for Bernalillo County and the AMRGI AQCR are shown in **Table 3-4**. Bernalillo County is considered the local area of influence, and the AMRGI AQCR is considered the regional area of influence for this air quality analysis. The emissions inventory for the AMRGI AQCR includes emissions from all of Bernalillo, Sandoval, and Valencia counties. In actuality, the AMRGI AQCR includes all of Bernalillo County and only portions of Sandoval and Valencia counties.

Table 3-4. Local and Regional Air Emissions Inventory for the Proposed Action (2002)

	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
Bernalillo County	24,930	24,310	185,250	1,568	61,892	8,183
AMRGI AQCR*	36,778	31,651	245,346	2,619	137,376	16,676

Source: USEPA 2002c

Note: * The emissions inventory for the AMRGI AQCR includes emissions from all of Bernalillo, Sandoval, and Valencia counties. In actuality, the AMRGI AQCR includes all of Bernalillo County and only portions of Sandoval and Valencia counties.

There are various air emissions sources at Kirtland AFB including emergency generators; boilers; hot water heaters; fuel storage tanks and fuel dispensing; gasoline service stations; surface coating; aircraft engine testing; fire training; remediation activities; open detonation of munitions for military training, emergency remediation, and research and development; mulching activities; landfills; and miscellaneous chemical usage. As required by the Albuquerque-Bernalillo County AQCB regulations, Kirtland AFB estimates annual emissions from stationary sources and provides this information to the AEHD-AQD. **Table 3-5** summarizes the calendar year 2008 air emissions inventory for Kirtland AFB.

Table 3-5. Calendar Year 2008 Air Emissions Inventory for Kirtland AFB

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO₂ (tpy)	PM₁₀ (tpy)
2008 Actual Emissions	12.8	60.0	13.0	1.1	8.1

Source: KAFB 2009a

3.5 Geology and Soils

3.5.1 Definition of the Resource

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

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

Prime farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. The soil qualities, growing season, and moisture supply are needed for a well-managed soil to produce a sustained high yield of crops in an economic manner. The land could be cropland, pasture, rangeland, or other land, but not urban developed land or water. The intent of the FPPA is to minimize the extent that Federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses. The Act also ensures that Federal programs are administered in a manner that, to the extent practicable, will be compatible with private, state, and local government programs and policies to protect farmland.

The implementing procedures of the FPPA and Natural Resources Conservation Service (NRCS) require Federal agencies to evaluate the adverse effects (direct and indirect) of their activities on prime and unique farmland, and farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects. Determination of whether an area is considered prime or unique farmland and potential impacts associated with a proposed action is based on preparation of the Farmland Conversion Impact Rating Form (AD-1006) for areas where prime farmland soils occur and by applying

criteria established at Section 658.5 of the FPPA (7 CFR 658). The NRCS is responsible for overseeing compliance with the FPPA and has developed the rules and regulations for implementation of the act (see 7 CFR Part 658, 5 July 1984).

3.5.2 Existing Conditions

Regional Geology. The City of Albuquerque and Kirtland AFB are near the junction of five physiographic provinces: the Colorado Plateau, the Basin and Range, the Southern Rocky Mountains, the Rio Grande rift, and the Great Plains (Grant 1981). Kirtland AFB is in the eastern margin of the Albuquerque Basin, a major feature of the Rio Grande rift. The Rio Grande rift is approximately 620 miles long and is bordered on the west by the Colorado Plateau and on the east by the Great Plains. The Albuquerque Basin is north-trending and is approximately 90 miles long and 31 miles wide. It extends from near the Rio Grande to the foothills of the Sandia and Manzanita mountains. The Albuquerque Basin is defined to the south by the Socorro Channel, to the north by the Nacimiento Uplift, to the west by the Puerco Plateau and Lucero Uplift, and to the east by the Sandia and Manzanita mountains. The widest point of the Albuquerque Basin is near Kirtland AFB and it tapers off gradually towards its north and south ends. The basin was deepened and local mountain ranges were tilted by large-scale faulting that occurred approximately 11.2 to 5.3 million years ago. Geologic formations found within Kirtland AFB range in age from Precambrian granites to present-day windblown sands (KAFB 2007a).

Topography. Most of Kirtland AFB is situated on a relatively flat mesa; however, the mesa is cut by the east-west trending Tijeras Arroyo that drains into the Rio Grande and is interrupted by the Manzanita Mountains. Elevations at Kirtland AFB range from 5,200 feet above mean sea level (MSL) in the western portion of the installation to almost 8,000 feet above MSL in the Manzanita Mountains (KAFB 2007a). The elevation of the proposed fire station is approximately 5,390 feet above MSL, and the elevation of Building 30116 is approximately 5,570 feet above MSL.

Soils. Twenty-six soils have been identified at Kirtland AFB (KAFB 2007a). The location for the proposed fire station is underlain by the Wink fine sandy loam, 0 to 5 percent slopes (3.4 percent) and the Wink-Embudo Complex, 0 to 5 percent slopes (96.6 percent). Building 30116 is underlain entirely by the Embudo gravelly fine sandy loam, 0 to 5 percent slopes. **Table 3-6** lists the typical properties of the soils affected by the Proposed Action.

Soil engineering limitations were determined based on data available in the NRCS's Web Soil Survey (NRCS 2011). Engineering limitations were considered for construction of small commercial buildings, roads, and shallow excavations for utilities.

- The Wink fine sandy loam, 0 to 5 percent slopes, was rated as not limited for small commercial buildings, not limited for local roads and streets, and somewhat limited for shallow excavation due to the potential for cutback cave-ins
- The Wink-Embudo complex, 0 to 5 percent slopes, was rated as not limited for small commercial buildings, not limited for local roads and streets, and somewhat limited for shallow excavations due to the potential for cutback cave-ins
- The Embudo gravelly fine sandy loam, 0 to 5 percent slopes, was rated as very limited for small commercial buildings due to flooding, somewhat limited for local roads and streets due to flooding, and very limited for shallow excavations due to cutback cave-ins.

Prime Farmland. None of the three soils affected by the Proposed Action are considered prime farmland soils or farmland soils of statewide importance (NRCS 2011). Kirtland AFB is not currently used for agricultural purposes, nor is any agricultural use planned for the future.

Table 3-6. Properties of the Soils Affected by the Proposed Action

Mapping Unit	General Soil Characteristics
Proposed Fire Station	
Wink fine sandy loam, 0 to 5 percent slopes	• Well-drained • Moderate water capacity • No flooding • No ponding • Seasonal water table at a depth of greater than 80 inches • Not hydric.
Wink-Embudo complex, 0 to 5 percent slopes	• Well-drained • Low to moderate water capacity • No to rare flooding • No ponding • Seasonal water table at a depth of greater than 80 inches • Not hydric.
Building 30116	
Embudo gravelly fine sandy loam, 0 to 5 percent slopes	• Well-drained • Low water capacity • Rare flooding • No ponding • Seasonal water table at a depth of greater than 80 inches • Not hydric.

Source: NRCS 2011

Geologic Hazards. Geologic hazards are defined as a natural geologic event that can endanger human lives and threaten property. Examples of geologic hazards include earthquakes, landslides, sinkholes, tsunamis, and volcanoes. In Albuquerque, the primary geologic hazard that could potentially endanger lives or threaten property is earthquakes. The U.S. Geological Survey (USGS) has classified the Albuquerque area as having a moderate potential for earthquake hazards and has given the region a seismic hazard rating of 16 to 32 percent gravity. This means that during an earthquake that has a 2 percent chance of occurring during a 50-year period, moderate to major damage could occur (USGS 2008).

3.6 Water Resources

3.6.1 Definition of the Resource

Water resources are natural and man-made sources of water that are available for use by and for the benefit of humans and the environment. Water resources relevant to Kirtland AFB's location in New Mexico include groundwater, surface water, floodplains, and wetlands. Evaluation of water resources examines the quantity and quality of the resource and its demand for various purposes.

Groundwater. Groundwater is water that exists in the saturated zone beneath the earth's surface, and includes underground streams and aquifers. It is an essential resource that functions to recharge surface

water and is used for drinking, irrigation, and industrial processes. Groundwater typically can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations.

Groundwater quality and quantity are regulated under several programs. The Federal Underground Injection Control regulations, authorized under the Safe Drinking Water Act (SDWA), require a permit for the discharge or disposal of fluids into a well. The Federal Sole Source Aquifer regulations, also authorized under the SDWA, protect aquifers that are critical to water supply.

Surface Water. Surface water resources generally consist of wetlands, lakes, rivers, and streams. Surface water is important for its contribution to the economic, ecological, recreational, and human health of a community or locale.

Wetlands perform several hydrologic functions; including water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the waters of the United States under Section 404 of the Clean Water Act (CWA). The term “waters of the United States” has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The U.S. Army Corps of Engineers (USACE) defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR Part 329).

A water body can be deemed impaired if water quality analyses conclude that exceedances of the water quality standards established by the CWA occur. The CWA requires that states establish a Section 303(d) list to identify impaired waters and establish Total Maximum Daily Loads (TMDLs) for the source(s) causing the impairment. A TMDL is the maximum amount of a substance that can be assimilated by a water body without causing impairment. The CWA also mandated the NPDES program, which regulates the discharge of point (end of pipe) and nonpoint (storm water) sources of water pollution and requires a permit for any discharge of pollutants into waters of the United States.

Storm water is an important component of surface water systems because of its potential to introduce sediments and other contaminants that could degrade surface waters. Proper management of storm water flows, which can be intensified by high proportions of impervious surfaces associated with buildings, roads, and parking lots, is important to the management of surface water quality and natural flow characteristics. Prolonged increases in storm water volume and velocity associated with development and increased impervious surfaces has potential to impact adjacent streams as a result of stream bank erosion and channel widening or down cutting associated with the adjustment of the stream to the change in flow characteristics. Storm water management systems are typically designed to contain runoff on site during construction, and to maintain predevelopment storm water flow characteristics following development through either the application of infiltration or retention practices. Failure to size storm water systems appropriately to hold or delay conveyance of the largest predicted precipitation event often leads to downstream flooding and the environmental and economic damages associated with flooding.

The USEPA published the technology-based Final Effluent Limitations Guidelines (ELGs) and New Source Performance Standards for the Construction and Development Point Source Category on 1 December 2009 to control the discharge of pollutants from construction sites. The Rule became effective on 1 February 2010. After this date, all USEPA- or state-issued construction general permits were to be revised to incorporate the ELG requirements, with the exception of the numeric limitation for turbidity, which has been suspended while the USEPA further evaluates this limitation. The USEPA currently regulates large and small (greater than 1 acre) construction activity through the

2012 Construction General Permit (CGP). The 2012 CGP replaces the 2008 CGP, which expired on 15 February 2012, and provides coverage for new and existing construction projects for a period of 5 years.

The 2012 CGP includes a number of modifications to the 2008 CGP, many of which are necessary to implement the ELGs and New Source Performance Standards for Construction and Development point sources, known as the C&D rule. The C&D rule requires construction site operators to meet restrictions on erosion and sediment control, pollution prevention, and stabilization. Permittees must select, install, and maintain effective erosion- and sedimentation-control measures as identified and as necessary to comply with the 2012 CGP, including the following:

- Sediment controls, such as sediment basins, sediment traps, silt fences, vegetative buffer strips
- Offsite sediment tracking and dust control
- Runoff management
- Erosive velocity control
- Post-construction storm water management
- Construction and waste materials management
- Non-construction waste management
- Erosion control and stabilization
- Spill/release prevention.

Construction activities, such as clearing, grading, trenching, and excavating, disturb soils and sediment. If not managed properly, disturbed soils and sediments can easily be washed into nearby water bodies during storm events, where water quality is reduced. Section 438 of the Energy Independence and Security Act (EISA) (42 U.S.C. 17094) establishes into law new storm water design requirements for Federal construction projects that disturb a footprint of greater than 5,000 square feet of land. EISA Section 438 requirements are independent of storm water requirements under the CWA. The project footprint consists of all horizontal hard surface and disturbed areas associated with project development. Under these requirements, predevelopment site hydrology must be maintained or restored to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow. Predevelopment hydrology shall be modeled or calculated using recognized tools and must include site-specific factors such as soil type, ground cover, and ground slope. Site design shall incorporate storm water retention and reuse technologies such as bioretention areas, permeable pavements, cisterns/recycling, and green roofs to the maximum extent technically feasible.

Post-construction analyses shall be conducted to evaluate the effectiveness of the as-built storm water reduction features (DOD 2010a). These regulations were incorporated into applicable DOD UFC in April 2010, which stated that low-impact development (LID) features would need to be incorporated into new construction activities to comply with the restrictions on storm water management promulgated by EISA Section 438. LID is a storm water management strategy designed to maintain site hydrology and mitigate the adverse impacts of storm water runoff and nonpoint source pollution. LIDs can manage the increase in runoff between pre- and post-development conditions on the project site through interception, infiltration, storage, and evapotranspiration processes before the runoff is conveyed to receiving waters. Examples of the methods include bioretention, permeable pavements, cisterns/recycling, and green roofs (DOD 2010b). Additional guidance is provided in the USEPA's *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (USEPA 2009).

Floodplains. Floodplains are areas of low-level ground present along rivers, stream channels, or coastal waters that are subject to periodic or infrequent inundation due to rain or melting snow. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater

recharge, nutrient cycling, water quality maintenance, and habitat for a diversity of plants and animals. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain as an area within which there is a 1 percent chance of inundation by a flood event in a given year. Risk of flooding is influenced by local topography, the frequency of precipitation events, the size of the watershed above the floodplain, and upstream development. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety. EO 11988, *Floodplain Management*, directs Federal agencies to avoid siting within floodplains unless the agency determines that there is no practicable alternative.

3.6.2 Existing Conditions

Groundwater. Kirtland AFB is within the limits of the Rio Grande Underground Water Basin, which is defined as a natural resources area and is designated as a “declared underground water basin” by New Mexico. The basin is regulated by the state as a sole source of potable water, although the Albuquerque area will be supplemented in the future with surface water diverted from the San Juan and Chama rivers to the Rio Grande. The Rio Grande Basin’s source of groundwater is the Santa Fe Aquifer, which is most likely recharged east of the installation in the Manzanita Mountains (KAFB 2007a). Two aquifers, a regional aquifer and a perched aquifer, underlie Kirtland AFB.

The regional aquifer is present under all of Kirtland AFB and ranges in depth from near surface to depths of 200 feet below grade surface east of the major fault zones in the eastern portion of the installation, and to depths of 350 to 500 feet below grade surface west of the fault zone. The regional aquifer is used for the installation’s water supply. Kirtland AFB has a Water Rights Agreement with the State of New Mexico that allows it to withdraw up to 6,000 acre-feet per year from the underground aquifer, which is equal to approximately 2 billion gallons of water (KAFB 2011a). In 2010, approximately 772 million gallons (approximately 2,369 acre-feet) of water were pumped from these wells (KAFB 2011b). The perched aquifer is limited in area, straddling Tijeras Arroyo northeast of the confluence of Tijeras Arroyo and Arroyo del Coyote, and occurs at depths of 200 to 400 feet below grade surface.

The perched aquifer is a result of infiltration of water from both man-made and natural origins, with a flow direction to the southeast, and is not used for any purpose. The average depth to groundwater beneath Kirtland AFB is 450 to 550 feet. The presence of faults has a direct bearing on the movement and occurrence of groundwater in the vicinity of Kirtland AFB. The groundwater flow direction is down basin (south), with local variations and even reversals due to groundwater pumping, specific geologic structures, or shallow influences near the Rio Grande (KAFB 2011a).

Surface Water. Kirtland AFB is within the Rio Grande watershed. The Rio Grande is the major surface hydrologic feature in central New Mexico, flowing north to south through Albuquerque approximately 5 miles west of Kirtland AFB (KAFB 2007a). Water resources on Kirtland AFB reflect its dry climate. The average annual precipitation in Albuquerque is 9 inches, with half of the average annual precipitation occurring from July to October during heavy thunderstorms (KAFB 2007a). Surface water generally occurs in the form of storm water sheet flow that drains into small gullies during heavy precipitation (KAFB 2007a). Surface water generally flows across Kirtland AFB in a western direction toward the Rio Grande.

There are no natural lakes or rivers on Kirtland AFB. Six man-made ponds are located on Tijeras Arroyo Golf Course, which is northeast of the proposed new Fire Station 3 location. There are 10 wetlands supplied by at least 15 naturally occurring springs on the installation; however, none are near the Proposed Action locations (KAFB 2009b). The two main surface water drainage channels on Kirtland AFB are Tijeras Arroyo and the smaller Arroyo del Coyote, which joins Tijeras Arroyo

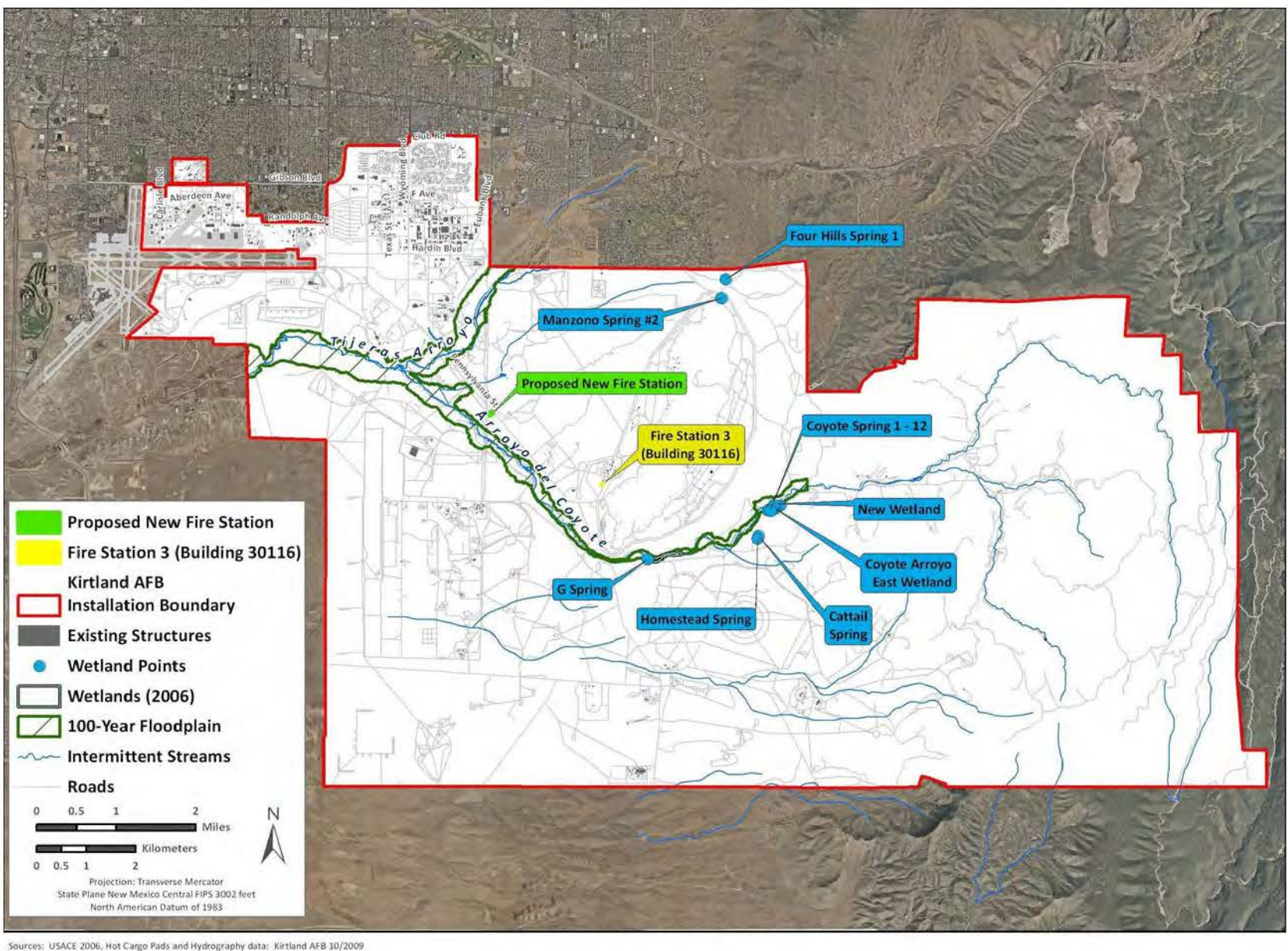


Figure 3-1. Surface Water, Floodplains, and Wetlands on Kirtland AFB

approximately 1 mile west of the Tijeras Arroyo Golf Course (see **Figure 3-1**). The proposed new Fire Station 3 location is approximately 0.3 miles north-northeast of Arroyo del Coyote. Tijeras Arroyo and Arroyo del Coyote are tributaries to the Rio Grande. No jurisdictional determinations (JDs) have been made for these water features. Tijeras Arroyo and Arroyo del Coyote flow intermittently during heavy thunderstorms and spring snowmelt, but most of the water percolates into alluvial deposits or is lost to the atmosphere via evapotranspiration (KAFB 2011a). Tijeras Arroyo, which is dry for most of the year, is the primary surface channel that drains surface water from Kirtland AFB to the Rio Grande. Precipitation reaches Tijeras Arroyo through a series of storm drains, flood canals, and small, mostly unnamed arroyos. Nearly 95 percent of the precipitation that flows through Tijeras Arroyo evaporates before it reaches the Rio Grande. The remaining 5 percent is equally divided between groundwater recharge and runoff (KAFB 2011a).

Storm water runoff on Kirtland AFB predominantly flows through the drainage patterns created by natural terrain and paved surfaces. In some areas, runoff is directed through ditches and piping, with direct discharges into a receiving stream or surface water body. Kirtland AFB has a Storm Water Municipal Separate Storm Sewer System (MS4), which collects and conveys storm water from storm drains, pipes, and ditches, and discharges storm water into Tijeras Arroyo and the City of Albuquerque's MS4. Storm water in the Proposed Action area discharges via surface runoff and flows overland toward Tijeras Arroyo or infiltrates into the ground.

Kirtland AFB has an NPDES General Storm Water Permit for industrial activities and an active program for construction projects that require an NPDES permit. If a project at Kirtland AFB is subject to the CGP requirements, the contractor must develop an SWPPP and provide it to the 377 Mission Support Group/Civil Engineering Environmental Management – Compliance Section (377 MSG/CEANC) for review prior to submitting a Notice of Intent for permit coverage under the USEPA CGP. The SWPPP must be developed and the contractor must be issued a CGP before work begins.

Kirtland AFB must also comply with MS4 permit requirements and has developed a Storm Water Management Plan as required by the MS4 permit (KAFB 2011a). When construction projects are not subject to NPDES Construction General Permit requirements due to the size of the project or waivers, the contractors must submit a list of best management practices (BMPs) to the Kirtland AFB water quality program that they intend to use to mitigate storm water pollutants. The list of BMPs submitted by the contractor documents compliance with the Kirtland AFB MS4 permit.

Floodplains. A 100-year floodplain encompasses Arroyo del Coyote and Tijeras Arroyo (see **Figure 3-1**). These are the only two arroyos with a floodplain on the installation. Arroyo del Coyote and Tijeras Arroyo floods occur infrequently and are characterized by high peak flows, small volumes, and short durations (KAFB 2007a). The proposed new Fire Station 3 location is not within the 100- or 500-year floodplains (KAFB 2011a).

3.7 Biological Resources

3.7.1 Definition of the Resource

Biological resources include native or naturalized plants and animals and the habitats in which they occur, and native or introduced species found in landscaped or disturbed areas. Applicable laws, regulations, and policies regarding biological resources are included in **Appendix A**. Protected species are defined as those listed as threatened, endangered, or proposed or candidate for listing by the U.S. Fish and Wildlife Service (USFWS); New Mexico Energy, Minerals, and Natural Resources Department; or New Mexico Department of Game and Fish (NMDGF). Federal species of concern are not protected by law; however,

these species could become listed, and therefore are given consideration when addressing biological resource impacts of an action.

Sensitive habitats include those areas designated by the USFWS as critical habitat protected by the Endangered Species Act (ESA) and sensitive ecological areas as designated by state or Federal rulings. Sensitive habitats also include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, crucial summer/winter habitats).

The New Mexico Wildlife Conservation Act (New Mexico Statutes Annotated 17-2-37) authorizes the NMDGF to create a list of endangered or threatened wildlife within the state, and to take steps to protect and restore populations of species on the list. Actions causing the death of a state endangered animal are in violation of the Wildlife Conservation Act. In addition, USFWS and NMDGF maintain lists of species considered to be particularly sensitive or at risk.

Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, and erosion protection. Wetlands have been defined as areas that are “inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE 1987). Wetlands are protected as a subset of “the waters of the United States” under Section 404 of the CWA. The term “waters of the United States” has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats, including wetlands. For regulatory purposes, wetlands are defined by three factors: hydrologic regime, soil characteristics, and vegetation. In addition, many states have local regulations governing wetlands and their buffer areas.

In 2006, the U.S. Supreme Court addressed the jurisdictional scope of Section 404 of the CWA, specifically the term “the waters of the United States,” in *Rapanos v. United States* and in *Carabell v. United States*. As a consequence of the associated U.S. Supreme Court decision, the USEPA and USACE, in coordination with the Office of Management and Budget and the CEQ, developed the *Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in Rapanos v. United States and Carabell v. United States* memorandum (USEPA and USACE 2007a). The guidance requires a greater level of documentation to support an agency JD for a particular water body. As a result of the decision, the agencies now assert jurisdiction over the following categories of water bodies: Traditional Navigable Waters (TNWs), all wetlands adjacent to TNWs, nonnavigable tributaries of TNWs that are relatively permanent (i.e., tributaries that typically flow year-round or have continuous flow at least seasonally), and wetlands that directly abut such tributaries. In addition, the agencies assert jurisdiction over every water body that is not a Relatively Permanent Water if that water body is determined (on the basis of a fact-specific analysis) to have a significant nexus with a TNW.

The classes of water bodies that are subject to CWA jurisdiction, only if such a significant nexus is demonstrated, are nonnavigable tributaries that do not typically flow year-round or have continuous flow at least seasonally; wetlands adjacent to such tributaries; and wetlands adjacent to but that do not directly abut a relatively permanent, nonnavigable tributary. A significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or an insubstantial impact on the chemical, physical, or biological integrity of a TNW. Principal considerations when evaluating significant nexus include the volume, duration, and frequency of the flow of water in the tributary and the proximity of the tributary to a TNW, plus the hydrologic, ecologic, and other functions performed by the tributary and all of its adjacent wetlands.

An additional memorandum regarding USEPA and USACE coordination on JDs under CWA Section 404 in light of the Solid Waste Agency of Northern Cook County and Rapanos Supreme Court Decisions was developed and signed in response to the *Rapanos* decision (USEPA and USACE 2007b). Headquarters originally required the districts to request concurrence for only those JDs where the district was considering asserting jurisdiction over a nonnavigable, intrastate, isolated water or wetland. The agencies now require that all determinations for nonnavigable, isolated waters be elevated for USACE and USEPA Headquarters review prior to the district making a final decision on the JD.

3.7.2 Existing Conditions

Kirtland AFB lies at the intersection of four major North American physiographic and biotic provinces: the Great Plains, Great Basin, Rocky Mountains, and Chihuahuan Desert. Vegetation and wildlife found within Kirtland AFB are influenced by each of these provinces, the Great Basin being the most dominant. Elevations at Kirtland AFB range from approximately 5,000 feet in the west to almost 8,000 feet in the Manzanita Mountains, providing a variety of ecosystems. Five canyons (i.e., Lurance, Sol se Mete, Bonito, Otero, and Madera) are in the eastern portion of the installation; a few smaller canyons occur on Manzano Base. Kirtland AFB is near three regional natural areas: Sandia Mountain Wilderness Area, Sandia Foothills Open Space, and the Rio Grande Valley State Park. The Sandia Mountain Wilderness Area, encompassing 37,877 acres, is approximately 5 miles north of the eastern portion of the installation. This area is home to many species of plants and animals and is also within an important raptor migration route (KAFB 2007a).

Vegetation. Four main plant communities are found on Kirtland AFB: grassland (includes sagebrush steppe and juniper woodlands), piñon-juniper woodlands, ponderosa pine woodlands, and riparian/wetland/arroyo. Grassland and piñon-juniper woodlands are the dominant vegetative communities at Kirtland AFB. The riparian/wetland/arroyo community is confined to drainages and isolated areas inundated by surface water during at least some part of the year. The ponderosa pine woodland community is found along the eastern boundary of the installation (KAFB 2007a).

Grassland Community. This community is found between elevations of 5,200 and 5,700 feet at Kirtland AFB. The grassland community at Kirtland AFB was further delineated into two community types: sagebrush steppe in the western portion of the installation and juniper woodlands in the eastern portion. In the sagebrush steppe the understory is less dense, with cryptogamic crust covering areas of exposed ground. Juniper woodlands are similar to the grasslands to the east except for the greater abundance of one seeded juniper (*Juniperus monosperma*). The presence of this shrubby tree creates a savanna-like habitat in an otherwise treeless area. Juniper woodlands are found at a slightly higher elevation than the surrounding grassland. This habitat type provides a transition into piñon-juniper woodlands (KAFB 2007a).

Piñon-Juniper Woodland Community. The piñon-juniper woodland community ranges in elevation from 6,300 to 7,500 feet. This plant community is composed of primarily Colorado piñon pine and one seeded juniper, with an understory of shrubs and grasses (KAFB 2007a).

Ponderosa Pine Woodland Community. The ponderosa pine woodland community is found in the highest elevations of the eastern portion of the installation. It is typically found between 7,600 to 7,988 feet (KAFB 2007a).

Riparian/Wetland/Arroyo Community. The riparian/wetland/arroyo community consists of species that have a greater moisture requirement than species common to the other communities on the installation. These plant communities are found along Tijeras Arroyo, Arroyo del Coyote, and at the various springs

located throughout Kirtland AFB. Most of the small, scattered wetlands on Kirtland AFB are in good condition and occur in conjunction with other plant communities (KAFB 2007a).

Turf and Landscaped Areas. Kirtland AFB promotes water conservation landscaping by using xeriscape methods combined with native plant materials (KAFB 2007a).

