FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT
PREPARATION FOR AIR FORCE TEST MISSION IN THE 21st CENTURY: UPGRADE AND IMPROVE THE TEST CAPABILITY AT THE EDWARDS AFB TEST COMPLEX

EDWARDS AFB, CALIFORNIA

AGENCY: Department of the Air Force, Air Force Materiel Command (AFMC), Air Force Test Center, 412th Test Wing, 412th Civil Engineer Group, Edwards AFB, California.

BACKGROUND: The test mission at Edwards AFB, California is constantly changing, new test missions develop, last for months to years and then terminate. The underlying purpose and need for the project is to support the Air Force test mission at the Edwards AFB Test Complex by updating and enhancing the current test facilities, making optimum use of existing facilities (utilities and structures) in a cost efficient manner that is consistent with installation priorities while outlining zones of construction which can enhance test capabilities.

Pursuant to National Environmental Policy Act (NEPA), 32 Code of Federal Regulations 989, *Air Force Environmental Impact Analysis Process*, and other applicable regulations, Edwards AFB completed an environmental assessment of the potential environmental consequences of updating and developing new test mission capabilities. The attached Environmental Assessment (EA), incorporated here by reference, evaluated the effects of the three Alternatives and the No-action Alternative, and supports this Finding of No Significant Impact.

ALTERNATIVE 1: Includes development of all minimally-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base and South Base of the Edwards AFB Test Complex. This would include buildings likely ineligible for National Register of Historic Places (NRHP) listing and land within 500 feet of existing utilities. Development would not occur on land that has monitoring wells or contamination plumes.

ALTERNATIVE 2: Includes development of all moderately-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base and South Base of the Edwards AFB Test Complex. This would include buildings potentially eligible for NRHP listing and land potentially outside of utility buffers. Development could potentially require relocation of existing monitoring wells or remediation of ground contaminants.

ALTERNATIVE 3: Includes development of all substantially-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base and South Base of the Edwards AFB Test Complex. This would include buildings eligible for NRHP listing, land outside of utility buffers, and highly restricted areas such as land within the installation ammunition storage area and the surrounding explosive safety distance. Development would require relocation of existing monitoring wells or installation of vapor barriers or other mitigation for buildings constructed over known contamination plumes.

NO-ACTION ALTERNATIVE: Would involve continuation of existing ad hoc development methodology at Edwards AFB. New test mission facilities would continue to be considered on a case-by-case basis.

SUMMARY OF ENVIRONMENTAL EFFECTS FOR THE ALTERNATIVES:

Air Quality: The Alternatives considered are not expected to cause significant effects to Air Quality, primarily due to the fact that emissions resulting from the short-term actions are expected to be well below *de mimimis* threshold values. All calculations were based on conservative assumptions. Any emissions expected as a result of the Alternatives would be typical to construction activities; therefore, no unusual or unanticipated emissions would be expected.

Noise:
Construction Noise – The noise associated with the operation of machinery on construction sites is typically short-term, intermittent, and highly localized; therefore, would not accumulate over time and would last only as long as the duration of construction activities. The Alternatives considered would result in noise levels at the closest noise-sensitive receptors to be below the 75 "A-weighted" decibel noise level requisite to protect health and welfare with an adequate margin of safety and, therefore, would not cause significant effects.

Aircraft Noise – Development associated with all alternatives would result in industrial land uses, and since all land that lies within the 65-85+ decibel day-night average sound level noise contours is compatible with industrial use, there would be no significant impacts as a result of any of the alternatives. The proposed project is not expected to alter the number of test missions conducted at Edwards AFB or to alter the current flight patterns. New or updated facilities will be expected to allow for more efficient test programs.

Soils: Under all Alternatives, annual construction activities would disturb soil; however, impacts to soil erosion would be minimized below significant levels through the implementation of site-specific erosion control plans and best management practices (BMPs). Alternatives 2 and 3 would disturb a greater amount of soil than Alternative 1 due to necessary site work for installation of new utility lines and the potential need to remediate ground contaminates. Topography would not be expected to change significantly and there would be negligible to minimal change to the existing surface elevation gradient. No significant impacts to soils or topography would be expected as a result of the alternative actions.

Water Resources: The primary concerns associated with the alternatives include effects on water quality during development-related construction activities as well as impacts to designated floodplain areas. Under Alternatives 2 and 3, any contaminated groundwater encountered during construction, demolition, or renovation activities would be managed according to State and Federal regulations to ensure protection of water resources and human health. No significant impacts would be expected as a result of any of the Alternatives by implementing design features to minimize effects of flooding, following BMPs and Storm Water Pollution Prevention Plan (SWPPP), and managing groundwater according to State and Federal regulations.

Hazardous Materials and Wastes: Under all Alternatives, any hazardous substances, including soil, groundwater, asbestos-containing material, lead-based paint, polychlorinated biphenyls, and pesticides encountered during construction, demolition, or renovation would be managed according to State and Federal regulations. Therefore, there would be no significant impacts to or from hazardous materials or wastes, or Environmental Restoration Program (ERP) sites as a result of any of the alternatives.

Biological Resources: Due to the generally poor quality of the vegetation communities present, and the size of the project areas, impacts to base-wide vegetative resources under all alternatives are expected to be negligible. Because the existing vegetation within the proposed project areas is generally either maintained or altered, the loss of quality habitat for wildlife and the impacts to wildlife species diversity is expected to be minimal. None of the Alternatives would be expected to result in adverse impacts to protected wildlife species. No significant impacts are expected under any of the Alternatives.

Cultural Resources: Historic properties would not be affected under Alternative 1. Under Alternatives 2 and 3, historic properties could potentially be affected; therefore, consultation with the State Historic Preservation Officer (SHPO) under the Section 106 process would continue until a resolution of potential adverse effects is reached in a Memorandum of Agreement (MOA) or a Programmatic Agreement (PA).

Ground Safety and Occupational Health: All Alternatives would result in an increased exposure to health and safety hazards including motor vehicle operation and traffic; heavy equipment use; sprains, strains, and falls; hazardous materials; inclement weather conditions; and interaction with the local biota. Alternatives 2 and 3 would also result in an increased exposure to excavated soils within ERP contamination plumes and hazardous materials such as asbestos or lead-based paint in buildings. Additionally, Alternative 3 could potentially result in construction work within the explosive safety distance around the ammunition storage area. Through the use of BMPs; adherence to Federal, State, and Local and Occupational Safety and Health Administration (OSHA) regulations; and implementation of a site specific health and safety plan (SSHASP) with a journey management plan (JMP), the potential for injuries and accidents would be greatly reduced. Therefore, none of the Alternatives would be expected to result in significant impacts to ground safety or occupational health.

Utilities and Infrastructure: Under Alternative 1, existing utility lines would be used for construction and operation of new test cells. Under Alternatives 2 and 3, new utility lines would be constructed to support new test mission facilities. Under all Alternatives, connection to existing lines might result in a short-term disruption of service to nearby users, but would not be expected to result in a long-term reduction in supply. Increased erosion resulting from construction under all alternatives would be managed through implementation of a SWPPP and BMPs. Solid waste generated from the alternatives would be disposed of in accordance with the Integrated Solid Waste Management Plan (ISWMP), as well as all State and Federal regulations. Therefore, significant impacts to utilities are not expected.

Temporary increases in vehicular traffic would occur during construction activities associated with the three Alternatives; however, communication to installation residents and employees in

advance of activities, as well as detour signage, would minimize impacts such that they would not be significant.

Socioeconomic Resources: There are no significant effects expected to Socioeconomic Resources as a result of the considered Alternatives. The local economy would benefit from construction related expenditures. Constructing new test mission facilities in areas with constraints could cause unexpected financial burdens affecting the ability to fund other competing mission support activities. However, since there is sufficient space within the Alternative 1 footprint to accommodate the complete build out of Edwards AFB over a 10 year period, constructing new test mission facilities in Alternatives 2 and 3 areas could be avoided.

SUMMARY OF MITIGATION MEASURES AND BEST MANAGEMENT PRACTICES: Unless otherwise stated below, mitigation and BMPs are not recommended.

Air Quality: No mitigative actions would be recommended. BMPs could include watering to reduce fugitive dust, erosion measures, no-idling of equipment and delivery trucks, and the use of bio-diesel fuel in construction/transport vehicles.

Noise: No mitigation would be recommended. BMPs include equipping noise-generating heavy equipment at the project site with the manufacturer's standard noise control devices (i.e., mufflers, baffling and/or engine enclosures). Construction activities would occur between 0700 and 1900 hours and would be conducted according to OSHA regulations 29 CFR 1910. 95 and 29 CFR 1926. 52. Personnel present within hazardous noise areas as stated in Air Force OSHA Standard 48-20 should follow the applicable hearing protection measures.

Soils: BMPs would include the use of site-specific erosion control plans where no impervious surfaces exist to minimize surface soil runoff; the use of silt fences; covering of soil stockpiles; re-vegetation or covering with gravel base rock of disturbed areas in a timely manner; and wetting of soils to prevent fugitive dust and wind erosion.

Water Resources: BMPs to help minimize surface water quality impacts could include: good housekeeping practices; preventive maintenance programs; inspections; employee training; spill response procedures; berms or containment pallets; detention/retention ponds; and erosion control measures. Additionally, in order to avoid increased flood hazards, design features should be implemented to minimize flooding effects.

Biological Resources: BMPs could include: bat pre-surveys; requiring workers to receive desert tortoise and Mohave ground squirrel awareness briefings; checking all crevices and burrows for owls before construction; protecting any animal burrow found in close proximity to construction site; conduct preconstruction avian nest surveys; checking under parked vehicles for desert tortoise and other wildlife species; and keeping equipment and vehicles on established roads and parking areas.

Cultural Resources: Minimization measures could consist of an MOA or a PA depending on the scope of the realignment and/or the nature of the effects to historic properties

Ground Safety and Occupational Health: BMPs and adherence to Federal, State and Local regulations, OSHA regulations, and implementation of a SSHASP with a JMP would greatly reduce the potential for injuries and accidents.

Utilities and Infrastructure: A SWPPP would be developed prior to construction of test mission facilities to reduce impacts to storm water. In addition, a General Permit for Discharges of Storm Water Associated with Construction Activity would be obtained from the State Water Resources Control Board, and a Notice of Intent would be filed prior to construction.

SUMMARY OF FINDINGS FOR NO-ACTION ALTERNATIVE: Under the No-action Alternative, the facilities would not be co-located and established without consolidated guidance of land constraints (such as eligibility of existing facilities for listing on the NRHP and proximity of potential development locations to utilities or ERP sites). Each new test mission would be required to assess land constraints, thus duplicating efforts for each new mission. Status quo development would continue to occur on a case-by-case basis and would result in potential redundant expenditure of time and effort exerted to repeatedly analyze similar issues and test actions carried out without integrated coordination and appropriate review.

SUMMARY OF CUMULATIVE EFFECTS: The cumulative impact of implementing these actions along with other past, present, and reasonably foreseeable future projects at and around Edwards AFB were assessed in the attached EA and no significant cumulative impacts were identified.

SUMMARY OF PUBLIC REVIEW AND INTERAGENCY COORDINATION: Copies of the Draft EA were mailed to 20 agencies, 16 libraries, and the California State Clearinghouse. A Public Notice was published in the Antelope Valley Press on 14 February 2015. This began the 30-day public comment period. A second Public Notice was published in the same newspaper on 21 February 2015. The public comment period ended on 17 March 2015 and no comments were received.

FINDING OF NO SIGNIFICANT IMPACT:
Based upon my review of the attached EA, I conclude that none of the Alternatives would have a significant direct, indirect or cumulative impact upon the environment. Accordingly, the requirements of the NEPA, regulations promulgated by the President's Council on Environmental Quality, and 32 CFR Part 989 are fulfilled and an Environmental Impact Statement is not required at this time.

James E. Judkins

JAMES E. JUDKINS, NH-IV
Base Civil Engineer

1 Apr 15
Date

Environmental Assessment
Preparation for Air Force Test Mission in the 21st Century:
Upgrade and Improve the Test Capability at the Edwards Air Force Base California Test Complex

Edwards Air Force Base, California

United States Air Force
Air Force Materiel Command
412 Civil Engineer Group
Edwards Air Force Base, California

April 2015

Cover Sheet

Cover Sheet

Responsible Agency: Department of the Air Force, Air Force Materiel Command (AFMC), 412 Civil Engineer Group, Edwards Air Force Base (AFB), California (CA).

Proposed Action: Support the Air Force test mission at the Edwards AFB Test Complex by updating and enhancing the current test facilities.

Point of Contact: Air Force Civil Engineer Center: Mr. Mike Ackerman, 3515 S. General McMullen, San Antonio, TX 78226-9853. 210-925-2741; and Edwards AFB: Danny C. Reinke, 412 CEG/CEV, 12 Laboratory Road, Building 4231, Edwards AFB, CA 93524, 661-277-9133.

Report Designation: Environmental Assessment (EA)

Abstract: The test mission at Edwards AFB is constantly changing, new test missions develop, last for months to years and then terminate. The underlying purpose and need for the project is to support various Air Force test missions at the Edwards AFB Test Complex by updating and enhancing the current test facilities, making optimum use of existing facilities (utilities and structures) in a cost efficient manner that is consistent with Base priorities while delineating zones of construction which can enhance test capabilities. This EA provides the baseline environmental analysis of facilities, restrictions, and utilities within the developed portions of the Base in anticipation of future test mission requirements. Three action alternatives were considered to update and develop new test mission capabilities at the Edwards AFB Test Complex. The alternatives provide a range of development scenarios while considering standard mission requirements for new test missions, and varying levels of land use constraints.

Alternative 1 includes development of all unconstrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. This would include buildings ineligible for National Register of Historic Places (NRHP) listing and land within 500 feet of existing utilities. Development would not occur on land that has monitoring wells or contamination plumes.

Alternative 2 includes development of all moderately-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. This would include buildings potentially eligible for NRHP listing and land potentially outside of utility buffers. Development could potentially require relocation of existing monitoring wells or remediation of ground contaminants.

Alternative 3 includes development of all substantially-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. This would include buildings eligible for NRHP listing, land outside of utility buffers, and highly restricted areas such as land within the installation ammunition storage area and the surrounding explosive safety distance. Development would require relocation of existing monitoring wells or installation of

vapor barriers or other mitigation for buildings constructed over known contamination plumes.

The following resources were identified for study in this EA: Air Quality (to include climate change); Noise; Soils, Water Resources, Hazardous Materials and Wastes; Biological Resources; Cultural Resources; Ground Safety and Occupational Health; Utilities and Infrastructure; and Socioeconomic Resources.

Privacy Advisory Notice

Letters or other written comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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Acronyms and Abbreviations

ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter of air
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
AFB	Air Force Base
AFFTCI	Air Force Flight Test Center Instruction
AFI	Air Force Instruction
AFR	Air Force Regulation
AFRL	Air Force Research Laboratory
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
amsl	above mean sea level
AO	Action Area
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
AVEK	Antelope Valley East Kern
BHPO	Base Historic Preservation Officer
BMPs	best management practices
CAAA	Clean Air Act Amendments of 1990
CAAQS	California Ambient Air Quality Standards
Cal-EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2eq}	CO_2 equivalent
CWA	Clean Water Act
dB	decibels
dBA	"A-weighted" decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DTSC	Department of Toxic Substances Control
ECAMP	Environmental Compliance Assessment and Management Program
EIAP	Environmental Impact Analysis Process
EKCAPCD	Eastern Kern County Air Pollution Control District
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FFCA	Federal Facility Compliance Act of 1992
ft	feet

ACRONYMS AND ABBREVIATIONS (CONTINUED)

FY	Fiscal Year
GHGs	Greenhouse Gases
GWP	global warming potential
HFCs	hydrofluorocarbons
HMMP	Hazardous Material Management Program
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resources Management Plan
ISWM	Integrated Solid Waste Management
JMP	Journey Management Plan
LBP	lead-based paint
MBAL	Main Base Active Landfill
MBTA	Migratory Bird Treaty Act
MOA	Memorandum of Agreement
MR_NMAP	Military Operating Area and Range Noise Model
MSW	municipal solid waste
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NDMA	N-Nitrosodimethylamine
NEPA	National Environmental Policy Act
N_2O	nitrous oxide
NO_2	nitrogen dioxide
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
OSHA `	Occupational Safety and Health Administration
OU	Operable Unit
PA	Programmatic Agreement
PCB	polychlorinated biphenyls
PFCs	perfluorocarbons
$PM_{2.5}$	particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter
PM_{10}	particulate matter equal to or less than 10 micrometers in aerodynamic diameter
PPE	Personal Protection Equipment
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
RNM	Rotorcraft Noise Model
ROD	Records of Decision

ACRONYMS AND ABBREVIATIONS (CONTINUED)

RWQCB	Regional Water Quality Control Board
SEL	Sound Exposure Level
SF_6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
SOP	Standard Operating Procedure
SPL	sound pressure level
SR	State Route
SSHASP	site specific health and safety plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
tpy	tons per year
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UXO	unexploded ordnance
VOCs	volatile organic compounds

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Chapter 1

Purpose of and Need for Action

CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

1.1 PURPOSE AND NEED

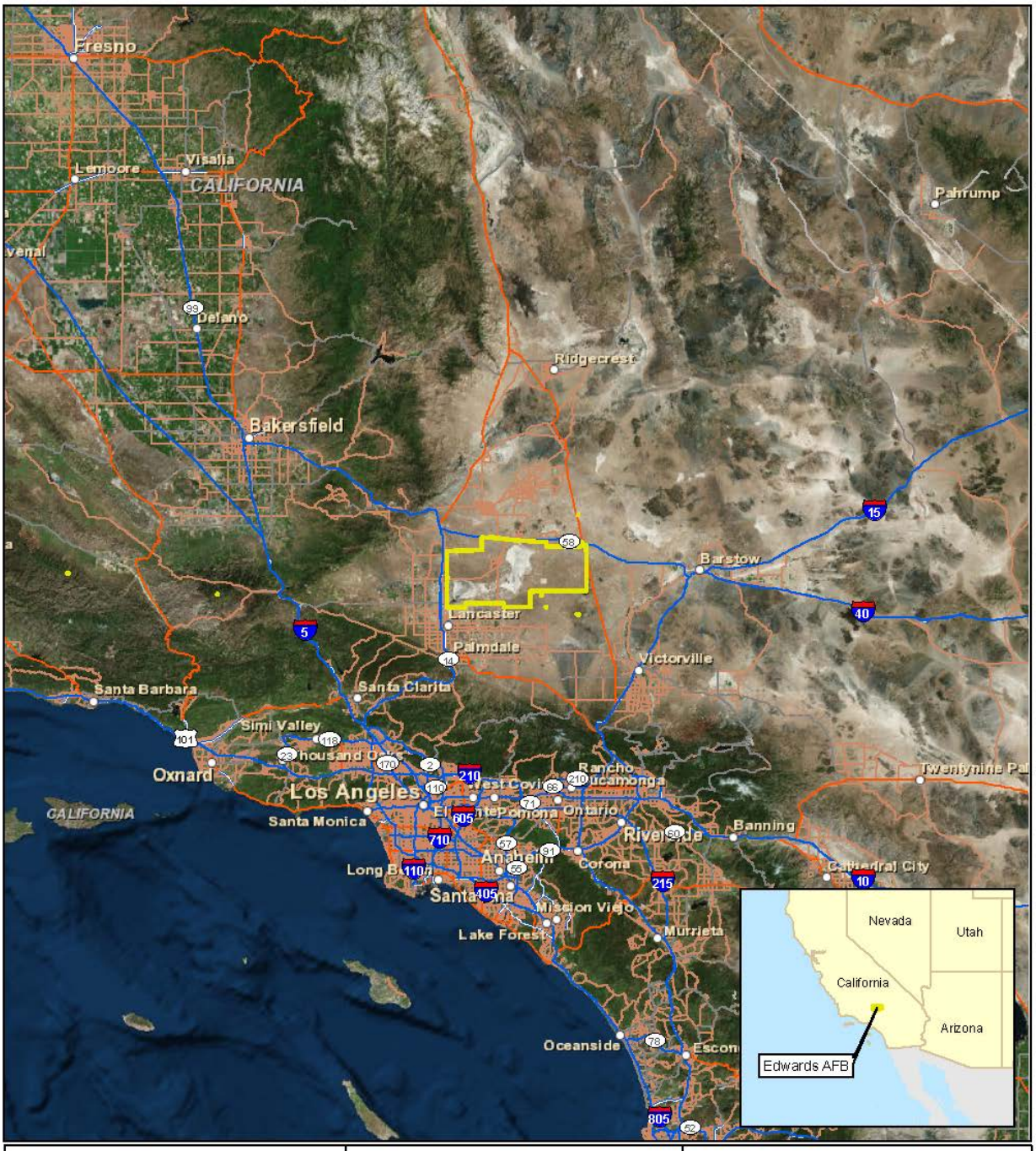
The underlying purpose and need for the Alternatives is to support the Air Force test mission at the Edwards Air Force Base (AFB) Test Complex by updating and enhancing current test facilities. The test facilities are used to support various test missions that plan, conduct, analyze, and report on all flight and ground testing of aircraft, weapons systems, software and components as well as modeling and simulation for the U.S. Air Force. Facility needs at Edwards AFB are constantly changing as new test missions develop. These missions can last for months to years and then terminate; with the facilities being used to support the next test mission. Test missions are individually funded by the specific test mission client and can be conducted concurrently with other test missions. Prior to establishment at the base, new test mission clients identify suitable facilities on a case-by-case basis. The facilities are not typically co-located and are established without consolidated guidance of land constraints.