Proposed Action locations are either currently occupied by existing buildings (Building 30116) or are located in semi-improved areas (proposed new Fire Station 3 location) that consist largely of annual weeds, early successional perennials, and some native grasses and shrubs with areas of bare ground. Vegetation typical of the surrounding grassland community includes broom snakeweed (*Gutierrezia sarothrae*), Great Plains yucca (*Yucca glauca*), Indian ricegrass (*Oryzopsis hymenoides*), purple three-awn (*Artemisia pupurea*), black grama (*Bouteloua eriopoda*), blue grama (*Bouteloua gracilis*), galleta (*Hilaria jamesii*), foxtail barley (*Hordeum jubatum*), four-wing saltbush (*Atriplex canescens*), sand sagebrush (*Artemisia filifolia*), needle-and-thread grass (*Stipa comata*), globemallows (*Sphaeralcea* spp.), Siberian elm (*Ulmus pumila*), Mormon tea (*Ephedra viridis*), New Mexican bitterweed (*Senecio neomexicanus*), ring muhly (*Muhlenbergia torreyi*), plains prickly-pear (*Opuntia polyacantha*), and bottlebrush squirrel tail (*Elymus longifolius*) (KAFB 2003).

Wildlife Species and Habitat. Wildlife management falls under the jurisdiction of the NMDGF and the USFWS for migratory birds and federally threatened and endangered species. Sensitive and protected species are addressed in this section under “Threatened and Endangered Species.” Laws protecting wildlife include the ESA, the Migratory Bird Treaty Act (MBTA), and the Bald and Golden Eagle Protection Act of 1940. Refer to **Appendix A** for additional laws and regulations protecting wildlife and habitat (KAFB 2007a).

Wildlife species found on Kirtland AFB are representative of the species diversity common to the regional ecosystem (e.g., grassland, juniper woodland, piñon-juniper woodland, and ponderosa pine woodlands) and species common in semideveloped grassland areas. Species can be transient and travel or inhabit several communities, or exist in transitional areas between vegetation communities.

The Proposed Action locations lie within the grassland association of Kirtland AFB. Common birds associated with the grassland association at Kirtland AFB include horned lark (*Eremophila alpestris*), scaled quail (*Callipepla squamata*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), American crow (*Cowus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), curve-billed thrasher (*Toxostoma curvirostre*), lark sparrow (*Chordestes grammacus*), black-throated sparrow (*Amphispiza bilineata*), western meadowlark (*Sturnella neglecta*), brown-headed cowbird (*Molothrus ater*), and house finch (*Carpodacus mexicanus*). The raptors most commonly found in the grassland association include northern harrier (*Circus cyaneus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), prairie falcon (*F. mexicanus*), long-eared owl (*Asio otus*), and great horned owl (*Bubo virginianus*). The turkey vulture (*Cathartes aura*) is a common scavenger in this habitat type (KAFB 2003).

The grassland association has a mammal community dominated by rodents, rabbits, and hares. These include the desert cottontail (*Sylvilagus audubonii*), Gunnison's prairie dog (*Cynomys gunnisoni*), white-footed deer mouse (*Peromyscus maniculatus*), silky pocket mouse (*Perognathus flavus*), Merriam's kangaroo rat (*Dipodomys merriami*), and the northern grasshopper mouse (*Onychomys leucogaster*). Mammalian predators found in the grassland association include the coyote (*Canis latrans*), badger (*Taxidea taxus*), kit fox (*Vulpes macrotis*), striped skunk (*Mephitis mephitis*), and bobcat (*Lynx rufus*) (KAFB 2003).

Amphibians and reptiles found on the grasslands at Kirtland AFB include the Woodhouse's toad (*Bufo woodhousii*), New Mexico spadefoot (*Spea multiplicata*), coachwhip snake (*Masticophis flagellum*), whiptail lizards (*Cnemidophorus* spp.), lesser earless lizard (*Holbrookia maculata*), and the western rattlesnake (*Crotalus viridis*). Many of these species have extensive periods of dormancy during dry conditions and rapid breeding cycles when temporary ponds occur after rains (KAFB 2003).

Threatened and Endangered Species. The agencies that have primary responsibility for the conservation of plant and animal species in New Mexico are the USFWS, the NMDGF, and the New Mexico Energy, Minerals and Natural Resources Department. These agencies maintain lists of plant and animal species that have been classified, or are potential candidates for classification, as threatened or endangered in Bernalillo County. Of those species known to occur in the county, one state threatened species and two Federal species of concern have the potential to occur on Kirtland AFB.

Gray vireo. The gray vireo (*Vireo vicinior*), a state threatened species as listed by the NMDGF, occurs on the installation, but has not been encountered at or near the Proposed Action locations. The USFWS considers the gray vireo a sensitive species. In 2003, an installationwide gray vireo survey was conducted in which 53 territories were mapped (KAFB 2004a). Territories were found throughout the juniper woodland community in an elevational belt of 5,850 to 6,600 feet. Gray vireos occupied areas with an open canopy (i.e., less than 25 percent canopy cover) with one seeded juniper as the dominate tree/shrub species (KAFB 2003).

Western burrowing owl. The western burrowing owl (*Athene cunicularia hypugaea*), a Federal species of concern, is a common resident at Kirtland AFB. It is very closely associated with the prairie dog colonies on the installation, as the owls use abandoned prairie dog burrows for nesting during summer months. Burrowing owls generally occur on the installation from March through October before migrating south, although a few birds might occur on the installation during mild winters. Burrowing owl inventories have been conducted every year since 1994, and in 2005 a migration study was initiated to identify where nesting owls at Kirtland AFB go to winter. Since burrowing owls use abandoned prairie dog burrows for nesting, a Prairie Dog Management Plan was developed for the installation, which takes into account burrowing owl habitat requirements (KAFB 2007a).

Mountain plover. The mountain plover (*Charadrius montanus*), a Federal species of concern, is not known to occur on the installation. However, in 2003, an adult with two chicks was observed just south of the installation on the Isleta Pueblo Indian Reservation (KAFB 2004a). Appropriate nesting habitat for this species is limited on the installation; therefore, it is unlikely that the mountain plover uses Kirtland AFB during the nesting season. However, the southern grasslands of the installation might be used as brood-rearing habitat or during migration (KAFB 2007a).

Santa Fe milkvetch. Santa Fe milkvetch (*Astragalus feensis*), a rare plant in New Mexico, is expected to occur on Kirtland AFB (KAFB 2008a). Santa Fe milkvetch is found on gravelly hillsides in piñon-juniper woodland or plains-mesa grassland (5,100 to 6,000 feet) (NMRPTC 1999).

Critical Habitat. Critical habitats are those areas of land, air, or water that are essential for maintaining or restoring threatened or endangered plant or animal populations. Neither the NMDGF nor the USFWS has designated or identified any critical habitat on Kirtland AFB. Surveys and literature indicate that important habitats on the installation include the wetlands, which are rare in this region, providing water in an otherwise arid environment. Other important habitats on the installation include prairie dog towns, which provide nesting habitat for the 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 (KAFB 2007a).

Wetlands. Wetlands provide an important function in recharging aquifers and buffering streams by filtering sediment and nutrients. Wetlands have been defined by agencies responsible for their management. The term “wetland” used herein, is defined using USACE conventions. The USACE has jurisdiction to protect wetlands under Section 404 of the CWA using the following definition:

... areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3[b]). Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands have three diagnostic characteristics that include: (1) over 50 percent of the dominant species present must be classified as obligate, facultative wetland, or facultative, (2) the soils must be classified as hydric, and (3) the area is either permanently or seasonally inundated, or saturated to the surface at some time during the growing season of the prevalent vegetation (USACE 1987).

Wetlands are considered waters of the United States if they are determined to be jurisdictional by the USACE and USEPA.

There are several wetlands on Kirtland AFB; however, no JDs have been made for these water features. There are no wetlands at or near the proposed new Fire Station 3 or Building 30116 locations (see **Figure 3-1**).

3.8 Cultural Resources

3.8.1 Definition of the Resource

Cultural resources include prehistoric and historic archaeological sites, structures, districts, or areas containing physical evidence of human activity. These resources are protected and identified under several Federal laws and EOs. Federal laws include the National Historic Preservation Act (NHPA) (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990).

The NHPA requires that Federal agencies assume the responsibility for the preservation of historic and prehistoric resources located on lands owned or controlled by that agency. Section 110 (a)(2) of the NHPA requires that “...each Federal agency shall establish a program to locate, inventory, and nominate to the Secretary all properties under the agency’s ownership or control...that appear to qualify for inclusion on the National Register...” Section 110 (a)(2) further requires that “each agency shall exercise caution to assure that any property that might qualify for inclusion is not inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate significantly.” These requirements are also included in DOD Directive 4710.1.

Under NHPA guidelines, cultural resources, including building, structures, objects, sites, and districts, are to be evaluated for National Register of Historic Places (NRHP) eligibility using the NRHP Criteria for Evaluation, as listed in 36 CFR 60.4. To be listed in, or considered eligible for the NRHP, a cultural resource must be 50 years or older and possess at least one of the following four criteria:

- The resource is associated with events that have made a significant contribution to the broad pattern of history (Criterion A)
- The resource is associated with the lives of people significant in the past (Criterion B)

- The resource embodies distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic value; or represents a significant and distinguishable entity whose components might lack individual distinction (Criterion C)
- The resource has yielded, or could likely yield, information important in prehistory or history (Criterion D).

In addition to meeting at least one of the above criteria, a cultural resource must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. Integrity is defined as the authenticity of a property's historic identity, as evidenced by the survival of physical characteristics it possessed in the past and its capacity to convey information about a culture or group of people, a historic pattern, or a specific type of architectural or engineering design or technology. Location refers to the place where an event occurred or a property was originally built. Design considers elements such as plan, form, and style of a property. Setting is the physical environment of the property. Materials refer to the physical elements used to construct the property. Workmanship refers to the craftsmanship of the creators of a property. Feeling is the ability of the property to convey its historic time and place. Association refers to the link between the property and a historically significant event or person.

Cultural resources meeting these standards (age, eligibility, and integrity) are termed "historic properties" under the NHPA. Sites or structures that are not considered individually significant can be considered eligible for listing in the NRHP as part of a historic district. According to the NRHP, a historic district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects that are historically or aesthetically united by plan or physical development.

Typically, cultural resources are grouped into three separate categories, archaeological, architectural, or sites that have a traditional religious or cultural significance to Native American tribes. Archaeological resources are defined as areas that have altered the landscape. Architectural resources are built structures of significance. In general, these architectural resources are typically more than 50 years old but newer structures can be evaluated under the entire above criterion. Resources of traditional, religious, or cultural significance to Native American tribes can include architectural or archaeological resources, sacred sites, neighborhoods, geographic landmarks, flora or faunal habitats, mineral localities, or sites considered essential for the preservation of traditional culture.

The EA process requires the assessment of potential impacts on cultural resources. In addition, under Section 106 of the NHPA, Federal agencies must take into account the effect of their undertakings on historic properties and allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Under this process, the Federal agency evaluates the NRHP eligibility of resources within the proposed undertaking's Area of Potential Effect (APE) and assesses the possible impacts of the proposed undertaking on historic resources in consultation with the SHPO and other parties. The APE is defined as the geographic area(s) "within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Under Section 110 of the NHPA, Federal agencies are required to establish programs to inventory and nominate cultural resources under their purview to the NRHP.

3.8.2 Existing Conditions

Archaeological Resources. There have been more than 150 cultural resources projects undertaken at Kirtland AFB. These projects have resulted in the identification of 661 archaeological sites and the NRHP evaluations of more than 2,000 facilities. Of the 661 archaeological sites recorded within the boundaries of Kirtland AFB, most are in the eastern portion of the installation. Laboratory of Anthropology (LA) numbers have been assigned for each of these archaeological resources. NRHP eligibility evaluations are generally complete for the sites located on the lower piedmonts and drainages

of the western portions of Kirtland AFB and the eastern Manzanita Mountains. There have been no archaeological sites identified within the APE of the Proposed Action.

Two archaeological resource sites (LA 88089 and LA 108035) are near Building 30116. LA 88089 is a prehistoric lithic artifact scatter situated approximately 1,000 feet north of the demolition APE. Current NRHP eligibility status for site LA 88089 is undetermined. LA 108035 is a historic sheep coral with an associated dry laid rock wall. Site LA 108035 is approximately 500 feet northeast of the demolition APE and is listed as eligible to the NRHP under Criteria C. New Mexico SHPO concurred with this eligibility recommendation in February 2006.

Architectural Resources. The Proposed Action would involve the demolition of Building 30116, which is more than 50 years old; and, therefore, potentially significant under the NHPA. Building 30116 was constructed in 1955 as a fire station for Manzano Base, one of the first three special weapons storage facilities built in the United State following World War II. During the Cold War, Manzano Base consisted of two distinct areas. The Nuclear Weapons Storage Area held storage igloos and plants for weapons inspection, maintenance, and modification. The Administrative Area housed office space, barracks, and recreational facilities for soldiers stationed at Manzano Base. Building 30116 is located within the Administrative Area.

In 2003, Van Citters: Historic Preservation, LLC (VCHP) was contracted by Kirtland AFB to evaluate the significance of Manzano Base as part of the ongoing effort to meet the requirements of Section 110 of the NHPA – to identify historic properties that are eligible to the NRHP. Only one of the buildings located within the Manzano Base Administrative Area was recommended as eligible to the NRHP. The remainder of the buildings were previously remodeled from their original International style of architecture. Because of the degree of alterations, a majority of the buildings in the Administrative Area, including Building 30116, were recommended ineligible to the NRHP due to a lack of architectural integrity. In addition, the role of Building 30116 as a fire station was not exceptionally significant within the greater context of Manzano Base history (VCHP 2003). In 2005, the New Mexico SHPO concurred with all of VCHP's eligibility recommendations concerning Manzano Base.

Traditional Cultural Properties. No traditional cultural properties or sacred sites have been identified on Kirtland AFB.

3.9 Transportation and Infrastructure

3.9.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “urban” or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to the economic growth of an area. The infrastructure information in this section was primarily obtained from the General Plan and provides a brief overview of each infrastructure component and comments on its existing general condition.

The infrastructure components discussed in this section include transportation, utilities, and solid waste management. Transportation is defined as the system of roadways, highways, and transit services that are in the vicinity of the proposed project sites and could reasonably be expected to be potentially impacted by a proposed action. Utilities include electrical, natural gas, liquid fuel, water supply, sanitary sewage/wastewater, storm water handling, and communications systems. Solid waste management primarily relates to the availability of landfills to support a population's residential, commercial, and industrial needs.

3.9.2 Existing Conditions

Transportation. Numerous modes of transportation are available at Kirtland AFB, including air, mass transit, and Federal and state highway access. The Albuquerque International Sunport is located along the western boundary of the installation and provides commercial and public aviation, and military support, particularly for Kirtland AFB and Air Force Reserve units. The Albuquerque International Sunport airfield has three commercial carrier runways and one dedicated to general aviation (City of Albuquerque 2002).

The City of Albuquerque Transit Department, ABQ Ride, provides and operates public bus services throughout the city. Several bus routes regularly service Kirtland AFB. The current ABQ Ride services to Kirtland AFB include two commuter routes operating from Cottonwood Mall, Routes 96 and 98; Routes 3 and 157 – Montañito/Louisiana/Uptown/Kirtland AFB; Route 31 – Wyoming Boulevard; Route 2 – Eubank Boulevard; Route 217 – Downtown-Kirtland AFB Limited; and Route 222 – Rio Bravo-Albuquerque International Sunport-Kirtland AFB (City of Albuquerque 2011a).

Kirtland AFB is situated approximately 4 miles east of Interstate (I)-25 and about 1.5 miles south of I-40. The installation is served from interstate highways and many state and local roads. The City of Albuquerque street grid includes a number of major arterials that tie directly into Kirtland AFB, including Eubank, Wyoming, Louisiana, San Mateo, and Carlisle Boulevards. These roadways serve north-south traffic flows. The east-west trending major arterial directly to the north of the installation is Gibson Boulevard. Other east-west arterials north of the installation include Zuni Boulevard and Central Avenue, the historic Route 66 (KAFB 2011a).

There are currently seven gated entrances from the City of Albuquerque to Kirtland AFB: the Carlisle Gate at the extension of Carlisle Boulevard, Truman Gate at Truman Street, Maxwell Gate at Maxwell and Gibson Boulevards, Gibson Gate at the intersection of Gibson and Louisiana Boulevards, Wyoming Gate at Wyoming Boulevard, and Eubank Gate at the extension of Eubank Boulevard. The seventh gate is the South Valley Gate, which is located at Ira Sprecher Road south of the Albuquerque International Sunport. The Carlisle, Wyoming, Eubank, and South Valley gates currently have restricted hours due to reduced security manpower and lighter usage (KAFB 2011a).

There are currently 429 miles of paved roads and 229 miles of unpaved roads on Kirtland AFB. Major arterials include Wyoming Boulevard, Gibson Boulevard, and Frost Street. Hardin Boulevard and Aberdeen Avenue are major arterials in the east and west portions of the installation, respectively. Minor arterials include Pennsylvania Street and 20th Street, which serve the Sandia National Laboratories facilities. The primary transportation route to the southern portion of the installation is via Pennsylvania Street (KAFB 2011a).

Electrical System. Kirtland AFB purchases electrical power from Western Area Power Administration. All electricity to the installation comes through the Sandia Switching Station on an approximately 80 million-volt amperes capacity electrical circuit. The estimated normal electrical load for Kirtland AFB is approximately 35 million-volt amperes, and the estimated historical maximum electrical load is approximately 76-million-volt amperes (KAFB 2011a). Building 30116 and the proposed new Fire Station 3 location are supplied with overhead and underground electrical power. Building 30116 is not supplied with an emergency generator for backup power.

Natural Gas and Propane. Coral Energy supplies Kirtland AFB with natural gas. Natural gas enters the installation through a 60-pound-per-square inch pipeline just east of Pennsylvania Street. There are approximately 70 miles of natural gas mains at Kirtland AFB that provide natural gas service to select buildings on the installation. The primary buildings that receive natural gas service are in the industrial complex, family housing areas, and heating plants. Rural portions of the installation do not receive

natural gas service and instead rely on propane, which is delivered to and stored in local propane storage tanks. Natural gas demand at Kirtland AFB depends on weather conditions; however, the approximate consumption in 2009 was 871,000 million British thermal units (KAFB 2011a). Building 30116 is supplied natural gas through a 4-inch polyethylene pipeline. The proposed new Fire Station 3 location is supplied natural gas through an 8-inch polyethylene pipeline.

Liquid Fuel. Liquid fuels are supplied to Kirtland AFB by contractors. The primary liquid fuels supplied include JP-8 (jet fuel – type 8), diesel, and unleaded gasoline. All of these fuels are purchased in bulk, delivered to the installation by tanker truck, and stored in various sized storage tanks scattered across the installation. The primary use of liquid fuels at Kirtland AFB is to power military aircraft and land-based vehicles (KAFB 2011a). No known liquid fuels are stored at either the Building 30116 or proposed new Fire Station 3 locations.

Water Supply System. Water is supplied to Kirtland AFB by seven groundwater wells and two separate, but interconnected, distribution systems that have a collective water-pumping maximum of 9.3 million gallons per day (MGD). The installation pumps an average of 5.5 MGD of treated, potable water through 160 miles of distribution mains. Depending on the well location, the groundwater obtained is either chlorinated at the individual wellhead or at the Water Plant. Chlorination is accomplished by in-line, automated chlorine pellet dispensing facilities. Because the local groundwater contains natural fluoride, the installation does not fluoridate the water supply. In general, the water supply piping is properly sized and is in good condition despite being approximately 45 years of age on average. There are also approximately 50 miles of non-potable water pipeline serving Tijeras Golf Course and designated water supply for fire protection. Kirtland AFB has a Water Rights Agreement with the State of New Mexico that allows it to withdraw up to 6,000 acre-feet per year from the underground aquifer, which is equal to approximately 2 billion gallons of water (KAFB 2011a). In 2010, a total of approximately 772 million gallons (approximately 2,369 acre-feet) of water were pumped from these wells (KAFB 2011b).

Kirtland AFB also purchases water from the City of Albuquerque to meet demand during peak periods; however, the amount of water purchased from the city has been negligible since 1998. City water is delivered via three 12-inch mains fitted with backflow prevention devices. The maximum water supply capacity from the City of Albuquerque is 8.6 MGD, which results in a maximum total water supply to Kirtland AFB of 17.9 MGD. Water is stored in approximately 25 water storage tanks at Kirtland AFB, which have a collective storage capacity of approximately 5.5 million gallons (KAFB 2011a). Kirtland AFB did not purchase or use water from the City of Albuquerque during 2010 (KAFB 2011b).

Current water demand at Kirtland AFB is approximately 6 to 10 MGD during the summer and 1 to 4 MGD during the winter. As such, the groundwater wells generally have sufficient pumping capacity to meet current water demand (KAFB 2011a). Based on the estimated water use of 75 gallons per person per day and the current staffing of 10 fire fighters, Building 30116 is estimated to use approximately 750 gallons of water per day (Richardson 2012). Building 30116 is supplied water through a 6-inch cast iron line. The proposed new Fire Station 3 location is supplied water through a 10-inch corrugated aluminum line.

Sanitary Sewer/Wastewater System. Kirtland AFB does not have its own sewage treatment facility. Instead, the sanitary sewer system of Kirtland AFB, which consists of approximately 92 miles of collection mains, transports wastewater to the City of Albuquerque treatment facility. Kirtland AFB is permitted a fixed amount of 70,805,000 gallons of sewer discharge per month. Currently, Kirtland AFB discharges an average of 901,000 gallons per day (27,030,000 gallons per month) and during peak periods, 1,149,000 gallons per day (34,470,000 gallons per month) (Segura 2010). Kirtland AFB uses approximately 40 oil/water separators to collect greases and oils before they enter the wastewater collection system. Some facilities in remote portions of the installation are not serviced by the sanitary sewer system; these facilities instead use isolated, onsite septic systems to dispose of wastewater.

(KAFB 2011a). Assuming that all water used at Building 30116 goes to the sanitary sewer, it is estimated that Building 30116 generates approximately 750 gallons of wastewater per day. Building 30116 is connected to the sanitary sewer for wastewater disposal through an 8-inch vitrified clay line. A 10-inch concrete wastewater line is accessible approximately 4,800 feet southwest of the proposed new Fire Station 3 location.

Storm Water System. Man-made storm water drainage systems, which include gutters, culverts, ditches, and underground piping, direct storm water to receiving channels and basins in developed portions of Kirtland AFB. Kirtland AFB has an NPDES General Storm Water Permit for industrial activities and an active program for construction projects that require an NPDES permit. In less-developed portions of Kirtland AFB, man-made storm water drainage systems have not been installed and storm water drains by sheet flow to various natural drainageways. Most storm water at Kirtland AFB that does not get absorbed into the ground drains into the Rio Grande, which eventually discharges into the Gulf of Mexico (KAFB 2011a). Storm water runoff at Building 30116 and the proposed new Fire Station 3 locations flow through natural drainage patterns created by natural terrain and paved surfaces.

Communications System. Kirtland AFB uses copper and fiber optic cable for the telephone and data transmission services. Kirtland AFB operates its own telephone switching system, which is adequately sized to support the current needs of the installation. The data transmission system has been designed to accommodate future growth of the installation (KAFB 2011a). Building 30116 and the proposed new Fire Station 3 location are supplied with communication lines.

Solid Waste Management. Solid waste generated at Kirtland AFB is collected by contractors and disposed of at the Rio Rancho Landfill, which is off-installation in the City of Rio Rancho and is operated by Waste Management, Inc. In 2008, the Rio Rancho Landfill received a 10-year permit renewal and approval for approximately 1,179,699 cubic yards (471,840 tons assuming 800 pounds per cubic yard) of additional capacity beyond the amount approved in its 1998 NMED permit (Permit Number 231402) (NMED undated, Waste Management 2010). From 2007 to 2009, Kirtland AFB sent an average of 2,500 tons of solid waste per year to the City of Rio Rancho Landfill.

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 total capacity of 10,164,000 cubic yards (4,065,676 tons). The remaining capacity of this landfill is 5,071,000 cubic yards (2,006,964 tons). From 2007 to 2009, Kirtland AFB disposed of an average of 23,000 tons of construction and demolition waste per year at the on-installation landfill (Kitt 2010).

Kirtland AFB manages a recycling program to reduce the amount of solid waste sent to landfills. The Kirtland AFB Qualified Recycling Program is operated by contractors and collects office paper, cardboard, and aluminum from pick-up points scattered across the installation (KAFB 2011a). Additional recycling efforts are oftentimes included in specific construction and demolition projects.

3.10 Hazardous Materials and Waste

3.10.1 Definition of the Resource

Hazardous materials are defined by 49 CFR 171.8 as “hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (49 CFR 172.101), and materials that meet the defining criteria for hazard classes and divisions” in 49 CFR Part 173. Transportation of hazardous materials is regulated by the U.S. Department of Transportation regulations within 49 CFR Parts 105–180.

Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) at 42 U.S.C. §6903(5), as amended by the Hazardous and Solid Waste Amendments, as: “a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.” Certain types of hazardous wastes are subject to special management provisions intended to ease the management burden and facilitate the recycling of such materials. These are called universal wastes and their associated regulatory requirements are specified in 40 CFR Part 273. Four types of waste are currently covered under the universal waste regulations: hazardous waste batteries, hazardous waste pesticides that are either recalled or collected in waste pesticide collection programs, hazardous waste thermostats, and hazardous waste lamps.

Special hazards are those substances that might pose a risk to human health and are addressed separately from other hazardous substances. Special hazards include ACM, polychlorinated biphenyls (PCBs), and LBP. The USEPA is given authority to regulate these special hazard substances by the Toxic Substances Control Act (TSCA) Title 15 U.S.C. Chapter 53. USEPA has established regulations regarding asbestos abatement and worker safety under 40 CFR Part 763 with additional regulation concerning emissions (40 CFR Part 61). Whether from lead abatement or other activities, depending on the quantity or concentration, the disposal of the LBP waste is regulated by the RCRA at 40 CFR 260. The disposal of PCBs is addressed in 40 CFR Parts 750 and 761. The presence of special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

The DOD developed the Environmental Restoration Program (ERP) to facilitate thorough investigation and cleanup of contaminated sites on military installations (i.e., active installations, installations subject to Base Realignment and Closure, and formerly used defense sites). The Installation Restoration Program and the Military Munitions Response Program (MMRP) are components of the ERP. The Installation Restoration Program required each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites. The MMRP addressed nonoperational rangelands that are suspected or known to contain unexploded ordnance (UXO), discarded military munitions, or munitions constituent contamination. Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be restricted until remediation of a groundwater contamination plume has been completed).

The DOE developed the Office of Environmental Restoration (ER) and Waste Management in 1989. The goal of this office is to implement the department’s policy of ensuring that DOE’s past, present, and future operations do not threaten human health or environmental health and safety. The Environmental Management Office was reorganized in 1999 to implement procedures to meet these goals through five underlying offices. The Office of Site Closure is responsible for achieving closure of ER sites in a manner which is safe, cost-effective, and coordinated with stakeholders. As a facility operated for DOE under the Albuquerque Operations Office, Sandia National Laboratory/New Mexico (SNL/NM) is part of this program. The current investigation being conducted at SNL/NM under the ER project is intended to determine the nature and extent of hazardous and radioactive contamination and restore any sites where such materials pose a threat to human health or the environment.

The information provided in this section focuses on the presence and management of hazardous materials and wastes associated with the proposed construction and demolition areas.

For the USAF, Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, and the AFI 32-7000 series incorporate the requirements of all Federal regulations and other AFIs and DOD Directives for the management of hazardous materials, hazardous wastes, and special hazards.

3.10.2 Existing Conditions

Hazardous Materials and Petroleum Products. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and to those who manage, monitor, or track any of those activities. As part of the HWMP, Kirtland AFB has deemed the 377 MSG/CEANC as the responsible entity to oversee the storage and usage of hazardous materials on the installation. Part of the 377 MSG/CEANC 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 377 MSG/CEANC is charged with managing hazardous materials to reduce the amount of hazardous waste generated on the installation (KAFB 2004b).

There are no known hazardous materials stored within Building 30116 or at the proposed new Fire Station 3 location.

Hazardous and Petroleum Wastes. The 377 ABW maintains a HWMP (KAFB 2004b) as directed by AFI 32-7042, *Waste Management*. This plan prescribes the roles and responsibilities of all members of Kirtland AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable Federal, state, and local standards for solid waste and hazardous waste management. Kirtland AFB is a large-quantity generator of hazardous waste (Handler Identification NM9570024423). The NMED Hazardous Waste Bureau (NMED-HWB) issued a hazardous waste treatment permit in July 2010 for the detonation of explosive wastes at the Kirtland AFB Explosive Ordnance Disposal (EOD) Range. This permit also contains installation-wide corrective action requirements for Solid Waste Management Units (SWMUs) and areas of concern. A Class 3 permit modification request was submitted to the NMED-HWB in November 2010 requesting closure of the open detonation treatment unit and revisions to corrective action permit terms (Dann 2011).

The proposed new Fire Station 3 location has historically been undeveloped. No known hazardous or petroleum wastes were generated, stored, or disposed of at either Building 30116 or the proposed new Fire Station 3 location.

Environmental Restoration Program. A review of the *Kirtland Air Force Base, Albuquerque, New Mexico Comprehensive Site Evaluation Phase I Report, Air Force Military Munitions Response Program*, prepared for Kirtland AFB in 2007, indicated that the subject construction and demolition areas are not within any surface danger zones associated with present or former defense ranges or munitions response areas (USACE 2007). MMRP DA130, Arroyo del Coyote Demolition Area, is located approximately 0.1 mile west of the proposed new Fire Station 3 location.

There are no ERP or DOE ER sites within the proposed new Fire Station 3 location. SWMU OT-10, the Radiation Training Sites 5-8, are approximately 0.3 miles south; SWMU RW-75, the South Tijeras Road Trench, is approximately 0.4 miles northwest; SWMU SS-69, Drum Storage Area, is approximately 0.3 miles west; SWMU ST-51, Sewage Effluent Line, is approximately 0.4 miles north; and SWMU WP-25, Sewage Lagoons and Golf Course Pond, is approximately 0.5 miles northeast of the proposed new Fire Station 3 location. NMED approved a No Further Action (NFA) for SWMUs OT-10, RW-75, and SS-69 on 21 September 2005 (NMED 2005) and SWMU ST-51 on 3 January 2005 (NMED 2006). SWMU WP-26 is currently active and being monitored via groundwater monitoring wells. DOE SWMU 23, Disposal Trenches near Tijeras Arroyo, is located approximately 0.3 miles north of the proposed new Fire Station 3 location. NMED approved this site for NFA July 2000 (Sandia Corporation 2008) (see **Figure 3-2**).

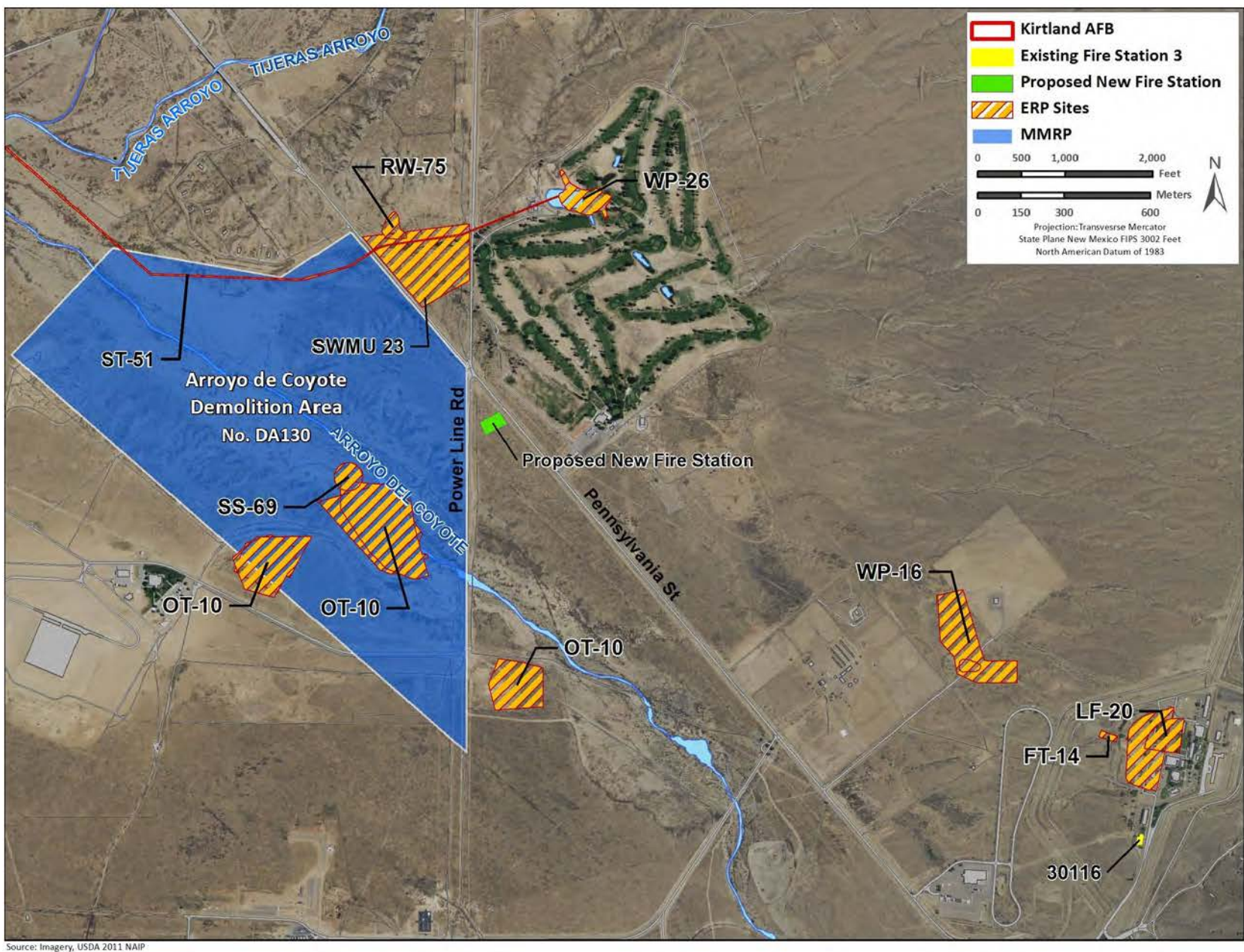


Figure 3-2. ERP and DOE ER Sites near Proposed New Fire Station 3 Location and Building 30116

There are no ERP or DOE ER sites under or adjacent to Building 30116. SWMU LF-20, the Manzano Landfill, is approximately 0.1 mile north of Building 30116. NMED approved an NFA status for this SWMU on 21 September 2005 (NMED 2005). SWMU FT-14, the Manzano Fire Training Area, is approximately 0.2 miles northwest of Building 30116. NMED approved an NFA status for this SWMU on 17 July 2007 (NMED 2007). SWMU WP-16, Manzano Sewage Treatment Facility, is approximately 0.4 miles northwest of Building 30116. SWMU WP-16 is currently active and being monitored via groundwater monitoring wells (see **Figure 3-2**).

Asbestos-Containing Material. Asbestos is regulated by the USEPA under the CAA, TSCA, and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). USEPA has established that any material containing more than 1 percent asbestos is considered an ACM. Friable ACM is any material containing more than 1 percent asbestos, and that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM is any ACM that does not meet the criteria for friable ACM. Guidelines and procedures for recordkeeping, removal, encapsulation, enclosure, and repair activities associated with ACM-abatement projects are conducted in accordance with all Federal, state, and local rules and regulations. Building 30116 is reported to contain ACM. The proposed new Fire Station location has historically been undeveloped and there are no records of ACM at the location.

Lead-Based Paint. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards. The Federal government banned the use of most LBP in 1978. Building 30116 was constructed in 1955 and is therefore assumed to contain LBP. The proposed new Fire Station 3 location has historically been undeveloped and there are no records of LBP at the location.

Polychlorinated Biphenyls. PCBs are a group of chemical mixtures used as insulators in electrical equipment such as transformers and fluorescent light ballasts. Chemicals classified as PCBs were widely manufactured and used in the United States throughout the 1950s and 1960s. PCBs can be present in products and materials produced before the 1979 ban. Common products that might contain PCBs include electrical equipment (e.g., transformers and capacitors), hydraulic systems, and fluorescent light ballasts.

The fluorescent light ballasts within Building 30116 might contain PCBs. Other items that might contain PCBs include capacitors and surge protectors. There are no records of PCBs at the proposed new Fire Station 3 location.

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in the Emergency Planning and Community Right-to-Know Act; Pollution Prevention Act of 1990; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. AFI 32-7080 prescribes the establishment of pollution prevention management plans, which have management and minimization strategies for ozone-depleting substances (ODSs), USEPA's 17 highest-priority industrial toxic chemicals, hazardous wastes, municipal solid wastes, affirmative procurement of environmentally friendly products, energy conservation, and air and water pollutant reduction. The 377 ABW fulfills this requirement with the following plans:

- Pollution Prevention Management Action Plan (KAFB 1999)
- Final Management Action Plan (KAFB 1997)
- Hazardous Waste Management Plan (KAFB 2004b)
- Hazardous Material Emergency Planning and Response Plan (KAFB 2008b)
- Spill Prevention, Control, and Countermeasures Plan (KAFB 2009c).

3.11 Safety

3.11.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses workers' health and safety during construction and demolition activities as well as public health and safety during and following construction and demolition activities.

Construction site safety requires adherence to regulatory requirements imposed for the benefit of employees. It includes implementation of engineering and administrative practices that aim to reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and military branch specific regulations designed to comply with standards issued by the Federal OSHA, USEPA, and state occupational safety and health agencies. These standards specify health and safety requirements, the amount and type of training required for workers, the use of personal protective equipment (PPE), administrative controls, engineering controls, and permissible exposure limits for workplace stressors.

Health and safety hazards can often be identified and reduced or eliminated before an activity begins. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Hazards include transportation, maintenance and repair activities, and the creation of noisy environments or a potential fire hazard. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments due to noise or fire hazards for nearby populations. Noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.11.2 Existing Conditions

Contractor Safety. All contractors performing construction and demolition activities 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.

New Mexico is one of several states that administer their own occupational safety and health (OSH) program according to the provision of the Federal OSHA of 1970, which permits a state to administer its own OSH program if it meets all of the Federal requirements regarding the program's structure and operations. The New Mexico Occupational Health and Safety Bureau program has the responsibility of enforcing Occupational Health and Safety Regulations within New Mexico. Its jurisdiction includes all private and public entities such as city, county, and state government employees. Federal employees are excluded as they are covered by Federal OSHA regulations.

OSH programs address the health and safety of people at work. OSH regulations cover potential exposure to a wide range of chemical, physical, and biological hazards, and ergonomic stressors. The regulations are designed to control these hazards by eliminating exposure to the hazards via administrative or engineering controls, substitution, or use of PPE. Occupational health and safety is the responsibility of each employer, as applicable. Employer responsibilities are to review potentially hazardous workplace conditions; monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous substances), physical (e.g., noise propagation, falls), and biological (e.g., infectious waste, wildlife, poisonous plants) agents, and ergonomic stressors; recommend and evaluate controls (e.g., prevention, administrative, engineering, PPE) to ensure exposure to personnel is eliminated or adequately controlled;

and ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to the use of respiratory protection, engaged in hazardous waste work, asbestos, lead, or other work requiring medical monitoring.

Military Personnel Safety. Each branch of the military has its own policies and regulations that act to protect its workers, despite their work location. AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, which implements AFD 91-3, *Occupational Safety and Health*, governs the recognition, evaluation, control, and protection of USAF personnel from occupational health and safety hazards. The purpose of the AFOSH Program is to minimize the loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks.

The health and safety of personnel at Kirtland AFB is adversely affected by the deficiencies of Building 30116. Personnel must contend with the lack of space; exposure to vehicle exhaust; and poor heating, cooling, and ventilation at Building 30116. Building 30116 contains ACM and is likely to contain LBP. Each of these design deficiencies present health and safety concerns to the personnel working at Building 30116.

Public Safety. Kirtland AFB has its own emergency services department. The emergency services department provides Kirtland AFB with fire suppression, crash response, rescue, emergency medical response, hazardous substance protection, and emergency response planning and community health and safety education through the dissemination of public safety information to the installation. A Veterans Affairs hospital and the 377th Medical Group's Outpatient Clinic are the primary military medical facilities at Kirtland AFB (KAFB undated a). A number of other hospitals and clinics, which are devoted to the public, are off-installation in the City of Albuquerque. These facilities include the Heart Hospital of New Mexico, University of New Mexico Hospital, and Presbyterian Kaseman Hospital (Google 2011).

The Fire and Rescue Emergency Services Division for the City of Albuquerque provides fire suppression, crash response, rescue, emergency medical response, and hazardous substance response to the nearby City of Albuquerque. The Fire and Rescue Emergency Services Division includes 23 fire engine companies, 7 fire ladder companies, 3 hazardous material response units, and 18 medical response ambulances (City of Albuquerque 2011b). The City of Albuquerque also has an approximately 500-person police force available to provide law enforcement services (City of Albuquerque 2011c). A mutual service agreement is in place between the City of Albuquerque and Kirtland AFB.

3.12 Socioeconomics and Environmental Justice

3.12.1 Definition of the Resource

Socioeconomics. Socioeconomics is the relationship between economics and social elements such as population levels and economic activity. Factors that describe the socioeconomic environment represent a composite of several interrelated and nonrelated attributes. There are several factors that can be used as indicators of economic conditions for a geographic area, such as demographics, median household income, unemployment rates, percentage of families living below the poverty level, employment, and housing data. Data on employment identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on industrial, commercial, and other sectors of the economy provide baseline information about the economic health of a region.

Environmental Justice. EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, pertains to environmental justice issues and relates to various socioeconomic groups and the disproportionate impacts that could be imposed on them. This EO requires

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

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

3.12.2 Existing Conditions

Demographics. The population of the Albuquerque Metropolitan Statistical Area (MSA), defined by the U.S. Census Bureau as Bernalillo, Sandoval, and Valencia counties, was 887,077 people in the 2010 U.S. Census. This represents a 24.5 percent increase, or a 2.45 percent annual increase, from the 2000 U.S. Census for the Albuquerque MSA population (U.S. Census Bureau 2010).

The State of New Mexico's population totaled 2,059,179 in 2010. The population of Bernalillo County was 662,564 in 2010, representing 32 percent of the total population for the State of New Mexico. Based on 2000 and 2010 U.S. Census data, the population of Bernalillo County grew 19 percent from 2000 to 2010, while during this same time period Sandoval County experienced a 46.3 percent increase in population and Valencia County grew by 15.7 percent. The growth rate of population in the Albuquerque MSA from 2000 to 2010 (24.5 percent) was much greater than the growth rate of the State of New Mexico (13.2 percent) and of the United States (9.7 percent) over the same time period. See **Table 3-7** for 2000 and 2010 population data (U.S. Census Bureau 2010).

Table 3-7. 2000 and 2010 Population

Location	2000	2010	Percentage Change
United States	281,421,906	308,745,538	9.7%
New Mexico	1,819,046	2,059,179	13.2%
Albuquerque MSA	712,738	887,077	24.5%
Bernalillo County	556,678	662,564	19.0%
Sandoval County	89,908	131,561	46.3%
Valencia County	66,152	76,569	15.7%

Source: U.S. Census Bureau 2010

Employment Characteristics. The three largest industries in the Albuquerque MSA in terms of percentage of the workforce employed within the industry are the educational, health, and social services industry (22 percent); the professional, scientific, management, and administrative and waste management services industry (13 percent); and the retail trade industry (11 percent). The construction industry represents 9 percent of the workforce (U.S. Census Bureau 2009). Unemployment in the Albuquerque MSA from 2001 to 2011 ranged from 4.0 to 9.0 percent annually. In April 2011, the unemployment rate dropped to 7.2 percent (BLS 2011).

Kirtland AFB. The number of persons employed on Kirtland AFB is greater than 21,000, making it the single largest employer in the Albuquerque MSA. There are 3,389 active-duty personnel on the installation. Direct payroll expenditures from Kirtland AFB exceed \$2 billion annually. When non-payroll expenditures associated with Kirtland AFB are included, total expenditures sum \$6.7 billion. Approximately 23,639 jobs are created as an indirect result of expenditures and employment at Kirtland AFB (KAFB 2010).

Environmental Justice and Protection of Children. To provide a baseline measurement for environmental justice, an area around the installation must be established to examine the impacts on minority and low-income populations. For the purpose of this analysis, a 50-mile radius around Kirtland AFB was evaluated to identify minority and low-income populations. This 50-mile radius includes numerous towns, villages, census-designated places, and cities. The largest of these is the City of Albuquerque with a population of 545,852. In the City of Albuquerque, 46.7 percent of the population is Hispanic and 4.6 percent is Native American (see **Table 3-8**) (U.S. Census Bureau 2010).

Table 3-8. Minority and Low-Income Characteristics (2010)

Race and Origin	City of Albuquerque	City of Rio Rancho	South Valley	New Mexico	United States
Total Population	545,852	87,521	40,976	2,059,179	308,745,538
Percent Under 5 Years of Age	7.0	7.2	7.3	7.0	6.5
Percent Over 65 Years of Age	12.1	10.8	12.3	13.2	13.0
Percent White	69.7	76.0	59.5	68.4	72.4
Percent Black or African American	3.3	2.9	1.2	2.1	12.6
Percent American Indian and Alaska Native	4.6	3.2	2.2	9.4	0.9
Percent Asian	2.6	1.9	0.4	1.4	4.8
Percent Native Hawaiian and Other Pacific Islander	0.1	0.2	0.0	0.1	0.2
Percent Other Race	15.0	11.1	32.7	15.0	6.2
Percent Two or More Races	4.6	4.7	4.0	3.7	2.9
Percent Hispanic or Latino	46.7	36.7	80.2	46.3	16.3
Estimated Median Household Income	\$45,478	\$59,182	\$35,854	\$42,742	\$51,425
Estimated Percent of Families Living Below Poverty	11.2	5.4	19.6	13.7	9.9

Sources: U.S. Census Bureau 2009, U.S. Census Bureau 2010

Note: Hispanic and Latin denote a place of origin.

The City of Rio Rancho is on the northwestern side of Albuquerque and has a population of 87,521 and is the second largest city within 50 miles of Kirtland AFB. The Hispanic population represents 36.7 percent of the total population in Rio Rancho and the Native American population represents 3.2 percent of the total population. The third largest population center within 50 miles of Kirtland AFB is South Valley, situated to the west of Kirtland AFB, containing 40,976 persons. In South Valley, the Hispanic population is 80.2 percent of the total population and the Native American population is 2.2 percent of the total population. The percentage of individuals under the age of 5 is very similar in the City of

Albuquerque, City of Rio Rancho, and South Valley when compared to the State of New Mexico and the United States (U.S. Census Bureau 2010). The average median household income for the Albuquerque MSA is estimated at \$47,042, which is slightly less than the United States estimated average of \$51,425 (U.S. Census Bureau 2009).

The percentage of families living below the poverty level varies greatly throughout the metropolitan area of Albuquerque, with the City of Albuquerque having poverty levels similar to the State of New Mexico and the United States (see **Table 3-8**). South Valley has a higher poverty rate compared to the State of New Mexico and the United States, and Rio Rancho has a lower poverty rate than the State of New Mexico and the United States (U.S. Census Bureau 2009, U.S. Census Bureau 2010).

4. Environmental Consequences

This section describes the potential environmental consequences on the affected environment of implementing the Proposed Action and the No Action Alternative. In **Sections 4.1 to 4.12**, each alternative is evaluated for its potential to affect physical, biological, and socioeconomic resources in accordance with 40 CFR 1508.8. Potential impacts for each resource area are described in terms of their significance. Significant impacts are those impacts that would result in substantial changes to the environment (as defined by 40 CFR 1508.27) and should receive the greatest attention in the decisionmaking process.

4.1 Land Use

4.1.1 Evaluation Criteria

The significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use impact would be significant if it were to cause the following:

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened
- Conflict with planning criteria established to ensure the safety and protection of human life and property.

4.1.2 Proposed Action

4.1.2.1 Construction and Demolition

The Proposed Action would be in compliance with the land use policies presented in the General Plan, including the main goals of providing operational support for missions and promoting the health, safety, and quality of life of Kirtland AFB's personnel. The Proposed Action would satisfy several general development objectives identified in the General Plan to achieve these goals, such as siting facilities for maximum efficiency and using best practices for building design and use. The General Plan specifically identifies the "South Forty area," which is the southern 40,000 acres of Kirtland AFB, as containing opportunities for development (KAFB 2011a).

Implementation of the Proposed Action would require the current land use designation at the proposed new Fire Station 3 location (Open Space) to be changed to Industrial; however, with this small change, the Proposed Action would comply with the General Plan and less than significant impacts on land use plans or policies would be expected.

Implementation of the Proposed Action would be consistent with local municipal zoning ordinances. Therefore, the Proposed Action would not result in any impacts on municipal land use plans or policies.

Implementation of the Proposed Action would not preclude the viability of existing land uses, or the continued use and occupation of areas surrounding it. The proposed new Fire Station 3 location is

primarily surrounded by undeveloped land. Roadways are present to the west, north, and east of the proposed side, and the Tijeras Arroyo Golf Course is to the northeast. The proposed new Fire Station 3 location would not be incompatible with all of these land uses. While the construction and demolition activities associated with the Proposed Action could result in temporary annoyances such as noise from operation of equipment, these activities would not preclude the viability or continued use and occupation of surrounding land uses. Therefore, the Proposed Action would result in no impacts on existing land use viability or continued land occupation.

Construction of the proposed new Fire Station 3 and demolition of Building 30116 would produce temporary, elevated noise levels that could be heard by persons in the immediate surrounding area for the duration of construction activities (see **Section 3.2** for a discussion of noise impacts). Therefore, the Proposed Action would result in less than significant impacts on land use compatibility from noise generation.

The Proposed Action would not be incompatible with adjacent land uses to the extent that public health or safety is threatened, or conflict with planning criteria established to ensure public health and safety.

4.1.2.2 Operation and Maintenance of New Fire Station

Operation and maintenance of the proposed new Fire Station 3 would not produce appreciable noise above ambient noise levels, but noise resulting from sirens could periodically be heard outside in the vicinity of the proposed facility. However, the impacts on the noise environment from sirens would be expected to be less than significant, and would not prevent continued use of the surrounding areas.

4.1.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and existing land use conditions would remain the same as discussed in **Section 3.1.2**. No additional impacts on land use would be expected from the implementation of the No Action Alternative.

4.2 Noise

4.2.1 Evaluation Criteria

Noise impact analyses typically evaluate potential changes to the existing noise environment that would result from implementation of a proposed action. Potential changes in the acoustical environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels or reduce the ambient sound level), negligible (i.e., if the total number of sensitive receptors to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased sound exposure to unacceptable noise levels or ultimately increase the ambient sound level). Projected noise effects were evaluated qualitatively for the alternatives considered.

4.2.2 Proposed Action

4.2.2.1 Construction and Demolition

The sources of noise under the Proposed Action that could impact populations include construction, demolition, and the operational noise from the completed facility. These sources are addressed as follows.

Activities associated with the Proposed Action include the construction of the proposed new Fire Station 3, including the sewer system extension to the southwest, and the demolition of Building 30116 (see **Section 2.2**). Noise from construction and demolition activities varies depending on the type of equipment being used, the area that the action would occur in, and the distance from the noise source. To predict how construction and demolition activities would impact adjacent populations, noise from the probable construction was estimated. For example, as shown in **Table 3-1**, construction or demolition usually involves several pieces of equipment (e.g., backhoe and dump truck) that can be used simultaneously. Under the Proposed Action, the cumulative noise from the construction or demolition equipment, during the busiest day, was estimated to determine the total impact of noise from construction activities at a given distance. Examples of expected construction noise during daytime hours at specified distances are shown in **Table 4-1**. These sound levels were predicted at 100, 200, 400, 800, and 1,200 feet from the source of the noise.

Table 4-1. Predicted Noise Levels from Construction Activities

Distance from Noise Source	Predicted Noise Level
100 feet	86 dBA
200 feet	80 dBA
400 feet	74 dBA
800 feet	68 dBA
1,200 feet	64 dBA

This area of Kirtland AFB consists of open recreation space and industrial areas; populations potentially affected by increased noise levels from the demolition of Building 30116 would include mainly installation personnel in the industrial buildings north and east, the nearest approximately 100 feet, from the proposed demolition site. Populations potentially affected by activities associated with the construction of the proposed new Fire Station 3 would include mainly installation personnel using the recreational space, the nearest approximately 500 feet north, of the proposed new Fire Station 3 location and installation personnel in the nearest facility, which is approximately 600 feet southeast. Construction and demolition activities at Kirtland AFB would result in impacts on the noise environment; however, these impacts would be expected to be less than significant and would be temporary.

4.2.2.2 Operation and Maintenance of New Fire Station

Activities associated with operation and maintenance of the proposed new Fire Station 3 are not anticipated to impact the ambient noise environment. In the event that construction equipment would need to be used for maintenance activities, impacts on the noise environment would be similar to that described for the construction portion of the Proposed Action.

4.2.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented. There would be no increase in construction or demolition activities and consequently, the ambient noise environment would not change from existing conditions. Therefore, no additional impacts would be expected from implementation of the No Action Alternative.

4.3 Visual Resources

4.3.1 Evaluation Criteria

The potential for significant impacts on visual resources has been assessed based on whether the following would result from the Proposed Action:

- Adversely influence a national, state, or local park or recreation area
- Degrade or diminish a Federal, state, or local scenic resource
- Create adverse visual intrusions or visual contrasts affecting the quality of a landscape.

4.3.2 Proposed Action

4.3.2.1 Construction and Demolition

During construction activities, the proposed new Fire Station 3 location would have little aesthetic appeal. Construction equipment, including bulldozers, backhoes, front-end loaders, dump trucks, and tractor-trailers, would be visible from areas adjoining the site. Construction wastes temporarily stored for disposal would be visible in piles and in dumpsters at the proposed new Fire Station 3 location and construction wastes would be seen in trucks on installation and public roadways being transported to landfills. Construction supplies would also be visible during transport and temporary storage at the project site. Although the construction activities would adversely impact the installation's overall aesthetic appeal, the impacts would be temporary (less than 1-year duration) and, therefore, would be less than significant.

During the demolition of Building 30116, demolition equipment would be visible from areas adjoining the site. Demolition wastes temporarily stored on site for disposal would be visible in piles and dumpsters at the site and demolition wastes would be seen in trucks on and off installation during transport. Although the demolition activities would adversely impact the installation's overall aesthetic appeal, the adverse impacts would be temporary (less than 1-year duration) and the site would be returned to relatively natural conditions; therefore, impacts would be less than significant.

4.3.2.2 Operation and Maintenance of New Fire Station

Following the construction of the proposed new Fire Station 3, the visual landscape of Kirtland AFB would be altered. To minimize any potential adverse visual impacts, the proposed new Fire Station 3 would be designed to comply with the architectural compatibility standards as described in the *Kirtland Air Force Base Architectural Compatibility Plan* and the Fire Station Design Guide. Appropriate exterior lighting and landscaping would be included in the design to enhance visual conditions. Kirtland AFB personnel would conduct periodic maintenance (exterior cleaning, painting, and landscaping) to prevent its appearance from gradually deteriorating. Less than significant impacts on visual resources would be expected from the implementation of the Proposed Action. Appropriate planning and maintenance of the proposed new Fire Station 3 would minimize impacts.

4.3.3 No Action Alternative

The No Action Alternative would result in continuation of the existing visual and aesthetic conditions, as described in **Section 3.3.2**. Construction of the proposed new Fire Station 3 and demolition of Building 30116 would not take place and no change to the installation's current aesthetic appearance would occur from implementation of the No Action Alternative.

4.4 Air Quality

4.4.1 Evaluation Criteria

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS “attainment” areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Exceed any Evaluation Criteria established by a SIP or permit limitations.

Impacts on air quality in NAAQS “nonattainment” or “maintenance” areas are considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Exceed the General Conformity *de minimis* threshold emissions rates established by the USEPA
- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP or permit limitations.

The Federal *de minimis* threshold emissions rates were established by the USEPA in the General Conformity Rule to focus analysis requirements on those Federal actions with the potential to substantially affect air quality. **Table 4-2** presents these thresholds, by regulated pollutant. As shown in **Table 4-2**, *de minimis* thresholds vary depending on the severity of the nonattainment area classification.

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action would result in an increase of a nonattainment or maintenance area’s emissions inventory above the *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area. 40 CFR 93.153(c) exempts certain Federal actions from a general conformity determination. However, these exemptions do not apply the Proposed Action.

In addition to the *de minimis* emissions thresholds, Federal PSD regulations define air pollutant emissions to be significant if (1) a proposed project is a modification with a net emissions increase to an existing PSD major source; and (2) the source is within 10 kilometers of any Class I area, and (3) stationary source emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) or more (40 CFR 52.21[b][23][iii]). PSD regulations do not apply to the Proposed Action because Kirtland AFB is not an existing PSD major source and there are only minor stationary source emissions increases associated with the Proposed Action. In addition, as stated in **Section 3.4.2**, no Class I areas are within 10 kilometers of Kirtland AFB.

Per the New Mexico Air Quality Control Act and 20.11.41 New Mexico Administrative Code (NMAC), any person planning to construct a new stationary source or modify an existing stationary source of air contaminants in Bernalillo County, including the City of Albuquerque, where the stationary source emits one or more regulated air contaminants that exceed a rate of 10 pounds per hour or 25 tpy would be

Table 4-2. Conformity *de minimis* Emissions Thresholds

Pollutant	Status	Classification	de minimis Limit (tpy)
O ₃ (measured as NO _x or VOCs)	Nonattainment	Extreme	10
		Severe	25
		Serious	50
	Maintenance	Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO _x)
		All others	100
		Inside ozone transport region	50 (VOCs)/100 (NO _x)
		Outside ozone transport region	100
CO	Nonattainment/maintenance	All	100
PM ₁₀	Nonattainment/maintenance	Serious	70
		Moderate	100
		Not Applicable	100
PM _{2.5} (measured directly, as SO ₂ , or as NO _x)	Nonattainment/maintenance	All	100
SO ₂	Nonattainment/maintenance	All	100
NO _x	Nonattainment/maintenance	All	100

Source: 40 CFR 93.153

required to obtain a permit to construct from the Albuquerque-Bernalillo County AQCB. A permit from the Albuquerque-Bernalillo County AQCB would also be required if an emissions source was subject to Federal New Source Performance Standards (NSPS) or National Emissions Standards for Hazardous Air Pollutants (NESHAP).

4.4.1.1 Construction and Demolition

Emission Estimates. The implementation of the Proposed Action would result in impacts on air quality resources; however, these impacts are expected to be less than significant. The Proposed Action would generate air pollutant emissions from construction and demolition activities. These emissions would be produced only for the duration of construction and demolition activities, which is expected to be approximately 240 workdays or 1 calendar year.

Construction of the proposed new Fire Station 3 and the demolition of Building 30116 would generate air pollutant emissions because of site-disturbing activities such as grading, filling, compacting, and trenching; operation of construction and demolition equipment; and operation of trucks hauling materials and waste to and from the work sites. Construction and demolition activities would also generate particulate emissions as fugitive dust from ground-disturbing activities and from the combustion of fuels in construction and demolition equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions.

Per the New Mexico Air Quality Control Act and 20.11.20 NMAC, *Fugitive Dust Control*, a fugitive dust control construction permit is required for projects disturbing 0.75 acres or more, as well as the demolition of buildings containing more than 75,000 cubic feet of space. As stated in 20.11.20.12 NMAC, *General Provisions*, each person shall use reasonably available control measures or any other effective control measure during active operations or on inactive disturbed surface areas, as necessary to prevent the release of fugitive dust, whether or not the person is required by 20.11.20 NMAC to obtain a fugitive dust control permit. This regulation also contains a provision for buildings containing ACM, as

stated in 2011.20.22 NMAC, *Demolition and Renovation Activities; Fugitive Dust Control Construction Permit and Asbestos Notification Requirements*: “All demolition and renovation activities shall employ reasonably available control measures at all times, and, when removing ACM, shall also comply with the Federal standards incorporated into 20.11.64 NMAC, *Emission Standards for Hazardous Air Pollutants for Stationary Sources*. A person who demolishes or renovates any commercial building, residential building containing five or more dwellings, or a residential structure that will be demolished in order to build a nonresidential structure or building shall file an asbestos notification with the department no fewer than 10 calendar days before the start of such activity. Written asbestos notification certifying to the presence of ACM is required even if regulated ACM is not or may not be present in such buildings or structures.”