Edwards AFB is developing this EA to document the environmental analysis of similar actions by zones associated with enhancement and the additional test capabilities that are anticipated to be needed to support future test missions. The updating and enhancement of test facilities at the Edwards AFB Test Complex should make optimum use of existing facilities (utilities and structures) in a cost efficient manner that is consistent with Base priorities while delineating zones of construction which can enhance test capabilities. The goal of the Test Complex is to meet Edwards AFB's changing test mission requirements, and to do so in a fiscally sound manner. This approach will prevent duplication of effort for each new test mission (per Title 32 Code of Federal Regulations [CFR] 989.10), while providing advance information for environmental planning. This EA provides the baseline environmental analysis of facilities within the developed portions of the Base that are anticipated to be needed to support required future test mission requirements.

1.2 PROJECT LOCATION

Edwards AFB is located in the Antelope Valley region of the western Mojave Desert in Southern California, about 60 miles northeast of Los Angeles, California. The base lies within Kern, Los Angeles, and San Bernardino counties. Edwards AFB occupies an area of approximately 307,517 acres of 482 square miles (See Figure 1-1).

The proposed actions include areas on North Base, Main Base and South Base that lie within 2,500 feet of existing runways and taxiways. This area is known as the Action Area (AO). The AO is immediately adjacent to Rogers Dry lakebed, the northern portions of which are a National Historic Landmark.



Legend
- Edwards Air Force Base
- Roads
- Major Road
- Interstate

N

0 30 60
Miles

Figure 1-1

Site Location Map

Edwards Air Force Base
California

1.3 SCOPE OF THE ENVIRONMENTAL REVIEW

The National Environmental Policy Act (NEPA) requires Federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The Air Force NEPA process is accomplished through adherence to the procedures set forth in CEQ regulations (40 CFR Sections 1500-1508), Department of Defense (DoD) Instruction 4715.9 *Environmental Planning and Analysis*, and 32 CFR Part 989 (Environmental Impact Analysis Process [EIAP]), 15 July 1999, as amended. These Federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

Through Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), requests have been made for information on planned actions in the surrounding community. Federal, state, and local agencies with jurisdiction that could be affected by the alternative actions and No-action Alternative will be notified and consulted. A complete listing of the agencies consulted may be found in Chapter 5. Additionally, Appendix A contains the Notice of Availability published in the Antelope Valley Press, a listing of newspapers receiving a copy of the EA for Public Review, IICEP correspondence, and public responses/comments on the EA. This coordination fulfills the Interagency Coordination Act and Executive Order (EO) 12372 *Intergovernmental Review of Federal Programs* (14 July 1982), which requires Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal.

1.3.1 Resource Areas Discussed

Resource areas that could be affected by the alternatives or the No-action Alternative have been selected to allow for a comprehensive analysis of potential impacts. The intent of this EA is to meet the NEPA requirements established in the Air Force's 32 CFR 989, *Environmental Impact Analysis Process*. The following resource areas are discussed in detail in the EA:

- Air Quality
- Noise
- Soils
- Water Resources
- Hazardous Materials and Waste
- Biological Resources
- Cultural Resources
- Ground Safety and Occupational Health
- Utilities and Infrastructure
- Socioeconomic Resources

1.3.2 Resource Topics Not Discussed Further

As part of the analysis process, all resource areas that have the potential to impact or be impacted by the alternatives are considered during the preliminary assessment phase of the analysis. However, some resource areas are not expected to be impacted by any of the alternatives and are thus eliminated from further analysis in the EA. The alternative actions would not involve aircraft or airspace. Although a total annual build out under

any alternative would involve a base population increase, these impacts have previously been assessed in the 2014 EA for the Routine and Recurring Realignment of Units and Personnel at Edwards Air Force Base, California. Therefore, population changes, and associated changes in housing and education are not discussed further. Land use in the AO is currently classified as light industrial and future land use associated with the alternative actions would be classified as light industrial; therefore, there would be no change to land use classifications. Construction, demolition, and renovation of facilities would impact surficial soils (discussed in Section 3.3), but construction would not extend to the underlying geology. Additionally, the actions would not be expected to result in impacts to seismicity since the actions would be limited to facility replacement and light construction only. All impacts resulting from the alternative actions would be expected to be limited to within the base boundaries (primarily in the buffer zone) and any new construction would maintain the existing visual character of the AO. Since no Environmental Justice communities (minority or low-income populations) are present in the AO, and all impacts would be limited to the base, there would not be any disproportionate and adverse impacts to Environmental Justice populations. As a result of the above, the resource topics eliminated include:

- Flight safety, aircraft operations, and airspace management
- Land Use
- Geology and Seismicity
- Population, Education, and Housing as they relate to Socioeconomics
- Recreation and visual resources
- Environmental Justice

Chapter 2

Description of the Preferred Action and Alternatives

CHAPTER 2
DESCRIPTION OF THE PREFERRED ACTION AND ALTERNATIVES

2.1 HISTORY OF THE FORMULATION OF ALTERNATIVES

In 2008, the *Routine and Recurring Small Transient and New Small Missions EA* was prepared by the US Air Force to assess impacts from adding 25 aircraft and 1,500 military, government, civilian, and contractor personnel at Edwards AFB, as well as 2,000 annual sorties within the R-2508 Complex. The purpose of that project was to provide a realistic test environment for an Air Force flight test squadron and the associated contingent of military and civilian personnel that would be required to maintain and test aircraft and associated weapon systems. Four alternatives of varying construction levels were assessed and no significant impacts were identified. Impacts from these new small missions are expected to be similar to those described in this EA for new test missions; therefore, the *Routine and Recurring Small Transient and New Small Missions EA* is being incorporated by reference into this analysis.

In order to support changing test mission requirements at Edwards AFB, new alternatives were developed using criteria that supports mission critical functions of all new test missions. Due to each mission's use of aircraft, the test mission support facilities must be located near or around existing runways and taxiways. Additionally, support facilities for each new mission would be co-located in order to operate more efficiently and minimize unnecessary movement between facilities.

Land that is near existing runways and taxiways (i.e. within 2,500 feet) was further classified by additional constraints including existing facility National Register of Historic Places (NRHP) eligibility, proximity to existing utilities, presence/absence of environmental restoration program (ERP) contamination plumes, and proximity to highly restricted areas such as the installation ammunition storage area and its associated explosive safety distance constraints.

Enhancement of facilities to support new test missions may include demolition or renovation of existing facilities to accommodate new construction. Ideally, facilities that are determined eligible or potentially eligible for listing on the NRHP would be avoided; however, it is possible that these facilities could be modified or demolished after appropriate Section 106 consultation with the Advisory Council on Historic Preservation. Therefore, the alternatives described in Section 2.3 provide a range of scenarios involving buildings ineligible for listing, potentially eligible for listing, and eligible for listing on the NRHP.

Each new test mission would utilize on-base utilities; therefore, the proposed facilities would ideally be located near existing utility lines. However, it is possible that construction of new test mission facilities could also involve construction of some or all new utility lines. The alternatives described in Section 2.3 provide a range of utility construction scenarios for new test missions.

The ERP at Edwards AFB is extensive and multiple contamination plumes and monitoring wells are located within the 2,500 foot runway and taxiway buffer used to generate the alternatives. Preferably, the establishment of new test mission facilities would avoid contamination plumes and monitoring wells; however, the alternatives described in Section 2.3 provide a range of scenarios including avoidance, relocation of wells, and management of underlying contamination.

The installation ammunition storage area and associated explosive safety distance is not an ideal location for siting a new test mission; however, the site could ultimately be cleared of ammunition and utilized for development. This development scenario is exhibited in Alternative 3 below.

2.2 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The entire footprint of Edwards AFB was considered for siting new test missions; however, since new aircraft test missions must have access to runways and support facilities, all land not located within 2,500 feet of existing runways and taxiways was excluded from further consideration.

2.3 DETAILED DESCRIPTION OF THE ALTERNATIVE ACTIONS

Three action alternatives were considered to update and develop new test mission capabilities at the Edwards AFB Test Complex. The alternatives provide a range of development scenarios while considering standard mission requirements for new test missions, and varying levels of land use constraints. There have been no resources committed or decisions made that would prejudice the selection of the alternatives. Additionally, these alternatives are in compliance with all applicable federal, state, and local laws and regulations. Figure 2-1 displays the areas proposed for development under the three action alternatives. For purposes of analysis, it was assumed that in any given year, no more than three hangars, three office buildings, and three parking lots would be constructed, for a total of approximately 1.2 million square feet. Additionally, it was assumed that refurbishment of any existing facilities would be limited to those equal to or larger than 1,500 square feet. Note that a total yearly build out under any alternative scenario would involve a base population increase; however, any impacts from this population increase have been assessed under the 2014 EA for the Routine and Recurring Realignment of Units and Personnel at Edwards Air Force Base, California. The analysis of maximum build out over the life of this project (i.e. 10 years) is discussed within the cumulative impacts section of this NEPA analysis.

2.3.1 Alternative 1 – Minimal Constraints

Alternative 1 would include development of all unconstrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. This would include buildings likely ineligible for NRHP listing and land within 500 feet of existing utilities. Development would not occur on land that has monitoring wells or contamination plumes. Figure 2-2 displays the areas proposed for development under Alternative 1.

2.3.2 Alternative 2 –Moderate Constraints

Alternative 2 would include development of all moderately-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. This would include buildings potentially eligible for NRHP listing and land potentially outside of utility buffers. Development could potentially require relocation of existing monitoring wells or remediation of ground contaminants. Figure 2-3 displays the areas proposed for development under Alternative 2.

2.3.3 Alternative 3 –Substantial Constraints

Alternative 3 would include development of all substantially-constrained areas within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. This would include buildings eligible for NRHP listing, land outside of utility buffers, and highly restricted areas such as land within the installation ammunition storage area and the surrounding explosive safety distance. Development would require relocation of existing monitoring wells or installation of vapor barriers or other mitigation for buildings constructed over known contamination plumes. Figure 2-4 displays the areas proposed for development under Alternative 3.

2.3.4 No-action Alternative

The No-action Alternative would involve continuation of existing ad hoc development methodology at Edwards AFB. New test mission facilities would continue to be considered on a case-by-case basis. The facilities might not be co-located and would be established without consolidated guidance of land constraints (such as eligibility of existing facilities for listing on the NRHP and proximity of potential development locations to utilities or ERP sites). Each new test mission would be required to assess land constraints, thus duplicating efforts for each new mission. Status quo development would continue to occur on a case-by-case basis and would result in potential redundant expenditure of time and effort exerted to repeatedly analyze similar issues and test actions carried out without integrated coordination and appropriate review.

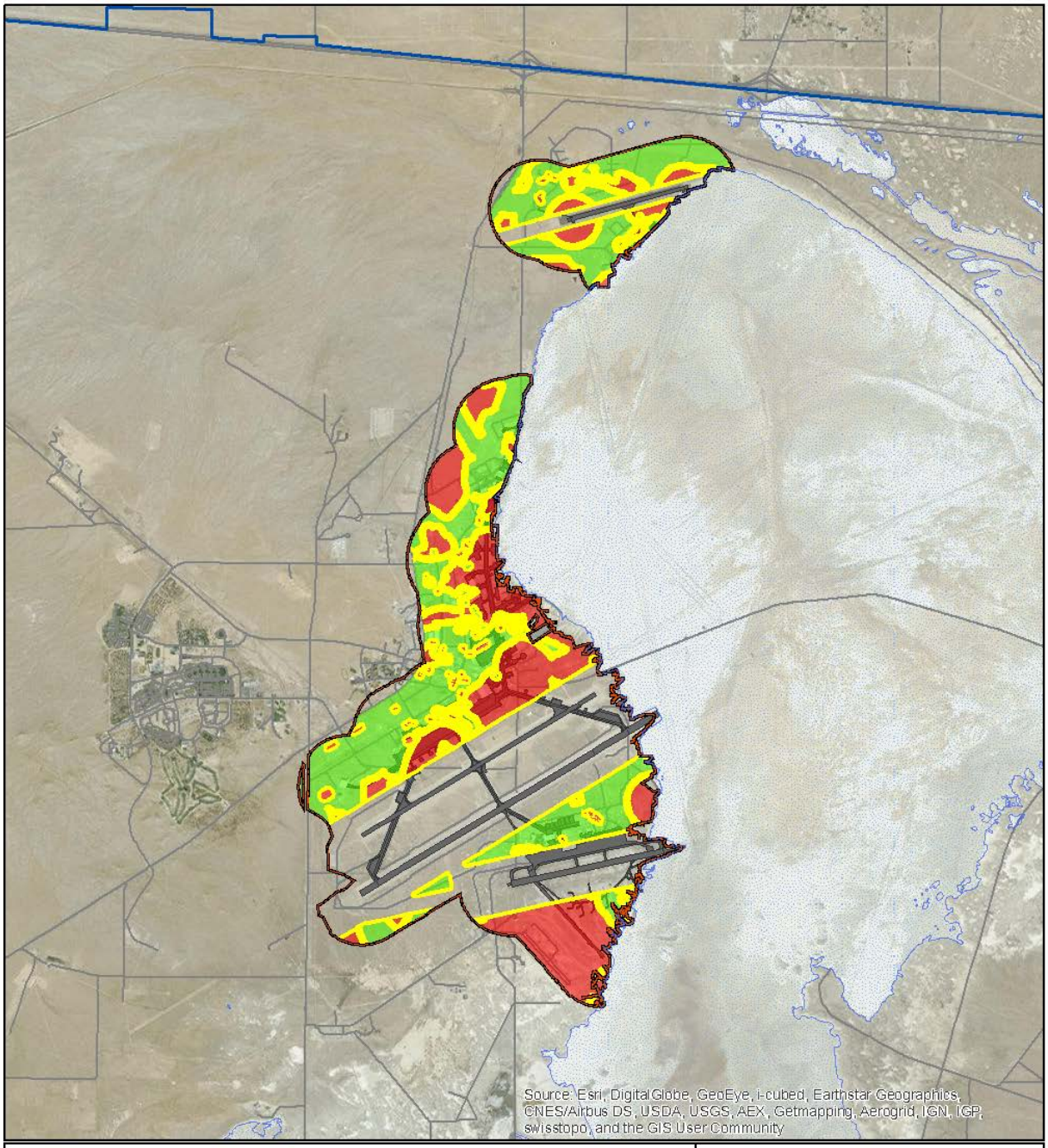
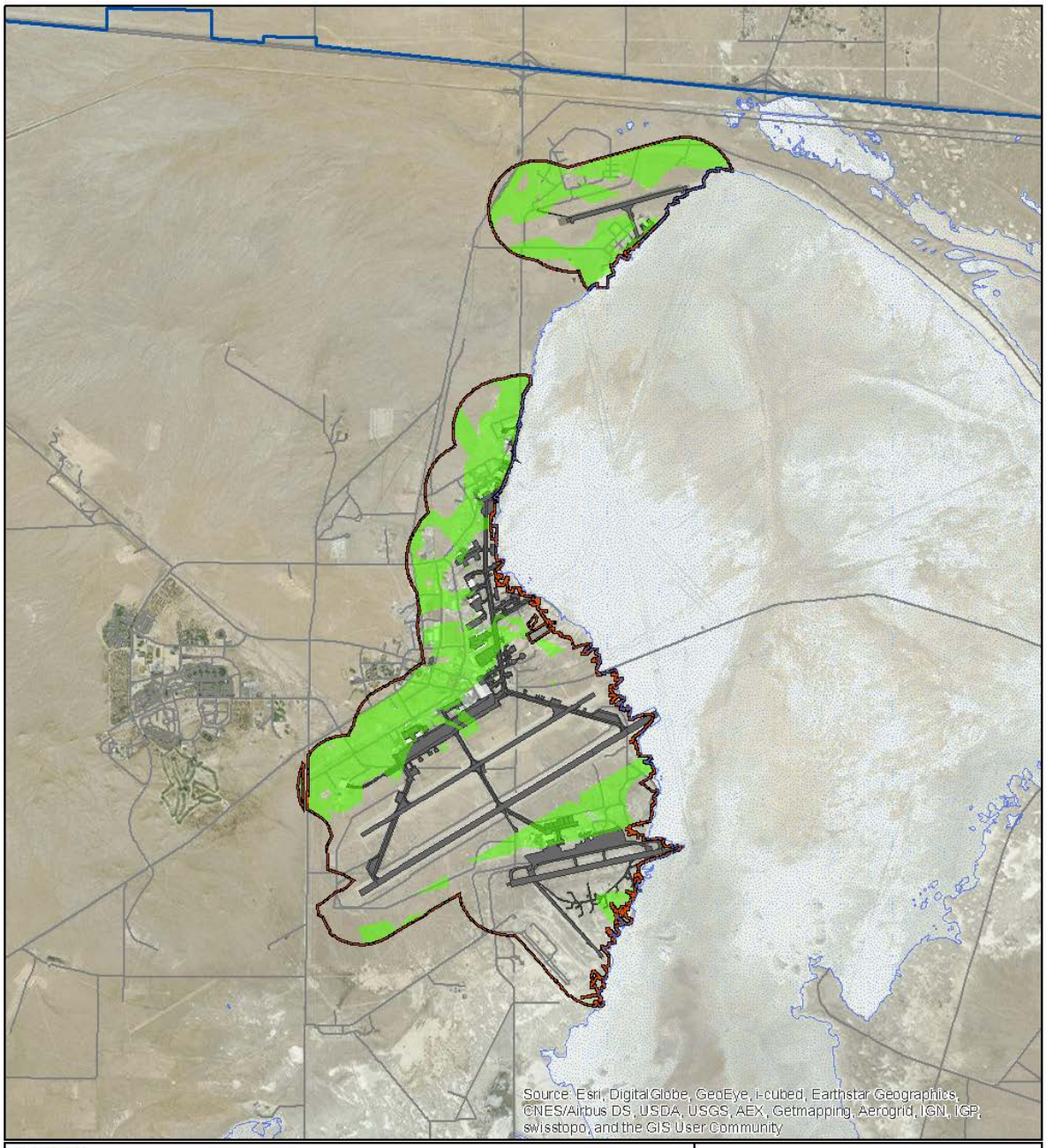


Figure 2-1

Alternatives Summary

Edwards Air Force Base
Edwards, California



Legend

- Edwards Air Force Base
- Airfield Buffer (2,500ft)
- Airfield Surface
- Rogers Dry Lake
- Alternative 1
- Roads