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Construction and demolition activities would incorporate BMPs and control measures (e.g., frequent use of water for dust-generating activities) to minimize fugitive particular matter emissions. Additionally, the construction vehicles are assumed to be well-maintained and could use diesel particle filters to reduce emissions. Construction workers commuting daily to and from the construction site in their personal vehicles would also result in criteria pollutant air emissions. It is not expected that emissions from construction and demolition activities would contribute to or affect local or regional attainment status with the NAAQS. **Table 4-3** presents the estimated annual air emissions resulting from implementation of the Proposed Action.

Table 4-3. Estimated Annual Air Emissions Resulting from the Proposed Action

Activity	NO _x tpy	VOC tpy	CO tpy	SO ₂ tpy	PM ₁₀ tpy	PM _{2.5} tpy	CO ₂ tpy
Combustion Emissions	4.863	0.455	2.141	0.378	0.349	0.338	550.974
Fugitive Dust Emissions	-	-	-	-	0.304	0.030	-
Haul Truck On-Road	0.048	0.035	0.141	0.004	0.057	0.015	12.137
Construction Commuter Emissions	0.110	0.110	0.992	0.001	0.010	0.007	131.482
Construction and Demolition Emissions Subtotal	5.021	0.599	3.273	0.384	0.720	0.390	694.593
150-kw Diesel Powered Emergency Generator	0.807	0.066 ^a	0.174	0.053	0.057	0.000	29.998
Total Emissions from Proposed Action	5.828	0.665 ^a	3.447	0.437	0.777	0.390	724.591
Percent of AMRGI AQCR Inventory	0.016%	0.002% ^a	0.001%	0.017%	0.001%	0.002%	0.0011% ^b

Notes:

a = Total Organic Compounds used in place of VOCs for the emergency generator

b = Percent of State of New Mexico 2008 CO₂ emissions (U.S. DOE EIA 2010).

General Conformity. Kirtland AFB is in an area that has been designated as attainment/unclassified for all criteria pollutants except CO. Bernalillo County has been designated as moderate maintenance for CO, and, based on this designation, the General Conformity Rule requirements are applicable for CO. **Table 4-4** compares the estimated annual emissions from construction and demolition activities to the *de minimis* threshold limits established for Bernalillo County. The General Conformity Rule does not require emissions from sources required to obtain an air quality construction permit to be compared to *de minimis* thresholds.

Table 4-4. Comparison of Emissions to the General Conformity Rule *de minimis* Limits.

Activity	CO tpy
Combustion Emissions	2.141
Haul Truck On-Road	0.141
Construction Commuter Emissions	0.992
Construction and Demolition Emissions Total	3.273
General Conformity Rule <i>de minimis</i> Limits for Bernalillo County	100

None of the applicable *de minimis* levels would be exceeded nor would the predicted total emission be regionally significant. As indicated previously, a Federal action is exempt from the general conformity rule (presumed to conform) if the project-related emissions are not regionally significant and are less than the *de minimis* threshold levels established by the conformity rule. No significant impact related to general conformity is anticipated to occur and implementation of the Proposed Action would not require a conformity determination.

Greenhouse Gas Emissions. Construction and demolition activities associated with the Proposed Action would contribute directly to emissions of GHGs from the combustion of fossil fuels. Because CO₂ emissions account for approximately 92 percent of all GHG emissions in the United States, they are used for analyses of GHG emissions in this assessment. Implementation of the GHG goals outlined in the DOD SSPP released 26 August 2010 would assist Kirtland AFB in complying with EO 13514.

The U.S. DOE, Energy Information Administration estimates that in 2008 gross CO₂ emissions in the State of New Mexico were 57.6 million metric tons and in 2008 gross CO₂ emissions in the entire United States were 5,814.4 million metric tons (U.S. DOE EIA 2010). The Proposed Action would emit 657.204 metric tons of CO₂ (or 724.591 U.S. tons). This total would be composed of 629.996 metric tons from construction and demolition and 27.208 metric tons yearly from the operation of the emergency generator. Construction and demolition GHG emissions would be temporary and occur for one year; emergency generator GHG emissions would be permanent beginning in the year following the completion of construction. Total CO₂ emissions from the Proposed Action would be 0.00114 percent of the State of New Mexico's 2008 CO₂ emissions and 0.000011 percent of the entire United States' 2008 CO₂ emissions. Therefore, the Proposed Action would represent a negligible contribution towards statewide and national GHG inventories.

4.4.1.2 Operation and Maintenance of New Fire Station

Emission Estimates. Implementation of the Proposed Action would result in air quality impacts from the use of a 150-kw diesel- or natural gas-powered emergency generator that would be used to provide UPS for emergency power and communication services at the proposed new Fire Station 3 once construction is complete. Estimated emissions from the operation of this backup generator for a maximum of 500 operating hours per year are summarized in **Table 4-3**. Air emissions from the Proposed Action have been calculated based on the worst-case scenario (i.e., diesel-powered generator). Emissions from the backup generator would not be produced in the same year as emissions produced from construction and demolition activities. **Appendix D** contains detailed calculations and the assumptions used to estimate the air emissions.

Per 20.11.41.2.B(2)(a) NMAC, all sources subject to the Federal NSPS or Federal NESHAP are required to receive an Authority to Construct permit prior to construction. The proposed emergency generator

would be subject to NSPS; therefore, Kirtland AFB would be required to obtain a construction permit from the Albuquerque-Bernalillo County AQCB for the proposed emergency generator.

General Conformity. The proposed emergency generator in the proposed new Fire Station 3 would be permitted by the Albuquerque-Bernalillo County AQCB; therefore, these emissions do not contribute to *de minimis* thresholds limits.

Greenhouse Gas Emissions. The Proposed Action would emit a total of 657.204 metric tons of CO₂ (or 724.591 U.S. tons). Of this total, 27.208 metric tons yearly would be produced from the operation of the emergency generator. Emergency generator GHG emissions would be permanent beginning in the year following the completion of construction. Total CO₂ emissions from the Proposed Action would be 0.00114 percent of the State of New Mexico's 2008 CO₂ emissions and 0.000011 percent of the entire United States' 2008 CO₂ emissions. Therefore, implementation of the Proposed Action would represent a negligible contribution towards statewide and national GHG inventories.

4.4.2 No Action Alternative

Under the No Action Alternative, Kirtland AFB would not demolish Building 30116 and would not construct the proposed new Fire Station 3. The existing conditions as discussed in **Section 3.4.2** would continue. Therefore, no additional direct or indirect impacts would be expected on local or regional air quality from implementation of the No Action Alternative.

4.5 Geology and Soils

4.5.1 Evaluation Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential effects of a proposed action on geological resources. Generally, adverse effects can be avoided or minimized if proper construction techniques, erosion-control and storm water management measures, and structural engineering design are incorporated into project development.

Effects on geology and soils would be significant if they would alter the lithology, stratigraphy, and geological structures that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or substantially change the soil composition, structure, or function within the environment.

4.5.2 Proposed Action

4.5.2.1 Construction and Demolition

Less than significant impacts on geological resources or soils would be expected from the construction of the proposed new Fire Station 3 and the demolition of Building 30116. Construction and demolition activities would require the removal of existing vegetation and the disturbance of soil in the form of trenching, grading, excavating, and recontouring. These actions would temporarily increase the potential for erosion and sedimentation until revegetation and long-term storm water handling methods are reestablished. Soil erosion and associated sedimentation would be minimized during all construction and demolition operations by following an approved sediment- and erosion-control plan, the *Kirtland Air Force Base Final Pollution Prevention Management Action Plan* (KAFB 1999), and Section 438 of the EISA (see **Section 4.6** for a description of Section 438 of the EISA). Use of properly designed storm

water-control measures and construction and demolition BMPs would minimize the potential for erosion and associated sedimentation resulting from storm events during the implementation of the Proposed Action. Erosion- and sediment-control BMPs could include installing silt fencing and sediment traps, applying water to disturbed soil, phasing construction where possible, and revegetating disturbed areas as soon as possible following the disturbance, as appropriate.

The soils mapped at the site of the proposed new Fire Station 3 (Wink fine sandy loam and Wink-Embudo complex) are rated as somewhat limited for shallow construction. Site-specific soil surveys would be conducted prior to implementing the proposed construction activities to determine the breadth and severity of engineering limitations and appropriate design considerations or BMPs to offset potential adverse, but less than significant, effects. The soil at Building 30116 is rated as somewhat to very limited for commercial buildings, local roads and streets, and shallow excavations; however, these limitations would not affect the Proposed Action because Building 30116 is proposed for demolition and no new construction is proposed here.

The disturbance of soil from the construction of the proposed new Fire Station 3 would also adversely affect soil productivity. Soil productivity, which is the capacity of the soil to produce vegetative biomass, would decline in areas where soil structure is disturbed and would be eliminated in areas within the footprint of the proposed new Fire Station 3. However, the loss of soil productivity from the construction of the proposed new Fire Station 3 would be partially offset by the reintroduction of productive soil from the demolition of Building 30116. Neither the proposed new Fire Station 3 nor Building 30116 are currently used or proposed for agricultural use; therefore, any impacts on soil productivity would be less than significant.

4.5.2.2 Operation and Maintenance of New Fire Station

Disturbance of existing soil structure and the addition of approximately 0.2 acres of new impervious surface from the construction of the proposed new Fire Station 3 could affect post-construction storm water runoff patterns by increasing its volume and velocity. Increased storm water runoff volume and velocity could locally increase the velocity of flows into nearby streams or washes during storm events. This could increase stream bank erosion and downstream sedimentation as streams adjust to accommodate the increased flow volume and velocity. To minimize post-construction erosion and sediment production, soil erosion- and sediment-control measures would be incorporated into site plans and Section 438 of the EISA would be adhered to so that pre- and post-development hydrology would be equal. Additionally, the demolition of Building 30116 would partially offset the increase in impervious surface, which would help to reduce the amount of storm water entering local streams or washes. The use of storm water-control measures that favor infiltration would minimize the potential for erosion and sediment production as a result of future storm events. Further details regarding surface water are presented in **Section 4.6**.

4.5.3 No Action Alternative

Under the No Action Alternative, Kirtland AFB would not demolish Building 30116 and would not construct the proposed new Fire Station 3. The existing conditions as discussed in **Section 3.5.2** would continue. Therefore, no additional direct or indirect impacts would be expected on geological resources from implementation of the No Action Alternative.

4.6 Water Resources

4.6.1 Evaluation Criteria

Evaluation criteria for effects on water resources are based on water availability, quality, and use and associated regulations. A proposed action would have significant effects on water resources if it were to do one or more of the following:

- Substantially reduce water availability or supply to existing users
- Overdraft groundwater basins
- Exceed safe annual yield of water supply sources
- Substantially adversely affect water quality
- Endanger public health by creating or worsening health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations adopted to protect water resources.

The potential impact of flood hazards on a proposed action is important if such an action occurs in an area with a high probability of flooding.

4.6.2 Proposed Action

4.6.2.1 Construction and Demolition

Groundwater. Because the annual water use (approximately 2,369 acre-feet) on Kirtland AFB is well below the 6,000 acre-feet withdrawal allowed per year in the Water Rights Agreement with the State of New Mexico, less than significant impacts on groundwater availability would be expected under the Proposed Action. Groundwater might be temporarily used for dust suppression during construction and demolition activities, depending on site conditions. If water applications are required for dust suppression, sufficient water resources are available on the installation; therefore, less than significant adverse impacts on groundwater availability would be expected during construction and demolition activities.

No impacts on groundwater quality are anticipated from implementation of the Proposed Action. The average depth to groundwater beneath Kirtland AFB is 450 to 550 feet; therefore, groundwater would not likely be encountered during construction of the proposed new Fire Station 3, sanitary sewer system, or any underground utilities. Due to the depth to groundwater, it is also not anticipated that any potential petroleum or hazardous material spills during construction would reach groundwater. Proper housekeeping, maintenance of equipment, and containment of fuels and other potentially hazardous materials would be conducted to minimize the potential for a release of fluids.

No impacts on groundwater recharge are anticipated from the Proposed Action. Recharge of the Santa Fe Aquifer most likely occurs east of the installation in the Manzanita Mountains and, therefore, would not be affected by the Proposed Action.

Surface Water. Less than significant adverse effects on surface water and surface water quality could occur from disturbance and exposure of soils over approximately 1 to 2 acres due to proposed construction and demolition activities. Soil disturbance from construction and demolition activities has the potential to result in minor disruption of natural drainage patterns, contamination of storm water discharge, and heavy sediment loading. The proposed new Fire Station 3 and its storm water controls would be designed with consideration for the UFC LID features with the goal of maintaining or restoring

the natural hydrologic functions of the site. Increased sediment runoff would increase surface water turbidity in receiving waters, which could raise water temperature and impede photosynthetic processes. Sediment transported by runoff into surface waters also increases the potential for contaminant (e.g., heavy metals, excess nutrient concentrations) deposition into receiving water bodies. Preparing and implementing an SWPPP can minimize adverse impacts. The goal of the SWPPP is to reduce or eliminate storm water pollution from construction activities by planning and implementing appropriate pollution control practices to protect water quality.

BMPs would be developed as part of the SWPPP to manage storm water during and after construction. During construction, heavy equipment (e.g., bulldozers, backhoes, dump trucks, concrete mixers, asphalt vehicles) and generators would be on site. Fuels, hydraulic fluids, oils, and other lubricants would likely be stored on site during the project to support contractor vehicles and machinery. However, no other hazardous materials are anticipated to be stored on site during construction activities. Construction personnel would be required to follow appropriate BMPs to protect against potential petroleum or hazardous material spills. Proper housekeeping, maintenance of equipment, and containment of fuels and other potentially hazardous materials would be conducted to minimize the potential for a release of fluids into surface waters. In the event of a spill, procedures outlined in Kirtland AFB's Hazardous Material Emergency Planning and Response Plan would be followed to quickly contain and clean up a spill (see **Section 4.10** for more information regarding potential hazardous materials and waste impacts).

Following construction, restabilization and revegetation of the area along with other BMPs to abate runoff and wind erosion would reduce potential impacts of erosion and runoff on the Arroyo del Coyote. Proper housekeeping and retention of debris within the site boundaries would prevent construction and demolition debris from entering waterways.

The NPDES storm water program requires construction site operators engaged in soil-disturbing activities (e.g., clearing, grading, and excavating) that disturb 1 acre or more, including smaller sites in a larger common plan of development, to obtain coverage under the NPDES CGP for their storm water discharges. The Proposed Action would disturb more than 1 acre (1 to 2 acres) and, therefore, it would require coverage under the CGP. While these ground disturbances would be on a small scale, they could increase erosion potential and runoff during heavy precipitation events. Construction and demolition debris could reach waterways, such as the Arroyo del Coyote that is 0.3 miles southwest of the proposed new Fire Station 3 location, through surface runoff or wind if measures were not taken to keep debris on site.

The USEPA's CGP outlines a set of provisions construction operators must follow to comply with the requirements of the NPDES storm water regulations. The operator of the proposed construction and demolition sites would be required to prepare a Notice of Intent (NOI) to discharge storm water, to develop an SWPPP, and to implement sediment, erosion, and pollution-prevention BMPs. The SWPPP would be developed in accordance with the requirements of the CGP. Prior to submission of the NOI to the USEPA, which is the NPDES permitting authority in New Mexico, the construction operator would be required to submit the SWPPP to 377 MSG/CEANC for review. The SWPPP must be developed and the contractor must have a permit issued by USEPA before work begins.

The construction project operator would be required to meet the non-numeric effluent limitations of the CWA for its NPDES permit and design, install, and maintain effective erosion and sedimentation controls in accordance with the requirements stipulated in the 2012 CGP. The implementation of these non-numeric effluent limitations would minimize short-term, adverse effects on surface waters from erosion, sedimentation, and pollution. The total area of potential soil disturbance associated with implementation of the Proposed Action would be approximately 1 to 2 acres.

The construction project operators would be subject to the new storm water design requirements of Section 438 of the EISA that require Federal construction projects that disturb 5,000 square feet or more of land to maintain or restore predevelopment site hydrology to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow.

Overall, construction and demolition activities would have the potential to result in adverse effects on surface water quality, but the development of a site-specific SWPPP and erosion- and sediment-control plan would minimize the potential for adverse effects. Appropriate BMPs would be implemented and would follow the guidelines provided in documents such as Kirtland AFB's SWPPP and Federal and state permitting processes. Assuming proper use of BMPs, impacts on surface water resources would be expected to be less than significant.

Floodplains. The proposed new Fire Station 3 and Building 30116 locations are outside of the Arroyo del Coyote and Tijeras Arroyo 100- and 500-year floodplains; therefore, no direct impacts on floodplains would be expected. Although the quantity of storm water sheet flow from disturbed sites to the Arroyo del Coyote and the intermittent streams on Kirtland AFB could increase during construction and demolition activities, this increase is not anticipated to be significant. Therefore, the Proposed Action would have less than significant indirect impacts on floodplain flow characteristics.

4.6.2.2 Operation and Maintenance of New Fire Station

Groundwater. Annual water use (approximately 2,369 acre-feet) on Kirtland AFB is well below the 6,000 acre-feet withdrawal allowed per year in the Water Rights Agreement with the State of New Mexico. Water use during operation of the proposed new Fire Station 3 would be similar to usage for the existing station (Building 30116); therefore, no new impacts on groundwater availability would be expected.

Surface Waters. Design of the proposed new Fire Station 3 would include storm water controls. Storm water from the new station would be incorporated into Kirtland's MS4; therefore, no significant impacts on surface water resources from sheet runoff during storm events would be expected from the operation of the new fire station.

Less than significant, adverse impacts would result from the overall slight increase in impervious surfaces associated with implementation of the Proposed Action. Overall, implementation of the Proposed Action would result in an increase of approximately 0.07 acres of impervious surfaces. The Proposed Action would contribute approximately 0.17 acres of new impervious surfaces, but demolition of Building 30116 would remove approximately 0.1 acre of existing impervious surfaces. Impervious surfaces repel water and prevent rainfall from infiltrating soils. Therefore, during precipitation events, impervious surfaces increase the volume and accelerate the speed at which water is directed into receiving surface water bodies. This runoff could impact the surface water quality of the receiving water body. However, adverse effects would be minimized by implementing erosion- and sediment-control and storm water management practices to minimize potential adverse effects associated with increased runoff. The Proposed Action would include LID features, which would decrease the rate and volume of runoff.

4.6.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented, and the existing conditions discussed in **Section 3.6.2** would continue. Implementation of the No Action Alternative would not result any new impacts on water resources.

4.7 Biological Resources

4.7.1 Evaluation Criteria

The level of impact on biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource, (2) the proportion of the resource that would be affected relative to its occurrence in the region, (3) the sensitivity of the resource to the proposed activities, and (4) the duration of ecological ramifications. Impacts on biological resources are considered significant if species or habitats of high concern are adversely affected over relatively large areas, or disturbances cause reductions in population size or distribution of a species of special concern. A habitat perspective is used to provide a framework for analysis of general classes of impacts (i.e., removal of critical habitat, noise, human disturbance).

Determination of the significance of wetland impacts is based on (1) the function and value of the wetland, (2) the proportion of the wetland that would be affected relative to the occurrence of similar wetlands in the region, (3) the sensitivity of the wetland to proposed activities, and (4) the duration of ecological ramifications. Impacts on wetland resources are considered significant if high-value wetlands would be adversely affected.

Ground disturbance and noise associated with construction activities might directly or indirectly cause potential impacts on biological resources. Direct impacts from ground disturbance were evaluated by identifying the types and locations of potential ground-disturbing activities in correlation to important biological resources. Mortality of individuals, habitat removal, and damage or degradation of habitats are impacts that might be associated with ground-disturbing activities.

Noise associated with a proposed action might be of sufficient magnitude to result in the direct loss of individuals and reduce reproductive output within certain ecological settings. Ultimately, extreme cases of such stresses could have the potential to lead to population declines or local or regional extinction. To evaluate impacts, considerations were given to the number of individuals or critical species involved, amount of habitat affected, relationship of the area of potential effect to total available habitat within the region, type of stressors involved, and magnitude of the effects.

As a requirement under the ESA, Federal agencies must provide documentation that ensures that agency actions do not adversely affect the existence of any threatened or endangered species. The ESA requires that all Federal agencies avoid “taking” threatened or endangered species, which includes jeopardizing threatened or endangered species habitat. Section 7 of the ESA establishes a consultation process with the USFWS that ends with USFWS concurrence or a determination of the risk of jeopardy from a Federal agency project.

4.7.2 Proposed Action

4.7.2.1 Construction and Demolition

Vegetation. The proposed new Fire Station 3 location is undeveloped, consisting primarily of bare ground and minimal vegetation of annual weeds and native grasses. Direct, less than significant, adverse impacts on vegetation would be expected from permanent removal of vegetation. Building 30116 is in a developed area that has been disturbed and little natural vegetation occurs within the demolition footprint. Therefore, less than significant adverse impacts on natural vegetation would be expected from demolition activities. Beneficial impacts on vegetation would be expected following demolition activities as the site

of Building 30116 would be returned to natural vegetated conditions. Overall, impacts on vegetation would be less than significant.

Wildlife Species and Habitat. Noise created during construction and demolition activities could potentially result in adverse impacts on nearby wildlife. These impacts would include subtle, widespread impacts from the overall elevation of ambient noise levels, potentially resulting in reduced communication ranges, interference with predator/prey detection, or habitat avoidance. More intense impacts would include behavioral change, disorientation, or hearing loss. Predictors of wildlife response to noise include noise type (i.e., continuous or intermittent), prior experience with noise, proximity to a noise source, stage in the breeding cycle, activity, age, and sex. Prior experience with noise is the most important factor in the response of wildlife to noise, because wildlife can habituate to the noise. The rate of habituation to short-term construction and demolition noise is not known.

Wildlife species inhabiting the proposed new Fire Station 3 location might be temporarily or permanently displaced due to implementation of the Proposed Action. Certain wildlife species would be expected to temporarily move to adjacent habitats during construction due to increased noise and ground disturbances and then potentially return to the area once construction or demolition activities have ceased. Other species would be permanently displaced due to a loss of habitat from the construction of the proposed new Fire Station 3. Increased mortality of less-mobile species would be expected as the result of unavoidable direct impacts associated with construction activities. Impacts on wildlife would be less than significant.

While there are no permanent water sources within the footprint of any of the Proposed Action sites, Arroyo del Coyote is approximately 0.3 miles south of the proposed new Fire Station 3 location. The presence of Arroyo del Coyote to the south of the proposed new Fire Station 3 location and the greater diversity of trees and shrubs it supports provides microhabitats that are unique in comparison to the surrounding landscape. Wildlife species, especially herpetiles associated with wetland areas could be permanently displaced if activities occur during their breeding season or cause a long-term disturbance of breeding habitats. However, there are no wetlands within the footprint of the proposed new Fire Station 3; therefore, impacts on wildlife would be less than significant.

Long-term, beneficial impacts on wildlife and habitat would be expected from the return of the Building 30116 site to natural conditions due to a creation of more wildlife habitat within the site. However, this new habitat would be offset by the loss of wildlife habitat associated with construction of the proposed new fire station and sanitary sewer pipeline and lift station.

Overall, impacts on wildlife would be less than significant.

Threatened and Endangered Species. No federally or state-listed threatened or endangered species are known to inhabit the proposed new Fire Station 3 or Building 30116 locations. The burrowing owl is the only species of concern listed by the USFWS in the vicinity. Although there are no burrowing owl nests currently known to be at the Proposed Action sites, the owls do vary their nesting sites from year to year. During construction, there is the possibility that a nest could be disturbed. The category of species of concern, which applies to the burrowing owl, carries no legal requirement, but identifies those species that deserve special consideration in management and planning. To avoid disturbances to potential nesting burrowing owls, a survey would be conducted prior to any construction activities. If owls are present, ground-disturbing construction activities would only commence after the owls have migrated from the area (i.e., October 15–March 15). Additionally, nesting burrows would be flagged and avoided during ground-disturbing construction activities so that the nesting sites could still be viable after construction is complete. Kirtland AFB has standard mitigation procedures in conformance with the MBTA, should it be

necessary to relocate an owl during construction. Thus, any impacts on burrowing owls would be less than significant.

Wetlands. No wetlands are on or near the proposed new Fire Station 3 or Building 30116 locations; therefore, no impacts on wetlands would be expected under the Proposed Action.

4.7.2.2 Operation and Maintenance of New Fire Station

There are no known biological resources within the APE of the proposed new Fire Station 3. Accordingly, no impacts would be expected on biological resources during the operation or maintenance of the proposed new Fire Station 3.

4.7.3 No Action Alternative

Under the No Action Alternative, the Proposed Action would not be implemented and existing biological resources conditions would remain the same as discussed in **Section 3.7.2**. No additional impacts on biological resources would be expected from implementation of the No Action Alternative.

4.8 Cultural Resources

4.8.1 Evaluation Criteria

Adverse impacts on cultural resources can include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or that alter its setting; general neglect of the resource to the extent that it deteriorates or is destroyed; or the sale, transfer, or lease of the property out of the agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

4.8.2 Proposed Action

4.8.2.1 Construction and Demolition

There are no known cultural resources within the APE of the proposed new Fire Station 3 location. While implementation of the Proposed Action would have varying levels of impact on cultural resources, it is recommended that any ground-disturbing activities should take into consideration the potential for discovery of previously undiscovered cultural resources. If any archaeological sites are identified during construction or demolition activities, these sites should be documented and evaluated for NRHP eligibility. Project impacts on unevaluated or potentially eligible cultural resources might be significant if NRHP eligibility status has not been determined. Once documented and evaluated through consultation with the SHPO, adverse impacts on NRHP-eligible and -listed cultural resources should be avoided. If avoidance is not possible, then mitigation of adverse impacts is recommended.

Building 30116 was built in 1955 as a fire station for the former Manzano Base. Under the Proposed Action, Building 30116 would be demolished once the new Fire Station 3 is constructed. In 2003, VCHP was contracted by Kirtland AFB to evaluate the significance of Manzano Base as part of the ongoing effort by Kirtland AFB to meet the requirements of Section 110 of the NHPA. Only one building located within the Manzano Base Administrative Area was recommended as eligible for the NRHP. The remainder of the buildings, including Building 30116, were previously remodeled from their original International style of architecture and recommended ineligible to the NRHP due to a lack of architectural

integrity. In addition, the role of Building 30116 as a fire station was not exceptionally significant within the greater context of Manzano Base history (VCHP 2003).

In 2005, the New Mexico SHPO concurred with all of VCHP's eligibility recommendations concerning Manzano Base. Because Building 30116 has been determined not eligible to the NRHP, its demolition would not result in an adverse impact.

There are no known cultural resources within the APE of the proposed demolition of Building 30116. Given their distance from Building 30116, no adverse impacts on the two archaeological resources (LA 88089 and LA 108035) or the architectural resource (Enlisted Men's Barracks/Manzano Dormitory building) near Building 30116 would be anticipated.

4.8.2.2 Operation and Maintenance of New Fire Station

There are no known cultural resources within the APE of the proposed new Fire Station 3. Accordingly, no impacts would be expected on cultural resources during the operation or maintenance of the proposed new Fire Station 3.

4.8.3 No Action Alternative

Under the No Action Alternative, the 377 ABW would not construct the proposed new Fire Station 3 or demolish Building 30116. The existing conditions as described in **Section 3.8.2** would remain unchanged. Therefore, no additional impacts on cultural resources would occur from implementation of the No Action Alternative.

4.9 Infrastructure

4.9.1 Evaluation Criteria

Impacts on infrastructure are evaluated based on their potential for disruption, excessive use, or improvement of existing level of service for transportation resources, energy (electric, natural gas, and liquid fuels) and water consumption, sanitary sewer and wastewater systems, storm water systems, communications, and solid waste management. Impacts might arise from physical changes to traffic circulation and utility needs created by either direct or indirect workforce and population changes related to installation activities. An impact would be significant if implementation of the Proposed Action resulted in the following impacts on electrical power, natural gas, liquid fuels, water, sanitary sewer/wastewater, storm water, communications, and solid waste systems:

- Exceeded capacity of a utility or transportation artery
- A long-term interruption of the utility or transportation artery
- A violation of a permit condition
- A violation of an approved plan for that utility.

4.9.2 Proposed Action

4.9.2.1 Construction and Demolition

Transportation. Construction and demolition activities have the potential to impact the transportation system through traffic delays. Early coordination with Kirtland AFB organizations would ensure

necessary safety precautions are taken and would allow ample advance notice to affected commuters and personnel. Impacts on the transportation system would be expected to be less than significant.

Electrical System. Implementation of the Proposed Action would require minimal amounts of electricity and construction and demolition activities would be limited to a short period of time (less than 1-year duration). Electrical service interruptions might be experienced should aboveground or underground electrical cables need to be rerouted outside of the proposed work area. Service interruptions might also be experienced when the proposed new Fire Station 3 is connected to the Kirtland AFB electrical system. Following construction of the proposed new Fire Station 3, the overall electrical demand at Kirtland AFB would increase by a negligible amount during Building 30116 demolition activities.

Electrical transmission lines connecting Building 30116 to the Kirtland AFB electrical system would be removed prior to the start of building demolition activities. Electrical interruptions might be experienced when the facility is disconnected from the Kirtland AFB electrical distribution system.

Natural Gas System. The proposed new Fire Station 3 would use natural gas as the fuel for building heat. Natural gas service is available at the proposed new Fire Station 3 location. Building 30116 is currently connected to Kirtland AFB's natural gas system. Any existing natural gas lines within the vicinity of the demolition site would be clearly marked prior to the onset of demolition. No impacts on the natural gas system would be expected from construction and demolition activities.

Liquid Fuel. Construction of the proposed new Fire Station 3 and demolition of Building 30116 would not alter the quantities of most liquid fuels (JP-8, diesel, gasoline) used at Kirtland AFB nor would it affect their handling and storage. Construction contractors would use liquid fuel for their vehicles and equipment and may have a liquid fuel storage tank on site during construction and demolition activities; however, this would not affect Kirtland AFB's liquid fuel supply because it would come from off-installation. Therefore, no impacts on liquid fuels would be expected from construction and demolition activities.