Note: Figure is current as of January 2015 and is subject to change

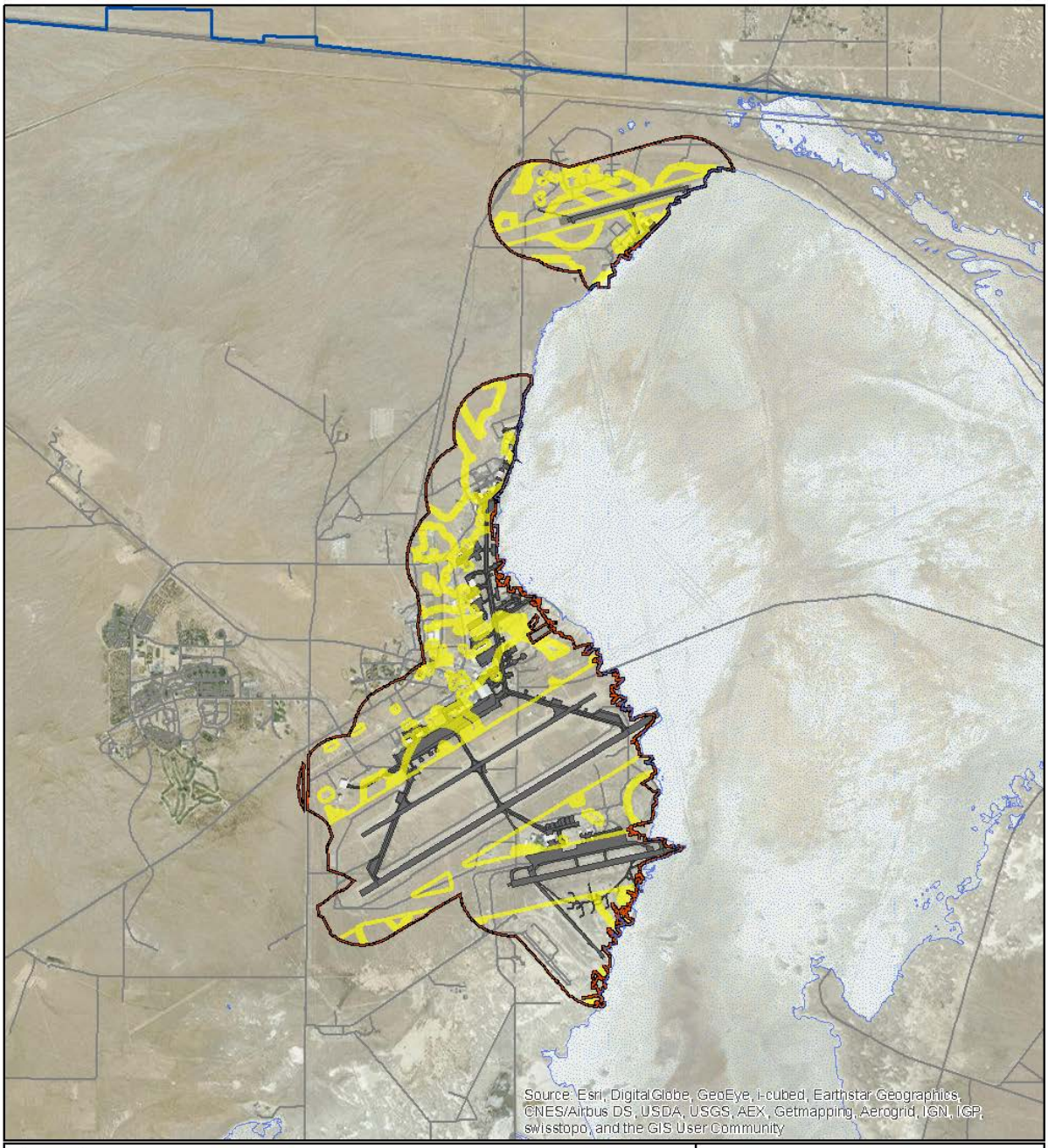
N W E S

0 0.375 0.75 1.5 Miles

Figure 2-2

Alternative 1

Edwards Air Force Base
Edwards, California



Legend

- Edwards Air Force Base
- Airfield Buffer (2,500ft)
- Airfield Surface
- Rogers Dry Lake
- Alternative 2
- Roads

Note: Figure is current as of January 2015 and is subject to change

N W E S

0 0.375 0.75 1.5 Miles

Figure 2-3

Alternative 2

Edwards Air Force Base
Edwards, California

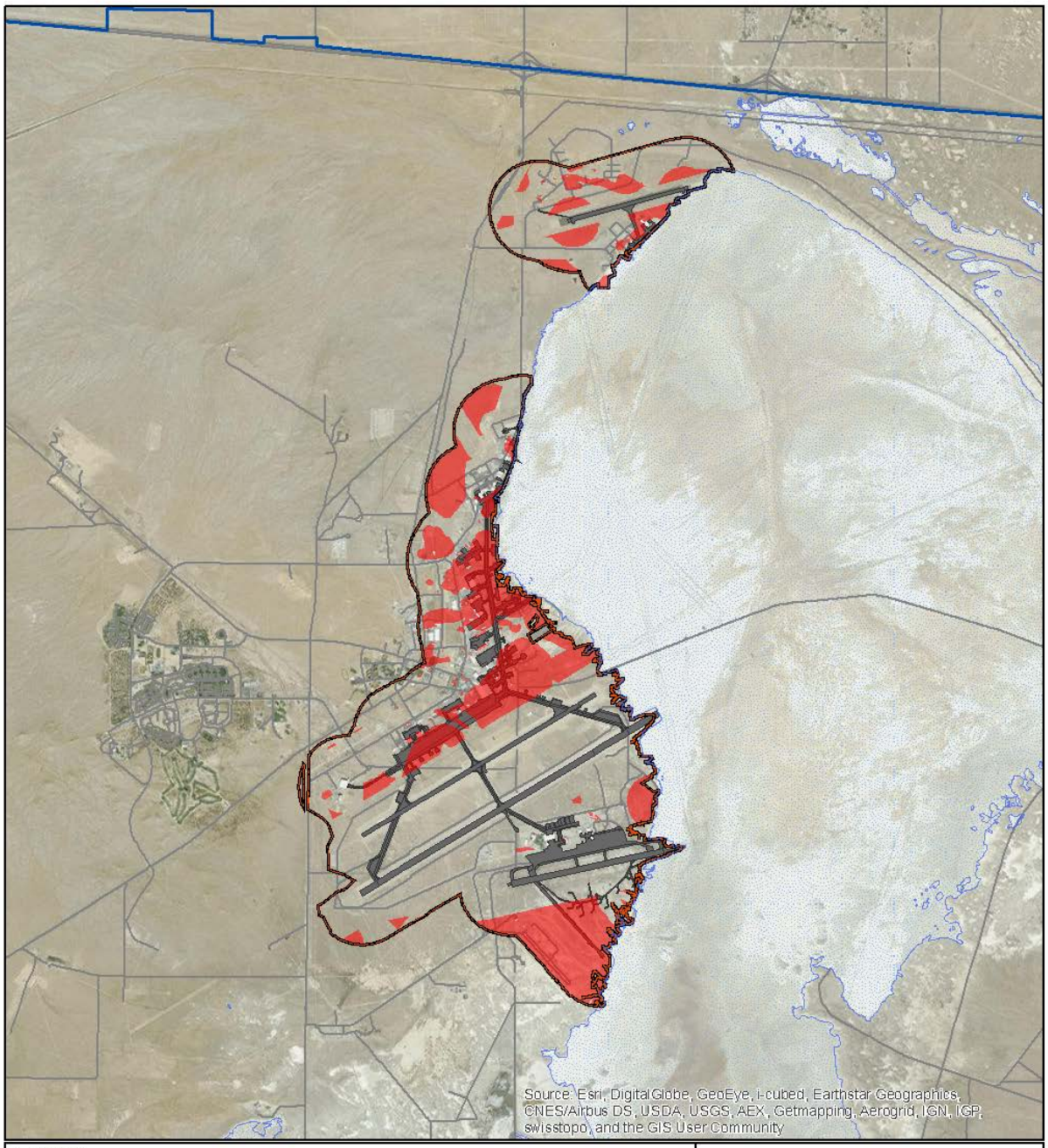


Figure 2-4

Alternative 3

Edwards Air Force Base
Edwards, California

2.4 OTHER ACTIONS ANNOUNCED FOR EDWARDS AFB AND SURROUNDING COMMUNITY

This EA also considers the direct and indirect effects of cumulative impacts (40 CFR 1508.7) and concurrent actions (40 CFR 1508.25[1]). A cumulative impact, as defined by the CEQ (40 CFR 1508.7), is the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of which agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Several projects were identified within Edwards AFB and the surrounding area that could occur during the same time period as the alternatives or in the reasonably foreseeable future. Most of the projects are located more than 15 miles from the installation and due to this distance, would not be expected to contribute to cumulative effects from the alternative actions. This EA will focus on the nearest projects to the installation and include the following:

- Caltrans Kramer Junction Project – The Caltrans Kramer Junction Project consists of the realignment and widening of a 13 mile section of SR-58 near Kramer Junction. The final EIS for this project was approved in 2014.
- California High Speed Rail Project – This project consists of the construction of the California High Speed Rail Project segment from Palmdale to Bakersfield.
- Utility Corridor 3 on Edwards AFB – Utility Corridor 3 may be developed in the future. The utility corridor would run north to south along the westernmost edge of Edwards AFB.
- Utility Corridor 9 on Edwards AFB – Utility Corridor 9 may be developed in the future. The utility corridor would run east to west along the northern edge of Edwards AFB.
- Complete annual build out at Edwards AFB (approximately 3, 10-acre sites of annual construction/renovation) for 10 years to support new test missions.

2.5 COMPARISON OF ENVIRONMENTAL EFFECTS OF ALL ALTERNATIVES

Table 2-1 summarizes the impacts of the alternative actions and the No-action Alternative. This table provides a comparison of the effects of the alternatives to assist in the decision-making process.

2.6 MITIGATION MEASURES

Analysis of environmental impacts has determined that no mitigation measures would be necessary to prevent significant adverse effects. However, best management practices (BMPs) are proposed to help minimize impacts. Table 2-2 presents a summary of these mitigation measures and BMPs proposed under the alternative actions and the No-action Alternative.

Table 2-1 Summary of Environmental Impacts

Resource	Alternative 1	Alternative 2	Alternative 3	No-action Alternative
Air Quality	▪ Short-term emissions during construction, demolition and/or renovation of facilities. ▪ No long-term increase in air emissions would be expected.	▪ Annual short- and long-term emissions would be the same as Alternative 1.	▪ Annual short- and long-term emissions would be the same as Alternative 1.	▪ Annual short-term emissions would be the same as Alternative 1.
Noise	▪ Short-term increase in noise levels from site preparation and construction. ▪ Noise sensitive receptors could experience peak indoor noise levels of 59 "A-weighted" decibels (dBA) or less.	▪ Short term increase in noise levels from site preparation and construction. ▪ Noise sensitive receptors, the library and chapel, could experience peak indoor noise levels around 73 dBA and 61 dBA or less, respectively.	▪ Short term increase in noise levels from site preparation and construction. ▪ Noise sensitive receptors could experience peak indoor noise levels around 61 dBA.	▪ Since construction noise is already a component of the existing noise environment, there would be no impact to baseline conditions. ▪ Any construction associated with status quo development would be compatible with permissible land uses; therefore, there would be no significant impacts as a result of the No-action Alternative.
Soils	▪ Annually, up to 30 acres of soil would be disturbed to accommodate new construction. ▪ It is expected that by implementing BMPs, no long-term soil erosion would result.	▪ Impacts would be similar to those described for Alternative 1, except that potentially contaminated soils might be impacted as a result of development. ▪ Soil or groundwater remediation may be warranted where construction occurs over known contamination areas. ▪ Additional disturbed soil would also result since some extra utility lines would be installed to support a portion of the new facilities.	▪ Impacts would be similar to those described for Alternative 2, except that additional soil would be disturbed due to installation of new utility lines to support all new facilities and contaminated soils would be expected to be impacted as a result of development.	▪ Construction activities occurring in areas of soil or groundwater contamination may require remediation of underlying soils.
Water Resources	▪ Grading, or other ground disturbing activities, as well as improperly managed hazardous materials or wastes could potentially affect surface water quality through storm water runoff. ▪ The addition of 30 acres of impervious surface to the existing 2,631.91 acres would result in an increase in annual installation stormwater runoff of approximately one percent. ▪ It is unlikely that development activities would encounter contaminated groundwater since the footprint of the alternative does not include areas of known groundwater contamination.	▪ Impacts would be similar as those described for Alternative 1; however, Alternative 2 may potentially necessitate the relocation of monitoring wells and remediation of existing groundwater contamination.	▪ Impacts would be similar as those described for Alternatives 1 and 2.	▪ Impacts associated with the No-action Alternative would be similar to those associated with the action alternatives except that each new facility would continue to be considered on a case-by-case basis rather than a consolidated development approach. ▪ Increases in stormwater runoff would vary based upon the amount of construction occurring in any given year; however, the increases are not expected to exceed those described for Alternative 1.

Table 2-1 Summary of Environmental Impacts (Continued)

Resource	Alternative 1	Alternative 2	Alternative 3	No-action Alternative
Hazardous Materials and Waste	▪ No significant adverse impacts related to hazardous materials and waste would be expected under the Alternative 1. ▪ It is unlikely that development activities under Alternative 1 would encounter contaminated soil and groundwater since the footprint of the alternative does not include areas of known groundwater and soil contamination. ▪ Any ACM, LBP, and PCBs encountered during construction, demolition, or renovation would be managed according to state and federal regulations.	▪ There would be no long-term change in the existing hazardous waste stream or hazardous waste management as a result of the development activities. ▪ There would be a potential short-term increase in the hazardous waste stream due to development of moderately-constrained areas. ▪ Any hazardous substances, including soil and groundwater encountered during construction, demolition, or renovation would be managed according to state and federal regulations.	▪ Hazardous materials and waste impacts would be similar to that described for Alternative 2. ▪ There would be a short-term increase in the hazardous waste stream due to development of substantially-constrained areas necessitating the relocation of monitoring wells and remediation of groundwater contamination.	▪ Construction activities occurring in areas of soil or groundwater contamination may require remediation of underlying soils. ▪ Impacts to asbestos containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyls (PCBs) would be the same as those described for Alternative 1.
Biological Resources	▪ Annual loss of approximately 3 percent of vegetated area with the Alternative 1 footprint (i.e. loss of 30 acres of the existing 990 acres of scrub/shrubland /woodlands). ▪ Impacts to base-wide vegetative resources are expected to be negligible. ▪ The loss of quality habitat for wildlife and the impacts to wildlife species diversity would be minimal. ▪ There would be no anticipated effect on state- or federally-list threatened or endangered species. ▪ There would be very limited short-term effects and no long-term adverse impacts to migratory birds.	▪ Impacts would be similar as those described for Alternative 1 except that there would be: ▪ Annual vegetation loss within the Alternative 2 footprint of approximately 3.5 percent (i.e. loss of 30 acres of the existing 864 acres of scrub/shrubland /woodlands). Impacts would be minor. ▪ Greater percentage of wildlife habitat loss than Alternative 1; however, impacts to wildlife species would be minor and short-term.	▪ Impacts would be similar as those described for Alternative 1 except that there would be: ▪ Annual vegetation loss within the Alternative 3 footprint of approximately 4 percent (i.e. loss of 30 acres of the existing 715 acres of scrub/shrubland /woodlands). Impacts would be minor. ▪ Greater percentage of wildlife habitat loss than Alternative 1 and 2; however, impacts to wildlife species would be minor and short-term.	▪ Overall impacts associated with the No-action Alternative would be similar to those associated with Alternative 1, but would be assessed separately.
Cultural Resources	▪ Under Alternative 1, none of the facilities within the Area of Potential Effect (APE) are historic Properties eligible for National Register of Historic Places (NRHP) listing, therefore no historic properties would be affected and the Section 106 process is complete for historical resources. ▪ A pedestrian archeological survey would be required if the APE has not yet been surveyed for archeological resources.	▪ Under Alternative 2, the Section 106 process must be completed before any construction sites or undertakings are approved. If the facilities are listed on, or eligible for NRHP listing they are considered historic properties, and therefore Section 106 coordination would continue. ▪ Impacts to archaeological resources and the resulting Section 106 coordination process would be the same as described for Alternative 1.	▪ Section 106 coordination would occur as detailed within Edwards AFB Standard Operating Procedures (SOPs) No. 1 and 2, until a Memorandum of Agreement (MOA) or Programmatic Agreement (PA) is reached with the California State Historic Preservation Officer (SHPO). ▪ Impacts to archaeological resources and the resulting Section 106 coordination process would be the same as described for Alternative 1.	▪ Under the No-action Alternative, no impact to cultural resources baseline conditions would occur. ▪ Demolition and renovation would continue on a case-by-case basis for review of eligibility of facilities for listing on the NRHP and Section 106 coordination. If it is determined that eligible facilities would be affected, consultation with the SHPO would continue until a resolution of potential adverse effects is reached in a MOA or a PA, completing the Section 106 process.

Table 2-1 Summary of Environmental Impacts (Continued)

Resource	Alternative 1	Alternative 2	Alternative 3	No-action Alternative
Ground Safety and Occupational Health	▪ Contractors working onsite during construction, renovation, and demolition activities could be exposed to safety and health hazards. ▪ Risk of exposure to contaminated soils or groundwater during proposed activities would be minimal since development would not occur on land that has monitoring wells or contamination plumes. ▪ Possible risk of encountering ACM, LBP, and PCBs during construction, demolition, or renovation.	▪ Impacts would be similar to those described for Alternative 1, except that additional hazards under Alternative 2 would include potential excavation of soils within Environmental Restoration Program (ERP) contamination plumes and exposure to hazardous materials such as ACM or LBP in NRHP-eligible, as well as non-eligible buildings.	▪ Ground safety and occupational health risks would be more pronounced compared to those described for Alternatives 1 and 2. Additional hazards include exposure to soils within ERP contamination plumes and working within the explosive safety distance around the ammunition storage area. ▪ Risk of ACM, LBP, and PCB exposure during proposed activities would be the most pronounced with Alternative 3 considering development would include renovation or demolition of buildings eligible for NRHP listing.	▪ Impacts from standard construction hazards would be the same as those described for Alternative 1. ▪ Workers could potentially be exposed to ACM and LBP during demolition activities.
Utilities and Infrastructure	▪ Under Alternative 1, new test missions would utilize existing utility lines and service capabilities. Connection to these lines might result in a short-term disruption of service to nearby users, but would not be expected to result in a long-term reduction in supply. ▪ There would be a temporary increase in solid waste resulting from construction of new test facilities and demolition of facilities no longer in use. ▪ A temporary increase in vehicular traffic would occur during construction activities associated with Alternative 1.	▪ Impacts to utilities and infrastructure would be similar to those described for Alternative 1, except that new facilities may be located outside the 500 feet utility buffer. Some additional utility lines may be necessary to support facilities located outside of the buffer. ▪ Impacts to solid waste would be similar to those for Alternative 1 except that the contractor would also be responsible for removal or reuse of any soils excavated from contamination plumes. ▪ Impacts to storm water runoff and transportation would be similar to those described for Alternative 1.	▪ Impacts to utilities and infrastructure would be similar to those described for Alternative 2, except new facilities would be constructed outside the 500 feet utility buffer and would require additional utility lines to support facilities located outside of the buffer. ▪ Impacts to solid waste, storm water runoff and transportation would be similar to those described for Alternative 1.	▪ Impacts would be similar to those associated with the action alternatives except that evaluation of utilities accessibility would be required for each new test mission facility constructed
Socioeconomic Resources	▪ The local economy would benefit from construction related expenditures. ▪ Constructing new test mission facilities in areas with minimal constraints would result in a reduced financial burden in funding the test missions.	▪ The local economy would benefit from construction related expenditures. ▪ Constructing new test mission facilities in areas with moderate constraints could cause some unexpected financial burdens and negatively impact the ability to fund the test missions.	▪ The local economy would benefit from construction related expenditures. ▪ Constructing new test mission facilities in areas with substantial constraints would cause unexpected financial burdens and negatively impact the ability to fund the test missions.	▪ Edwards AFB would be maintaining the status quo development method currently employed, which could result in redundant expenditures and potentially costly construction delays.

▪ Notes:

ACM – asbestos containing material
APE – Area of Potential Effect
BMP – Best Management Practices
dBA - “A-weighted” decibel
ERP – Environmental Restoration Program
LBP – lead –based paint
MOA – Memorandum of Agreement
NRHP – National Register of Historic Places
PA – Programmatic Agreement
PCBs – polychlorinated biphenyls
SHPO – State Historic Preservation Officer
SOP – Standard Operating Procedures

Table 2-2 Summary of Measures to Minimize Impacts

Resource	Measures to Minimize or Reduce Impacts and BMPs
Air Quality	▪ No mitigation is recommended. BMPs could include watering to reduce fugitive dust, erosion measures, no-idling of equipment and delivery trucks, and the use of bio-diesel fuel in construction/transport vehicles.
Noise	▪ No mitigation is recommended. BMPs to reduce construction noise include equipping noise-generating heavy equipment at the project site with the manufacturer's standard noise control devices, properly maintaining all equipment, limiting construction hours to between 0700 and 1900 hours (when possible), and reducing occupational exposure by requiring workers to wear appropriate hearing protection.
Soils	▪ No mitigation is recommended. BMPs could include site-specific erosion control plans, use of silt fences, the covering of stockpiles, revegetation or covering with gravel base rock of disturbed areas in timely manner, and the wetting of soils to prevent fugitive dust and wind erosion.
Water Resources	▪ No mitigation is recommended. BMPs to help minimize surface water quality impacts could include: good housekeeping practices; preventive maintenance programs; inspections; employee training; spill response procedures; berms or containment pallets; detention/retention ponds; and erosion control measures. Additionally, in order to avoid increased flood hazards design features to minimize effects of flooding should be implemented.
Hazardous Materials and Waste	▪ No mitigation or BMPs are recommended. All hazardous materials and wastes would be managed according to established plans and state and federal regulations.
Biological Resources	▪ Minimization measures could include: bat pre-surveys; requiring workers to receive desert tortoise and Mohave ground squirrel awareness briefings; checking all crevices and burrows for owls before construction; protecting any animal burrow found in close proximity to construction site; conduct preconstruction avian nest surveys; checking under parked vehicles for desert tortoise and other wildlife species; and keeping equipment and vehicles on established roads and parking areas.
Cultural Resources	▪ Minimization measures could consist of a Memorandum of Agreement (MOA) or a Programmatic Agreement (PA) depending on the scope of the realignment and/or the nature of the effects to the historic properties
Ground Safety and Occupational Health	▪ No mitigation is recommended. BMPs and adherence to federal, state, and local regulations, Occupational Safety and Health Administration (OSHA) regulations, and implementation of a site specific health and safety plan with a journey management plan would greatly reduce the potential for injuries and accidents. BMPs to minimize hazardous interactions with the general public would include delineating hazardous areas with perimeter fencing/tape and placards warning of construction activity.
Utilities and Infrastructure	▪ No mitigation is recommended. BMPs would include prior communication to Base residents and employees in advance of activities to allow for planning alternate travel routes.
Socioeconomic Resources	▪ No mitigation or BMPs are recommended.

Notes:
BMP – best management practice
MOA – Memorandum of Agreement
OSHA – Occupational Safety and Health Administration
PA – Programmatic Agreement

Chapter 3

Environmental Conditions and Consequences

CHAPTER 3
ENVIRONMENTAL CONDITIONS AND CONSEQUENCES

3.1 AIR QUALITY

Air Quality Standards and Regulations

The United States Environmental Protection Agency (USEPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) under the Clean Air Act Amendments of 1990 (CAAA). The CAAA also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and established national emission standards for hazardous air pollutants. In addition to the NAAQS, California has established state ambient air quality standards (CAAQS).

Federal and state air quality standards are currently established for six pollutants (known as criteria pollutants), including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur oxides (SO_x, commonly measured as sulfur dioxide – SO_2), lead, particulate matter equal to or less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Although O_3 is considered a criteria pollutant and is measurable in the atmosphere, it is often not considered as a pollutant when reporting emissions from specific sources, because O_3 is not typically emitted directly from most emissions sources. Ozone is formed in the atmosphere from its precursors – nitrogen oxides (NO_x) and volatile organic compounds (VOCs) – that are directly emitted from various sources. Thus, emissions of NO_x and VOCs are commonly reported instead of O_3.

The NAAQS and CAAQS for the six criteria pollutants are shown in Table 3-1. Units of measure for the standards shown in this table are micrograms per cubic meter of air ($\mu g/m^3$), except for ozone, which is in parts per million (ppm).

The USEPA and California Air Resources Board (CARB) classify the air quality within a designated area according to whether the area meets federal and state primary and secondary air quality standards. The entire area or portion of the area may be classified as attainment, non-attainment, or unclassified with regard to the air quality standards for each of the criteria pollutants. An area may have all three classifications for different criteria pollutants.

Table 3-1 National and California Ambient Air Quality Standards

Pollutant	NAAQS Value ($\mu g/m^3$)[a]	CAAQS Value ($\mu g/m^3$)[a,b]
CO		
1-hr average	40,000	23,000
8-hr average	10,000	10,000
NO_2		
1-hr average	188[c]	339
Annual average	100	57
O_3		
1-hr average	-	0.09
8-hr average	0.075[d]	0.070
Lead		
30-Day Average	-	1.5
Rolling		
3 month Average	0.15	-
Quarterly average	1.5	-
PM_{10}		
24-hr average	150[e]	50
Annual average	-	20
$PM_{2.5}$		
24-hr average	35[f]	-
Annual average	12[g]	12
SO_2		
1-hr average	196[h]	655
24-hr average	-	105

Notes:
CO=carbon monoxide
$\mu g/m^3$=micrograms per cubic meter
NO_2=nitrogen dioxide
O_3=ozone
SO_2=sulfur dioxide
$PM_{2.5}$=particulate matter equal to or less than 2.5 micrometers in diameter
PM_{10}= particulate matter equal or to less than 10 micrometers in diameter
[a] Units for ozone are ppm.
[b] The CAAQS standards for O_3, CO, SO_2, NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded.
[c] The 98th Percentile, averaged over 3 years.
[d] To attain the 8-hour ozone 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.
[e] The 24-hour standard for PM_{10} is not be exceeded more than once per year on average over 3 years.
[f] The $PM_{2.5}$ 24-hour standard is based on the 3-year average 98th percentile of 24-hour concentrations at each population-oriented monitor.
[g] The $PM_{2.5}$ annual standard is based on 3-year average of weighted annual mean concentration from single or multiple community monitors.
[h] The 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years

General Conformity

The CAAA requires federal actions to conform to any applicable state implementation plan (SIP). USEPA has promulgated regulations implementing this requirement (USEPA 2010a and USEPA 2010b). The General Conformity rule applies only to non-transportation actions and is set forth in 40 CFR 51 Subpart W – Determining Conformity of General Federal Action to State and Federal Implementation Plans. According to 40 CFR 51.853(b), federal actions require a conformity determination for each pollutant where the total of direct and indirect emissions in a nonattainment or maintenance area caused by a federal action would equal or exceed any of the rates in paragraphs 40 CFR 51.853(b)1 or 2.

The applicability thresholds are 100 tons per year (tpy) for criteria pollutants, except for those given in Table 3-2.

Table 3-2 General Conformity Applicability Thresholds

NAAQS Pollutant	Type of Nonattainment or Maintenance Area	Applicability Threshold (tpy)
Ozone	Extreme NAAs	10 tpy VOC or NO_x
	Severe NAAs	25 tpy VOC or NO_x
	Serious NAAs	50 tpy VOC or NO_x
	Marginal or moderate NAAs inside an ozone transport region	50 tpy VOC (100 tpy NO_x)
	Maintenance areas inside an ozone transport region	50 tpy VOC (100 tpy NO_x)
CO	All NAAs	100 tpy
SO_2	All	100 tpy
PM_{10}	Serious NAAs	70 tpy PM_{10}
	Moderate NAAs	100 tpy PM_{10}
	All Maintenance areas	100 tpy
$PM_{2.5}$	All	100 tpy
Lead	All NAAs	25 tpy Pb
	All Maintenance areas	25 tpy Pb

Notes:
CO = carbon monoxide
NAA = nonattainment area
NO_x = nitrogen oxides
O_3 = ozone
Pb = lead
$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
SO_2 = sulfur dioxide
VOC = volatile organic compounds
tpy = tons per year

3.1.1 Existing Conditions

Regional Air Quality

Edwards AFB is located in the western portion of the Mojave Desert and portions of the base are located within the jurisdictional boundaries of western San Bernardino County, eastern Kern County and northern Los Angeles County. The North Base, Main Base, South Base, where the proposed action is located, are located within the Eastern Kern County Air Pollution Control District (EKCAPCD) and the vast majority of permitted air emission sources on the base come under its authority. This area is currently designated as a moderate non-attainment for the state O_3 1-hr standard, non-attainment for the federal O_3 8-hr standard and non-attainment for the state PM_{10} 24-hour standard. The AO is in attainment or unclassified for the remaining criteria pollutants.

Climate Change

There are six primary Greenhouse Gases (GHGs) of concern: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). The emissions of each GHG are measured based on their global warming

potential (GWP), the universal unit of measurement to express how much a given mass of greenhouse gas is estimated to contribute to climate change [CO_2 equivalent (CO_{2eq})]. Table 3-3 lists the GWP (USEPA 2013) of the six primary GHGs.

Table 3-3 Global Warming Potential of GHGs

Gas	Chemical Formula	GWP
Carbon dioxide	CO_2	1
Methane	CH_4	25
Nitrous oxide	N_2O	298
Hydrofluorocarbons	HFCs	various
Perfluorocarbons	PFCs	various
Sulfur hexafluoride	SF_6	22,800

Notes:
CH_4 = methane
CO_2 = carbon dioxide
GWP = global warming potential
HFCs = hydrofluorocarbons
N_2O = nitrous oxide
PFCs = perfluorocarbons
SF_6 = sulfur hexafluoride

Only three of the GHGs, are considered in the emissions from the alternative actions. These three GHGs (CO_2, CH_4, and N_2O) represent the majority of CO_{2eq} associated with the alternative actions. The other GHGs were not considered in the potential emissions from the alternative actions as they are presumed to not be emitted: HFCs are most commonly used in refrigeration and air conditioning systems; PFCs and SF_6 are predominantly emitted from various industrial processes including aluminum smelting, semiconductor manufacturing, and magnesium casting; none of which are part of the alternative actions.

Direct emissions of CO_2, CH_4 and N_2O occur naturally to the atmosphere but human activities have increased global GHG atmospheric concentrations. The 2012, total U.S. GHG emissions were 6,526,000,000 metric tons of CO_{2eq} (USEPA 2014). U.S. total GHG emissions decreased by 3.4 percent from 2011 to 2012 (USEPA 2014).

3.1.2 Estimated Effects

The following factors were considered in evaluating air quality: (1) the short- and long-term air emissions generated from construction, demolition and renovation activities; (2) the type of emissions generated; and (3) the potential for emissions to result in ambient air concentrations that exceed one of the NAAQS or SIP requirements. A conformity analysis is not required if the emissions of NO_x, VOC, and PM_{10} are emitted in quantities less than the corresponding *de minimis* level. The detailed air emission calculations for the alternative actions included in the sections below are detailed in Appendix B. all new building plans will be reviewed for potential Climate Change issues Impacts would be considered significant if *de minimis* threshold values were exceeded for any pollutant in non-attainment; or if construction, renovation, or demolition activities resulted in long-term increases in air emissions.

Alternative 1

Alternative 1 could potentially result in short-term emissions during construction, demolition and/or renovation of facilities that may be required to support future missions. However, the effects from construction activities would last only as long as the duration of construction activity, fall off rapidly with distance from the construction site, and would not result in long-term impacts. The exact amount of construction, demolition and/or renovations required by future test missions is unknown; therefore, air emissions for this analysis were calculated using an estimate of annual construction, demolition, and renovation associated with new test mission facilities. It is likely that the actual emissions generated annually as a result of construction of new test missions would be less than these calculations; however, this is a conservative estimate. It has been conservatively assumed that annual short-term emissions would result from construction of three hangars, three office buildings, and three parking lots, totaling approximately 1.2 million square feet, or three, 10-acre sites. It was also assumed that annual demolition would total one third of the assumed construction area (403,200 square feet).

Renovation typically results in lower emissions than that of new construction or demolition. Since only facilities greater than or equal to 1,500 square feet would be considered for renovation, and since construction of new facilities of an equal size would generate more emissions than renovation, emission calculations were based upon the assumption that office buildings and hangars would be constructed, rather than renovated. This method generates the most conservative air emissions calculations.

It has been assumed that major existing infrastructure would be utilized. The combustion of fuel by the construction, demolition, and renovation equipment involved in Alternative 1 would result in emissions of CO, VOC, NO_x, SO_2, and PM_{10} and $PM_{2.5}$.

It has also been assumed that the same future test missions would still be conducted at Edwards AFB regardless of the proposed changes in this EA. These changes in mission, including associated populations changes have been previously assessed in the 2014 EA for the Routine and Recurring Realignment of Units and Personnel at Edwards Air Force Base, California. Therefore, long-term emissions from population changes and aircraft have not been included in the emission calculations. Long-term emissions may also decrease due to the replacement of older in-efficient emission sources with newer energy saving equipment and buildings. Emissions generated during construction, renovation, and demolition activities would not accumulate over time and would last only as long as the duration of construction, renovation, and demolition activities. Therefore, no long-term increase in air emissions would be expected.

Annual short-term emissions for Alternative 1 are summarized in Table 3-4. As shown in Table 3-4, the conservative estimates of NOx, VOC, and PM_{10} emissions (i.e. pollutants in non-attainment) are less than the corresponding *de minimis* thresholds. Therefore, a General Conformity analysis was not required.

Alternative 1 would result in approximately 12,831 tpy of CO_2 emissions. The amount of CO_2 released under Alternative 1 represents less than 0.0002 percent of the 2012 US anthropogenic emissions of CO_{2eq}. This amount of short-term emissions would not contribute significantly to climate change, but any emission of GHGs represents an incremental increase in global GHG concentrations. While long-term climate change could result in additional impacts from

construction, individual project designs would consider climate change issues as described in EO 13653 *Preparing the United States for the Impacts of Climate Change*. The Air Force is committed to climate-changing initiatives that reduce long-term GHG emissions, while still preserving military operations, sustainability, and readiness (USAF 2010a).

The short-term construction activities under Alternative 1 are not subject to the requirements of 40 CFR Part 98 - Mandatory Greenhouse Gas Reporting.

Alternative 2

All assumptions used in the Alternative 1 emission calculations would be the same for Alternative 2. The possible relocation of monitoring wells would not require extensive combustion source equipment. Therefore, Alternative 2 annual short- and long-term emissions would be the same as Alternative 1.

Alternative 3

All assumptions used in the Alternative 1 emission calculations would be the same for Alternative 3. The possible relocation of monitoring wells, installation of vapor barriers or other mitigation measures would not contribute significantly to the total annual-short term emissions. The assumptions used in the short-term emission calculations for Alternative 1 are conservative and would account for the possible minimal emissions from well relocation, vapor barrier installation or other mitigation measures. Therefore, Alternative 3 annual short- and long-term emissions would be the same as Alternative 1.

No-action Alternative

The assumed levels of potential construction, demolition and/or renovation required in Alternative 1 would likely be greater than what would occur under the No-action Alternative. However, for purposes of analysis, it has been conservatively assumed that the No-action Alternative annual short-term emissions would be the same as Alternative 1.

Table 3-4 Expected Short-Term Annual Emissions from Alternative Actions

Action	VOC	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2
Alternative 1 (tpy)	4.0	31.2	60.1	3.6	3.6	0.12
Alternative 2 (tpy)	4.0	31.2	60.1	3.6	3.6	0.12
Alternative 3 (tpy)	4.0	31.2	60.1	3.6	3.6	0.12
No-Action Alternative (tpy)	4.0	31.2	60.1	3.6	3.6	0.12
General Conformity Applicability Threshold (tpy)	100	NA	100	100	NA	NA

Notes:
CO = carbon monoxide
NA = not applicable
NO_x = nitrogen oxides
$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
SO_2 = sulfur dioxide
tpy = tons per year
VOC = volatile organic compound

Cumulative Effects

The alternative actions would result in short-term emissions during construction, demolition, and/or renovation. The emissions would be temporary, localized and would be eliminated after the activity is completed. The short-term increase in emissions would be minimal when compared to the total regional annual emissions. Long-term emissions may decrease due to the replacement of older in-efficient emission sources with newer energy saving equipment and buildings.

The short-term emissions from the alternative actions would be from mobile sources (equipment and vehicles) and fugitive dust. These emissions quickly dissipate from the source, thereby minimizing contribution to cumulative impacts from past, present, and reasonably foreseeable future projects that may be conducted in the area or at Edwards AFB.

The minimal cumulative impacts from the alternative actions and other proposed projects would not be expected to have significant impacts on the local air quality. The limited amount of GHG emissions from the alternative actions would not contribute significantly to climate change, but any emission of GHGs represents an incremental increase in global GHG concentrations.

Summary of the Estimated Effects

The Alternatives considered are not expected to cause significant effects to Air Quality, primarily due to the fact that emissions resulting from the short-term actions are expected to be well below de mimimis threshold values. All calculations were based on conservative assumptions. Any emissions expected as a result of the Alternatives would be typical to construction activities; therefore, no unusual or unanticipated emissions would be expected.

3.1.3 Minimization Measures

Little impact to local air quality would be expected from the alternative actions associated with the construction, demolition, and/or renovations required by future test missions. Therefore, no

mitigative actions would be recommended. BMPs could include watering to reduce fugitive dust, erosion measures, no-idling of equipment and delivery trucks, and the use of bio-diesel fuel in construction/transport vehicles. Additional minimization measures are listed below.

- Project activities shall comply with all applicable rules and regulations as identified in AFI 32-7040, *Air Quality Compliance and Resource Management* (2014).
- Any internal combustion engine subject to NESHAP or New Source Performance Standards requirements must be permitted by the local AQMD/APCD. Based on recent revisions to the Reciprocating Internal Combustion Engine NESHAP, all stationary generators are now subject to the regulation regardless of size – this in turn makes them subject to permitting requirements. Permitting is also required (retroactively) for any non-road engine that fails the indicia of portability (i.e. exceeds the 12-month time limit). If such equipment is to remain on base less than 45 calendar days, a written exemption must be obtained from the local air agency.
- Mobile off-road equipment is subject to the CARB Off-road regulation. On-road equipment is subject to the Truck and Bus regulations.
- All earthwork activities would be planned and conducted to minimize the duration that soils would be left unprotected. The extent of the area of disturbance necessary to accomplish the project would be minimized. Exposed surfaces would be periodically sprayed with water.
- All vehicles transporting fill material or construction debris would be covered to reduce PM2.5 and PM10 emissions during transport.

These minimization measures shall be updated to reflect current practices at the time of project execution.

3.2 NOISE

3.2.1 Construction Noise

Noise is unwanted sound that may annoy people by interfering with ordinary daily activities, such as communication or sleep (FICON 1992). On the decibel (dB) scale, an increase of three dB represents a doubling of sound energy. A difference on the order of 10 dB represents a subjective doubling of loudness (FICON 1992). Therefore, an event that generates 60 dB of sound is twice as loud as one that generates 50 dB.

Sound pressure level (SPL) described in dB is used to quantify sound intensity (FICON 1992). The SPL represented by a given decibel value is usually adjusted to make it more relevant to sound that the human ear hears especially well; for example, an "A-weighted" decibel (dBA) was developed to measure sound similar to the way the human hearing system responds. It is derived from emphasizing mid-range frequencies to which the human ear responds especially well and de-emphasizing the lower and higher range frequencies (ANSI 1983).

The potential for permanent hearing loss arises from direct exposure to noise on a regular, continuing long-term basis to levels about 75 dBA. Hearing loss is not expected in people exposed to 75 dBA or less for 8 hours per day, as long as noise exposure over the remaining 16

hours per day is low enough to not substantially contribute to the 24-hour average (USEPA 1974).

3.2.1.1 Existing Conditions

The primary sources of noise at Edwards AFB include operations noise from fixed wing aircraft and helicopters; engine testing; and vehicular traffic along primary and secondary streets and intersections. Operations and activities at Edwards AFB that generate ground level noise on-and-off-base include aircraft engine testing and maintenance; aircraft flight and fly over testing; routine aircraft overflight (including those generating engine roar and sonic booms); weapons and munition testing; noise associated from precision impacts at the base; mobile equipment use and vehicular traffic noise and vibration; construction, demolition, and earth moving.

3.2.1.2 Noise-Sensitive Receptors

A noise-sensitive receptor is commonly defined as the occupants of any facility where a state of quietness is a basis for use such as a residence, hospital, or church. The two closest potential noise-sensitive receptors to the AO are a chapel and a library, which are located in a light industrial area and are accustomed to experiencing elevated noise levels. Both the chapel and the library fall within an area which experiences an average daily aircraft noise of 60-64 dB. The chapel is located approximately 190 feet from the closest Alternative 1 location, approximately 764 from the closest Alternative 2 location, and approximately 1,161 feet from the closest Alternative 3 location. The library is located is located approximately 143 feet from the closest Alternative 1 location, approximately 226 from the closest Alternative 2 location, and approximately 401 feet from the closest Alternative 3 location.

3.2.1.3 Estimated Effects

Table 3-5 lists noise levels associated with the types of construction equipment expected to be utilized during site preparation and construction of the new test mission facilities. As shown in Table 3-5 the construction equipment produces peak SPLs ranging from 75 to 85 dBA at 50 feet from the source, which decreases by 6 dBA with every doubling of the distance from the source. It should also be noted that this table includes the level generated, but does not account for the ability of sound to be reflected/absorbed by nearby objects, which could further reduce noise levels.

Table 3-5 Construction Equipment Peak Sound Pressure Levels

Equipment	Generated Noise[a] dBA				
	50 ft	100 ft	200 ft	400 ft	800 ft
Backhoe	78	72	66	60	54
Compactor	83	77	71	65	59
Crane	81	75	69	63	57
Dump Truck	76	70	64	58	52
Excavator	81	75	69	63	57
Front-end Loader	79	73	67	61	55
Grader	85	79	73	67	61
Paver	77	71	65	59	53
Pickup Truck	75	69	63	57	51
Roller	80	74	68	62	56
Scraper	84	78	72	66	60

Source: USDOT, 2006
Notes:
[a] Noise from a single source.
dBA - "A-weighted" decibel
ft – feet

Impacts from noise would be considered significant if the Alternatives resulted in noise levels above 75 dBA, the requisite level to protect health and welfare with an adequate margin of safety (USEPA 1974).