Water Supply System. Construction of the proposed new Fire Station 3 and demolition of Building 30116 would require minimal amounts of water, primarily for dust-suppression purposes. This water would be obtained from the Kirtland AFB water supply system. Because the annual water use (approximately 2,369 acre-feet) on Kirtland AFB is well below the 6,000 acre-feet withdrawal allowed per year in the Water Rights Agreement with the State of New Mexico, less than significant impacts on the water supply system are anticipated from implementation of the Proposed Action.

During construction of the proposed new Fire Station 3, water service interruptions might be experienced should underground water lines need to be rerouted outside the proposed work area. Service interruptions might also be experienced when the new Fire Station 3 is connected to the Kirtland AFB water supply system.

Water service interruption might be experienced when Building 30116 is disconnected from the water supply system prior to demolition. Construction and demolition activities would result in impacts on the water supply system; however, these impacts would be expected to be less than significant.

Sanitary Sewer and Wastewater System. During construction of the proposed new Fire Station 3, sanitary sewer service interruptions might be experienced during construction of the new lift station and connection to the Kirtland AFB sanitary sewer system. Sanitary sewer interruptions might also be experienced when Building 30116 is disconnected from the Kirtland AFB sanitary sewer system prior to demolition; however, impacts would be expected to be less than significant.

Storm Water System. Construction of the proposed new Fire Station 3 would require ground disturbance as heavy equipment would clear, grade, and contour land surfaces. These activities would temporarily disrupt natural and man-made storm water drainage methods and increase the potential for storm water runoff to erode soil during construction activities. Soil erosion and sediment production would be minimized during construction periods by following an erosion- and sediment-control plan, and by using construction BMPs that would minimize ground surface disturbance and attempt to provide adequate temporary storm water management techniques. See **Section 4.6**, Water Resources, for additional information regarding storm water BMPs. This would result in adverse impacts on the storm water system; however, with appropriate BMPs, these impacts would be expected to be less than significant.

Demolition of Building 30116 would require ground disturbance from foundation/pad removal and contouring of the ground surface. These activities would temporarily disrupt natural and man-made storm water drainage methods, increase sedimentation in runoff, and increase the potential for storm water runoff to erode soil during demolition activities. Soil erosion and sediment production would be minimized during demolition periods by following erosion- and sediment-control plans in addition to using demolition BMPs that would minimize ground surface disturbance and attempt to provide adequate temporary storm water management techniques. Demolition activities would result in adverse impacts on the storm water system; however, these impacts would be expected to be less than significant.

Communications System. Telephone and data transmission service interruptions might be experienced when the proposed new Fire Station 3 is connected to the Kirtland AFB communications system. This would result in adverse impacts on the communication system; however, these impacts would be expected to be less than significant.

Telephone and data transmission service interruptions might be experienced when Building 30116 is disconnected from the Kirtland AFB communications system. This impact would be expected to be less than significant.

Solid Waste Management. Construction of the proposed new Fire Station 3 would generate approximately 16 tons of construction waste. Demolition of Building 30116 would generate approximately 341 tons of solid waste (USEPA 2009). To reduce the amount of waste disposed at the landfill, materials that could be recycled or reused would be diverted from landfills to the greatest extent possible. Site-generated scrap metals, wiring, clean ductwork, and structural steel would be separated and recycled off site. Cardboard wastes would be recycled as a function of the Kirtland AFB Qualified Recycling Program. Miscellaneous salvageable metals would be transported to the Defense Reutilization and Marketing Office for recycling or reuse. Clean fill material, ground-up asphalt, and broken-up cement would be diverted from the landfills and reused whenever possible. This would result in an adverse impact on the solid waste management resources; however, these impacts would be expected to be less than significant.

The weights of all materials diverted for recycling or reuse would be reported to the Kirtland AFB Qualified Recycling Program to be credited toward the DOD-mandated construction and demolition diversion rate of 50 percent. Nonhazardous construction and demolition waste that is not recyclable or reusable would be transported to the Kirtland AFB construction and demolition waste landfill for disposal. Receptacles would be provided for municipal solid waste generated by worker activity. Municipal solid waste would be transported to the Rio Rancho Landfill.

4.9.2.2 Operation and Maintenance of New Fire Station

Transportation. Following construction of the proposed new Fire Station 3, there would be a slight increase in traffic in the vicinity of the proposed new Fire Station 3 resulting from the firefighters

commuting to and from work. Due to the schedule cycles of the ten firefighters, this increase would result in a negligible impact on the transportation system.

Electrical System. Following construction of the proposed new Fire Station 3, the overall electrical demand at Kirtland AFB would increase due to the added infrastructure of the proposed new Fire Station 3. However, because Building 30116 would be demolished (see **Section 4.9.2.1**), the added electrical demand from the proposed new Fire Station 3 would be offset by the reduction in electrical demand from the demolition of Building 30116 and the relocation of its associated personnel. Although the proposed new Fire Station 3 would be larger, it would have more efficient lighting and be better insulated than Building 30116; therefore, the energy demand would be expected to be roughly the same.

Operation of the proposed new Fire Station 3 would result in a beneficial impact as a result of providing a more efficient and effective energy infrastructure as well as an UPS. Any potential increase in electrical demand from the implementation of the Proposed Action would be negligible in magnitude and within the current available capacity of the Kirtland AFB electrical system. As such, the Proposed Action would result in a less than significant impact on the electrical system.

Natural Gas System. Following construction of the proposed new Fire Station 3, the overall natural gas demand at Kirtland AFB would increase due to the added demand from the proposed new Fire Station 3. However, because Building 30116 would be demolished (see **Section 4.9.2.1**), the added natural gas demand from the proposed new Fire Station 3 would be offset by the reduction in natural gas demand from the demolition of Building 30116 and the relocation of its associated personnel. Any potential increase in natural gas demand from the implementation of the Proposed Action would be negligible in magnitude and within the current available capacity of the Kirtland AFB natural gas system. As such, the increase in natural gas demand from implementation of the Proposed Action would result in adverse impacts on the natural gas system; however, these impacts would be expected to be less than significant.

Liquid Fuel. Implementation of the Proposed Action would not alter the quantities of liquid fuel (e.g., JP-8, diesel, gasoline) used at Kirtland AFB nor would it affect their handling and storage. The proposed new Fire Station 3 would not use heating oil because natural gas would be used as the fuel for building heat. Should the proposed 150-kw emergency generator be diesel-powered, it would contain an integrated tank holding approximately 125 gallons of diesel fuel. Therefore, there would be negligible impacts on liquid fuel as a result of implementation of the Proposed Action.

Water Supply System. Following construction of the proposed new Fire Station 3, the overall water usage at Kirtland AFB would not change because water use is based on the estimated use of 75 gallons per person per day (Richardson 2012). Because Building 30116 would be demolished and its associated personnel would be relocated to the proposed new Fire Station 3 (see **Section 4.9.2.1**), operation and maintenance of the proposed new Fire Station 3 would have no impact on the installation's water supply system.

Sanitary Sewer and Wastewater System. Following construction of the proposed new Fire Station 3, the overall wastewater generated at Kirtland AFB would not change. Assuming that all water used at the proposed new Fire Station 3 would go through the installation's sanitary sewer, there would be no change from what is currently being generated at Building 30116. Because Building 30116 would be demolished and its associated personnel would be relocated to the proposed new Fire Station 3, operation and maintenance of the proposed new Fire Station 3 would have no impact on the installation's wastewater system.

Storm Water System. Construction of the proposed new Fire Station 3 would result in approximately 9,750 square feet of new impervious surface consisting of the building foundation, paved roadways,

paved parking, and sidewalks. This increase in impervious surface would reduce the amount of surface area for storm water to permeate into the ground and increase the amount of storm water runoff. Long-term storm water management techniques, which might include the use of pipes, channels, culverts, and impoundment basins, would be implemented to reduce and control the volume of storm water runoff. Implementation of the Proposed Action would result in adverse impacts on the storm water system; however, with appropriate BMPs, these impacts would be expected to be less than significant.

Communications System. Following construction of the proposed new Fire Station 3, telephone and data transmission demand would increase. However, because Building 30116 would be demolished, the added demand on the communications system would be offset by the reduction in communications demand from the demolished Building 30116 and the relocation of its associated personnel. Any potential increase in communications service demand from the implementation of the Proposed Action would be negligible compared to the current available capacity of the Kirtland AFB communications system. As such, implementation of the Proposed Action would result in impacts on the communications system; however, these impacts would be expected to be less than significant.

Solid Waste Management. The solid waste generated from the proposed new Fire Station 3 would likely be the same as the solid waste generated from Building 30116. Any potential increase in solid waste generation from the implementation of the Proposed Action would be negligible compared to the total volume of solid waste generated at Kirtland AFB and would be handled by current solid waste disposal practices. Therefore, implementation of the Proposed Action could result in impacts on solid waste management; however, these impacts would be expected to be less than significant.

4.9.3 No Action Alternative

The No Action Alternative would result in the continuation of existing conditions for traffic and infrastructure resources, as discussed in **Section 3.9.2**. Implementation of the No Action Alternative would result in the continuation of inefficiencies in heating, cooling, ventilation, and electricity and an unreliable power supply. Therefore, less than significant adverse impacts on infrastructure and utilities would be expected from implementation of the No Action Alternative.

4.10 Hazardous Materials and Waste

4.10.1 Evaluation Criteria

Impacts on hazardous materials and waste were assessed by evaluating the degree to which the Proposed Action could cause worker, resident, or visitor exposure to hazardous materials or waste; whether the Proposed Action would lead to noncompliance with applicable Federal and state regulations or increase the amounts generated or procured beyond Kirtland AFB's current waste management procedures and capacities; and whether the Proposed Action would disturb an ERP site or create or contribute to an ERP site resulting in adverse effects on human health or the environment.

4.10.2 Proposed Action

4.10.2.1 Construction and Demolition

Hazardous Materials and Petroleum Products. No impacts on hazardous materials management during construction and demolition activities would be expected. Contractors would be responsible for the management of hazardous materials and petroleum product usage, which would be handled in accordance with Federal, state, and USAF regulations. Contractors must report the use of hazardous materials to

377 MSG/CEANC to be input into the Hazardous Materials Management System (HMMS). If a material that is less hazardous can be used, the 377 MSG/CEANC should make these recommendations. Use of the HMMS system would also ensure that ODSs are not available for use. Use of ODSs in such products as refrigerants, aerosols, and fire suppression systems is not permitted by the DOD without a formal request for a waiver. There would be no new chemicals or toxic substances used or stored at the installation in conjunction with the Proposed Action.

Hazardous and Petroleum Waste. Less than significant impacts would be expected from the generation of hazardous or petroleum wastes during construction and demolition activities. It is anticipated that the quantity of hazardous and petroleum wastes generated from the construction and demolition activities would be negligible and thus less than significant impacts on the installation's hazardous waste management program would be expected. Contractors would be responsible for the disposal of hazardous waste in accordance with Federal and state laws and regulations and the installation's HWMP. BMPs, such as secondary containment, would be followed to ensure that contamination from a spill would not occur. If, however, a spill does occur, the *Hazardous Materials Emergency Planning and Response Plan* outlines the appropriate measures for spill situations (KAFB 2008b).

Environmental Restoration Program. The boundaries of MMRP DA130; ERP sites OT-10, RW-75, SS-69, ST-51, and WP-26; and DOE ER SWMU 23 do not overlap with the footprint of the proposed new Fire Station 3. The boundaries of ERP sites LF-20, FT-14, and WP-16 do not overlap with the footprint of Building 30116. Based upon the close proximity to MMRP DA130, prior to project activities at the proposed new Fire Station 3 location, coordination with EOD personnel shall be conducted to ensure that unexploded ordnance does not exist at this location. All project personnel shall attend a 30-minute EOD Unexploded Ordnance Awareness Training. Therefore, no impacts would be expected from these MMRP, ERP, and DOE ER sites during construction and demolition activities (see **Figure 3-2**).

Asbestos-Containing Materials. According to NESHAP, any ACM that is friable or will be made friable during renovation or demolition activities in any public access or commercial building must be inspected and properly abated prior to renovation or demolition if the amount exceeds the trigger levels of 260 linear feet on pipes, 160 square feet on other surfaces, or the volume equivalent of a 55-gallon drum (35 cubic feet). Friable is defined as any material that contains asbestos and when dry can be crumbled, pulverized, or reduced to powder by hand pressure and that contains more than 1 percent asbestos by weight, area, or volume. The term includes nonfriable forms of asbestos after such previously nonfriable material becomes damaged to the extent that when dry it can be crumbled, pulverized, or reduced to powder by hand pressure.

Building 30116 is reported to contain ACM. Building 30116 would be surveyed prior to demolition and all friable asbestos (including asbestos that would be made friable during demolition) would be separated from the remainder of the demolition materials as required and remediated in accordance with Federal (e.g., 40 CFR Part 61.145), state (see **Section 3.4.2**), and USAF regulations. All ACM would be handled in accordance with Kirtland AFB's HWMP and all Federal, state, and local rules and regulations and would be disposed of at the Keers Special Waste Landfill, the City of Rio Rancho Landfill, or another permitted site. Sampling, removal, and disposal of any ACM would be short-term in duration and would result in less than significant impacts.

Lead-Based Paint. Because Building 30116 was constructed in 1955, it is assumed to contain LBP. In accordance with all Federal, state, and local rules and regulations, Building 30116 would be surveyed prior to demolition and any identified LBP would be separated from the remainder of the demolition materials as required and remediated in accordance with all Federal, state, and USAF regulations. LBP would be handled in accordance with Federal regulations and Kirtland AFB's HWMP and would be

disposed of at a hazardous waste disposal facility. Sampling, removal, and disposal of any LBP would be short-term in duration and would result in less than significant impacts.

Polychlorinated Biphenyls. Building 30116 could contain light ballasts containing PCBs. The light fixtures within Building 30116 would be removed prior to demolition and would be handled in accordance with Federal and state regulations and the installation's HWMP. Any pad-mounted transformers outside Building 30116 or the proposed new Fire Station 3 location would be tested for PCBs prior to altering the utility and treated in accordance with Federal, USAF, local, and state regulations. Any PCBs would be disposed of at a hazardous waste disposal facility. Sampling, removal, and disposal of any light ballast would be short-term in duration and would result in less than significant impacts.

Pollution Prevention. Less than significant impacts on the Pollution Prevention Program at Kirtland AFB would be expected from the construction of the proposed new Fire Station 3 and demolition of Building 30116. An incremental increase in hazardous materials and wastes would be expected during construction and demolition activities. Adherence to the Pollution Prevention Program and associated plans at Kirtland AFB, particularly the *Hazardous Materials Emergency Planning and Response Plan*, would reduce adverse impacts resulting from the Proposed Action. BMPs used at the construction and demolition sites would minimize impacts on the natural environment.

4.10.2.2 Operation and Maintenance of New Fire Station

Hazardous Materials and Petroleum Products. The operation and maintenance of the proposed new Fire Station 3 would not result in a significant increase in the type or quantity of hazardous materials or petroleum products. Should the proposed 150-kw emergency generator be diesel powered, it would contain an integrated tank holding approximately 125 gallons of diesel fuel. Therefore, negligible impacts on hazardous materials and petroleum product management would be expected from operation and maintenance activities.

Hazardous and Petroleum Waste. The operation and maintenance of the proposed new Fire Station 3 would not result in an increase in the type or quantity of hazardous and petroleum wastes; therefore, no impacts on hazardous and petroleum waste management would be expected.

Environmental Restoration Program. The boundaries of MMRP DA130; ERP sites OT-10, RW-75, SS-69, ST-51, and WP-26; and DOE SWMU 23 do not overlap with the footprint of the proposed new Fire Station 3. No impacts would be expected from these ERP sites during operation and maintenance of the proposed new Fire Station 3 (see **Figure 3-2**).

Asbestos-Containing Materials. USAF regulations prohibit the use of ACM for new construction projects. Therefore, no impacts on ACM management would be expected from operation and maintenance activities.

Lead-Based Paint. USAF regulations prohibit the use of LBP for new construction projects. Therefore, no impacts on LBP management would be expected from operation and maintenance activities.

Polychlorinated Biphenyls. USAF regulations prohibit the use of PCBs for new construction projects. Therefore, no impacts on PCB management would be expected from operation and maintenance activities.

Pollution Prevention. The operation and maintenance of the proposed new Fire Station 3 would not result in an increase in the type or quantity of hazardous materials. Therefore, no impacts on the Pollution Prevention Program would be expected from operation and maintenance activities.

4.10.3 No Action Alternative

The No Action Alternative would result in no change to the existing hazardous materials or waste management conditions, as discussed in **Section 3.10.2**. Implementation of the No Action Alternative would result in the continuation for the potential for personnel exposure to ACM and LBP. Therefore, less than significant adverse impacts on infrastructure and utilities would be expected from implementation of the No Action Alternative.

4.11 Safety

4.11.1 Evaluation Criteria

If implementation of the Proposed Action were to increase risks associated with the safety of construction personnel, contractors, military personnel, or the local community, or hinder the ability to respond to an emergency, it would represent an adverse impact. An impact would be significant if implementation of the Proposed Action were to substantially increase risks associated with the safety of construction personnel, contractors, military personnel, or the local community; substantially hinder the ability to respond to an emergency; or introduce a new health or safety risk for which the installation is not prepared or does not have adequate management and response plans in place.

4.11.2 Proposed Action

4.11.2.1 Construction and Demolition

Contractor Safety. Implementation of the Proposed Action construction and demolition activities would slightly increase the health and safety risk to contractors at the Proposed Action sites during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain health and safety programs for their employees. Implementation of the Proposed Action would result in adverse impacts on contractor safety; however, these impacts would be expected to be less than significant due to the implementation of effective health and safety programs.

Military Personnel Safety. No impacts on military personnel health and safety would be expected during the implementation of the proposed construction and demolition activities. Installation personnel would be required to vacate the areas of the Proposed Action during construction and demolition activities. Adherence to all Federal, state, and local rules and regulations and the installation's HWMP by contractors during demolition activities would prevent the potential exposure of military personnel to asbestos and lead wastes. Additionally, the removal of buildings containing ACM and LBP would be beneficial to the health and safety of military personnel. The Proposed Action work site would be fenced and appropriate signs posted to further reduce safety risks to installation personnel.

Public Safety. No impacts on public health and safety would result from the implementation of the proposed construction and demolition activities. Construction and demolition activities would not pose a safety risk to the public or to off-installation areas. The Proposed Action work site would be fenced and appropriate signs posted to further reduce safety risks to the public.

4.11.2.2 Operation and Maintenance of New Fire Station

Contractor Safety. No impacts on contractor safety would result from operation and maintenance of the proposed new Fire Station 3.

Military Personnel Safety. Operation and maintenance of the proposed new Fire Station 3 would improve the health and safety of military personnel at Kirtland AFB, resulting in long-term, beneficial impacts. Military personnel assigned to the proposed new Fire Station 3 would no longer be subject to inadequate space; undersized, inadequate restrooms; inadequate heating, cooling, and ventilation; and poor exhaust removal from the apparatus stalls. Potential exposures to ACM and LBP would be eliminated. In addition, the proposed new Fire Station 3 would allow for more effective training of firefighters. Better trained firefighters would ultimately result in safer conditions for military personnel while on deployment. The location of the proposed new Fire Station 3 would also provide improved response time to critical facilities.

Public Safety. Operation and maintenance of the proposed new Fire Station 3 would allow for more effective training of firefighters. Therefore, this would result in long-term beneficial impacts on public safety.

4.11.3 No Action Alternative

The No Action Alternative would result in the continuation of the existing conditions on health and safety, as discussed in **Section 3.11.2**. Implementation of the No Action Alternative would result in the continuation of inadequate space; exposure to vehicle exhaust; and heating, cooling, and ventilation stressors. Therefore, less than significant adverse impacts on health and safety would be expected to continue from implementation of the No Action Alternative.

4.12 Socioeconomics and Environmental Justice

4.12.1 Evaluation Criteria

Socioeconomics. This section addresses the potential for direct and indirect impacts that the Proposed Action could have on local or regional socioeconomics. Impacts on local or regional socioeconomics are evaluated according to their potential to stimulate the economy through the purchase of goods or services and increase in employment and population. Similarly, impacts are evaluated to determine if overstimulation of the economy (e.g., the construction industry's ability to sufficiently meet the demands of a project) could occur as a result of the Proposed Action.

Environmental Justice and Protection of Children. Ethnicity and poverty data are examined for the Albuquerque metropolitan area (50-mile radius around Kirtland AFB) and compared to the State of New Mexico and the United States to determine if a low-income or minority population could be disproportionately affected by the Proposed Action.

4.12.2 Proposed Action

4.12.2.1 Construction and Demolition

Demographics. The number of workers who would be hired to construct the proposed new Fire Station 3 and demolish Building 30116 would most likely come from the existing supply within the Albuquerque MSA. Relocation of construction workers to meet demand for the Proposed Action would not be

expected as the scope of construction activities should not necessitate out-of-town workers to permanently relocate.

Employment Characteristics. The existing construction industry within the Albuquerque MSA should adequately provide enough workers as required to construct the proposed new Fire Station 3 and demolish Building 30116. The number of construction workers necessary for the Proposed Action is not large enough to outstrip the supply of the industry. Indirect beneficial impacts would result from the increase in payroll tax revenues, purchase of materials, and purchase of goods and services in the area resulting in less than significant beneficial impacts on the socioeconomic climate of the Albuquerque MSA. The total cost of construction and demolition according to the most recently available Form 1391 for the Proposed Action is estimated at \$8,100,000 (KAFB undated b).

Kirtland AFB. The temporary increase of construction employees at Kirtland AFB would represent a small increase in the total number of persons working on Kirtland AFB and no additional facilities (e.g., housing, transportation) would be necessary to accommodate the workforce. Changes to employment and expenditures resulting from the construction of the proposed new Fire Station 3 and demolition of Building 30116 would be negligible and beneficial; therefore, less than significant impacts would be expected.

Environmental Justice and Protection of Children. The Albuquerque metropolitan area (50-mile radius around Kirtland AFB) contains elevated minority and low-income populations in comparison to the United States, but similar to the State of New Mexico (see **Section 3.12.2**). Construction activities would occur in industrial areas of the installation; therefore no off-installation minority or youth populations would be disproportionately impacted by the Proposed Action.

4.12.2.2 Operation and Maintenance of New Fire Station

Demographics. No new staff is anticipated to be hired or transferred to Kirtland AFB for the operation and maintenance of the proposed new Fire Station 3 as existing personnel would staff the facility. Therefore, no impacts on demographics would be expected as a result of the Proposed Action.

Employment Characteristics. No new staff is anticipated to be hired or transferred to Kirtland AFB for the operation and maintenance of the proposed new Fire Station 3 as existing personnel would staff the facility. Therefore, no impacts on the socioeconomic climate would be expected as a result of the Proposed Action.

Kirtland AFB. No new staff is anticipated to be hired or transferred to Kirtland AFB for the operation and maintenance of the proposed new Fire Station 3 as existing personnel would staff the facility. Therefore, no impacts on the installation would be expected as a result of the Proposed Action.

Environmental Justice and Protection of Children. Operation and maintenance of the new Fire Station 3 would not result in disproportionate impacts on minority or youth populations since it would be in an industrial area on the installation.

4.12.3 No Action Alternative

Under the No Action Alternative, the construction, operation, and maintenance of the proposed new Fire Station 3 and the demolition of Building 30116 would not occur. No impacts on socioeconomics would be expected as no additional jobs would be created, expenditures for goods and services to maintain the existing facilities would be minimal, and there would be no increase in tax revenues as a result of employee wages and sales receipts. Also, impacts on environmental justice and protection of children

would not occur as a part of the No Action Alternative as the existing Fire Station 3 would continue to operate under current conditions.

4.13 Cumulative Impacts

CEQ defines cumulative impacts as the “impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future. Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their effects.

This section briefly summarizes past, current, and reasonably foreseeable future projects within the same general geographic and time scope as the Proposed Action. The geographic scope of the analysis varies by resource area. For example, the geographic scope of cumulative impacts on noise, geology and soils, and safety is very narrow and focused on the location of the resource. The geographic scope of land use, air quality, infrastructure, and socioeconomics is much broader and considers more county- or region-wide activities.

The past, current, and reasonably foreseeable projects, identified below, make up the cumulative impact scenario for the Proposed Action. The cumulative impact scenario is then added to the Proposed Action’s impacts on the individual resource areas analyzed in **Sections 4.1** through **4.12** to determine the cumulative impacts of the Proposed Action. In accordance with CEQ guidance, the current effects of past actions are considered in aggregate as appropriate for each resource area without delving into the historical details of individual past actions.

4.13.1 Impact Analysis

4.13.1.1 Past Actions

Kirtland AFB has been used for military missions since the 1930s and has continuously been developed as DOD missions, organizations, needs, and strategies have evolved. Development and operation of training ranges have impacted thousands of acres with synergistic and cumulative impacts on soil, wildlife habitats, water quality, and noise. Beneficial effects, too, have resulted from the operation and management of Kirtland AFB including increased employment and income for Bernalillo County, the City of Albuquerque, and its surrounding communities; restoration and enhancement of sensitive resources such as Coyote Springs wetland area; consumptive and nonconsumptive recreation opportunities; and increased knowledge of the history and pre-history of the region through numerous cultural resources surveys and studies.

4.13.1.2 Present and Reasonably Foreseeable Actions

Kirtland AFB is a large military installation that is continually evolving. Projects that were examined for potential cumulative impacts are included in **Table 4-5**. These projects include the construction of facilities totaling approximately 769,700 square feet and the demolition of substandard facilities totaling approximately 682,900 square feet, resulting in an increase of approximately 86,800 square feet of upgraded, energy-efficient building space on the installation.

4.13.2 Cumulative Impact Analysis by Resource Area

4.13.2.1 Land Use

A significant impact on land use would occur if any action is inconsistent with adopted land use plans or would substantially alter those resources required for supporting or benefiting the current use of the site and adjacent property. The Proposed Action is consistent with the installation's General Plan and would be compatible with adjacent land uses. All past, present, and reasonably foreseeable actions on Kirtland AFB are consistent with the installation's General Plan. The Proposed Action, when considered with other potential alterations of land use due to these past, present, and reasonably foreseeable actions, would not be expected to result in a significant cumulative adverse impact.

4.13.2.2 Noise

The noise generated by the Proposed Action would be less than significant. The noise impacts generated by the proposed and future projects would result in only temporary increases in ambient noise levels during construction and demolition activities. When the noise impacts generated by the Proposed Action are considered in combination with noise impacts of other past, present, and reasonably foreseeable projects on Kirtland AFB (see **Table 4-5**), it would not be considered a significant cumulative impact.

4.13.2.3 Visual Resources

The Proposed Action would have a less than significant impact on visual resources. Although the collective implementation of the various past, present, and reasonably foreseeable projects at Kirtland AFB could result in cumulative impacts on visual resources at Kirtland AFB, impacts would not be significant. Cumulative impacts on visual resources would be controlled by following the *Kirtland Air Force Base Architectural Compatibility Plan* (KAFB 2007b). This architectural compatibility plan attempts to ensure the future development is performed in a way that limits impacts on visual resources and is consistent with existing architectural and visual standards. Adherence to the architectural compatibility plan would prevent significant visual cumulative impacts from occurring in the future.

4.13.2.4 Air Quality

The Proposed Action would result in low levels of air emissions below *de minimis* threshold limits and would not be regionally significant. The Proposed Action would generate emissions below 10 percent of the emissions inventory for the AMRGI AQCR and the majority of emissions would be short-term. Therefore, the Proposed Action, when combined with other past, present, and reasonably foreseeable projects at Kirtland AFB (see **Table 4-5**), would not contribute significantly to adverse cumulative impacts on air quality at Kirtland AFB or regionally.

4.13.2.5 Geology and Soils

The Proposed Action and other local actions would not reduce prime farmland soils or agricultural production. BMPs outlined in the SWPPP would be implemented to control erosion during construction and demolition activities, which would minimize impacts. The Proposed Action, when combined with other past, present, and reasonably foreseeable projects at Kirtland AFB (see **Table 4-5**), would not result in significant cumulative impacts on geology and soils.

Table 4-5. Present and Reasonably Foreseeable Actions at Kirtland AFB

Project Name	Description
Hercules Tanker Recapitalization	The 58th Special Operations Wing proposed to recapitalize existing Special Operations Force (SOF) tanker aircraft and flight simulators and increase the number of their training fleet. Existing HC/MC-130P/N fixed-wing tanker planes and flight simulators are approaching their service life limits and need to be replaced. The SOF training force would increase by four tanker planes and one flight simulator. By fiscal year 2023, SOF personnel would increase by 171 and the average daily student population would increase by 37. As part of this project, six military construction projects are planned for the installation totaling 146,440 square feet.
Heavy Weapons Range	The 377 ABW proposes to establish and use a heavy weapons range in the southeastern section of Kirtland AFB, approximately 0.25 miles east of the Starfire Optical Range facilities along Mount Washington Road. The proposed range will encompass the existing M60 range. It will include two firing positions and firing lines and will use the existing targets at the M60 range. Firing distance will be approximately 7,300 feet. Firing position two will be used for sniper heavy weapons (0.50 caliber) and will fire in a more southerly direction to the existing target area, approximately 3,800 feet.
Construct New Hot Cargo Pad	The 377 ABW proposes to construct, operate, and maintain a hot cargo pad at Kirtland AFB to ensure reliable support and backup for the existing hot cargo pad (Pad 5). Other components include construction of a new taxiway to the proposed hot cargo pad; replacement of the deteriorating taxiway to Pad 5; addition of new and relocation of existing anti-ram barriers, defensive fighting positions, and personal shelters surrounding the proposed hot cargo pad and Pad 5; addition of new lighting at the proposed hot cargo pad and Pad 5; and removal of existing lighting at Pad 5. The new pad will consist of 18-inch Portland cement concrete and will add additional 6-inch asphalt taxiway to the existing taxiway at Pad 5. The new pad will adjoin the existing Pad 5 to minimize enlargement of the clear zone and impacts on other critical facilities.
Construction and Demolition of Military Support Facilities	Kirtland AFB proposes to demolish and construct several military personnel support facilities in the developed area in the northwestern portion of the installation. The areas include the Visiting Officer Quarters Complex, 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 square feet and construction of facilities totaling approximately 389,000 square feet, resulting in a decrease of approximately 109,000 square feet of building space on the installation.
Army and Air Force Exchange Service (AAFES) Base Exchange Shopping Center	AAFES proposes to construct and operate a new 95,421-square-foot Shopping Center on an approximately 2.3-acre developed site between the existing Commissary (Building 20180) and existing Base Exchange (Building 20170) on Pennsylvania Street. The project also includes demolition of the 1,540-square-foot existing satellite pharmacy (Building 20167), closure of a portion (approximately 345 feet) of Pennsylvania Street, and construction of approximately 492 feet of new road to connect Texas Street with Pennsylvania Street north of the new Shopping Center. The new Shopping Center will include a new Base Exchange, pharmacy, retail laundry/dry cleaning, a beauty/barber shop, concession kiosks, five food concepts with a food court, and other similar services. This project will result in an increase of 93,881 square feet of building space on the installation.
Construct New Military Working Dog Facility	Kirtland AFB proposes to construct a new Military Working Dog facility. The proposed facility will consist of 14 indoor/outdoor kennels, 4 isolation kennels, storage and staff space, restrooms, food storage room, a covered walkway, and a veterinarian examining room, totaling 8,000 square feet. A parking area with 25 spaces and new access roads will also be constructed as part of the project. Demolition of facilities totaling 2,520 square feet will also be included in this project, resulting in an increase of 5,480 square feet of building space on the installation.