Alternative 1

Increased construction noise levels would be associated with the construction of new facilities, demolition of existing facilities, or renovation of existing facilities to house incoming test missions. The noise associated with the operation of machinery on construction sites is typically short-term, intermittent, and highly localized; therefore, would not accumulate over time and would last only as long as the duration of construction activities. It is anticipated that typical construction vehicles and equipment to be used during construction would be similar to those presented in Table 3-5.

Under Alternative 1, the closest possible construction would be approximately 143 feet from the library and 190 feet from the chapel. As a result of this construction, noise-sensitive receptors would temporarily experience peak outside noise levels ranging from 73 to 79 dBA (USDOT 2006). However, considering the 20 dB decrease in noise levels due to noise attenuating properties of windows and walls (US Navy 2005), occupants of the chapel and library would expect to experience peak indoor noise levels of 59 dBA or less (USDOT 2006). This is below the 75 dBA noise level requisite to protect health and welfare with an adequate margin of safety and, therefore, would be considered a minor impact. Additionally, the two noise-sensitive receptors are located in a light industrial area, and are accustomed to experiencing elevated noise levels. Furthermore, all noise generated from construction activities would be limited to daytime hours and would only last as long as the duration of the project activities.

Alternative 2

With the exception of the distance to the noise-sensitive receptors, construction noise associated with Alternative 2 would be similar to that described for Alternative 1. Under Alternative 2, the closest possible construction would be approximately 226 feet from the library and 764 feet from the chapel. As a result of this construction, the library would temporarily experience peak outside noise levels around 73 dBA and the chapel would temporarily experience peak outside noise levels around 61 dBA (USDOT 2006). This is below the 75 dBA noise level requisite to protect health and welfare with an adequate margin of safety and, therefore, would be considered a minor impact.

Alternative 3

With the exception of the distance to the noise-sensitive receptors, construction noise associated with Alternative 3 would be similar to that described for Alternative 1. Under Alternative 3, the closest possible construction would be approximately 401 feet from the library and 1,161 feet from the chapel. As a result of this construction, the library would temporarily experience peak outside noise levels around 61 dBA and the chapel would temporarily experience peak outside noise levels ranging from 55 dBA to 61 dBA (USDOT 2006). This is below the 75 dBA noise level requisite to protect health and welfare with an adequate margin of safety and, therefore, would be considered a minor impact.

No-action Alternative

Since construction noise is already a component of Edwards AFB's existing noise environment, there would be no impact to the baseline conditions as a result of the No-action Alternative.

Cumulative Effects

Since the noise associated with the alternatives would be short-term, intermittent, and highly localized it would not be expected to contribute to cumulative noise impacts. Within 143 feet of construction, noise resulting from the alternatives would be below levels requisite to protect health and welfare with an adequate margin of safety. All of the transportation construction projects would be of considerable distance from the noise-sensitive receptors considered in this analysis such that noise impacts from transportation construction would not impact them. Short-term noise generated annually as a result of the alternatives would not accumulate over time and would last only as long as the duration of construction activities. Therefore, there would be no long-term cumulative noise impacts as a result of the complete test mission build out of Edwards AFB over a 10-year period.

Summary of the Estimated Effects

The noise associated with the operation of machinery on construction sites is typically short-term, intermittent, and highly localized; therefore, would not accumulate over time and would last only as long as the duration of construction activities. The Alternatives considered would result in noise levels at the closest noise-sensitive receptors to be below the 75 dBA noise level requisite to protect health and welfare with an adequate margin of safety and, therefore, would not cause significant effects.

3.2.2 Aircraft Noise

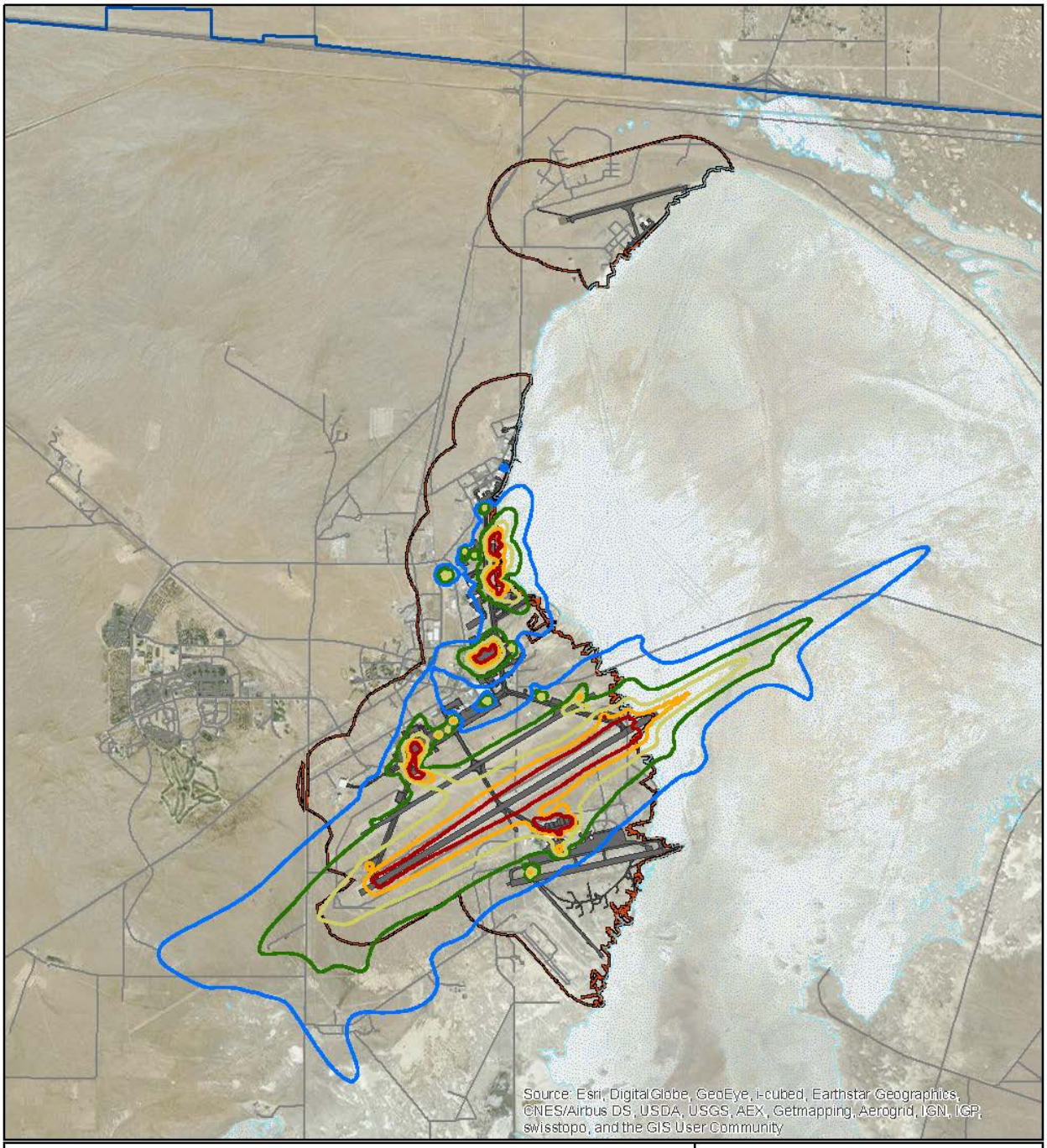
In accordance with Air Force Instruction (AFI) 32-7063, Air Installation Compatible Use Zone Program, new Air Force facility sitings, construction, and land use designations must be consistent with published land use compatibility guidelines. This section describes the noise environment at Edwards AFB as it relates to aircraft operations and maintenance in the airfield environment. Potential impacts are defined in the form of land use compatibility as it relates to each of the three action alternatives and the No-action Alternative. Land use compatibility for each noise zone is based on the suggested land use compatibility guidelines found in Department of Defense Instruction 4165.57, Air Installation Compatible Use Zones, Appendix 3 to Enclosure 3, Recommended Land Use Compatibility in Noise Zones, Table 2 (DoD 2011) (Appendix C).

The Noisemap suite of programs (Noisemap, Rotorcraft Noise Model [RNM], Military Operating Area and Range Noise Model [MR_NMAP]) provides the standard noise estimation methodology used for military aircraft. The Noisemap and RNM noise models were used to define the noise environment as it relates to aircraft operations at the Edwards AFB airfield. These are the approved noise models for analyzing environmental effects of noise exposure levels at and around military installations. For this EA, the Day-Night Average Sound Level (DNL) is used to determine land use compatibility in the locations on the installation proposed for development. DNL is a composite metric that accounts for the Sound Exposure Level (SEL) of all individual noise events that occur during a 24-hour period with a 10 dB penalty applied to nighttime events (10:00 p.m. to 7:00 a.m) to account for increased human sensitivity to noise at night. The USEPA selected DNL as the uniform descriptor of averaged noise exposure. Subsequently, federal agencies, including the Federal Aviation Administration and DoD, adopted DNL for expressing averaged sound and determining compatible land uses.

3.2.2.1 Existing Conditions

The current noise environment at Edwards AFB was modeled using 2010 training, operations, and maintenance profiles as provided by the Air Force (AFCEC 2010). Figure 3-1 shows the 65 to 85 dB DNL contour bands, in 5 dB increments. Under these conditions, areas within 65-69 dB contours encompass 3,698 acres, 70-74 dB contours encompass 1,711 acres, 75-79 dB encompass 889 acres, 80-84 dB encompass 439 acres, and 85+ dB encompass 447 acres. There are no areas within the current aircraft noise environment at Edwards AFB that occur outside of the installation boundaries.

There is a mix of uses within the noise contours, including administrative (services), commercial, industrial, communications, and aircraft operations. No residential or other noise sensitive uses occur within the 65+ noise contours.


Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Legend
Edwards Air Force Base
Airfield Buffer (2,500ft)
Airfield Surface
Rogers Dry Lake
Roads
Noise Contours (DNL)
65 dB
70 dB
75 dB
80 dB
85 dB
Note: Figure is current as of January 2015 and is subject to change
N
W
E
S
0 0.375 0.75 1.5
Miles
Figure 3-1
Current Noise Contours
Edwards Air Force Base
Edwards, California

3.2.2.2 Estimated Effects

In response to increasing incompatible urban development or encroachment around military airfields, the DoD developed the Air Installation Compatible Use Zone (AICUZ) Program. The AICUZ program provides recommendations for compatible land use both on- and off-installation based on nationally recognized standards. Industrial, manufacturing, wholesale trade, and transportation land uses are considered compatible with DNL levels 65 dB through 85+ dB. Retail trade is compatible with DNL levels up to 69 dB and generally compatible with levels between 70 and 79 dB. Residential land use is compatible with DNL levels up to 64 dB, discouraged in areas with levels between 65 and 69 dB, and strongly discouraged between 70 and 74 dB (USAF 1999). Impacts from the alternatives would be considered significant if they resulted in any incompatible land uses within the aircraft noise contours.

Alternative 1

Under Alternative 1, 766 acres of land proposed for potential construction would occur within aircraft noise contours 65 dB and higher (see Figure 3-2). These areas would be compatible with industrial, manufacturing, wholesale trade, and transportation related structures. Retail trade would be compatible with 366 acres, generally compatible with 354 acres, and incompatible with 80 acres within the noise environment at Edwards AFB. Residential would not be compatible in any of the areas within the 766 acres noise environment.

Since all development associated with Alternative 1 would result in industrial land uses, and since all land under Alternative 1 that lies within the 65-85+ dB DNL noise contours is compatible with industrial use, there would be no significant impacts as a result of Alternative 1.

Alternative 2

Under Alternative 2, 623 acres of land proposed for potential construction would occur within noise contours 65 dB and higher (see Figure 3-3). These areas would be compatible with industrial, manufacturing, wholesale trade, and transportation related structures. Retail trade and other services would be compatible with 334 acres, generally compatible with 268 acres, and incompatible with 21 acres. Residential would not be compatible in any of the areas within the 623 acre noise environment.

Since all development associated with Alternative 2 would result in industrial land uses, and since all land under Alternative 2 that lies within the 65-85+ dB DNL noise contours is compatible with industrial use, there would be no significant impacts as a result of Alternative 2.

Alternative 3

Under Alternative 3, 555 acres of land proposed for potential construction would occur within noise contours 65 dB and higher (see Figure 3-4). These areas would be compatible with industrial, manufacturing, wholesale trade, and transportation related structures. Retail trade would be compatible with 314 acres, generally compatible with 192 acres, and incompatible with 50 acres within the noise environment at Edwards AFB. Residential would not be compatible in any of the areas within the 555 acre noise environment.

Since all development associated with Alternative 3 would result in industrial land uses, and since all land under Alternative 3 that lies within the 65-85+ dB DNL noise contours is compatible with industrial use, there would be no significant impacts as a result of Alternative 3.

No-action Alternative

Under the No-action Alternative, Edwards AFB would be maintaining the status quo development method currently employed. Since current development of new test missions results in industrial land use, any construction associated with status quo development would be compatible with permissible land uses within the 65-85+ dB DNL aircraft noise contours. Therefore, there would be no significant impacts as a result of the No-action Alternative.

Cumulative Effects

Changes in land use to industrial as a result of any of the alternatives would not be affected by any off-base projects identified in Section 2.4. Additionally, those transportation projects would not impact flight patterns or types of aircraft flown. Therefore, they would not contribute to aircraft noise. Development associated with all complete build out of Edwards AFB over a 10-year period would result in a large area of industrial land use which would be compatible with the 65-85+ dB DNL aircraft noise contour permissible land use classifications.

Summary of the Estimated Effects

Development associated with all alternatives would result in industrial land uses, and since all land that lies within the 65-85+ dB DNL noise contours is compatible with industrial use, there would be no significant impacts as a result of any of the alternatives. The proposed project is not expected to significantly alter the number of test missions conducted at Edwards or to alter the current flight patterns. New or updated facilities will be expected to allow for more efficient test programs.

3.2.3 Minimization Measures

No mitigation would be recommended. BMPs include equipping noise-generating heavy equipment at the project site with the manufacturer's standard noise control devices (i.e., mufflers, baffling, and/or engine enclosures). All equipment should be properly maintained to ensure that no additional noise from worn or improperly maintained equipment parts is generated. Construction activities would occur between 0700 and 1900 hours (when possible) and would be conducted according to Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.95 and 29 CFR 1926.52. DoD personnel present within hazardous noise areas as stated in Air Force Occupational Safety and Health Administration Standard 48-20 should follow the applicable hearing protection measures. Non-DoD civilian personnel should comply with applicable federal and state regulations. Occupational exposure to the noise from heavy equipment could be reduced by requiring workers to wear appropriate hearing protection. Hearing protective devices such as ear plugs or ear muffs should be worn at all locations where workers may be exposed to high noise levels. These minimization measures shall be updated to reflect current practices at the time of project execution.