Project Name	Description
498th Nuclear System Wing Facility	Kirtland AFB proposes to construct a 32,400-square-foot facility to house the newly formed 498th Nuclear Systems Wing. This facility will be a two-story, steel-framed structure with reinforced concrete foundation, floors, and reinforced masonry walls. The construction further includes tying into utilities and communications and parking for 120 vehicles. The facility will accommodate approximately 200 personnel. The new facility location is proposed between G and H Avenues west of Wyoming Boulevard directly behind the Nuclear Weapons Center (Building 20325).
Air Force Nuclear Weapons Center Sustainment Center	Kirtland AFB proposes to construct a 15,946-square-foot sustainment center for the Nuclear Weapons Center. This facility will be a two-story, steel-framed structure built as a Sensitive Compartmented Information Facility with reinforced concrete foundation, floors, and reinforced masonry walls. The construction further includes tying into utilities and communications and parking for vehicles. The facility will accommodate approximately 36 personnel. The new facility location is proposed between G and H Avenues west of Wyoming Boulevard directly behind the Nuclear Weapons Center (Building 20325) and south of the proposed 498th Nuclear Systems Wing facility.
Building Demolition at Kirtland AFB	The 377 ABW proposes to demolish 23 buildings (approximately 105,000 square feet) on Kirtland AFB 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. General demolition activities will include removing foundations, floor, wall, ceiling, and roofing materials; removing electrical substations providing power to these facilities; and removing, capping, and rerouting sewer, gas, water, and steam lines outside of the work areas. Equipment such as bulldozers, backhoes, front-end loaders, dump trucks, tractor-trailers, and generators will be required to support the proposed demolition activities.
Security Forces Complex	The 377 ABW proposes to construct, operate, and maintain a 42,500 square foot security forces complex at Kirtland AFB to provide adequate space and modern facilities to house all 377 Security Forces Squadron administrative and support functions in a consolidated location. The 377 Security Forces Squadron functions that will 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 square feet) within the footprint of the security forces complex will be demolished. This project will result in an increase of 41,621 square feet of building space on the installation.
21st Explosive Ordnance Division Expansion	The 21st EOD proposes facility expansion and site improvements for the 21st EOD Weapons of Mass Destruction Company Complex at Kirtland AFB. 21st EOD currently operates from a 90-acre property leased by the Army within Kirtland AFB. The current site has seven structures, six of which are substandard and do not have adequate fire protection. 21st EOD proposes to expand this site to a total of 280 acres, add three permanent structures totaling 40,000 square feet, demolish five of the six substandard structures (75,000 square feet), add two temporary storage containers, tie in to nearby utilities, construct water tanks for fire suppression, and construct several concrete pads for training tasks. This project will result in a decrease of 35,000 square feet of building space on the installation.
Spacecraft Component Integration Lab	This proposed lease action is to convert underutilized space, including a former military family housing area and a recreational use area, to use for office, commercial, and senior continuum care space at Kirtland AFB.

4.13.2.6 Water Resources

Because the Proposed Action would not increase personnel located on Kirtland AFB and the annual water use (approximately 2,369 acre-feet) on Kirtland AFB is well below the 6,000 acre-feet withdrawal allowed per year in the Water Rights Agreement with the State of New Mexico, the Proposed Action would result in less than significant impacts on groundwater availability. The impacts of the Proposed Action, when considered with potential disturbances on water resources from past, present, and reasonably foreseeable actions at Kirtland AFB (see **Table 4-5**), would not be expected to have a significant cumulative impact on water resources. Implementation of BMPs would minimize potential for adverse impacts on water resources associated with the Proposed Action and future actions.

4.13.2.7 Biological Resources

The Proposed Action would occur in areas that have either been previously disturbed or areas that do not contain much vegetation or important biological habitats; therefore, it would not be expected to significantly impact vegetation or wildlife habitats. Although growth and development can be expected to continue outside of Kirtland AFB and within the surrounding natural areas, significant adverse impacts on these resources would not be expected. Overall, cumulative impacts of implementation of the Proposed Action and other past, present, and reasonably foreseeable actions at Kirtland AFB (see **Table 4-5**) on the biological resources of the area would be less than significant.

4.13.2.8 Cultural Resources

There are no known cultural resources within the footprint of the Proposed Action. Implementation of the Proposed Action is not expected to have a significant impact on cultural resources. The cumulative impacts of the Proposed Action and other past, present, and reasonably foreseeable projects at Kirtland AFB (see **Table 4-5**), when compared to the condition of the structures and the potential disturbances to cultural resources, would be considered less than significant.

4.13.2.9 Infrastructure

Upgrade of any infrastructure to support additional projects at Kirtland AFB would largely result in beneficial impacts for the installation due to increased energy efficiency. Cumulative impacts on infrastructure have the potential to cause adverse impacts on electrical, natural gas, liquid fuel, water supply, wastewater, storm water, communications, and solid waste management services. The General Plan addresses the capacity and the need to upgrade all elements of the infrastructure to support additional projects at Kirtland AFB. Because the Proposed Action would not increase personnel on Kirtland AFB, impacts of the Proposed Action, when considered with potential disturbances from past, present, and reasonably foreseeable actions at Kirtland AFB (see **Table 4-5**), would not be expected to have a significant cumulative impact on the installation's infrastructure.

4.13.2.10 Hazardous Materials and Waste

The Proposed Action would result in an increase in the use and generation of hazardous materials and wastes; however, all materials would be handled and disposed of appropriately. Future projects would incorporate measures to limit or control hazardous materials and waste into their design and operation plans. Therefore, the impacts from the Proposed Action, when combined with other ongoing and proposed projects on Kirtland AFB, would not be considered a significant cumulative impact.

4.13.2.11 Safety

The Proposed Action would result in a long-term, beneficial impact on military and public safety. No cumulative impacts on health and safety would be expected. The implementation of effective health and safety plans, which follow Federal, state, and local OSHA policies, at the project site during construction and facility operation would reduce or eliminate cumulative health and safety impacts on contractors, military personnel, and the general public.

4.13.2.12 Socioeconomics, Protection of Children, and Environmental Justice

Implementation of the Proposed Action would result in short-term, beneficial impacts on the region's economy through the purchase of construction materials and providing employment for construction personnel during the construction and demolition phases of the project. No impacts on residential areas, population, youth, or minority or low-income families on or off the installation would occur. These impacts, when combined with the other projects currently proposed or ongoing at Kirtland AFB, would not be considered a significant cumulative impact.

4.13.3 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

Energy. The use of nonrenewable resources is an avoidable occurrence, although not considered significant. The Proposed Action would require use of fossil fuels, a nonrenewable natural resource, during demolition of Building 30116 and construction (oil, fuel) and operation (natural gas) of the proposed new Fire Station 3. Energy supplies, although relatively small, would be committed to the Proposed Action.

Geology and Soils. Construction and demolition activities would result in temporary soil disturbance; however, implementation of BMPs and erosion-control measures would limit the environmental consequences. Although soil disturbance would be unavoidable, the impact on geology and soils would not be expected to be significant.

Hazardous Materials and Waste. The use and generation of hazardous materials and wastes during construction and demolition activities would be unavoidable; however, these materials and wastes would be handled in accordance with Federal, state, and local policies and would not be expected to result in significant impacts.

4.13.4 Compatibility of the Proposed Action with the Objectives of Federal, Regional, and Local Land Use Plans, Policies, and Controls

The Proposed Action would occur entirely within Kirtland AFB. Construction, operation, and maintenance activities would not be incompatible with any current land uses on Kirtland AFB. The Proposed Action would not conflict with any applicable off-installation land use ordinances. The Proposed Action would follow all applicable permitting, building, and safety requirements.

4.13.5 Relationship between Short-term Uses and Long-term Productivity

Short-term uses of the biophysical components of the human environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity

that occurs over a period of less than 5 years. Long-term uses of the human environment include those impacts occurring over a period of more than 5 years, including permanent resource loss.

Implementation of the Proposed Action would not require short-term resources uses that would result in long-term compromises of productivity. The Proposed Action would not result in intensification of land use at Kirtland AFB and the surrounding area. Implementation of the Proposed Action would not represent a significant loss of open space. Therefore, it is anticipated that the Proposed Action would not result in any cumulative impacts on land use or aesthetics.

4.13.6 Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the impacts that the use of these resources will have on future generations. Irreversible impacts primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable timeframe (e.g., energy and minerals). The irreversible and irretrievable commitments of resources that would result from implementation of the Proposed Action involve the consumption of material resources used for construction, energy resources, land, and human labor resources. The use of these resources is considered to be permanent.

Material Resources. Material resources used for the Proposed Action include building materials, concrete and asphalt, and various material supplies. Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. Energy resources used for the Proposed Action would be irretrievably lost. This includes petroleum-based products (such as gasoline, diesel, and natural gas) and electricity. During construction and demolition activities, gasoline and diesel would be used for the operation of construction vehicles. During operation of the proposed new Fire Station 3, natural gas would be used for heating. Electricity would also be used during operation and maintenance of the proposed new Fire Station 3. Consumption of these energy resources would not place a significant demand on their availability in the region; therefore, less than significant impacts would be expected.

Biological Resources. The Proposed Action would result in minor loss of vegetation and wildlife habitat. Because the project area consists primarily of bare ground and minimal vegetation, the loss would be minimal and not considered significant.

Human Resources. The use of human resources for construction and demolition, operation, and maintenance activities is considered an irretrievable loss only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities and is considered beneficial.

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6. References

- BLS 2011 U.S. Department of Labor, Bureau of Labor Statistics (BLS). 2011. "Local Area Unemployment Rates." Available online: http://data.bls.gov/timeseries;LAUMT35107403?data_tool.XGtable>. Accessed 1 June 2011.
- City of Albuquerque 2002 City of Albuquerque. 2002. *Albuquerque International Sunport Airport Master Plan*. September 2002.
- City of Albuquerque 2008 City of Albuquerque. 2008. *Generalized Land Use Map of the Albuquerque Metropolitan Area*. Printed 8 July 2008. Available online: http://www.cabq.gov/planning/agis/pdf/GeneralizedLandUse_001.pdf>. Accessed 25 May 2011.
- City of Albuquerque 2011a City of Albuquerque. 2011. "ABQ Ride Routes & Schedules." Available online: <http://www.cabq.gov/transit/routes-and-schedules>>. Accessed 20 July 2011.
- City of Albuquerque 2011b City of Albuquerque. 2011. "Emergency Medical Services." Available online: <http://www.cabq.gov/fire/emergency-medical-services>>. Accessed 6 July 2011.
- City of Albuquerque 2011c City of Albuquerque. 2011. "Police Department Area Command Locations." Available online: <http://www.cabq.gov/police/areacommands/index.html>>. Accessed 6 July 2011.
- Dann 2011 Dann, Jennifer. 2011. Personal communication from Jennifer Dann (Kirtland AFB) to Michelle Bare (HDR EOC, Inc.) regarding the 2010 RCRA Permit and submission of a Class 3 Permit Modification Request. 16 November 2011.
- DOD 2010a Department of Defense (DOD). 2010. Memorandum from Dorothy Robyn (Office of the Under Secretary of Defense) regarding DOD Implementation of Storm Water Requirements under Section 438 of the Energy Independence and Security Act. 19 January 2010. Available online: http://www.p2sustainabilitylibrary.mil/p2_documents/dusd_ie.pdf>. Accessed 1 June 2011.
- DOD 2010b DOD. 2010. Unified Facilities Criteria (UFC): Low Impact Development. UFC-3-210-10. 15 November 2010. Available online: http://www.wbdg.org/ccb/DOD/UFC/ufc_3_210_10.pdf>. Accessed 1 June 2011.
- Google 2011 Google. 2011. Google Maps search for Hospitals near Kirtland AFB, NM. Available online: http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=Hospital+near+Kirtland+AFB,+Albuquerque,+NM&aq=0&sll=37.0625,-95.677068&sspn=41.089062,92.724609&ie=UTF8&hq=Hospitals&hnear=Kirtland+AFB,+2200+Sunport+Bld+SE,+Albuquerque,+New+Mexico+87106&ll=35.021,-106.479492&spn=0.318836,0.724411&t=h&z=11&ei=j4UUTovkH4OSNf637aEF&pw=2>. Accessed 6 July 2011.

Grant 1981	Grant, P.R. 1981. Geothermal Potential on Kirtland AFB Lands, Bernalillo County, New Mexico. Sandia National Laboratories. 1981.
KAFB undated a	Kirtland Air Force Base (KAFB). Undated. "New Mexico Veterans Affairs Health Care System." Available online: http://www.militarymediainc.com/kirtland/units2.html#nmva . Accessed 6 July 2011.
KAFB undated b	KAFB. Undated. FY 2013 Military Construction Project Data. Project Title: Replace Fire Station 3. Project Number: 2445/MHMOV083126A. Department of Defense Form 1391.
KAFB 1997	KAFB. 1997. <i>Management Action Plan, Kirtland Air Force Base</i> . December 1997.
KAFB 1999	KAFB. 1999. <i>Pollution Prevention Management Action Plan, Kirtland Air Force Base</i> . July 1999.
KAFB 2003	KAFB. 2003. <i>Final Environmental Assessment for Kirtland Air Force Base 2002 Construction and Demolition Projects</i> . January 2003.
KAFB 2004a	KAFB. 2004. <i>Final Surveying Report for Mountain Plover and Gray Vireo Populations at Kirtland AFB</i> . February 2004.
KAFB 2004b	KAFB. 2004. <i>Hazardous Waste Management Plan, Kirtland Air Force Base</i> . December 2004.
KAFB 2007a	KAFB. 2007. <i>Integrated Natural Resources Management Plan for Kirtland Air Force Base</i> . July 2007.
KAFB 2007b	KAFB. 2007. <i>Kirtland Air Force Base Architectural Compatibility Plan</i> . 10 October 2007.
KAFB 2008a	KAFB. 2008. "Plant List of Species Known to Occur on Kirtland Air Force Base." Based on Appendix A: plant species known or expected to occur on KAFB, In: <i>Kirtland AFB Fish and Wildlife Plan</i> (1996). April 2008.
KAFB 2008b	KAFB. 2008. <i>Hazardous Material Emergency Planning and Response Plan, Kirtland Air Force Base</i> . 18 May 2008.
KAFB 2009a	KAFB. 2009. <i>Final 2008 Kirtland Air Force Base Emissions Inventory</i> . June 2009.
KAFB 2009b	KAFB. 2009. <i>Natural Resources Support – Managing Wetlands at Kirtland AFB, New Mexico</i> . October 2009.
KAFB 2009c	KAFB. 2009. <i>Spill Prevention, Control, and Countermeasure Plan, Kirtland Air Force Base, New Mexico</i> . November 2009.
KAFB 2010	KAFB. 2010. <i>Kirtland Air Force Base, New Mexico Economic Impact Statement Fiscal Year 2010</i> . 30 September 2010.
KAFB 2011a	KAFB. 2011. <i>Kirtland Air Force Base 2010 General Plan</i> . 26 May 2011.

KAFB 2011b	KAFB. 2011. <i>Kirtland Air Force Base Annual Consumer Confidence Report on Drinking Water Quality</i> . June 2011.
Kitt 2010	Kitt, Steve. 2010. Personal communication from Steve Kitt (Kirtland AFB) to Jeffrey McCann (HDR EOC, Inc.) regarding capacity of the Kirtland AFB landfill and debris sent from Kirtland AFB to Rio Rancho landfill. 12 January 2010.
NMED undated	New Mexico Environment Department (NMED). Undated. Amended Public Notice of Filing of Application by Waste Management of New Mexico, Inc. for a Solid Waste (Municipal/Special) Landfill Permit Renewal and Modification Including a Vertical Expansion at the Rio Rancho Landfill in Rio Rancho, New Mexico. Undated. Available online: http://newmexico.wm.com/landfills/pdf/rioranchopublicfiling0308.pdf . Accessed 1 June 2011.
NMED 2005	NMED. 2005. <i>Final Permit Decision: Class III Permit Modification for No Further Action Status for 20 Solid Waste Management Units, Kirtland Air Force Base</i> . 28 September 2005.
NMED 2006	NMED. 2006. <i>Correction to Table B, Final Permit Decision, Class III Permit Modification for No Further Action Status for 18 Solid Waste Management Units, Kirtland Air Force Base</i> . 27 July 2006.
NMED 2007	NMED. 2007. <i>Final Permit Decision: Class 3 Permit Modification for No Further Action Status for 16 Solid Waste Management Units, Kirtland Air Force Base</i> . 17 July 2007.
NMRPTC 1999	New Mexico Rare Plant Technical Council (NMRPTC). 1999. "New Mexico Rare Plants." Albuquerque, New Mexico. Last updated 4 September 2009. Available online: http://nmrareplants.unm.edu . Accessed 14 July 2011.
NRCS 2011	Natural Resources Conservation Service (NRCS). 2011. <i>Web Soil Survey</i> . Available online: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx . Accessed 24 May 2011.
Richardson 2012	Richardson, Cliff. 2012. Personal communication from Cliff Richardson (Kirtland AFB) to Martha Garcia (377 MSG/CEANQ) regarding average water use per person per day on Kirtland AFB. 23 February 2012.
Sandia Corporation 2008	Sandia Corporation. 2008. <i>Long-Term Stewardship</i> . 30 September 2008. Available online: http://www.sandia.gov/ltes/removedfrompermit_sitelist.htm . Accessed 25 August 2011.
Segura 2010	Segura, Christopher. 2010. Personal communication from Christopher Segura (Kirtland AFB) to Jeffrey McCann (HDR EOC, Inc.) regarding wastewater flow at Kirtland AFB. 13 January 2010.
State of New Mexico 2009	State of New Mexico. 2009. <i>Title 20, Environmental Protection; Chapter 11, Albuquerque-Bernalillo County Air Quality Control Board; Part 8, Ambient Air Quality Standards</i> . Last updated on 14 September 2009. Available online http://www.nmcpr.state.nm.us/nmac/parts/title20/20.011.0008.htm . Accessed 13 June 2011.

- USACE 1987 U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetlands Delineation Manual. Technical report Y-97-1. January 1987.
- USACE 2007 USACE. 2007. *Kirtland Air Force Base, Albuquerque, New Mexico Comprehensive Site Evaluation Phase I Report Air Force Military Munitions Response Program*. February 2007.
- USAF 1997 U.S. Air Force (USAF). 1997. *Air Force Fire Station Design Guide*. 1997.
- USAF 1998 USAF. 1998. *Land Use Planning*. Air Force Pamphlet 32-1010. 1 November 1998. Available online: <<http://www.e-publishing.af.mil/shared/media/epubs/AFPM32-1010.pdf>> Accessed 31 May 2011.
- U.S. Census Bureau 2009 U.S. Census Bureau. 2009. “American Fact Finder.” Available online: <http://factfinder.census.gov/servlet/ACSSAFFacts?_event=&geo_id=16000US3502000&_geoContext=01000US%7C04000US35%7C16000US3502000&_street=&_county=albuquerque&_cityTown=albuquerque&_state=04000US35&_zip=&_lang=en&_sse=on&ActiveGeoDiv=&_useEV=&pctxt=fph&pgsl=160&_submenuId=factsheet_1&ds_name=null&ci_nbr=null&qtr_name=null®=null%3Anull&_keyword=&_industry>. Accessed 1 June 2011.
- U.S. Census Bureau 2010 U.S. Census Bureau. 2010. “American Fact Finder.” Available online: <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1&prodType=table>. Accessed 31 May 2011.
- U.S. DOE EIA 2010 U.S. Department of Energy, Energy Information Administration (U.S. DOE EIA). 2010. *Table 3. State Emissions by Year (Million Metric Tons of Carbon Dioxide)*. Available online <http://www.eia.doe.gov/oiaf/1605/state/state_emissions.html>. Data Released 26 October 2010. Data accessed 24 May 2011.
- USEPA 1981a U.S. Environmental Protection Agency (USEPA). 1981. *Noise Effects Handbook. A Desk Reference to Health and Welfare Effects of Noise*. Office of Noise Abatement and Control. October 1979, Revised July 1981. Available online: <<http://nonoise.org/epa/Roll7/roll7doc27.pdf>>. Accessed 3 March 2010.
- USEPA 1981b USEPA. 1981. “Noise and its Measurement.” January 1981. Available online: <<http://nonoise.org/epa/Roll19/roll19doc49.pdf>>. Accessed 3 March 2010.
- USEPA 2002a USEPA. 2002. *Part 81 – Designation of Areas for Air Quality Planning Purposes – Table of Contents, Subpart B – Designation of Air Quality Control Regions, Sec. 81.83 Albuquerque-Mid Rio Grande Intrastate Air Quality Control Region*. Available online: <http://edocket.access.gpo.gov/cfr_2002/julqtr/40cfr81.83.htm>. Accessed on 23 May 2011.
- USEPA 2002b USEPA. 2002. *Part 81 - Designation of Areas for Air Quality Planning Purposes - Table of Contents, Subpart C – Section 107 Attainment Status Designations, Sec. 81.332, New Mexico*. Available online: <http://edocket.access.gpo.gov/cfr_2002/julqtr/40cfr81.332.htm>. Accessed 24 May 2011.

USEPA 2002c	USEPA. 2002. <i>Emissions by Category Report - Criteria Air Pollutants AirData USEPA</i> . Emissions for Bernalillo, Sandoval, and Valencia Counties, New Mexico. Available online < http://www.epa.gov/air/data/geosel.html >. Data accessed 24 May 2011.
USEPA 2009	USEPA. 2009. <i>Estimating 2003 Building-Related Construction and Demolition Materials Amounts</i> . March 2009.
USEPA 2011a	USEPA. 2011. <i>National Ambient Air Quality Standards</i> . Last updated on 18 April 2011. Available online: < http://www.epa.gov/air/criteria.html >. Accessed 24 May 2011.
USEPA 2011b	USEPA. 2011. <i>Carbon Monoxide Maintenance State/Area/County Report</i> . Last updated 21 April 2011. Available online: < http://www.epa.gov/oar/oaqps/greenbk/cmcs.html >. Accessed 23 May 2011.
USEPA 2011c	USEPA. 2011. <i>Mandatory Class I Areas</i> . Available online: < http://www.epa.gov/ttn/oarpg/t1/fr_notices/classimp.gif >. Accessed 23 May 2011.
USEPA and USACE 2007a	USEPA and U.S. Army Corps of Engineers (USACE). 2007. <i>Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States</i> . 5 June 2007.
USEPA and USACE 2007b	USEPA and USACE. 2007. Memorandum for Director of Civil Works and USEPA Regional Administrators. Subject: U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (Corps) Coordination on Jurisdictional Determinations (JDs) under Clean Water Act (CWA) Section 404 in Light of the SWANCC and Rapanos Supreme Court Decisions. 5 June 2007.
USGS 2008	U.S. Geological Survey (USGS). 2008. <i>2008 U.S. National Seismic Hazard Maps</i> . Available online: < http://pubs.usgs.gov/fs/2008/3018/pdf/FS08-3018_508.pdf >. Accessed 13 June 2011.
VCHP 2003	Van Citters: Historic Preservation, LLC (VCHP). 2003. <i>National Register of Historic Places Historic Context and Evaluation from Kirtland Air Force Base, Albuquerque, New Mexico</i> . June 2003.
Waste Management 2010	Waste Management. 2010. "The Rio Rancho Landfill: Landfill Permit Executive Summary." Available online: < http://newmexico.wm.com/landfills/rioranchoprojectsheet.htm >. Accessed 13 January 2010.

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APPENDIX A

APPLICABLE LAWS, REGULATIONS, POLICIES, AND PLANNING CRITERIA

Appendix A

Applicable Laws, Regulations, Policies, and Planning Criteria

When considering the affected environment, the various physical, biological, economic, and social environmental factors must be considered. In addition to the National Environmental Policy Act (NEPA), there are other environmental laws as well as Executive Orders (EOs) to be considered when preparing environmental analyses. These laws are summarized below.

NOTE: This is not a complete list of all applicable laws, regulations, policies, and planning criteria potentially applicable to documents, however, it does provide a general summary for use as a reference.

General

EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007 [superseding EO 13123 and EO 13149]) directs Federal agencies to conduct their activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. EO 13423 sets several Federal energy and environmental management requirements in areas such as energy efficiency, greenhouse gas reduction, renewable power, building performance, water conservation, alternative fuel/hybrid vehicles, petroleum conservation, alternative fuel, pollution prevention, environmentally sound procurement, and electronics management.

Noise

The Air Installation Compatible Use Zone (AICUZ) Program, (Air Force Instruction [AFI] 32-7063), provides guidance to air bases and local communities in planning land uses compatible with airfield operations. The AICUZ program describes existing aircraft noise and flight safety zones on and near U.S. Air Force (USAF) installations.

Land Use

The term “land use” refers to real property classifications that indicate either natural conditions or the types of human activities occurring on a defined parcel of land. In many cases, land use descriptions are codified in local zoning laws. However, there is no nationally recognized convention or uniform terminology for describing land use categories.

Land use planning in the USAF is guided by *Land Use Planning Bulletin, Base Comprehensive Planning* (HQ USAF/LEEVX, August 1, 1986). This document provides for the use of 12 basic land use types found on a USAF installation. In addition, land use guidelines established by the U.S. Department of Housing and Urban Development (HUD) and based on findings of the Federal Interagency Committee on Noise (FICON) are used to recommend acceptable levels of noise exposure for land use.

Air Quality

The Clean Air Act (CAA) of 1970, and Amendments of 1977 and 1990, recognizes that increases in air pollution result in danger to public health and welfare. To protect and enhance the quality of the Nation's air resources, the CAA authorizes the U.S. Environmental Protection Agency (USEPA) to set six National Ambient Air Quality Standards (NAAQSs) which regulate carbon monoxide, lead, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter pollution emissions. The CAA seeks to reduce or eliminate the creation of pollutants at their source, and designates this responsibility to state and local governments. States are directed to utilize financial and technical assistance as well as leadership from the Federal

government to develop implementation plans to achieve NAAQS. Geographic areas are officially designated by the USEPA as being in attainment or nonattainment to pollutants in relation to their compliance with NAAQS. Geographic regions established for air quality planning purposes are designated as Air Quality Control Regions (AQCRs). Pollutant concentration levels are measured at designated monitoring stations within the AQCR. An area with insufficient monitoring data is designated as unclassifiable. Section 309 of the CAA authorizes USEPA to review and comment on impact statements prepared by other agencies.

An agency should consider what effect an action might have on NAAQS due to short-term increases in air pollution during construction and long-term increases resulting from changes in traffic patterns. For actions in attainment areas, a Federal agency could also be subject to USEPA's Prevention of Significant Deterioration (PSD) regulations. These regulations apply to new major stationary sources and modifications to such sources. Although few agency facilities will actually emit pollutants, increases in pollution can result from a change in traffic patterns or volume. Section 118 of the CAA waives Federal immunity from complying with the CAA and states all Federal agencies will comply with all Federal- and state-approved requirements.

The General Conformity Rule requires that any Federal action meet the requirements of a State Implementation Plan (SIP) or Federal Implementation Plan. More specifically, CAA conformity is ensured when a Federal action does not cause a new violation of the NAAQS; contribute to an increase in the frequency or severity of violations of NAAQS; or delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS.

The General Conformity Rule applies only to actions in nonattainment or maintenance areas and considers both direct and indirect emissions. The rule applies only to Federal actions that are considered "regionally significant" or where the total emissions from the action meet or exceed the *de minimis* thresholds presented in 40 CFR 93.153. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the AQCR's total emissions inventory for that nonattainment pollutant. If a Federal action does not meet or exceed the *de minimis* thresholds and is not considered regionally significant, then a full Conformity Determination is not required.

Health and Human Safety

Human health and safety relates to workers' health and safety during demolition or construction of facilities, or applies to work conditions during operations of a facility that could expose workers to conditions that pose a health or safety risk. The Federal Occupational Safety and Health Administration (OSHA) issues standards to protect persons from such risks, and the Department of Defense (DOD) and state and local jurisdictions issue guidance to comply with these OSHA standards. Safety also can refer to safe operations or aircraft or other equipment.

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements Air Force Policy Directive (AFPD) 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

AFI 91-202, *USAF Mishap Prevention Program*, implements AFPD 91-2, *Safety Programs*. It establishes mishap prevention program requirements (including the Bird/Wildlife Aircraft Strike Hazard [BASH] Program), assigns responsibilities for program elements, and contains program management information. This instruction applies to all USAF personnel.

Geological Resources

Recognizing that millions of acres per year of prime farmland are lost to development, Congress passed the Farmland Protection Policy Act to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland (7 CFR Part 658). Prime farmland is described as soils that have a combination of soil and landscape properties that make them highly suitable for cropland, such as high inherent fertility, good water-holding capacity, and deep or thick effective rooting zones, and are not subject to periodic flooding. Under the Farmland Protection Policy Act, agencies are encouraged to conserve prime or unique farmlands when alternatives are practicable. Some activities that are not subject to the Farmland Protection Policy Act include Federal permitting and licensing, projects on land already in urban development or used for water storage, construction for national defense purposes, or construction of new minor secondary structures such as a garage or storage shed.