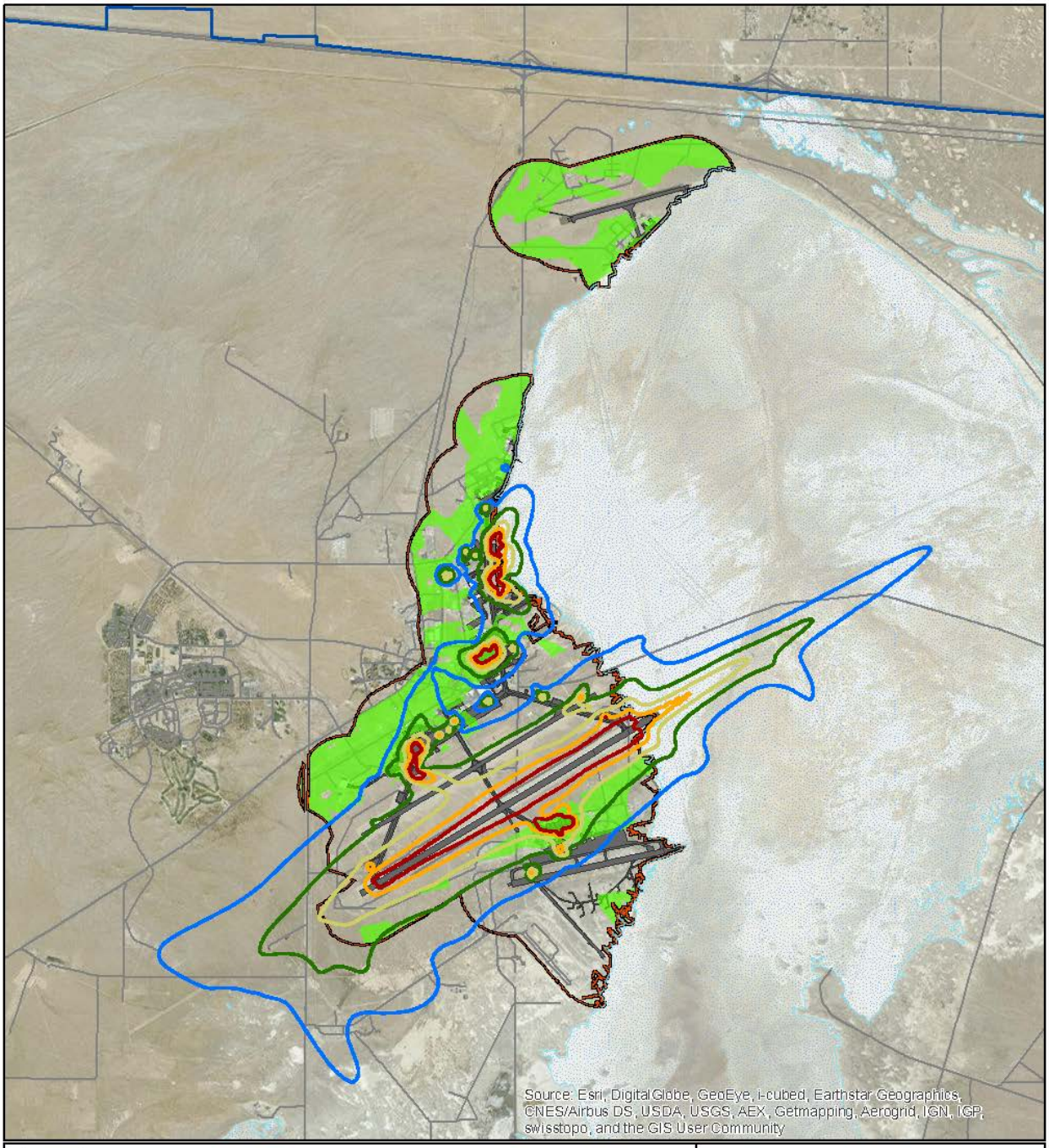


Figure 3-2

Current Noise Contours
and Construction Alternative 1

Edwards Air Force Base
Edwards, California

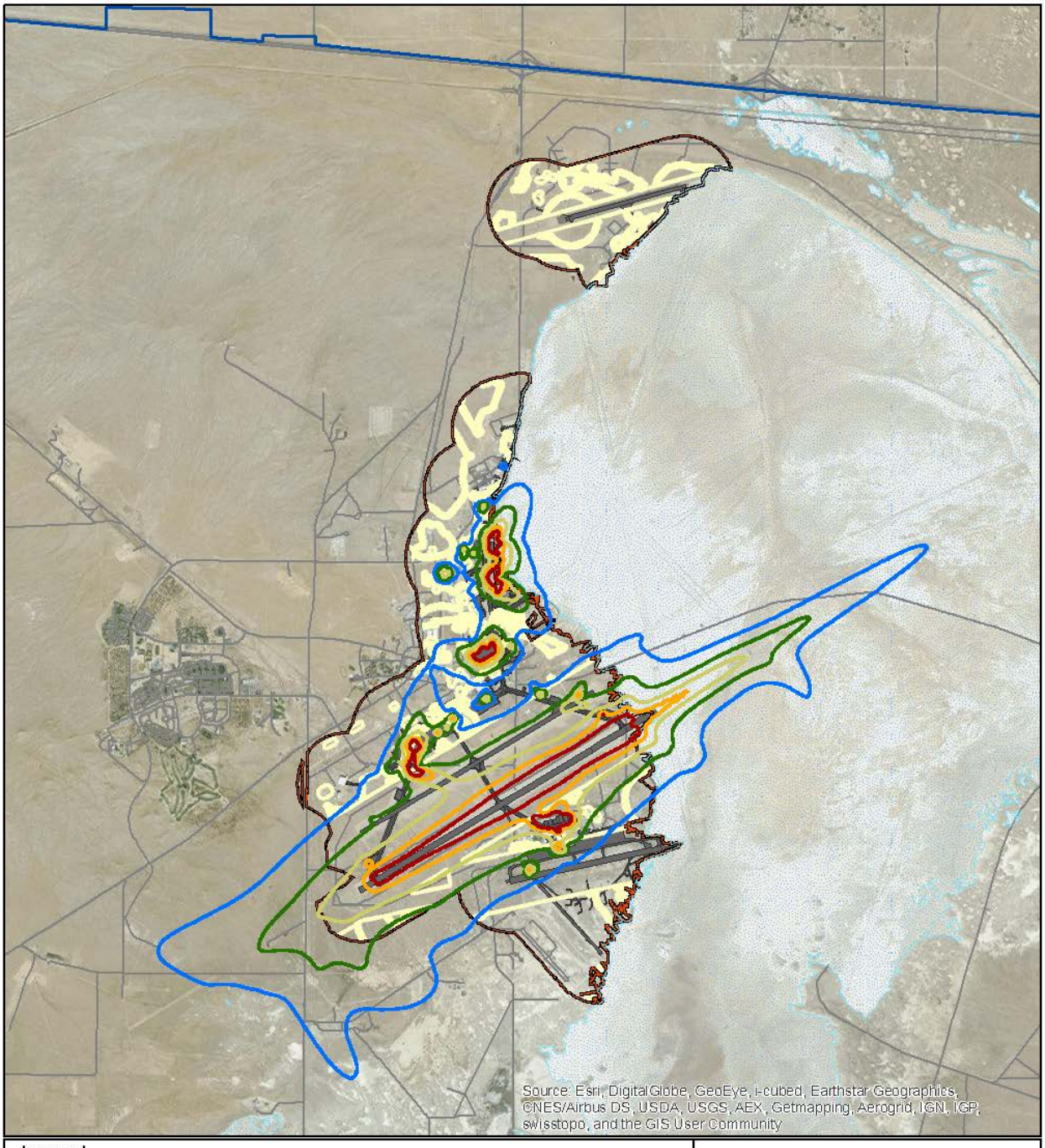


Figure 3-3

Current Noise Contours
and Construction Alternative 2

Edwards Air Force Base
Edwards, California

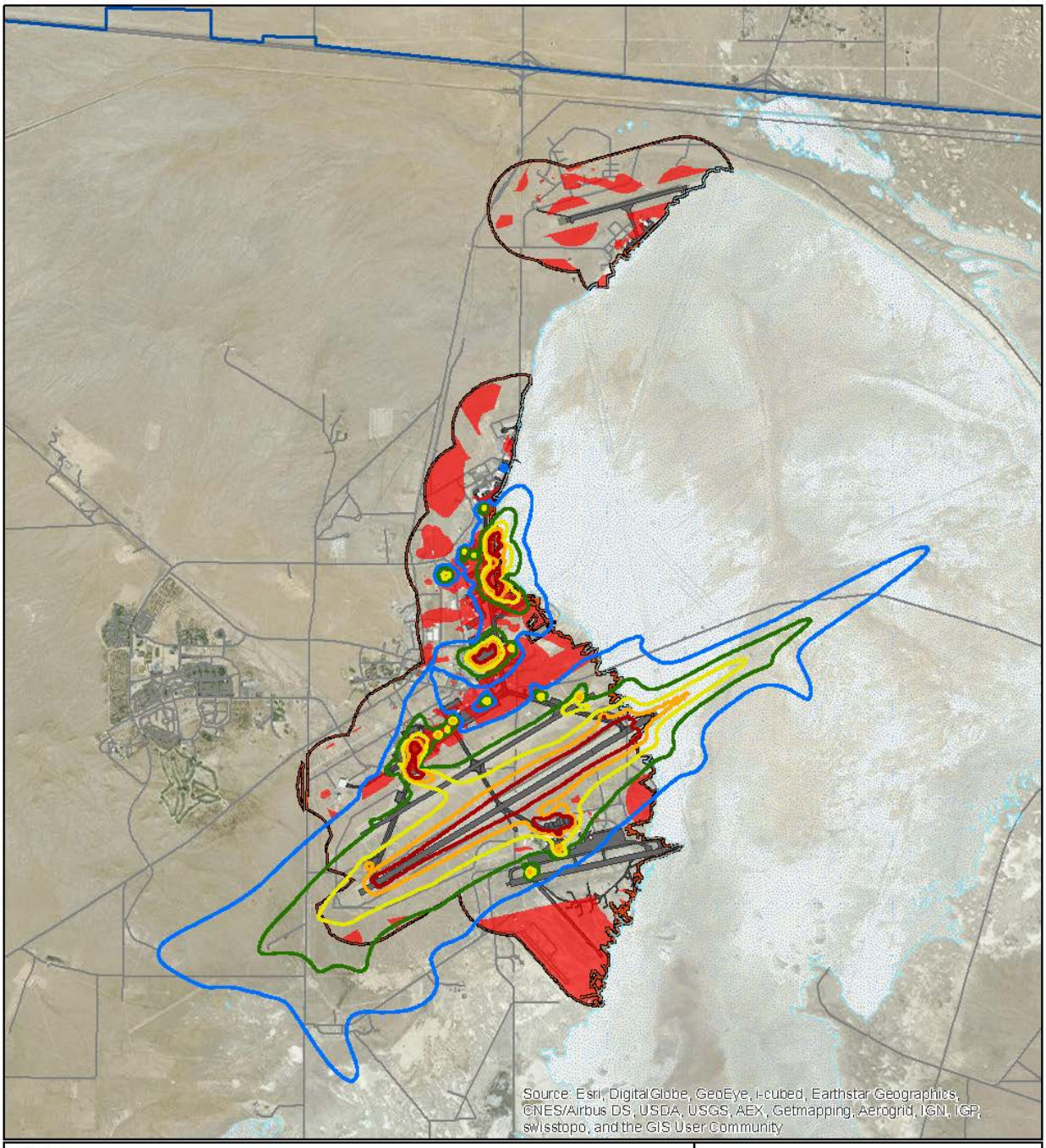


Figure 3-4

Current Noise Contours
and Construction Alternative 3

Edwards Air Force Base
Edwards, California

3.3 SOILS

3.3.1 Existing Conditions

Topography

Topography is defined as the relative positions and elevations of the natural or anthropogenic features of an area that describe the configuration of its surface. An area's topography is influenced by many factors, including erosion, deposition, human activity, seismic activity of the underlying geological material, and climatic conditions. Information about an area's topography typically encompasses surface elevations, slope, and physiographic features (i.e., mountains, ravines, or depressions).

Topography at the South Base AO is generally flat, with a slight topographic gradient sloping east towards Rogers Dry Lake. The topographic gradient also slopes east towards Rogers Dry Lake along the north side of the Main Base and associated AO's with a protruding ridge extending to the north and northwest of the Main Base. The topographic gradient at the Edwards AFB North Base slopes east/southeast towards the lake. Rogers Lake is the lowest topographical feature on Edwards AFB. The highest land surface elevation within the AO is approximately 2,360 feet above mean sea level (amsl) located on the western edge of the AO and the lowest elevation is approximately 2,280 feet amsl along the boundary between the AO and Rogers Dry Lake (USGS 1973, 2012). The average elevation at the North Base within the AO is approximately 2,300 feet amsl with an approximate surface elevation gradient of 0.0063 ft/ft. An approximate surface elevation gradient of 0.046 ft/ft exists across the AO within the Main Base; an approximate surface elevation gradient of 0.0031 ft/ft exists across the AO within the South Base. There are no major natural surface depressions on Edwards AFB (USGS 1973, 2012).

Soils

The term "soil" generally refers to unconsolidated materials lying over bedrock or other parent material. Soils play a critical role in both the natural and human environment. Soil depth, structure, elasticity, strength, shrink-swell potential, and resistance to erosion determine a soil's ability to support structures and facilities. Soils are typically described in terms of their parent material from which they are derived, slope, inherent physical characteristics, interactions with soil water, and relative compatibility or constraints with respect to particular construction activities and types of land use. Table 3-6 shows the types of soils present within each alternative.

Table 3-6 Soil Occurrence across 2,500-Feet Buffer Areas

Soil Type	Alternative 1 Soils (acres)	Alternative 2 Soils (acres)	Alternative 3 Soils (acres)	Area Across Base (acres)
Cajon loamy fine sand, 0 to 2 percent slopes	5.26	0.27	---	2,161.14
Cajon loamy fine sand, 2 to 9 percent slopes	28.62	20.84	2.82	607.57
Helendale loamy sand, 0 to 2 percent slopes	783.87	839.23	405.67	5,971.15
Helendale loamy sand, 2 to 5 percent slopes	40.65	35.95	7.97	14,237.88
Hi Vista sandy loam	70.65	100.08	166.29	2,358.79
Leuhman complex, 0 to 2 percent slopes	1,349.32	1,384.69	1,063.31	13,944.32
Leuhman-Challenger complex, 0 to 9 percent slopes	---	0.09	142.71	16,054.68
Machone-Randsburg complex, 2 to 9 percent slopes	29.36	---	41.15	2,401.61
Norob sandy loam, 0 to 2 percent slopes	7.1	---	---	2,242.66
Norob sandy loam, 2 to 5 percent slopes	99.23	106.01	38.99	1,788.18
Norob complex, 0 to 5 percent slopes, overblown	120.27	198.84	65.51	7,712.63
Randsburg sandy loam, 2 to 15 percent slopes	41.51	14.4	0.53	1,228.34
Wherry clay, 0 to 1 percent slopes	14.33	27.4	18.65	54181.97

Source: NRCS, 2014
Notes:
--- = Not applicable

The major soil types within the AO's of Edwards AFB are the Leuhman, Helendale, and Norob. The Leuhman complex, 0 to 2 percent slopes, is described as fine sandy loam and sandy clay loam eolian and lacustrine deposits derived from mixed sources, moderately well-drained, with a low capacity to transmit water. The Helendale loamy sand, 0 to 2 percent and 2 to 5 percent slopes, are described as loamy sand and sandy loam alluvium derived from granite, well-drained with a high capacity to transmit water. The Norob complex, 0 to 5 percent slopes, is overblown and described as sandy clayey loam, and fine sand alluvium derived from mixed sources, slightly to moderately saline, moderately well-drained, with up to a moderately high capacity to transmit water (NRCS 2014).

3.3.2 Estimated Effects

Protection of existing soils, minimization of soil erosion and topographic alterations, and the siting of related structures in relation to potential geologic hazards are considered when evaluating potential impacts of the Alternatives on physical resources. Generally, impacts can be

avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development.

The alternative actions can impact surface gradients, storm water runoff and surface water distribution, groundwater recharge and availability, or result in long-term erosion. Effects on soils would be significant if activities associated with the alternatives alter soil composition, structure, or stability such that long-term erosion results. Additionally, increased impervious surface cover such as paved surfaces can reduce groundwater recharge and availability and result in soil subsidence. Impacts to topography would be considered significant if the alternatives resulted in changes such that the existing drainage patterns of the site were altered in a manner which would result in substantial erosion or sedimentation on- or off-site.

Alternative 1

Base developments due to Alternative 1 would impact subsurface soils within the boundaries of the alternative. Annually, up to 30 acres of soil would be disturbed to accommodate new construction. In order to minimize soil erosion due to wind and precipitation, BMPs should be implemented. Site-specific erosion control plans could be executed where no impervious surfaces exist to minimize surface soil runoff. Other factors affecting erosion occur when soils are destabilized by the removal of vegetation and brush. BMPs include use of silt fences, covering of soil stockpiles, re-vegetation or covering with gravel base rock of disturbed areas in a timely manner, and wetting of soils to prevent fugitive dust and wind erosion. Additionally, AFI 32-7041 requires a stormwater pollution prevention plan if the disturbed area is over an acre. Outside of BMPs, no mitigation would be recommended for Alternative 1. It is expected that by implementing BMPs, no long-term soil erosion would result from Alternative 1. Construction would be expected to generally maintain the existing topography, hydrology, and drainage patterns, and there would be negligible to minimal change to the existing surface elevation gradient. Any stormwater would continue to drain to Rogers Dry Lake and percolation of water through soils would continue to be limited.

Alternative 2

Impacts to soils and topography under Alternative 2 would be similar to those described for Alternative 1, except that potentially contaminated soils might be impacted as a result of development. Soil or groundwater remediation may be warranted where construction occurs over known contamination areas. Any remediation would be conducted to state and federal regulations and standards. These remediation measures may need additional site-specific investigations to meet construction demands. Any soils excavated from within the contamination plume must be disposed or reused in accordance with state and federal regulations. Soil mitigation would most likely be necessary where construction or demolition activities intersect contaminations zones. Additional disturbed soil would also result from Alternative 2 since some extra utility lines would be installed to support a portion of the new facilities. BMPs discussed under Alternative 1 to minimize soil erosion should also be implemented under Alternative 2.

Alternative 3

Impacts to soils and topography under Alternative 3 would be similar to those described for Alternative 2, except that additional soil would be disturbed due to installation of new utility lines to support all new facilities and contaminated soils would be expected to be impacted as a result of development. Soil or groundwater remediation would be required where construction occurs over known contamination areas and would be conducted to state and federal regulations and standards. These remediation measures may need additional site-specific investigations to meet construction demands. Any soils excavated from within the contamination plume must be disposed or reused in accordance with state and federal regulations. BMPs discussed under Alternative 1 should also be implemented under the Alternative 3 selection.

No-action Alternative

Under the No-action Alternative, any construction activities occurring in areas of soil or groundwater contamination may require remediation of underlying soils. Prior to construction activities, the areas selected for development should be compared against contamination plume maps to determine if remediation or additional investigation may be required. If it is determined that remediation is required, it would be conducted to state and federal regulations and standards. Additionally, any soils excavated from within a contamination plume must be disposed or reused in accordance with state and federal regulations. Construction would be expected to generally maintain the existing topography and drainage patterns, and there would be negligible to minimal change to the existing surface elevation gradient.

Soils disturbed to accommodate new construction could result in soil erosion due to wind and precipitation. Site-specific erosion control plans, including BMPs, could be implemented to minimize surface soil runoff. BMPs can include use of silt fences, covering of soil stockpiles, re-vegetation or covering with gravel base rock of disturbed areas in a timely manner, and wetting of soils to prevent fugitive dust and wind erosion.

Cumulative Effects

Long-term impacts of annual construction of new test facilities, in addition to other construction projects listed in Section 2.4 include increased storm water runoff, reduced groundwater recharge and possible soil subsidence, increased erosion of soils down-gradient of construction areas, or increased sedimentation in areas adjacent to construction. Site-specific erosion control plans, including BMPs, could be implemented to minimize surface soil runoff. Additionally, use of permeable pavement would allow percolation or infiltration of storm water through the surface into the soil below, thereby reducing impacts to potential groundwater recharge and storm water runoff. With implementation of BMPs, long-term soil erosion would not be expected.

Beneficial cumulative impacts include the increased remediation and control of contaminated zones. The remediation of contaminated areas may reduce human health hazards from contaminated groundwater and soil.

Summary of the Estimated Effects

Under all alternatives, annual construction activities would disturb soil; however, impacts to soil erosion would be minimized below significant levels through the implementation of site-specific erosion control plans and BMPs. Alternatives 2 and 3 would disturb a greater amount of soil than Alternative 1 due to necessary site work for installation of new utility lines. Topography would not be expected to change significantly and there would be negligible to minimal change to the existing surface elevation gradient. No significant impacts to soils or topography would be expected as a result of the alternative actions.

3.3.3 Minimization Measures

No mitigation would be recommended. BMPs would include the use of site-specific erosion control plans where no impervious surfaces exist to minimize surface soil runoff, the use of silt fences, covering of soil stockpiles, re-vegetation or covering with gravel base rock of disturbed areas in a timely manner, and wetting of soils to prevent fugitive dust and wind erosion. Additional BMPs could include: minimizing the area of disturbance necessary to accomplish the project; stabilizing soils upon completion of project activities (e.g. backfilling with fill material); and utilizing sandbags to protect downstream facilities from potentials stormwater runoff and eroded soils diverted or generated by the project. These minimization measures shall be updated to reflect current practices at the time of project execution.

3.4 WATER RESOURCES

3.4.1 Existing Conditions

Surface Water

Edwards AFB is situated at the bottom of Antelope Valley, a 2,400-square mile watershed that drains into four playa lakebeds, Buckhorn, Rich, Rogers, and Rosamond Dry Lakes. They all receive water and sediment from the upper watersheds and its tributaries and slopes. There are no perennial streams on base. By the time storm water runoff in the ephemeral streams reaches the lower elevations or lakebeds, most of the water has evaporated or infiltrated into the ground. Thus, there are no outlets from the lakebeds for runoff. In general, infiltration is limited by the low permeability of the lakebeds. The dry lakebeds are the terminus for the storm water runoff in this large, closed basin (USAF 2015). The developed area of the installation includes a total of 2,631.91 acres of impervious surface which contribute to stormwater runoff. Of that, 340.51 acres fall within the Alternative 1 footprint. 881.60 acres of impervious surface are contained within the Alternative 2 boundaries and 916.38 acres fall within the Alternative 3 boundaries.

The primary watershed that transports water and sediment to the dry lakes that could be impacted by the alternative actions is the Rogers Lakes Watershed. Rogers Dry Lake is fed by Mojave and Big Rock Creeks (two ephemeral drainages) along with other small ephemeral unnamed drainages that flow into Rogers Dry Lake from the north, south, and east. This dry lake, or playa, makes up the floodplain and receives water during the winter months where it is left to evaporate during the spring and early summer months (USAF 2015). Figure 3-5 depicts the watersheds and surface hydrology on Edwards AFB.

Edwards AFB conducted a flood assessment from 2001 through 2005 for most of the developed areas of the base. The flood studies identified and delineated the 100-year floodplain for the critical facilities and support infrastructure (i.e., developed areas, runways, test facilities, and military housing). The results are intended to assist base planning in identifying the locations of floodplain boundaries and whether buildings, facilities, and associated infrastructure should be located outside of the floodplain or raised up to avoid future flooding (USAF 2015). Figure 3-6 depicts the latest version of the delineated floodplains on base in relation to the alternative actions. The portions of the alternative actions which lie within floodplains fall within the area defined as: "Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet."

In 1972 the Federal Water Pollution Control Act (known as the Clean Water Act [CWA]) was amended to effectively prohibit discharge of pollutants to "waters of the United States" from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The USEPA has delegated administration of the NPDES program within California to the State of California. California's Porter Cologne Act gives the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards the authority to administer the NPDES program (USAF 2002). To administer the storm water regulations the SWRCB adopted a General Permit for Discharges of Storm Water Associated with Industrial Activities (General Permit). In June 1997 Edwards AFB submitted a Notice of Intent to comply with the General Permit and was issued Waste Discharge Identification No. 6 B 15S011400 (USAF 2002). However, storm water runoff from Edwards AFB is not subject to NPDES storm water regulations under CWA Section 402 because the base does not discharge runoff to a regulated water body under the CWA (i.e., Waters of the U.S.). Therefore, coverage under California's NPDES storm water general permits for industrial and construction activities is not required at Edwards AFB. Edwards AFB requires implementation of BMPs to control sediments and pollutants in storm water runoff from construction activities in accordance the Storm Water Pollution Prevention Plan (SWPPP).

Groundwater

Edwards AFB is located within the Antelope Valley, a closed alluvial basin containing up to 10,000 feet of alluvial fill. As such, groundwater underlying Edwards AFB is influenced and controlled by the geology of Antelope Valley (USGS 1992). Groundwater occurs within the coarser layers that are sandwiched between the finer grained deposits in alluvial fans.

As a result of past practices, groundwater has been impacted at numerous sites throughout Edwards AFB. Investigations have revealed impacts associated with releases of mission-related contaminants. During site investigations conducted since 1990, Edwards AFB has installed and sampled hundreds of monitoring wells (USAF 2002). Samples from these wells have served to define the extent of ground water plumes. As a result of these investigations, it has been demonstrated that these contaminants have not migrated to on-base or to off-base drinking water supply wells.

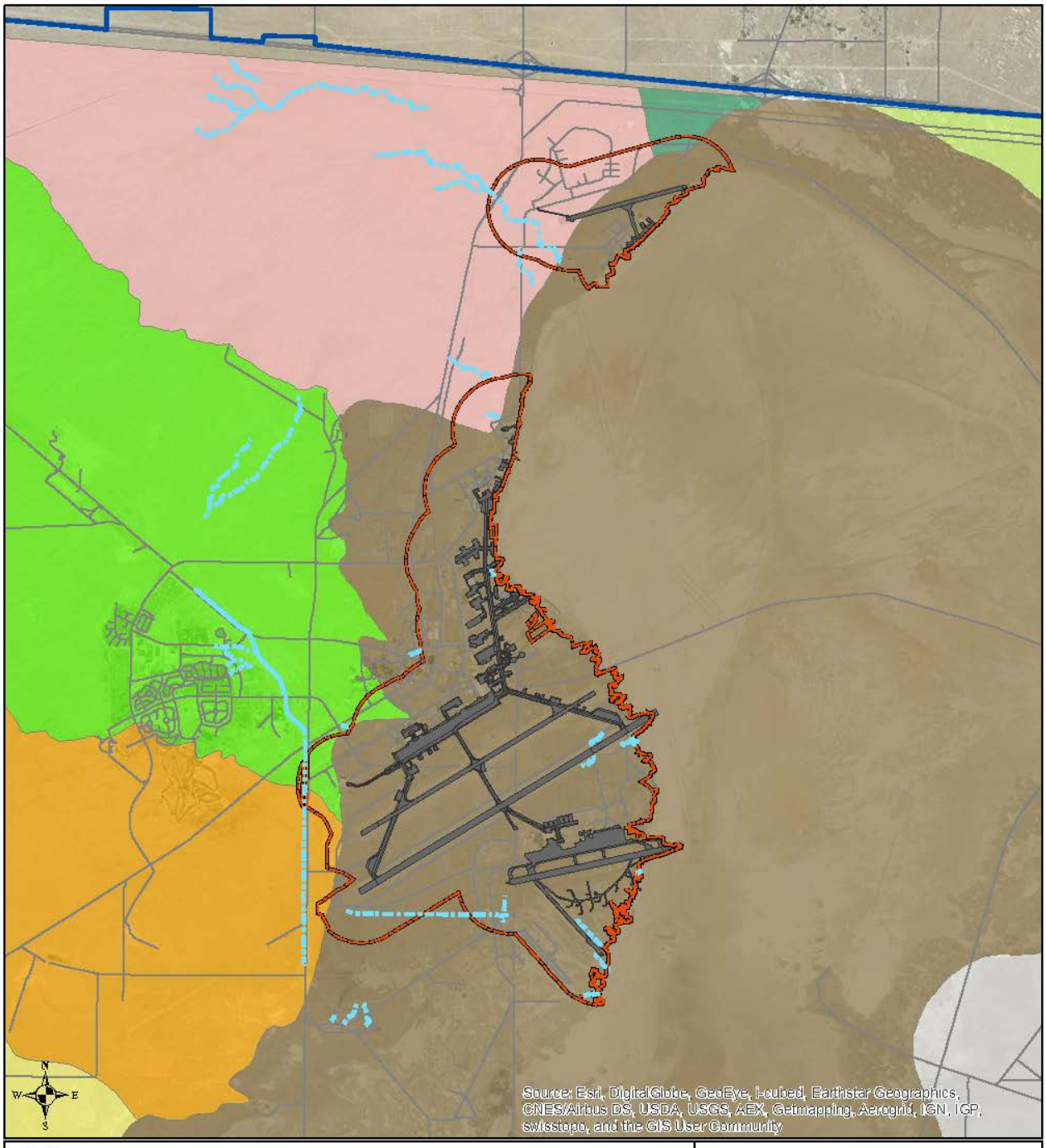


Figure 3-5

Watershed and Surface Hydrology

Edwards Air Force Base
Edwards, California

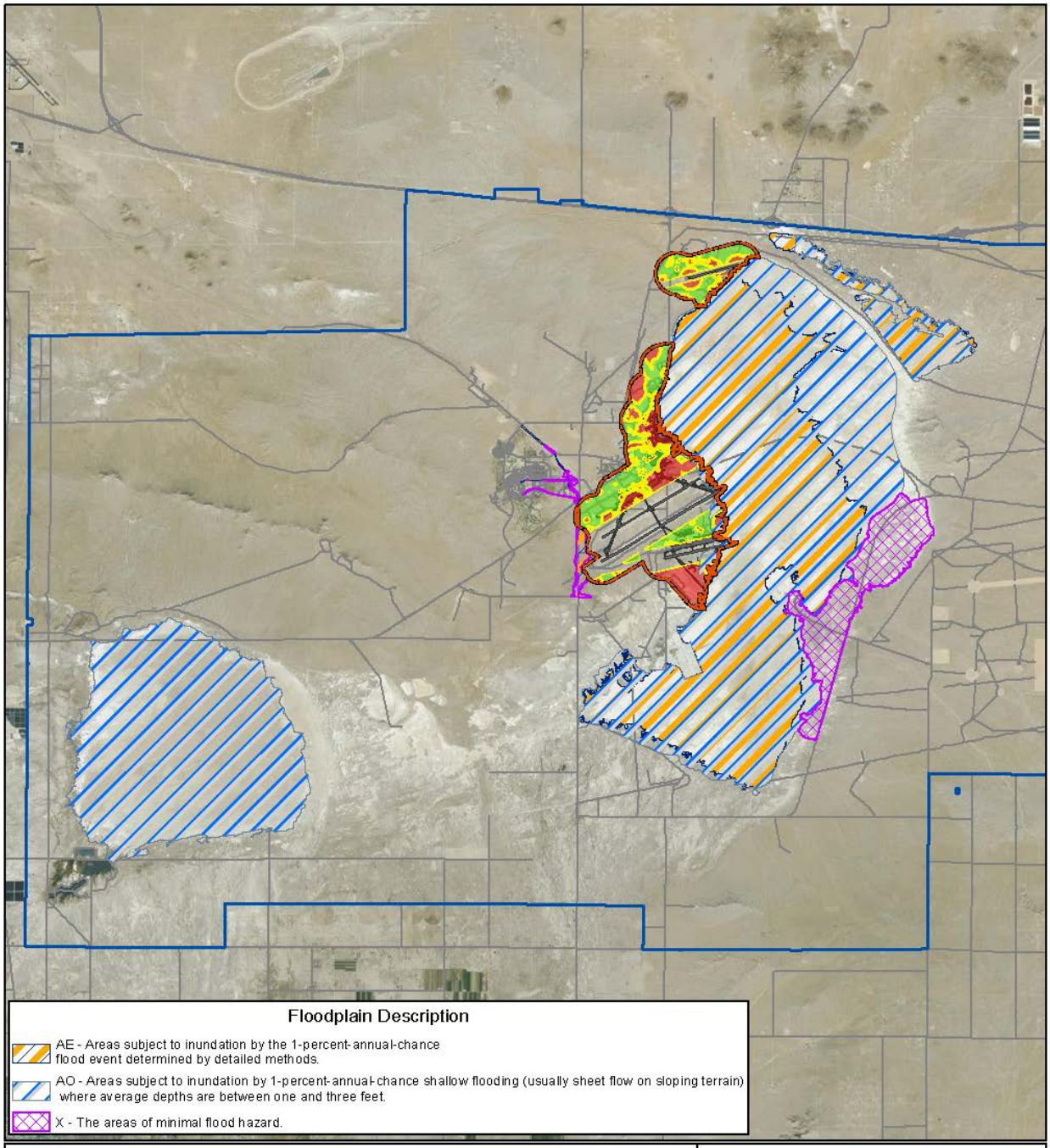


Figure 3-6

Floodplain Boundaries

Edwards Air Force Base
Edwards, California

3.4.2 Estimated Effects

Impacts on hydrology can result from land clearing activities, disruption of the soil profile, loss of vegetation, introduction of pollutants, new impervious surfaces, and an increased rate or volume of runoff after major storm events. Without proper management controls, these actions can adversely impact the quality and/or quantity of water resources. For example, impacts to water quality can result from introduction of pollutants into the environment or sedimentation due to loss of vegetation. Quantities of water resources can be reduced through addition of impervious surfaces which impede ground water recharge through percolation. An impact to water resources would be significant if it would adversely affect water quality or endanger public health by creating or worsening adverse health hazard conditions.

Alternative 1

With regard to water resources, the primary concerns associated with Alternative 1 include effects on surface water quality during development-related construction activities. Grading, or other ground disturbing activities, as well as improperly managed hazardous materials or wastes could potentially affect surface water quality through storm water runoff. During construction, Edwards AFB would require the contractor to implement BMPs to minimize the potential for exposed soils or other contaminants from construction activities on the Base to reach Rogers Dry Lake via ephemeral unnamed drainages that flow into Rogers Dry Lake from the north, south, and east. Management of potential pollutants from long-term operations of the new test mission would also follow BMPs as detailed in the SWPPP. Adherence to BMPs would minimize impacts to surface water quality during construction and long-term operation of test mission facilities, such that adverse effects to water quality would not be expected.

For purposes of analysis, it was assumed that in any given year, construction of facilities would result in approximately 30 acres of additional impervious surfaces. This potential increase would occur in areas of the installation that currently possess impervious cover (i.e., sidewalks, existing facilities, runways, parking lots, and roadways) and there is existing associated storm water infrastructure in place which drains into Rogers Dry Lake. Considering the existing 340.51 acres of impervious surface within Alternative 1, a 30 acre increase in impervious surface represents a 9 percent increase in impervious surfaces within the Alternative 1 footprint. This increase also represents a one percent increase in impervious cover on the developed area of the installation (which currently has 2,631.91 acres of impervious surface). This addition in impervious surface would result in a similar increase in annual installation stormwater runoff of approximately one percent. Any increased runoff has the potential to increase sediment loads within the water bodies. The increase in sediment loads should be managed by the proper implementation of the base-wide SWPPP.

It is unlikely that development activities under Alternative 1 would encounter contaminated groundwater since the footprint of the alternative does not include areas of known groundwater contamination. In the event that contaminated groundwater was encountered during development activities related to Alternative 1, care would be taken to ensure that groundwater resources and human health were protected.

Approximately 265 acres within the footprint of Alternative 1 fall within the floodplain area designated as "AO" (Figure 3-6). This area, as defined above, is subject to inundation by a 1-percent-annual-chance shallow flooding. In order to avoid increased flood hazards and resulting public health endangerment, implementation of Alternative 1 must include design features to minimize effects of flooding. Any construction activities would comply with EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. In addition, storm water runoff related to development-related construction activities and the long-term increase in impervious surfaces proposed under Alternative 1 must comply with the base-wide SWPPP as well as project-specific SWPPPs and associated BMPs to control sediments and pollutants in storm water runoff from construction activities.

Alternative 2

Impacts for Alternative 2 would be the same as those described for Alternative 1 except that under Alternative 2, approximately 371.37 acres in the proposed project footprint fall within the floodplain area designated "AO" (Figure 3-6). Construction activities would comply with EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*. Additionally, Alternative 2 may potentially necessitate the relocation of monitoring wells and remediation of groundwater contamination. Any contaminated groundwater encountered during construction, demolition, or renovation activities would be managed according to state and federal regulations to ensure protection of water resources and human health. Considering the existing 881.60 acres of impervious surface within Alternative 2, a 30 acre increase in impervious surface represents approximately a 3 percent increase in impervious surfaces within the Alternative 2 footprint. This increase also represents a one percent increase in impervious cover on the developed area of the installation (which currently has 2,631.91 acres of impervious surface). This addition in impervious surface would result in a similar increase in annual installation stormwater runoff of approximately one percent.

Alternative 3

Impacts for Alternative 3 would be the same as those described for Alternative 1 and Alternative 2 except that under Alternative 3, approximately 367.97 acres in the proposed project footprint fall within the floodplain area designated "AO" (Figure 3-6). Construction activities would comply with EO 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*.

Considering the existing 916.38 acres of impervious surface within Alternative 3, a 30 acre increase in impervious surface represents approximately a 3 percent increase in impervious surfaces within the Alternative 3 footprint. This increase also represents a one percent increase in impervious cover on the developed area of the installation (which currently has 2,631.91 acres of impervious surface). This addition in impervious surface would result in a similar increase in annual installation stormwater runoff of approximately one percent.

No-Action Alternative

Impacts associated with the No-action Alternative would be similar to those associated with the action alternatives except that each new facility would continue to be considered on a case-by-case basis rather than a consolidated development approach. Since construction of facilities would not necessarily be co-located, impacts to water resources including surface water and floodplains would be minimized through implementation of SWPPPs and design features to address potential flooding hazards on a case-by-case basis, to minimize impacts. Increases in stormwater runoff would vary based upon the amount of construction occurring in any given year; however, the increases are not expected to exceed those described for Alternative 1.

Cumulative Effects

Surface water management would present the main issue of concern regarding cumulative impacts. In the short-term, construction activities associated with the alternatives and concurrent projects listed in Section 2.4 that would occur at Edwards AFB would primarily require addressing sediment control and runoff. In the long-term, construction of facilities would result in approximately 300 acres of additional impervious surfaces over a 10-year period (an 11 percent increase over total installation impervious surface and a 14 percent increase over existing impervious surface within the AO). This increase of impervious surfaces, as well as long-term operational activities at the test mission facilities, along with concurrent projects would require management of potential pollutants. In order to minimize the potential for increased sediment loading or introduction of pollutants into a water resource, incorporation of BMPs, in accordance with the Edwards AFB SWPPP, would be implemented. Potential impacts of flood hazards resulting from the alternatives and concurrent projects would be mitigated through the use of specific design features to minimize the effects of flooding.

Summary of the Estimated Effects

With regard to water resources, the primary concerns associated with the alternatives include effects on water quality during development-related construction activities as well as impacts to designated floodplain areas. Assuming that features to minimize effects of flooding are incorporated into the construction design of each alternative, public health would not be endangered. In addition, storm water runoff related to development-related construction activities and the long-term increase in impervious surfaces must comply with the base-wide SWPPP as well as project-specific SWPPPs and associated BMPs to control sediments and pollutants in storm water runoff from construction activities. If the SWPPP and BMPs are followed, impacts to water quality would not be expected. Under Alternatives 2 and 3, any contaminated groundwater encountered during construction, demolition, or renovation activities would be managed according to state and federal regulations to ensure protection of water resources and human health. By implementing design features to minimize effects of flooding, following BMPs and SWPPP, and managing groundwater according to state and federal regulations no significant impacts would be expected as a result of any of the alternatives.

3.4.3 Minimization Measures

BMPs to help minimize surface water quality impacts could include: good housekeeping practices; preventive maintenance programs; inspections; employee training; spill response procedures; berms or containment pallets; detention/retention ponds; and erosion control measures. These measures could include use of gravel or cobble to enhance drainage and reduce erosion; conducting renovation or construction activities during the dry season; minimizing the soil exposure time and covering exposed soil piles with waterproof tarps; and protection of storm water drainage inlets with sand bags or gravel bags. Additionally, in order to avoid increased flood hazards design features to minimize effects of flooding should be implemented. These minimization measures shall be updated to reflect current practices at the time of project execution.

3.5 HAZARDOUS MATERIALS AND WASTE

3.5.1 Existing Conditions

Hazardous Materials and Waste

A hazardous material is any material whose physical, chemical, or biological characteristics, quantity, or concentration may cause or contribute to adverse effects in organisms of their offspring; pose a substantial present or future danger to the environment; or result in damage to or loss of equipment, property, or personnel. Hazardous materials and waste management activities at Edwards AFB are governed by specific environmental regulations including Resource Conservation and Recovery Act (RCRA) (42 United States Code [USC] 6901); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601); the Federal Facility Compliance Act of 1992 (FFCA) (Public Law 102-386); AFI 32-7086, Hazardous Materials Management; 40 CFR 260-299, Storage, Treatment and Disposal of Waste; and 49 CFR 171-185, Waste Transportation and Packaging.

The use of hazardous materials results in generation of hazardous waste (e.g., paint waste, used oil, contaminated rags, etc.) and requires proper handling. The USEPA enforces the RCRA (40 CFR 260-272), which provides guidelines for the generation, storage, transportation and disposal of hazardous waste. The California Environmental Protection Agency (Cal-EPA) enforces hazardous waste laws embodied in 22 California Code of Regulations (CCR) Chapters 10-20 and the California Health and Safety Code (Section 25100). Environmental Management manages hazardous waste accumulation.

Guidelines used by Edwards AFB include the Edwards AFB Hazardous Waste Management Plan (USAF 2010b), which was prepared in accordance with AFI 32-7042, Waste Management. The Hazardous Waste Management Plan (HWMP) contains requirements for solid and hazardous waste characterization, training, accumulation, turn-in and disposal, as well as procedures for inspections, permits and recordkeeping. It is intended to ensure compliance with applicable federal, state and local regulations; simplify administrative procedures; and reduce pollution and environmental impacts through improved waste management practices.

Environmental Restoration Program

Previous releases of hazardous chemicals during base operations resulted in both soil and groundwater contamination on Edwards AFB. Contaminated soil or groundwater requires physical removal or extensive remediation to ensure the protection of public health and safety. The remediation of contaminated sites is conducted under AFI 32-7020, the ERP, which was established to identify, investigate, assess and clean up hazardous waste at former storage and disposal sites as required by CERCLA and RCRA. In order to conduct remediation of the sites, Edwards AFB is divided into nine ERP management areas termed operable units (OUs).

These OUs were established based on location and/or type of facility or contamination. In 2004, it was decided that Edwards AFB would submit draft Records of Decision (ROD) to the USEPA, Cal-EPA Department of Toxic Substances Control (DTSC), and Cal-EPA Regional Water Quality Control Board (RWQCB) for review and approval for each of the nine OUs. The proposed development of all land within 2,500 feet of existing runways and taxiways at the North Base, Main Base, and South Base includes parts of OUs 1, 2, 5/10, 6, and 8. Groundwater contamination in the form of solvent, perchlorate, petroleum, nitrate, and N-Nitrosodimethylamine (NDMA) plumes exist in these OUs. Locations of groundwater plumes at Edwards AFB are indicated by their respective OUs in Figure 3-7 below.

Asbestos

Asbestos-containing materials (ACMs) are potentially found in all buildings. ACMs are any material containing more than one percent by weight of asbestos and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure. Asbestos is made up of microscopic bundles of fibers that may become airborne when distributed or damaged. These may be inhaled into the lungs, where they may cause significant health problems. Due to its availability to withstand heat, fire, and chemicals; asbestos was historically commonly used in construction materials, and is typically found in ceiling tiles, pipe and vessel insulation, floor tile, linoleum, mastic, and on structural beams and ceilings.

Laws which address the health risks of exposure to asbestos and ACMs include the Toxic Substance Control Act, OSHA regulations (29 CFR), and the CAAA (Section 112 of the CAAA, as amended, 42 USC § 7401 *et seq*.). USEPA regulations concerning asbestos are contained in 40 CFR 61. The regulations require that the USEPA or authorized state agencies be notified of asbestos removal projects. The Edwards AFB *Asbestos Management Plan* provides guidance on the management and removal of asbestos at the installation (USAF 2014).

Lead-based Paint

Lead-based paint (LBP) was commonly used from the 1940s until the 1970s for exterior and interior painted surfaces. In 1978, the U.S. Consumer Product Safety Commission lowered the legal maximum lead content in most kinds of paint to trace amounts, therefore, buildings constructed after 1978 are presumed not to contain LBP.