Water Resources

The Clean Water Act (CWA) of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, is administered by USEPA, and sets the basic structure for regulating discharges of pollutants into U.S. waters. The CWA requires USEPA to establish water quality standards for specified contaminants in surface waters and forbids the discharge of pollutants from a point source into navigable waters without a NPDES permit. NPDES permits are issued by USEPA or the appropriate state if it has assumed responsibility. Section 404 of the CWA establishes a Federal program to regulate the discharge of dredge and fill material into waters of the United States. Section 404 permits are issued by the U.S. Army Corps of Engineers (USACE). Waters of the United States include interstate and intrastate lakes, rivers, streams, and wetlands that are used for commerce, recreation, industry, sources of fish, and other purposes. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Each agency should consider the impact on water quality from actions such as the discharge of dredge or fill material into U.S. waters from construction, or the discharge of pollutants as a result of facility occupation.

Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water-quality standards and to develop Total Maximum Daily Loads (TMDLs). A TMDL is the maximum amount of a pollutant that a waterbody can receive and still be in compliance with state water-quality standards. After determining TMDLs for impaired waters, states are required to identify all point and nonpoint sources of pollution in a watershed that are contributing to the impairment and to develop an implementation plan that will allocate reductions to each source to meet the state standards. The TMDL program is currently the Nation's most comprehensive attempt to restore and improve water quality. The TMDL program does not explicitly require the protection of riparian areas. However, implementation of the TMDL plans typically calls for restoration of riparian areas as one of the required management measures for achieving reductions in nonpoint source pollutant loadings.

The USEPA issued a Final Rule for the CWA concerning technology-based Effluent Limitations Guidelines and New Source Performance Standards for the Construction and Development point source category. All NPDES storm water permits issued by the USEPA or states must incorporate requirements established in the Final Rule. As of February 1, 2010, all new construction sites are required to meet the non-numeric effluent limitations and design, install, and maintain effective erosion and sedimentation controls. In addition, construction site owners and operators that disturb 1 or more acres of land are required to use best management practices (BMPs) to ensure that soil disturbed during construction activities does not pollute nearby water bodies. On February 2, 2014, construction site owners and operators that disturb 10 or more acres of land are required to monitor discharges to ensure compliance with effluent limitations as specified by the permitting authority. Construction site owners are encouraged to phase ground-disturbing activities to limit the applicability of the monitoring requirements and the turbidity limitation. The USEPA's limitations are based on its assessment of what specific

technologies can reliably achieve. Permittees can select management practices or technologies that are best suited for site-specific conditions.

The Coastal Zone Management Act (CZMA) of 1972 declares a national policy to preserve, protect, and develop, and, where possible, restore or enhance the resources of the Nation's coastal zone. The coastal zone refers to the coastal waters and the adjacent shorelines including islands, transitional and intertidal areas, salt marshes, wetlands, and beaches, and includes the Great Lakes. The CZMA encourages states to exercise their full authority over the coastal zone, through the development of land and water use programs in cooperation with Federal and local governments. States may apply for grants to help develop and implement management programs to achieve wise use of the land and water resources of the coastal zone. Development projects affecting land or water use or natural resources of a coastal zone must ensure the project is, to the maximum extent practicable, consistent with the state's coastal zone management program.

The Safe Drinking Water Act (SDWA) of 1974 establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. Congress amended the SDWA in 1986, mandating dramatic changes in nationwide safeguards for drinking water and establishing new Federal enforcement responsibility on the part of USEPA. The 1986 amendments to the SDWA require USEPA to establish Maximum Contaminant Levels (MCLs), Maximum Contaminant Level Goals (MCLGs), and Best Available Technology (BAT) treatment techniques for organic, inorganic, radioactive, and microbial contaminants; and turbidity. MCLGs are maximum concentrations below which no negative human health effects are known to exist. The 1996 amendments set current Federal MCLs, MCLGs, and BATs for organic, inorganic, microbiological, and radiological contaminants in public drinking water supplies.

The Wild and Scenic Rivers Act of 1968 provides for a wild and scenic river system by recognizing the remarkable values of specific rivers of the Nation. These selected rivers and their immediate environment are preserved in a free-flowing condition, without dams or other construction. The policy not only protects the water quality of the selected rivers but also provides for the enjoyment of present and future generations. Any river in a free-flowing condition is eligible for inclusion, and can be authorized as such by an Act of Congress, an act of state legislature, or by the Secretary of the Interior upon the recommendation of the governor of the state(s) through which the river flows.

EO 11988, *Floodplain Management* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in floodplains. An agency may locate a facility in a floodplain if the head of the agency finds there is no practicable alternative. If it is found there is no practicable alternative, the agency must minimize potential harm to the floodplain, and circulate a notice explaining why the action is to be located in the floodplain prior to taking action. Finally, new construction in a floodplain must apply accepted floodproofing and flood protection to include elevating structures above the base flood level rather than filling in land.

EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* (October 5, 2009), directed the USEPA to issue guidance on Section 438 of the Energy Independence and Security Act (EISA). The EISA establishes into law new storm water design requirements for Federal construction projects that disturb a footprint of greater than 5,000 square feet of land. Under these requirements, predevelopment site hydrology must be maintained or restored to the maximum extent technically feasible with respect to temperature, rate, volume, and duration of flow. Predevelopment hydrology would be calculated and site design would incorporate storm water retention and reuse technologies to the maximum extent technically feasible. Post-construction analyses will be conducted to evaluate the effectiveness of the as-built storm water reduction features. These regulations are applicable to DOD Unified Facilities Criteria. Additional guidance is provided in the USEPA's *Technical Guidance on*

Biological Resources

The Endangered Species Act (ESA) of 1973 establishes a Federal program to conserve, protect, and restore threatened and endangered plants and animals and their habitats. The ESA specifically charges Federal agencies with the responsibility of using their authority to conserve threatened and endangered species. All Federal agencies must ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction of critical habitat for these species, unless the agency has been granted an exemption. The Secretary of the Interior, using the best available scientific data, determines which species are officially endangered or threatened, and the U.S. Fish and Wildlife Service (USFWS) maintain the list. A list of Federal endangered species can be obtained from the Endangered Species Division, USFWS (505-248-6920). States might also have their own lists of threatened and endangered species which can be obtained by calling the appropriate State Fish and Wildlife office. Some species also have laws specifically for their protection (e.g., Bald Eagle Protection Act).

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, implements treaties and conventions between the United States, Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. Unless otherwise permitted by regulations, the MBTA makes it unlawful to pursue, hunt, take, capture, or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. The MBTA also makes it unlawful to ship, transport, or carry from one state, territory, or district to another, or through a foreign country, any bird, part, nest, or egg that was captured, killed, taken, shipped, transported, or carried contrary to the laws from where it was obtained; and import from Canada any bird, part, nest, or egg obtained contrary to the laws of the province from which it was obtained. The U.S. Department of the Interior has authority to arrest, with or without a warrant, a person violating the MBTA.

EO 11514, *Protection and Enhancement of Environmental Quality* (March 5, 1970), states that the President, with assistance from the Council on Environmental Quality (CEQ), will lead a national effort to provide leadership in protecting and enhancing the environment for the purpose of sustaining and enriching human life. Federal agencies are directed to meet national environmental goals through their policies, programs, and plans. Agencies should also continually monitor and evaluate their activities to protect and enhance the quality of the environment. Consistent with NEPA, agencies are directed to share information about existing or potential environmental problems with all interested parties, including the public, in order to obtain their views.

EO 11990, *Protection of Wetlands* (May 24, 1977), directs agencies to consider alternatives to avoid adverse effects and incompatible development in wetlands. Federal agencies are to avoid new construction in wetlands, unless the agency finds there is no practicable alternative to construction in the wetland, and the proposed construction incorporates all possible measures to limit harm to the wetland. Agencies should use economic and environmental data, agency mission statements, and any other pertinent information when deciding whether or not to build in wetlands. EO 11990 directs each agency to provide for early public review of plans for construction in wetlands.

EO 13186, *Conservation of Migratory Birds* (January 10, 2001), creates a more comprehensive strategy for the conservation of migratory birds by the Federal government. EO 13186 provides a specific framework for the Federal government's compliance with its treaty obligations to Canada, Mexico, Russia, and Japan. EO 13186 provides broad guidelines on conservation responsibilities and requires the development of more detailed guidance in a Memorandum of Understanding (MOU). EO 13186 will be

coordinated and implemented by the USFWS. The MOU will outline how Federal agencies will promote conservation of migratory birds. EO 13186 requires the support of various conservation planning efforts already in progress; incorporation of bird conservation considerations into agency planning, including NEPA analyses; and reporting annually on the level of take of migratory birds.

Cultural Resources

The American Indian Religious Freedom Act of 1978 and Amendments of 1994 recognize that freedom of religion for all people is an inherent right, and traditional American Indian religions are an indispensable and irreplaceable part of Indian life. It also recognized the lack of Federal policy on this issue and made it the policy of the United States to protect and preserve the inherent right of religious freedom for Native Americans. The 1994 Amendments provide clear legal protection for the religious use of peyote cactus as a religious sacrament. Federal agencies are responsible for evaluating their actions and policies to determine if changes should be made to protect and preserve the religious cultural rights and practices of Native Americans. These evaluations must be made in consultation with native traditional religious leaders.

The Archaeological Resource Protection Act (ARPA) of 1979 protects archaeological resources on public and American Indian lands. It provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, or defacement of any archaeological resource, defined as material remains of past human life or activities which are at least 100 years old. Before archaeological resources are excavated or removed from public lands, the Federal land manager must issue a permit detailing the time, scope, location, and specific purpose of the proposed work. ARPA also fosters the exchange of information about archaeological resources between governmental agencies, the professional archaeological community, and private individuals. ARPA is implemented by regulations found in 43 CFR Part 7.

The National Historic Preservation Act (NHPA) of 1966 sets forth national policy to identify and preserve properties of state, local, and national significance. The NHPA establishes the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers (SHPOs), and the National Register of Historic Places (NRHP). ACHP advises the President, Congress, and Federal agencies on historic preservation issues. Section 106 of the NHPA directs Federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP. Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 106 of the act is implemented by regulations of the ACHP, 36 CFR Part 800. Agencies should coordinate studies and documents prepared under Section 106 with NEPA where appropriate. However, NEPA and NHPA are separate statutes and compliance with one does not constitute compliance with the other. For example, actions which qualify for a categorical exclusion under NEPA might still require Section 106 review under NHPA. It is the responsibility of the agency official to identify properties in the area of potential effects, and whether they are included or eligible for inclusion in the NRHP. Section 110 of the NHPA requires Federal agencies to identify, evaluate, and nominate historic property under agency control to the NRHP.

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 establishes rights of American Indian tribes to claim ownership of certain “cultural items,” defined as Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, held or controlled by Federal agencies. Cultural items discovered on Federal or tribal lands are, in order of primacy, the property of lineal descendants, if these can be determined, and then the tribe owning the land where the items were discovered or the tribe with the closest cultural affiliation with the items. Discoveries of cultural items on Federal or tribal land must be reported to the appropriate American Indian tribe and the Federal agency with jurisdiction over the land. If the discovery is made as a result of a land use, activity in the area must stop and the items must be protected pending the outcome of consultation with the affiliated tribe.

EO 11593, *Protection and Enhancement of the Cultural Environment* (May 13, 1971), directs the Federal government to provide leadership in the preservation, restoration, and maintenance of the historic and cultural environment. Federal agencies are required to locate and evaluate all Federal sites under their jurisdiction or control which might qualify for listing on the NRHP. Agencies must allow the ACHP to comment on the alteration, demolition, sale, or transfer of property which is likely to meet the criteria for listing as determined by the Secretary of the Interior in consultation with the SHPO. Agencies must also initiate procedures to maintain federally owned sites listed on the NRHP.

EO 13007, *Indian Sacred Sites* (May 24, 1996), provides that agencies managing Federal lands, to the extent practicable, permitted by law, and not inconsistent with agency functions, shall accommodate American Indian religious practitioners' access to and ceremonial use of American Indian sacred sites, shall avoid adversely affecting the physical integrity of such sites, and shall maintain the confidentiality of such sites. Federal agencies are responsible for informing tribes of proposed actions that could restrict future access to or ceremonial use of, or adversely affect the physical integrity of, sacred sites.

EO 13175, *Consultation and Coordination with Indian Tribal Government* (November 6, 2000), was issued to provide for regular and meaningful consultation and collaboration with Native American tribal officials in the development of Federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Native American tribes. EO 13175 recognizes the following fundamental principles: Native American tribes exercise inherent sovereignty over their lands and members, the United States government has a unique trust relationship with Native American tribes and deals with them on a government-to-government basis, and Native American tribes have the right to self-government and self-determination.

EO 13287, *Preserve America* (March 3, 2003), orders Federal agencies to take a leadership role in protection, enhancement, and contemporary use of historic properties owned by the Federal government, and promote intergovernmental cooperation and partnerships for preservation and use of historic properties. EO 13287 established new accountability for agencies with respect to inventories and stewardship.

Socioeconomics, Protection of Children, and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994), directs Federal agencies to make achieving environmental justice part of their mission. Agencies must identify and address the adverse human health or environmental effects that its activities have on minority and low-income populations, and develop agencywide environmental justice strategies. The strategy must list “programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations, ensure greater public participation, improve research and data collection relating to the health of and environment of minority populations and low-income populations, and identify differential patterns of consumption of natural resources among minority populations and low-income populations.” A copy of the strategy and progress reports must be provided to the Federal Working Group on Environmental Justice. Responsibility for compliance with EO 12898 is with each Federal agency.

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (April 21, 1997), directs Federal agencies to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks.

Hazardous Materials and Waste

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes USEPA to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan. CERCLA also provides a Federal “Superfund” to respond to emergencies immediately. Although the “Superfund” provides funds for cleanup of sites where potentially responsible parties cannot be identified, USEPA is authorized to recover funds through damages collected from responsible parties. This funding process places the economic burden for cleanup on polluters.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes; redesigning products, substituting raw materials; and making improvements in management techniques, training, and inventory control. Consistent with pollution prevention principles, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007 [revoking EO 13148]) sets a goal for all Federal agencies that promotes environmental practices, including acquisition of biobased, environmentally preferable, energy-efficient, water-efficient, and recycled-content products, and use of paper of at least 30 percent post-consumer fiber content. In addition, EO 13423 sets a goal that requires Federal agencies to ensure that they reduce the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of, increase diversion of solid waste as appropriate, and maintain cost-effective waste prevention and recycling programs in their facilities. Additionally, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to “incorporate pollution prevention principles, techniques, and mechanisms into their planning and decisionmaking processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA.”

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act. RCRA authorizes USEPA to provide for “cradle-to-grave” management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. Under RCRA, hazardous waste is controlled from generation to disposal through tracking and permitting systems, and restrictions and controls on the placement of waste on or into the land. Under RCRA, a waste is defined as hazardous if it is ignitable, corrosive, reactive, toxic, or listed by USEPA as being hazardous. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of pollution of groundwater.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards and authorizes USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which requires facility operators with “hazardous substances” or “extremely hazardous substances” to prepare comprehensive emergency plans and to report accidental releases. If a Federal agency acquires a contaminated site, it can be held liable for cleanup as the property owner/operator. A Federal agency can also incur liability if it leases a property, as the courts have found lessees liable as “owners.” However, if the agency exercises due diligence by conducting a Phase I Environmental Site Assessment, it can claim the “innocent purchaser” defense under CERCLA. According to Title 42 United States Code (U.S.C.) 9601(35), the current owner/operator must show it undertook “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice” before buying the property to use this defense.

The Toxic Substance Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment.

TSCA authorized USEPA to gather information on chemical risks, require companies to test chemicals for toxic effects, and regulate chemicals with unreasonable risk. TSCA also singled out polychlorinated biphenyls (PCBs) for regulation, and, as a result, PCBs are being phased out. PCBs are persistent when released into the environment and accumulate in the tissues of living organisms. They have been shown to cause adverse health effects on laboratory animals and could cause adverse health effects in humans. TSCA and its regulations govern the manufacture, processing, distribution, use, marking, storage, disposal, clean-up, and release reporting requirements for numerous chemicals like PCBs. TSCA Title II provides statutory framework for “Asbestos Hazard Emergency Response,” which applies only to schools. TSCA Title III, “Indoor Radon Abatement,” states indoor air in buildings of the United States should be as free of radon as the outside ambient air. Federal agencies are required to conduct studies on the extent of radon contamination in buildings they own. TSCA Title IV, “Lead Exposure Reduction,” directs Federal agencies to “conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards.” Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

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APPENDIX B

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP) MATERIALS

Appendix B

Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) Materials

The 377 ABW solicited comments on the Draft Environmental Assessment (EA) by distributing letters (example follows) and copies of the Draft EA to potentially interested Federal, state, and local agencies; Native American tribes; and other stakeholder groups or individuals, and by publishing a Notice of Availability (NOA) in *The Albuquerque Journal*. The following is a list of potentially interested parties:

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Federal Aviation Administration
ASW-640
260 Meachum Boulevard
Ft. Worth, TX 76137

Ms. Jan Biella
Acting, State Historic Preservation Officer
Department of Cultural Affairs
Historic Preservation Division
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, NM 87501



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)

Colonel David J. Hornyak
377ABW/CC
2000 Wyoming Blvd SE Suite E-3
Kirtland AFB NM 87117-5000

{ Address RTD }

RE: Construction, Operation, and Maintenance of a New Fire Station at Kirtland Air Force Base

Dear {TBD}:

The United States Air Force's Air Force Materiel Command (AFMC) is preparing an Environmental Assessment (EA) addressing the construction, operation, and maintenance of a new fire station to replace the existing Fire Station 3 at Kirtland Air Force Base (AFB). We are writing this letter to request your assistance in the environmental assessment process, specifically in identifying any potential issues relating to the proposed activities.

Fire Station 3 would be replaced to better serve the southeastern portion of Kirtland AFB and improve response times to critical, high-value facilities. The existing Fire Station 3 (Building 30116), which was constructed in 1955, is extremely deficient in several aspects, including space, structure, heating, ventilation, air conditioning, lighting, utilities, and location. The building's deficient structure and unsuitable dimensions make any remodel or expansion unfeasible to meet current fire station space and facility standards.

The facility would consist of a non-combustible, one-story structure with three high-bay, drive-through apparatus stalls; separate men's and women's restrooms with lockers and showers; separate men's and women's sleeping rooms; a separate captain's sleeping room and restroom; and a day room with a kitchen. The facility would be constructed according to Air Force Handbook 32-1084, *Facility Requirements*, and the *Air Force Fire Station Design Guide*. Building 30116 (4,312 square feet) would be demolished once construction of the new Fire Station 3 is complete.

The new Fire Station 3 would be approximately 7,320 square feet. The three high-bay, drive-through apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors, and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. The Proposed Action would provide fire protection; heating, ventilating, and air conditioning systems; a 150-kilowatt emergency generator to provide uninterruptible power supply for emergency power and communications; parking; paving; landscaping; and security provisions.

The EA will analyze the proposed action and no action alternative, and present any potential environmental impacts that may result from the construction, operation, and maintenance of a new fire

station at Kirtland AFB. The proposed action involves construction of a new Fire Station 3 and the demolition of Building 30116 once construction is complete.

In accordance with Executive Order 12372, Intergovernmental Review of Federal Programs, I request your participation by reviewing the Draft EA and solicit your comments concerning the proposal and any potential environmental concerns you may have. Copies of the Draft EA and the proposed Finding of No Significant Impact are available at <http://www.kirtland.af.mil> under the environmental issues tab. Please provide written comments on the Draft EA or other information regarding the action at your earliest convenience but no later than 30 days from the receipt of this letter.

Appendix B of the Draft EA contains a listing of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposed activities, please include them in your distribution of this letter.

In accordance with Sec. 106 of the National Historic Preservation Act of 1966, as amended (NHPA) this area will not impact cultural resources. The ground has been previously disturbed and the building to be demolished is not historic. Thus no cultural resources will be disturbed. In accordance with the NHPA should cultural resources be located all ground disturbance will cease and the Cultural Resource Manager will be contacted.

Please address questions or comments on this proposed action to the NEPA Program Manager, 377 MSG/CEANQ, 2050 Wyoming Boulevard SE, Suite 125, Kirtland AFB NM 87117, or via email to nepa@kirtland.af.mil.

Sincerely

DAVID J. HORNYAK, Colonel, USAF
Commander

DISTRIBUTION/MAILING LIST

Native American Tribes

Isleta Pueblo
Governor Frank Lujan
P.O. Box 1270
Isleta Pueblo, NM 87022

Pueblo of Zuni
Governor Arlen P. Quetawki, Sr.
P.O. Box 339
Zuni, NM 87327

Jicarilla Apache Nation
President Levi Pesata
P.O. Box 507
Dulce, NM 87528

Mescalero Apache Tribe
President Mark Chino
P.O. Box 227
Mescalero, NM 88340

Pueblo of Nambe
Governor Ernest Mirabal
Route 1, Box 117-BB
Santa Fe, NM 87506

Navajo Nation
President Ben Shelly
P.O. Box 9000
Window Rock, AZ 86515

Ohkay Owingeh
Governor Ron Lovato
P.O. Box 1099
San Juan Pueblo, NM 87566

Pueblo of Acoma
Governor Randall Vicente
P.O. Box 309
Acoma, NM 87034

Pueblo of Cochiti
Governor Robert Pecos
P.O. Box 70
Cochiti Pueblo, NM 87072

Pueblo of Jemez
Governor Michael Toledo
P.O. Box 100
Jemez Pueblo, NM 87024

Pueblo of Laguna
Governor Richard Luarkie
P.O. Box 194
Laguna Pueblo, NM 87026

Pueblo of Picuris
Governor Gerald Nailor
P.O. Box 127
Penasco, NM 87553

Pueblo of Pojoaque
Governor George Rivera
78 Cities of Gold Road
Santa Fe, NM 87506

Pueblo of San Felipe
Governor Raymond Sandoval
P.O. Box 4339
San Felipe Pueblo, NM 87001

Pueblo of San Ildefonso
Governor Perry Martinez
Route 5, Box 315-A
Santa Fe, NM 87506

Navajo Nation
Speaker Lawrence T. Morgan
P.O. Box 3390
Window Rock, AZ 86515

Pueblo of Sandia
Governor Malcolm Montoya
481 Sandia Loop
Bernalillo, NM 87004

Pueblo of Santa Ana
Governor Lawrence Montoya
2 Dove Road
Santa Ana Pueblo, NM 87004

Pueblo of Santa Clara
Governor Walter Dasheno
P.O. Box 580
Española, NM 87532

Kewa Pueblo
Governor David F. Garcia
P.O. Box 99
Santo Domingo Pueblo, NM 87052

Pueblo of Taos
Governor Nelson J. Cordova
P.O. Box 1846
Taos, NM 87571

Pueblo of Zia
Governor Marcellus Medina
135 Capital Square Drive
Zia Pueblo, NM 87053

All Indian Pueblo Council
Chairman Chandler Sanchez
2401 12 Street NW
Albuquerque, NM 87103

Pueblo of Tesuque
Governor Mark Mitchell
Route 42, Box 360-T
Santa Fe, NM 87506



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)

Colonel David J. Hornyak
377ABW/CC
2000 Wyoming Blvd SE Suite E-3
Kirtland AFB NM 87117-5000

{ Address RTD }

RE: Construction, Operation, and Maintenance of a New Fire Station at Kirtland Air Force Base

Dear {RTD}:

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Fire Station 3 would be replaced to better serve the southeastern portion of Kirtland AFB and improve response times to critical, high-value facilities. The existing Fire Station 3 (Building 30116), which was constructed in 1955, is extremely deficient in several aspects, including space, structure, heating, ventilation, air conditioning, lighting, utilities, and location. The building's deficient structure and unsuitable dimensions make any remodel or expansion unfeasible to meet current fire station space and facility standards.

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The new Fire Station 3 would be approximately 7,320 square feet. The three high-bay, drive-through apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors, and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. The Proposed Action would provide fire protection; heating, ventilating, and air conditioning systems; a 150-kilowatt emergency generator to provide uninterruptible power supply for emergency power and communications; parking; paving; landscaping; and security provisions.

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Please address questions or comments on this proposed action to the NEPA Program Manager, 377 MSG/CEANQ, 2050 Wyoming Boulevard SE, Suite 125, Kirtland AFB NM 87117, or via email to nepa@kirtland.af.mil.

Sincerely

DAVID J. HORNYAK, Colonel, USAF
Commander

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DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109
505-342-3185
Fax 505-342-3498

March 27, 2012

REPLY TO
ATTENTION OF:

Regulatory Division
New Mexico/Texas Branch

SUBJECT: Action No. SPA-2012-00118-ABQ, Construction, Operation and Maintenance of a new Fire Station at Kirtland Air Force Base

NEPA Program Manager
USAF
377 MSG/CEANQ
2050 Wyoming Blvd. SE, Suite 125
Kirtland AFB, 87117

Sir or Madam:

The U.S. Army Corps of Engineers (Corps) is in receipt of your letter received March 16, 2012 concerning the Air Force's proposal to construct, operate, and maintain a new Fire Station to replace the existing Fire Station 3 located just south of the intersection of Pennsylvania Street and Power Line Road at Kirtland Air Force Base in Albuquerque, New Mexico. The activity involves a new facility which will be approximately 7,320 square feet. We have assigned Action No. SPA-2012-00118-ABQ to this activity. To avoid delay, please include this number in all future correspondence concerning this project.

A Department of the Army permit is required under Section 404 of the Clean Water Act for the placement of dredged or fill materials into waters of the United States. The project site may contain waters of the U.S. If the project proponent or any of its contractors work, or plan to work, in a river, stream, or wetland, they may be required to obtain a Department of the Army permit.

I have enclosed a brochure describing the Corps regulatory program for your information. A series of nationwide permits are available which may be sufficient for some work, if all terms and conditions are met. Many of the nationwide permits require pre-construction notification to the Corps of Engineers and regional conditions may apply. In many cases, a water quality certification is required from the appropriate water quality authority.

- 2 -

We will provide a letter of determination of permit requirements on request, provided that we are furnished with information sufficient to determine whether waters of the United States would be affected by the proposed project. Summaries of the nationwide permits and information about the regulatory program are available on our web page at www.spa.usace.army.mil/reg/.

If you have any questions concerning our regulatory program, please contact me at 505-342-3185 or by e-mail at Jennifer.J.Lillard@usace.army.mil. At your convenience, please complete a Customer Service Survey available on-line at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,

A handwritten signature in black ink, reading "Jennifer J. Lillard". The signature is fluid and cursive, with the first name "Jennifer" and last name "Lillard" clearly distinguishable.

Jennifer J. Lillard
Regulatory Specialist

Enclosure:

Regulatory Program Brochure

CITY OF ALBUQUERQUE



March, 28, 2012

NEPA Program Manager, KAFB
377 MSG/CEANQ
2050 Wyoming Blvd. SE, Suite 125
Kirtland AFB, NM 87117

Certified Mail No. 7010 3090 0001 4486 5220

Re: Construction, Operation, and Maintenance of a New Fire Station at KAFB

KAFB NEPA Program Manager:

Thank you for providing the Air Quality Division (Division) the opportunity to review the KAFB preliminary EA (EA) for the construction of a new fire station and eventual demolition of the existing fire station (Bldg. 30116). Based on review of the preliminary EA, dated March 2012, the Division has concluded that activities associated with this type of activity appear to require notification and Source Registration/Permit application submittals to the Division. KAFB must ensure that all appropriate notifications and applications are submitted as required by 20.11 NMAC.

The EA states that building construction and demolition will occur as a result of this project. Inspection, notification requirements and asbestos removal will need to be done in accordance with 20.11.20.22 NMAC – Demolition and Renovation Activities; Fugitive Dust Control Construction Permit and Asbestos Notification Requirements and Title 40 CFR Subpart M—National Emission Standard for Asbestos §61.145 – Standard for demolition and renovation.

The EA reports that the planned construction will result in surface disturbance. Surface disturbance of $\frac{3}{4}$ of an acre or more will require a Fugitive Dust Permit. Buildings to be demolished that exceed 75,000 ft³ will require a Fugitive Dust Permit. If a Fugitive Dust Permit is required, surface disturbance/demolition shall not occur before Division staff sign and issue a fugitive dust permit. Fugitive dust emissions resulting from this project must be mitigated and controlled as cited in 20.11.20 NMAC.

KAFB shall ensure that the appropriate Source Registration, 20.11.40 NMAC, and Authority to Construct, 20.11.41 NMAC, applications have been submitted and the appropriate Certificate/Permit have been issued by the Division. Construction and operation of these sources shall be done in accordance with 20.11.40 NMAC and 20.11.41 NMAC as applicable. Those engines, not defined as a “Nonroad engine” under Title 40 CFR Part 89 or 90, and applicable to 20.11.41 NMAC, shall obtain a permit pursuant to Part 41. If applicable to 20.11.40 NMAC, the owner/operator shall obtain a Certificate of Registration pursuant to Part 40.

PO Box 1293

Albuquerque

NM 87103

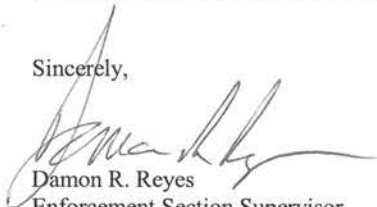
www.cabq.gov

Albuquerque - Making History 1706-2006

Program Manager
March 28, 2012
Page 2

Thank you for the time and the opportunity to review the EA Draft Report. Please do not hesitate to contact me with any questions or concerns you may have (dreyes@cabq.gov or 505-768-1958).

Sincerely,



Damon R. Reyes
Enforcement Section Supervisor
Air Quality Division
Environmental Health Department
City of Albuquerque

Xc: Mary Lou Leonard, Director, Environmental Health Department
Bill Westmoreland P.E., Deputy Director, Environmental Health Department
Isreal Tavaréz, Environmental Engineering Manager, Air Quality Permitting Section
William Gallegos, Environmental Health Manager, Environmental Service Department



Mid-Region Council of Governments

Debbie O'Malley
Chair, Board of Directors
Councilor, City of Albuquerque

March 28, 2012

Dewey V. Cave
Executive Director

MEMBER GOVERNMENTS

City of Albuquerque
Albuquerque Public Schools
Albuquerque Metropolitan
Arroyo Flood Control
Authority
City of Belen
Bernalillo County
Town of Bernalillo
Village of Bosque Farms
Village of Corrales
Village of Cuba
Town of Edgewood
Village of Encino
Town of Estancia
Village of Jemez Springs
Village of Los Lunas
Los Lunas Schools
Village of Los Ranchos
de Albuquerque
Middle Rio Grande
Conservancy District
City of Moriarty
Town of Mountainair
Town of Peralta
City of Rio Rancho
Rio Rancho Public Schools
Sandoval County
Southern Sandoval
County Arroyo Flood
Control Authority
Village of Tijeras
Torrance County
Valencia County
Village of Willard

NEPA Program Manager
377 MSG/CEANQ
2050 Wyoming Boulevard SE Suite 125
KAFB, NM 87117

Re: Construction, Operation, and Maintenance of a New Fire Station

Dear Sir:

On behalf of the Mid-Region Council of Governments (MRCOG), I would like to give my support for the Kirtland Air Force Base mission in regards to the construction, operation and maintenance of a new fire station on the base.

It is my understanding that the proposal involves the demolition of the existing fire station and the construction of a new fire station on the Kirtland Air Force Base. At this time the MRCOG does not anticipate major impacts. The mission of the Kirtland Air Force is very important in this region and the MRCOG communities. This application for funding in no way conflicts with local or regional plans.

Please let me know if my staff or I can support you further.

Sincerely,

Dewey V. Cave
Executive Director

DC/SG

809 Copper Ave. NW, Albuquerque, NM 87102
Phone: (505) 247-1750 Fax (505) 247-1753 Web: www.mrcog-nm.gov

Dear Colonel Hornyak,

Thank you for the opportunity to review the project and identify issues regarding the environmental assessment addressing the construction, operation, and maintenance of a new fire station at Kirtland Air Force Base. The Southwestern Region of the US Forest Service does not have any issues or concerns relative to this proposed action.

Peg Sorensen, Regional Environmental Coordinator (NEPA)

Southwestern Region, USDA Forest Service

333 Broadway Blvd. SE

Albuquerque, NM 87102 505-842-3256

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, 377TH AIR BASE WING (AFMC)

94072

Colonel David J. Hornyak
377ABW/CC
2000 Wyoming Blvd SE Suite E-3
Kirtland AFB NM 87117-5000



Ms. Jan Biella
Acting, State Historic Preservation Officer
Department of Cultural Affairs
Historic Preservation Division
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe New Mexico 87501

RE: Construction, Operation, and Maintenance of a New Fire Station at Kirtland Air Force Base

Dear Ms. Biella

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Fire Station 3 would be replaced to better serve the southeastern portion of Kirtland AFB and improve response times to critical high-value facilities, including Kirtland's Underground Munitions and maintenance Storage Complex (KUMMSC). The existing Fire Station 3, which was constructed in 1955, is extremely deficient in several aspects, including space, structure, heating, ventilation, air conditioning, lighting, utilities, and location. The building's deficient structure and unsuitable dimensions make any remodel or expansion unfeasible to meet current fire station space and facility standards.

The facility would consist of a non-combustible, one-story structure with three high-bay, drive-through apparatus stalls; separate men's and women's restrooms with lockers and showers; and a day room with a kitchen. The facility would be constructed according to AFH 32-1084, *Facility Requirements*, and the Fire Station Design Guide (USAF 1997). The existing Fire Station 3 (4,312 square feet) would be demolished once construction of the new Fire Station 3 is complete.

The new fire station would be approximately 7,320 square feet. The three high-bay, drive-through apparatus stalls would be sized to hold P-24 pumper and P-18 water tender firefighting apparatus with electric roll-up doors and a vehicle exhaust removal system. The facility would be a steel or reinforced concrete structure with reinforced masonry walls, reinforced concrete foundation and floors, and a sloped standing seam metal roof. Construction activities would include connections to nearby electrical, water, natural gas, sanitary sewer, and communications utilities. The Proposed Action would provide fire protection; heating, ventilating, and air conditioning (HVAC) systems; a 150-kilowatt (kw) emergency generator to provide uninterruptible power supply (UPS) for emergency power and communications; parking; paving; landscaping; and security provisions.

The EA will analyze the proposed action and no action alternative, and present any potential environmental impacts that may result from the construction, operation, and maintenance of a new fire station at Kirtland AFB. The proposed action involves construction of a new Fire Station 3 and the demolition of Building 30116 once construction is complete.

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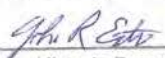
Please address questions or comments on this proposed action to the NEPA Program Manager, 377 MSG/CEANQ, 2050 Wyoming Boulevard SE, Suite 125, Kirtland AFB NM 87117, or via email to nepa@kirtland.af.mil.

Sincerely



DAVID J. HORNYAK, Colonel, USAF
Commander

No Historic Properties Affected

 3-Apr-2012
for NM State Historic Preservation Office



SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Office of the Secretary

Harold Runnels Building
1190 Saint Francis Drive (87505)
PO Box 5469, Santa Fe, NM 87502-5469
Phone (505) 827-2855 Fax (505) 827-2836
www.nmenv.state.nm.us



DAVE MARTIN
Cabinet Secretary
BUTCH TONGATE
Deputy Secretary

April 13, 2012

Colonel David J. Hornyak
377ABW/CC
2000 Wyoming Blvd SE Suite E-3
Kirtland AFB NM 87117-5000

**RE: Construction, Operation, and Maintenance of a New Fire Station at Kirtland AFB (NMED
File No. 3663ER)**

Dear Colonel Hornyak:

Your letter regarding the above named project was received in the New Mexico Environment Department (NMED) and was sent to various Bureaus for review and comment. Comments were provided by the Surface Water Quality Bureau, Ground Water Quality Bureau and Air Quality Bureau and are as follows.

Surface Water Quality Bureau

The U.S. Environmental Protection Agency (USEPA) requires National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) coverage for storm water discharges from construction projects (common plans of development) that will result in the disturbance (or re-disturbance) of one or more acres, including expansions, of total land area. Construction may include demolition activities as described in this document. Because this project may exceed one acre (including staging areas, etc.), it may require appropriate NPDES permit coverage prior to beginning construction (small, one - five acre, construction projects may be able to qualify for a waiver in lieu of permit coverage - see Appendix C).

Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from construction sites) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.), and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters. In addition, permittees must ensure that there is no increase in sediment yield and flow velocity from the construction site (both during and after construction) compared to pre-construction, undisturbed conditions (see Subpart 9.4.1.1)

You should also be aware that EPA requires that all "operators" (see Appendix A) obtain NPDES permit coverage for construction projects. Generally, this means that at least two parties will require permit coverage. The owner/developer of this construction project who has operational control over project specifications, the general contractor who has day-to-day operational control of those activities at the site,

which are necessary to ensure compliance with the storm water pollution plan and other permit conditions, and possibly other "operators" will require appropriate NPDES permit coverage for this project.

The CGP was re-issued effective February 16, 2012. The CGP, Notice of Intent (NOI), Fact Sheet, and Federal Register notice can be downloaded at:
<http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>

Ground Water Quality Bureau

GWQB staff reviewed the above-referenced document as requested, focusing specifically on the potential effect to ground water quality in the area of the proposed project.

The letter states that the United States Air Force's Air Force Materiel Command (AFMC) is proposing to construct, operate and maintain a new fire station at Kirkland Air Force Base. The new facility will replace Fire Station #3 and will include sleeping rooms, restrooms and a kitchen.

Based on the location of the proposed facility, sewer service will likely be provided by the City of Albuquerque. If domestic wastewater will be discharged to the municipal wastewater collection system, then the facility will not require a permit for the discharge of domestic wastewater. However, if domestic wastewater is to be discharged to an on-site wastewater disposal system, then the on-site system must operate under the appropriate permit from the NMED (either a liquid waste permit issued pursuant to 20.7.3 NMAC or a ground water discharge permit issued pursuant to 20.6.2 NMAC) depending upon the discharge volume. A Notice of Intent to Discharge form must be submitted to the NMED GWQB if wastewater from the facility will be discharged to an on-site wastewater disposal system.

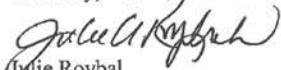
Implementation of the project will likely involve the use of heavy equipment, thereby leading to the possibility of contaminant releases (e.g., fuel, hydraulic fluid, etc.) associated with heavy equipment malfunctions. The GWQB advises all parties involved in the project to be aware of discharge notification requirements contained in 20.6.2.1203 NMAC. Compliance with the notification and response requirements will ensure the protection of ground water quality in the vicinity of the project.

Air Quality Bureau

No Comments.

I hope this information is helpful to you.

Sincerely,



Julie Roybal
Environmental Impact Review Coordinator
NMED File #3663ER

APPENDIX C

SITE PHOTOGRAPHS



C1. Existing Fire Station 3, Building 30116



C2. Existing Fire Station 3, Building 30116



C3. Existing Conditions of Proposed Action Location – Intersection of Pennsylvania Street and Power Line Road

APPENDIX D

AIR QUALITY SUPPORTING DOCUMENTATION

Appendix D

Air Quality Supporting Documentation

Summary	Summarizes total emissions by calendar year for the Proposed Action.
Combustion	Estimates emissions from non-road equipment exhaust.
Fugitive	Estimates particulate emissions from construction activities including earthmoving, vehicle traffic, and windblown dust.
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions.
Haul Truck On-Road	Estimates emissions from haul trucks hauling waste materials and fill materials to and from the job site.
Construction Commuter	Estimates emissions for construction workers commuting to the site.
Emergency Generator	Estimates emissions from the operation of the emergency generator.
AQCR Tier Report	Summarizes total emissions for the Albuquerque-Mid Rio Grande Intrastate Air Quality Control Region Tier report for 2002, to be used to compare the Proposed Action to regional emissions.

*Summary
Estimated Emissions for the Proposed Action*

Air Quality Emissions from the Proposed Action

	NO _x (ton)	VOC * (ton)	CO (ton)	SO ₂ (ton)	PM ₁₀ (ton)	PM _{2.5} (ton)	CO ₂ (ton)
Combustion	4.863	0.455	2.141	0.378	0.349	0.338	550.974
Fugitive Dust	-	-	-	-	0.304	0.030	-
Haul Truck On-Road	0.048	0.035	0.141	0.004	0.057	0.015	12.137
Commuter	0.110	0.110	0.992	0.001	0.010	0.007	131.482
Construction & Demo Subtotal	5.021	0.599	3.273	0.384	0.720	0.390	694.593
Emergency Generator	0.807	0.066	0.174	0.053	0.057	-	29.998
TOTAL	5.828	0.665	3.447	0.437	0.777	0.390	724.591

* TOC used in place of VOC for the emergency generator

Note: Total PM_{10/2.5} fugitive dust emissions are assuming USEPA 50% control efficiencies.

CO ₂ emissions converted to metric tons =	657,204	metric tons	
State of New Mexico's CO ₂ emissions =	57,600,000	metric tons	(U.S. DOE/EIA 2008)
Percent of New Mexico's CO ₂ emissions =	0.00114%		
United States' CO ₂ emissions =	5,814,400,000	metric tons	(U.S. DOE/EIA 2008)
Percent of USA's CO ₂ emissions =	0.000011%		

Source: U.S. Department of Energy, Energy Information Administration (U.S. DOE/EIA), 2010. Table 3. State Emissions by Year (Million Metric Tons of Carbon Dioxide). Available online: <http://www.eia.doe.gov/oiaf/1605/state/state_emissions.html>. Data released 26 October 2010. Data accessed 24 May 2011.

Since future year budgets were not readily available, actual 2002 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Albuquerque-Mid Rio Grande Intrastate Air Quality Control Region

Year	Point and Area Sources Combined					
	NO _x (tpy)	VOC (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)
2002	36,778	31,651	245,346	2,619	137,376	16,676

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/geosel.html>). Site visited on 24 May 2011.

Air Emissions from the Proposed Action **Determination Significance (Significance Threshold = 10% of regional)**

Point and Area Sources Combined						
NO _x (tpy)	VOC * (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	
36,778	31,651	245,346	2,619	137,376	16,676	
5.828	0.665	3.447	0.437	0.777	0.390	
0.016%	0.002%	0.001%	0.017%	0.001%	0.002%	

* TOC used in place of VOC for the emergency generator

Regional Emissions
Emissions
% of Regional

Summary
Estimated Emissions for the Proposed Action

Combustion EmissionsCombustion Emissions of VOC, NO_x, SO_x, CO, PM_{2.5}, PM₁₀, and CO₂ due to Construction and Demolition

General Construction and Demolition Activities		Area Disturbed	
1) Construct New Fire Station		7,320 ft ²	
2) Demolish Existing Fire Station #3		4,312 ft ²	
Total Construction Area:		7,320 ft ²	1
		0.2 acres	
Total Demolition Area:		4,312 ft ²	2
		0.1 acres	
Total Pavement Area:		0 ft ²	(none)
		0.0 acres	
Total Disturbed Area:		11,632 ft ²	
		0.3 acres	
Construction Duration:		12 months	
Annual Construction Activity:		240 days	Assume 12 months, 4 weeks per month, 5 days per week.

Project Combustion
Estimated Emissions for the Proposed Action

Emission Factors Used for Construction Equipment

References: Guide to Air Quality Assessment, SMAQMD, 2004; and U.S. EPA NONROAD Emissions Model, Version 2005.0.0

Emission factors are taken from the NONROAD model and were provided to eM by Larry Landman of the Air Quality and Modeling Center (Landman.Larry@epamail.epa.gov) on 12/14/07. Factors provided are for the weighted average US fleet for CY2007.

Assumptions regarding the type and number of equipment are from SMAQMD Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Bulldozer	1	13.60	95.742%	5.50	1.02	0.89	0.87	1456.90
Motor Grader	1	9.69	0.73	3.20	0.80	0.66	0.64	1141.65
Water Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	3	41.64	2.58	15.71	0.83	2.55	2.47	4941.53

Paving

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Paver	1	3.83	0.37	2.06	0.28	0.35	0.34	401.93
Roller	1	4.82	0.44	2.51	0.37	0.43	0.42	536.07
Truck	2	36.71	1.79	14.01	3.27	1.99	1.93	4685.95
Total per 10 acres of activity	4	45.37	2.61	18.58	0.91	2.78	2.69	5623.96

Demolition

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Loader	1	13.45	0.99	5.58	0.95	0.93	0.90	1360.10
Haul Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Total per 10 acres of activity	2	31.81	1.89	12.58	0.64	1.92	1.87	3703.07

Building Construction

Equipment ^d	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c (lb/day)	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Stationary								
Generator Set	1	2.38	0.32	1.18	0.15	0.23	0.22	213.06
Industrial Saw	1	2.62	0.32	1.97	0.20	0.32	0.31	291.92
Welder	1	1.12	0.38	1.50	0.08	0.23	0.22	112.39
Mobile (non-road)								
Truck	1	18.36	0.89	7.00	1.64	1.00	0.97	2342.98
Forklift	1	5.34	0.56	3.33	0.40	0.55	0.54	572.24
Crane	1	9.57	0.66	2.39	0.65	0.50	0.49	931.93
Total per 10 acres of activity	6	39.40	3.13	17.38	3.12	2.93	2.74	4464.51

Note: Footnotes for tables are on following page

Project Combustion
Estimated Emissions for the Proposed Action

Architectural Coatings

Equipment	No. Reqd. ^a per 10 acres	NO _x (lb/day)	VOC ^b (lb/day)	CO (lb/day)	SO ₂ ^c	PM ₁₀ (lb/day)	PM _{2.5} (lb/day)	CO ₂ (lb/day)
Air Compressor	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77
Total per 10 acres of activity	1	3.57	0.37	1.57	0.25	0.31	0.30	359.77

- The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.
- The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC. The NONROAD model contains emissions factors for total HC and for VOC. The factors used here are the VOC factors.
- The NONROAD emission factors assume that the average fuel burned in nonroad trucks is 1100 ppm sulfur. Trucks that would be used for the Proposed Actions will all be fueled by highway grade diesel fuel which cannot exceed 500 ppm sulfur. These estimates therefore over-estimate SO₂ emissions by more than a factor of two.
- Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

Project Combustion
Estimated Emissions for the Proposed Action

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	Project-Specific Emission Factors (lb/day)						
		NO _x	VOC	CO	SO ₂ **	PM ₁₀	PM _{2.5}	CO ₂
Grading Equipment	1	41.641	2.577	15.710	0.833	2.546	2.469	4941.526
Paving Equipment	1	45.367	2.606	18.578	0.907	2.776	2.693	5623.957
Demolition Equipment	1	31.808	1.886	12.584	0.636	1.923	1.865	3703.074
Building Construction	1	39.396	3.130	17.382	3.116	2.829	2.744	4464.512
Air Compressor for Architectural Coating	1	3.574	0.373	1.565	0.251	0.309	0.300	359.773
Architectural Coating**			6.973					

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project.

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance" SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NO_x = (Total Grading NO_x per 10 acre)*(Equipment Multiplier)

Summary of Input Parameters

	Total Area (ft ²)	Total Area (acres)	Total Days	
Grading:	11,632	0.3	1	(from "Grading" worksheet)
Paving:	0	0.00	0	
Demolition:	4,312	0.10	5	
Building Construction:	7,320	0.17	240	
Architectural Coating:	7,320	0.17	20	(per SMAQMD "Air Quality of Thresholds of Significance", 1994)

NOTE: The 'Total Days' estimate for paving is calculated by dividing the total number of acres by 0.21 acres/day, which is a factor derived from the 2005 MEANS Heavy Construction Cost Data, 19th Edition, for 'Asphaltic Concrete Pavement, Lots and Driveways - 6" stone base', which provides an estimate of square feet paved per day. There is also an estimate for 'Plain Cement Concrete Pavement', however the estimate for asphalt is used because it is more conservative. The 'Total Days' estimate for demolition is calculated by dividing the total number of acres by 0.02 acres/day, which is a factor also derived from the 2005 MEANS reference. This is calculated by averaging the demolition estimates from 'Building Demolition - Small Buildings, Concrete', assuming a height of 30 feet for a two-story building; from 'Building Footings and Foundations Demolition - 6" Thick, Plain Concrete'; and from 'Demolish, Remove Pavement and Curb - Concrete to 6" thick, rod reinforced'. Paving is double-weighted since projects typically involve more paving demolition. The 'Total Days' estimate for building construction is assumed to be 230 days, unless project-specific data is known.

Total Project Emissions by Activity (lbs)

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Grading Equipment	41.64	2.58	15.71	0.83	2.55	2.47	4,942
Paving	-	-	-	-	-	-	0
Demolition	157.43	9.33	62.28	3.15	9.52	9.23	18,328
Building Construction	9,455.12	751.15	4,171.75	747.92	678.97	658.60	1,071,483
Architectural Coatings	71.48	146.92	31.31	5.02	6.19	6.00	7,195
Total Emissions (lbs):	9,725.67	909.99	4,281.06	756.93	697.22	676.30	1,101,948

Results: Total Project Annual Emission Rates

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
Total Project Emissions (lbs)	9,725.67	909.99	4,281.06	756.93	697.22	676.30	1,101,948
Total Project Emissions (tons)	4.86	0.45	2.14	0.38	0.35	0.34	550.97

Project Combustion
Estimated Emissions for the Proposed Action

Construction Fugitive Dust Emissions

Construction Fugitive Dust Emission Factors

	Emission Factor	Units	Source
Construction and Demolition Activities	0.19 ton	PM ₁₀ /acre-month	MRI 1996; EPA 2001; EPA 2006
New Road Construction	0.42 ton	PM ₁₀ /acre-month	MRI 1996; EPA 2001; EPA 2006

PM_{2.5} Emissions

PM _{2.5} Multiplier	0.10	(10% of PM ₁₀ emissions assumed to be PM _{2.5})	EPA 2001; EPA 2006
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Control Efficiency	0.50	(assume 50% control efficiency for PM ₁₀ and PM _{2.5} emissions)	EPA 2001; EPA 2006
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Project Assumptions

New Roadway Construction (0.42 ton PM₁₀/acre-month)

Duration of Construction Project	-	months
Area	0	acres

General Construction and Demolition Activities (0.19 ton PM₁₀/acre-month)

Duration of Project	12	months
Area	0.3	acres

	Project Emissions (tons/year)			
	PM ₁₀ uncontrolled	PM ₁₀ controlled	PM _{2.5} uncontrolled	PM _{2.5} controlled
New Roadway Construction	0.00	0.00	0.00	0.00
General Construction Activities	0.61	0.30	0.06	0.03
Total	0.61	0.30	0.06	0.03

*Project Fugitive
Estimated Emissions for the Proposed Action*

Construction Fugitive Dust Emission Factors

General Construction Activities Emission Factor

0.19 ton PM₁₀/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The area-based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM₁₀/acre-month for sites without large-scale cut/fill operations. A worst-case emission factor of 0.42 ton PM₁₀/acre-month was calculated for sites with active large-scale earth moving operations. The monthly emission factors are based on 168 work-hours per month (MRI 1996). A subsequent MRI Report in 1999, *Estimating Particulate Matter Emissions From Construction Operations*, calculated the 0.19 ton PM₁₀/acre-month emission factor by applying 25% of the large-scale earthmoving emission factor (0.42 ton PM₁₀/acre-month) and 75% of the average emission factor (0.11 ton PM₁₀/acre-month). The 0.19 ton PM₁₀/acre-month emission factor is referenced by the EPA for non-residential construction activities in recent procedures documents for the National Emission Inventory (EPA 2001; EPA 2006). The 0.19 ton PM₁₀/acre-month emission factor represents a refinement of EPA's original AP-42 area-based total suspended particulate (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the EPA, this methodology is also supported by the South Coast Air Quality Management District as well as the Western Regional Air Partnership (WRAP) which is funded by the EPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non-residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The EPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM₁₀ and PM_{2.5} in PM nonattainment areas.

New Road Construction Emission Factor

0.42 ton PM₁₀/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The emission factor for new road construction is based on the worst-case conditions emission factor from the MRI 1996 study described above (0.42 tons PM₁₀/acre-month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM₁₀/acre-month emission factor for road construction is referenced in recent procedures documents for the EPA National Emission Inventory (EPA 2001; EPA 2006).

PM_{2.5} Multiplier

0.10

PM_{2.5} emissions are estimated by applying a particle size multiplier of 0.10 to PM₁₀ emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (EPA 2006).

Control Efficiency for PM₁₀ and PM_{2.5}

0.50

The EPA National Emission Inventory documentation recommends a control efficiency of 50% for PM₁₀ and PM_{2.5} in PM nonattainment areas (EPA 2006). Wetting controls will be applied during project construction.

References:

- EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999*. EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.
- EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants*. Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.
- MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1)*. Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

Project Fugitive
Estimated Emissions for the Proposed Action

Grading Schedule

Estimate of time required to grade a specified area

Input Parameters

Construction area: 0.3 acres/yr (from Combustion Worksheet)
Qty Equipment: 3.0 (calculated based on 3 pieces of equipment for every 10 acres)

Assumptions

Terrain is mostly flat.

An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.

200 hp bulldozers are used for site clearing.

300 hp bulldozers are used for stripping, excavation, and backfill.

Vibratory drum rollers are used for compacting.

Stripping, Excavation, Backfill and Compaction require an average of two passes each.

Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area

Reference: Means Heavy Construction Cost Data, 19th Ed., R. S. Means, 2005.

Means Line No	Operation	Description	Output	Units	Acres per equip-day	equip-days per acre	Acres/yr (project- specific)	Equip-days per year
2230 200 0550	Site Clearing	Dozer & rake, medium brush	8	acre/day	8	0.13	0.27	0.03
2230 500 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	0.27	0.13
2315 432 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.13	0.13
2315 120 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.13	0.06
2315 310 5020	Compaction	Vibrating roller, 6" lifts, 3 passes	2,300	cu. yd/day	2.85	0.35	0.27	0.09
TOTAL								0.45

Calculation of days required for the indicated pieces of equipment to grade the designated acreage

(Equip)(day)/yr: 0.45
Qty Equipment: 3.00
Grading days/yr: 0.15

Project Grading
Estimated Emissions for the Proposed Action

Haul Truck Emissions

Emissions from hauling construction and demolition debris and fill material are estimated in this spreadsheet.
Emission Estimation Method: United States Air Force (USAF) Institute for Environment, Safety and Occupational Health Risk Analysis (IERA) Air Emissions Inventory Guidance Document for Mobile Sources at Air Force Installations (Revised December 2003).

Demolition Material Assumptions:

Haul trucks carry 20 cubic yards of material per trip.

The average distance from the project site to the base landfill is 10 miles, and from the project site to the offsite Cerro Colorado Landfill is 30 miles.

Assume 85% of demolition waste would go to the base landfill and 15% would be transported offsite. Therefore a haul truck will have a weighted average of 26 miles round trip.

Estimated number of trips required by haul trucks = total amount of material/20 cubic yards per truck

Amount of Construction and Demolition Waste =	713,065 pounds	As calculated in Infrastructure Section
Density of Waste =	150 lbs/ft ³	Assumes waste is density of concrete
Total volume of Waste =	176 cubic yards	
Number of trucks required =	9 heavy duty diesel haul truck trips	
Miles per trip =	26 miles	Weighted Average

Fill Materials Assumptions:

Haul trucks carry 20 cubic yards of material per trip.

The average distance from the project site to the materials source is 15 miles; therefore, a haul truck will travel 30 miles round trip.

Estimated number of trips required by haul trucks = total amount of material/20 cubic yards per truck

Amount of Fill Materials for New Fire Station=	2,711 cubic yards	Square footage of building multiplied by depth of disturbance, which is assumed to be 10 feet
Amount of Fill Materials for Existing Fire Station =	1,597 cubic yards	Square footage of building multiplied by depth of disturbance, which is assumed to be 10 feet
Number of trucks required =	215 heavy duty diesel haul truck trips	
Miles per trip =	30 miles	

Heavy Duty Diesel Vehicle (HDDV) Average Emission Factors (grams/mile)

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
HDDV	6.500	4.7000	19.10	0.512	7.7	2.01	1646

Notes:

Emission factors for all pollutants except CO₂ are from USAF IERA 2003.

Emission factors for PM, PM₁₀, SO₂ are from HDDV in Table 4-50 (USAF IERA 2003).

Emission factors for VOC, CO, and NO_x are from Tables 4-41 through 4-43 for the 2010 calendar year, 2000 model year (USAF IERA 2003).

Diesel fuel produces 22.384 pounds of CO₂ per gallon.

It is assumed that the average HDDV has a fuel economy of 6.17 miles per gallon, Table 4-51 (USAF IERA 2003).

CO₂ emission factor = 22.384 lbs CO₂/gallon diesel * gallon diesel/6.17 miles * 453.6 g/lb

HDDV Haul Truck Emissions

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
lbs	95.88	69.33	281.75	7.55	114.03	29.65	24274.51
tons	0.048	0.035	0.141	0.004	0.057	0.015	12.137

Example Calculation: NO_x emissions (lbs) = 60 miles per trip * 8787.5 trips * NO_x emission factor (g/mile) * lb/453.6 g

Haul Truck On-Road
Estimated Emissions for the Proposed Action

Construction Commuter Emissions

Emissions from construction workers commuting to the job site are estimated in this spreadsheet.

Emission Estimation Method: Emission factors from the South Coast Air Quality Management District (SCAQMD) EMFAC 2007 (v 2.3) Model (on-road) were used. These emission factors are available online at <http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>.

Assumptions:

Passenger vehicle emission factors for scenario year 2010 are used.

The average roundtrip commute for a construction worker = 50 miles
 Number of construction days = 240 days
 Number of construction workers (daily) = 20 people

Passenger Vehicle Emission Factors for Year 2010 (lbs/mile)

NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
0.00091814	0.00091399	0.00826276	0.00001077	0.00008698	0.00005478	1.09568235

Source: South Coast Air Quality Management District. EMFAC 2007 (ver 2.3) On-Road Emissions Factors. Last updated April 24, 2008. Available online; <<http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html>> Accessed 27 May 2009.

Notes:

The SCAQMD 2007 reference lists emission factors for reactive organic gas (ROG). For purposes of this worksheet ROG = VOC.

Construction Commuter Emissions

	NO _x	VOC	CO	SO ₂	PM ₁₀	PM _{2.5}	CO ₂
lbs	220.354	219.357	1983.062	2.586	20.875	13.148	262963.764
tons	0.110	0.110	0.992	0.0013	0.0104	0.0066	131.482

Example Calculation: NO_x emissions (lbs) = 50 miles/day * NO_x emission factor (lb/mile) * number of construction days * number of workers

Generator Kilowatts	Conversion from kW to Btu/hr	Engine Btu/hr (Assume 70% efficiency converting mechanical to electrical power)	Engine MMBtu/hr
150	3414.4	731,663	0.73

Diesel Industrial Engine Emission Factors from AP-42, Section 3.3	NO _x	CO	TOC	PM-10	SO ₂	CO ₂
	lb/MMBtu	lb/MMBtu	lb/MMBtu	lb/MMBtu	lb/MMBtu	lb/MMBtu
Emission Factor	4.41	0.95	0.36	0.31	0.29	164

Assume max. 500 hrs/yr operation

NO _x	CO	TOC	PM-10	SO ₂	CO ₂
(lbs/yr)	(lbs/yr)	(lbs/yr)	(lbs/yr)	(lbs/yr)	(lbs/yr)
1,613.32	347.54	131.70	113.41	106.09	59,996.34

NO _x	CO	TOC	PM-10	SO ₂	CO ₂
(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)	(tons/yr)
0.807	0.174	0.066	0.057	0.053	29.998

Source: USEPA 1996. AP-42. Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines. Table 3.3-1. Page 3.3-6.

*Emergency Generator
Estimated Emissions for the Proposed Action*

Albuquerque-Mid Rio Grande Intrastate (AMRGI) Air Quality Control Region (AQCR)

Row #	State	County	Point Source Emissions						Area Source Emissions (Non-Point and Mobile Sources)					
			CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC	CO	NO _x	PM ₁₀	PM _{2.5}	SO ₂	VOC
1	NM	Bernalillo Co	1,179	1,199	177	119	43.6	310	184,071	23,731	61,715	8,064	1,524	24,000
2	NM	Sandoval Co	346	186	94.5	92.6	0.4	62.4	39,031	4,519	36,517	4,274	603	4,517
3	NM	Valencia Co	153	296	1.24	1.07	0	27.1	20,566	6,847	38,871	4,125	448	2,734
Grand Total			1,678	1,681	273	213	44	400	243,668	35,097	137,103	16,463	2,575	31,251

SOURCE

<http://www.epa.gov/air/data/ceosel.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (2002)

AQCR Tier Report
Estimated Emissions for the Proposed Action

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