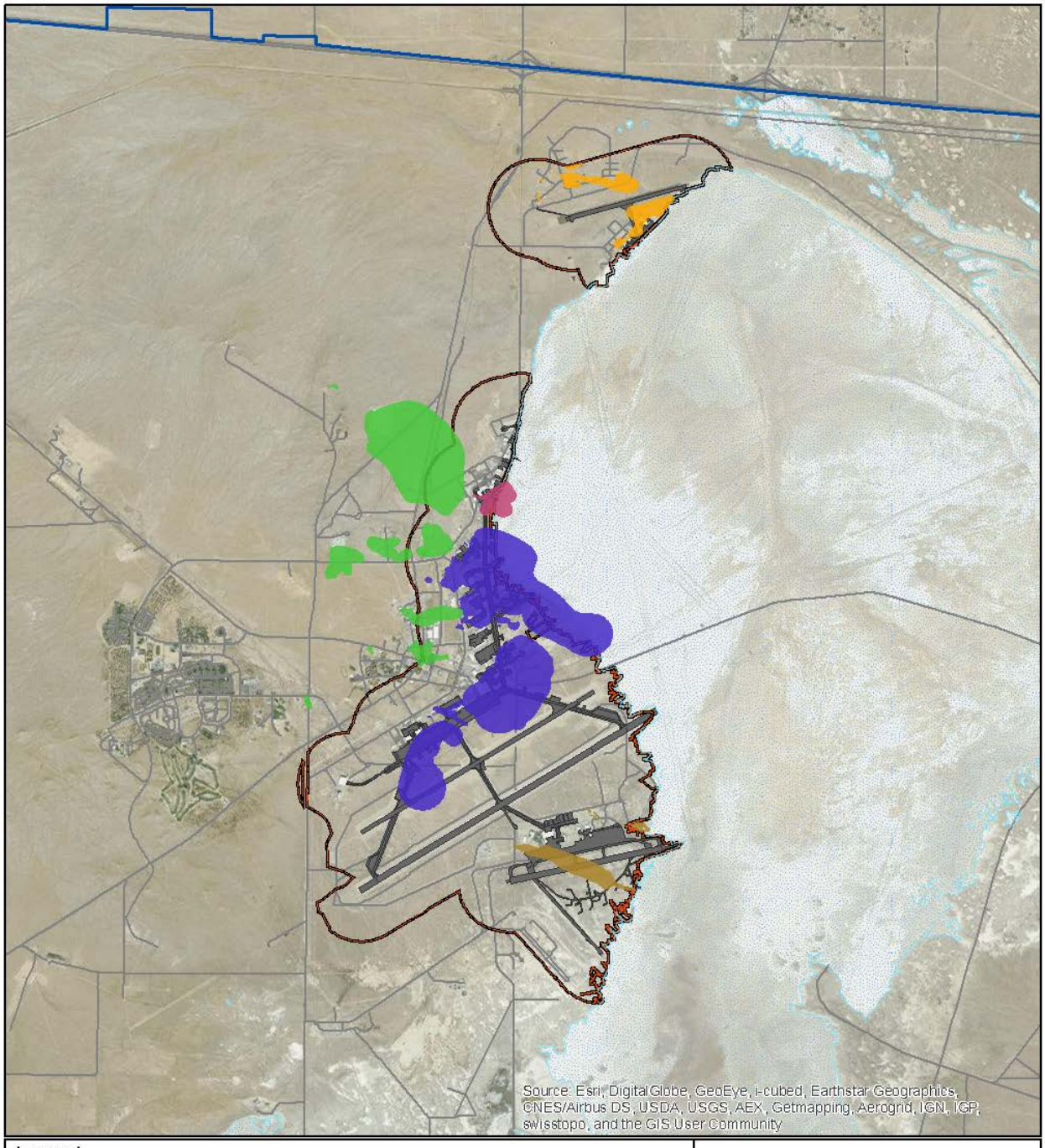


Figure 3-7

Groundwater Plumes in the Action Area

Edwards Air Force Base
Edwards, California

The use and management of LBP is regulated under Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992. Section 1017 provides guidelines for the conduct of all federally supported work involving risk assessments, inspection, interim controls, and abatement of lead-based paint hazards. Regulations relating to LBP can be found at 29 CFR, 40 CFR, and 49 CFR. Guidance for administrative and operations plans for managing lead-based paint-containing materials at Edwards AFB is provided in the *Lead Management Plan*.

3.5.2 Estimated Effects

The degree to which proposed installation activities could affect the existing environmental management practices was considered in evaluating potential impacts to and from hazardous materials and wastes, including ERP sites. Significant impacts could result if non-hazardous/regulated and hazardous substances were collected, stored and/or disposed of improperly.

Alternative 1

Hazardous Materials

No long-term change in the existing hazardous material management would occur as a result of Alternative 1. Relocating monitoring wells and remediating contamination plumes would not be necessary. The use of hazardous materials during development under Alternative 1 is anticipated to be limited to construction vehicle maintenance (fuel, oils, and lubricants) activities and construction materials (adhesives, sealants, etc.). These materials would be required to be properly contained, manifested, and managed in accordance with all federal, state, and local regulations, AFIs, and DoD Directives. Authorization from Edwards AFB Hazardous Materials Management Program would be acquired prior to use of hazardous materials.

ACM survey results should be reviewed prior to any activity. The guidelines present in AFI 32-1052, *Facility Asbestos Management* will be followed to abate all ACM from the affected facilities prior to demolition and renovation activities. No ACM would be used in the construction or renovation of any new facilities and all ACM from existing structures would be properly removed and disposed of during renovation and demolition.

Areas where LBP was previously abated or not found should still be regarded as possibly containing LBP. LBP may also be present within the soils surrounding facilities. If it were necessary to remove soils for off-site disposal, a limited number of random samples would be collected to assess the presence or absence of lead in the soil, and to properly categorize the soil for hazardous constituents per applicable state and federal regulations for off-site disposal. LBP-containing materials removed from housing units qualify for household hazardous waste exemption, and will be treated as construction and demolition wastes.

Hazardous Waste

No long-term change in the existing hazardous waste management would occur as a result of development under Alternative 1. All federal, state, and local environmental laws would continue to be observed, as well as preventative measures contained in the Edwards AFB HWMP. As

such, no adverse impacts related to hazardous materials and waste would be expected under the Alternative 1.

Environmental Restoration Program

It is unlikely that development activities under Alternative 1 would encounter contaminated soil and groundwater since the footprint of the alternative does not include areas of known groundwater and soil contamination. If contaminated soil was encountered during development activities, care would be taken to ensure that human health were protected. In the unlikely event that groundwater is encountered during development activities related to Alternative 1, care would be taken to ensure that groundwater resources and human health were protected. Any hazardous substances encountered would be managed according to state and federal regulations.

Alternative 2

As with Alternative 1, there would be no long-term change in the existing hazardous waste stream or hazardous waste management as a result of the development activities. However, there would be a potential short-term increase in the hazardous waste stream due to development of moderately-constrained areas. This development may potentially necessitate the relocation of monitoring wells and remediation of groundwater contamination. Exact locations of proposed construction sites are unknown; however, ERP constraints would be evaluated if any development were proposed within 100 feet of an OU site boundary. Any hazardous substances, including soil and groundwater, encountered during construction, demolition, or renovation would be managed according to state and federal regulations. Impacts from ACM, LBP, and PCBs would be the same as those described for Alternative 1.

Alternative 3

Hazardous materials and waste impacts resulting from Alternative 3 will be similar to that described for Alternative 2. Under Alternative 3 there would be a short-term increase in the hazardous waste stream due to development of substantially-constrained areas necessitating the relocation of monitoring wells and remediation of groundwater contamination. Impacts from ACM, LBP, and PCBs would be the same as those described for Alternative 1.

No-action Alternative

Under the No-action Alternative, any construction activities occurring in areas of soil or groundwater contamination may require remediation of underlying soils. Prior to construction activities, the areas selected for development should be compared against contamination plume maps to determine if remediation or additional investigation may be required. If it is determined that remediation is required, it would be conducted to state and federal regulations and standards. Additionally, any soils excavated from within a contamination plume must be disposed or reused in accordance with state and federal regulations. Impacts to ACM, LBP, and PCBs would be the same as those described for Alternative 1.

Cumulative Effects

Since ACM, LBP, and PCBs would be managed according to existing Edwards AFB's management programs, no impacts to ACM, LBP, or PCBs would be expected. As a result, the alternatives would not contribute to cumulative impacts to these hazardous substances. For projects described in Section 2.4 that would occur during the same time as the alternatives, any hazardous substances encountered during construction would be managed by the Edwards AFB HWMP. These concurrent projects, as well as the 10-year development of new test missions at Edwards AFB would generate an increase in hazardous wastes. However, all of these wastes would be managed by the HWMP.

Beneficial cumulative impacts include the increased understanding of base contamination as well as increased remediation and control of contaminated zones. The remediation of contaminated areas may reduce human health hazards from contaminated groundwater and soil.

Summary of the Estimated Effects

Under all alternatives, any hazardous substances, including soil, groundwater, ACM, LBP, and PCBs encountered during construction, demolition, or renovation would be managed according to state and federal regulations. Therefore, there would be no significant impacts to or from hazardous materials or wastes, or ERP sites as a result of any of the alternatives.

3.5.3 Minimization Measures

All hazardous materials and wastes would be managed according to established plans and state and federal regulations. Therefore, no measures to reduce impacts would be necessary. As noted above, in the unlikely event that groundwater is encountered, care would be taken during demolition and construction activities to ensure that groundwater resources and human health would be protected from contamination.

3.6 BIOLOGICAL RESOURCES

Biological resources include plant and animal species and the habitats in which they occur. This includes the associated plant populations and wildlife communities. For this analysis, biological resources are divided into the following categories: vegetation, wildlife, wetlands and waters of the US, and protected species including migratory birds. Vegetation and wildlife refer to the plant and animal species, both native and introduced, which characterize the region. Wetlands are special habitats that support specific plants and wildlife. Protected species are plant and animal species in need of protection to ensure that the species do not decline to extinction.

Various state, federal, DoD, and municipal laws, regulations, directives and instructions mandate the protection and management of biological resources. The Edwards' Air Force Base Integrated Natural Resources Management Plan (INRMP) provides guidance for protecting sensitive species, sensitive communities, and habitats recognized by state and local resource agencies when evaluating the impacts of an Air Force action in accordance with laws, EOs, directives, regulations, policies (USAF 2015). A detailed list of plants and animals found on Edwards AFB can be found in the Final Edwards INRMP (USAF 2015). A list of the species laws and

regulations pertinent to the evaluation of biological resources at Edwards AFB is provided below:

The Federal Noxious Weed Act (7 USC 2801 et seq.), enacted in January 1975, established a federal program to control the spread of noxious weeds. EO 13112 was issued in 1999 to enhance federal coordination and response to the complex and accelerating problem of invasive species. The EO defines an invasive species as a species not native to the region or area whose introduction (by humans) causes or is likely to cause harm to the economy or the environment, or harms animal or human health (NISC 2005).

The Fish and Wildlife Coordination Act (16 USC 661-667e) requires consultation with the United States Fish and Wildlife Service (USFWS) and the fish and wildlife agencies of States where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. The purpose of the act is to recognize the vital contribution of wildlife resources to the nation and to require equal consideration and coordination of wildlife conservation with water resources development programs.

The United States Army Corps of Engineers regulates “Waters of the United States”, wetlands, and special aquatic sites under Section 404 of the CWA. EO 11990, Protection of Wetlands, signed by President Carter in 1977, requires federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. It also requires that agencies avoid construction or providing assistance for new construction located in wetlands, to the extent practicable.

Under the Endangered Species Act (ESA; 16 USC 1536), the USFWS maintains an active conservation program for threatened and endangered species and the habitats in which they are found. An “endangered species” is defined as any species in danger of extinction throughout all or a large portion of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future. USFWS also maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS advises government agencies, industry, and the public that these species are at risk and might warrant future protection under the ESA. The USFWS also maintains a species of conservation concern list. This list includes unprotected species that are likely to become candidate species in the future under the ESA. The law requires federal agencies, in consultation with the USFWS to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species.

Migratory birds are protected by the Migratory Bird Treaty Act (MBTA) (16 USC §703) as well as EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds). Illegal actions against migratory bird species are defined by the MBTA as any “attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof” (USFWS 2013).

Additionally, the California Department of Fish and Wildlife maintain a list of state-identified threatened and endangered species; and prohibit the taking, possession, transportation, or sale of any of the animal species designated by state law as endangered or threatened without the issuance of a permit.

3.6.1 Existing Conditions

Edwards AFB is located within the Antelope Valley in the western Mojave Desert. The Mojave Desert lies within the Intermountain Semidesert and Desert Province (Bailey 1995). The four habitat types that have been identified at Edwards AFB include desert aquatic, desert wash, desert dune, and desert scrub (The Nature Conservancy 2001). The various habitats in the desert are highly dependent on topography, and there is little topographic relief on Edwards AFB. Within the AO only desert scrub habitat is present.

Details of the base's natural resources and management practices are presented in the Edwards AFB INRMP (USAF 2015). As part of the INRMP, natural resources constraints, including protected biological resources are presented. No natural resources constraints are identified within the AO. A summary of the resources is presented in the following sections.

3.6.1.1 Vegetation

The Mojave Desert vegetation is dominated by low, widely spaced shrubs (NPS 2014). The Mojave Desert contains approximately 2,300 plant species. Approximately 200 of the plant species are considered endemic. The Mojave Desert is a fragile ecosystem, roughly half of the desert has been degraded and fragmented through human activities (Ricketts et al 2000).

The main plant community of Edwards AFB is desert scrub. Upland areas, are composed of creosote bush scrub and Joshua tree woodlands dominated by creosote bush (*Larrea tridentate*) shadscale (*Atriplex confertiflora*), Joshua trees (*Yucca brevifolia*), and inkweed (*Suaeda moquinii*). Lowland communities consist of saltbush and alkali sink communities dominated by allscale saltbush (*Atriplex polycarpa*) and spinescale saltbush (*Atriplex spinifera*).

Weedy annuals of disturbed sandy areas such as tumble-mustard *(Sisymbrium altissimum*), tumbleweed (Russian thistle) *(Salsola tragus* and *S. paulsenii*), red brome (*Bromus rubens*), tansy mustard (*Descurrania pinnata*), and split grass (*Schismus barbatus*) are common in disturbed portions of natural habitats throughout the base.

The majority of land in the proposed AO is considered to be disturbed to highly disturbed. Approximately 50 percent of the AO is considered unvegetated (USAF 2015). The remaining area is mapped primarily as saltbush communities, with portions of the northern section of the AO mapped as Joshua Tree woodlands. The AO for all alternatives is within 2,500 ft of existing runways and taxiways and contains the majority of the light industrial buildings on base. This general area has been used and reused by the Air Force (mostly for aircraft testing) since the 1940s. There is little to no undisturbed vegetation in the AO. A table showing the general vegetation types for each Alternative is presented below.

Table 3-7 Vegetation Types by Alternative

Alternative	Woodlands (acres)	Scrub/Shrubland (acres)	Non-vegetated to Sparsely Vegetated (acres)
Alternative 1	136.85	849.82	817.4
Alternative 2	129.36	734.37	848.23
Alternative 3	67.95	647.46	660.14

3.6.1.2 Wildlife

Wildlife on Edwards AFB is typical of the Mohave Desert. The variety of wildlife is greatly dependant on the local water sources including drainages, playa lakebeds, and claypans. During seasons with above average rainfall, the playas and claypans are habitat for aquatic invertebrates, such as fairy shrimp, that are eaten by migrating wading birds. Surrounding upland ecosystems typically have different plant species but much of the same wildlife species.

Mammals

A total of 30 mammal species have been documented on base (USAF 2015). Some of the more common herbivore mammals on base include the desert cottontail (*Sylvilagus auduboni*), black-tailed jackrabbit (*Lepus californicus*), and white-tailed antelope squirrel (*Ammospermophilus leucurus*). Common carnivore mammals include coyote (*Canis Latrans*), kit fox (*Vulpes macrotis arsipis*), bobcat (*Lynx rufus*), and American badger (*Taxidea taxus*). Common rodents include the deer mouse (*Peromyscus maniculatus*), grasshopper mouse (*Onychomys torridus*), little pocket mouse (*Perognathus longimembris*), Merriam's kangaroo rat (*Dipidomys merriami*), and desert woodrat (*Neotoma lepida*). Common bats include the western pipistrelle (*Pipistrellus hesperus*) and little brown bat (*Myotis lucifugus*).

Of the mammals present on base, the ones most likely to be within the AO are those most adapted to disturbed and developed areas. This includes ground squirrels, mice, some bat species, rabbits, and coyotes. Edwards AFB has three species of ground squirrels: California ground squirrel (*Spermophilus beecheyi*), white-tailed antelope squirrel, and Mohave ground squirrel (*Spermophilus mohavensis*) (AFFTC 1993). The California ground squirrel is not native to the Mojave Desert and is considered a pest on base. The other two ground squirrels are native to the Mojave Desert and found in the open desert in a variety of desert scrub habitats. Six species of bats have been documented at Edwards AFB (USAF 2015). Typical bat roosting areas on the base include hangars, abandoned and occupied buildings, and rocky outcrops. The Base likely lies within the migratory path of several bat species. Bats are expected to be present in the AO because they use be abandoned buildings as roosting areas. However there are far more adequate and attractive roosting and feeding sites in natural habitat located immediately adjacent to the AO.

Birds

At least 300 species of birds have been observed on base. Most are migratory birds, and mostly associated with water habitats. Common species found in developed areas, that encompass the complete AO include: house finches (*Haemorphous mexicanus*), mourning doves (*Zenaida*

macroura), common ravens (*Corvus corax*), barn owls (*Tyto alba*), Say's phoebes (*Sayornis saya*), and Anna's hummingbirds (*Calypte anna*). Many of these species will use buildings, associated structures, and landscaping for hunting, perching, and nesting habitat. Landscaping and irrigation provides some food resources such as insects, rodents, and ornamental flowers that many birds find attractive, increasing their occurrence in these areas. Buildings and their associated structural components such as antennas, awnings, rain gutters, moldings, etc. also provide perching sites and surfaces for nesting The AO is within 250 meters of the flight lines where Bird Aircraft Strike Hazard management efforts minimize large flocks of birds. Therefore, these portions of the AO are not expected to be preferential habitat for birds on base.

Reptiles and Amphibians

Only two native amphibians present within the Mojave Desert have been documented on Edwards AFB: the western toad (*Bufo borealis*) and red-spotted toad (*Bufo punctatus*). The two species look similar, are found adjacent to water, and are nocturnal. The amphibians are associated with Piute Creek and spring, but have decreased within the desert due to the decrease of surface water and the drying of the soils in the region. Based on previous surveys and incidental sightings, at least three species of amphibians have been introduced on Edwards AFB. These include tree frogs (*Hyla regila*), bullfrogs (*Lithobades catesbeianus*), and African clawed frogs (*Xenopus laevis*). Due to the lack of surface water within the AO, amphibians are not expected to be present.

Reptile surveys were conducted on Edwards AFB to document the common species observed in 1993 by Tetra Tech and 2005 by AMEC. In the first survey, 13 different reptile species were observed. In 2005, AMEC took photographs of several seldom seen nocturnal reptiles such as the glossy snake (*Arizona elegans*) and California night snake (*Hypsiglena torquata*). Several other Mojave Desert species potentially could occur on base, but have not been documented. Night surveys have been conducted for reptiles since 1993; annual reptile surveys are conducted at established study plots in various habitats on base to determine population trends.

In general, habitat quality is not good for reptiles found on Edwards AFB. Within the AO much of the area is unvegetated and developed. The habitat within the AO is limited for reptiles.

Fish

Few areas of habitat for fish are present within Edwards AFB. Fish are generally not present within effluent ponds on base, with the exception of the pond at Branch Park that is stocked with fish during the Edwards AFB annual fishing derby. There are no ponds located within the AO.

3.6.1.3 Wetlands and Waters of the US

The United States Army Corps of Engineers and USEPA define wetlands (in 40 CFR 230.3[t]) as "those areas that are inundated or saturated by surface or groundwater 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. . . "

Edwards AFB does not contain jurisdictional wetlands. Surface waters on the base are primarily a result of constructed ponds and detention basins. Other aquatic habitats include ephemeral clay

playas and dry lakes. None of the aquatic features are jurisdictional due to a lack of connectivity or adjacency to navigable waters, or waters otherwise used for interstate commerce. All permanent surface water on base is a result of detention ponds and impoundments.

3.6.1.4 Protected Species

3.6.1.4.1 Federally-Listed Threatened and Endangered Species – Desert Tortoise

The desert tortoise (*Gopherus agassizii*) is the only permanent resident species listed under the United States federal ESA located on Edwards AFB. The tortoise is listed as federally threatened. The Desert tortoises occur throughout Edwards AFB, but are absent or in low numbers in and around the immediate vicinity of the AO. The USFWS designated 6.4 million acres of federal critical habitat in 1994 (59 Federal Register 5820). Edwards AFB contains approximately 60,000 acres of designated critical habitat on the eastern portion of Edwards AFB (USAF 2015 and USFWS 2014). The designated habitat generally consists of creosote bush scrub and Joshua tree woodland habitats. The AO is not USFWS-designated critical habitat, and the USFWS has found the AO is unsuitable habitat for the tortoise. The nearest Critical Habitat to the AO is 5-12 miles away. The US Department of the Interior, Desert Tortoise Research Natural Area is located about 5 miles north of Edwards AFB. This area is jointly managed by the Bureau of Land Management, California Department of Fish and Game, and the Desert Tortoise Preserve Committee, a nonprofit group established to acquire and manage lands for the protection of the desert tortoise.

The proposed project would be completed under a Base Wide USFWS Biological Opinion for Operations and Activities at Edwards Air Force Base California (8-8-14-F-14) issued March 2014 from the USFWS.

3.6.1.4.2 State- Listed Threatened Mohave Ground Squirrel

The Mohave ground squirrel is a California state-listed threatened species and has been considered for federal listing as endangered by the USFWS, but found not warranted. It is widely distributed on base; and for the most part, is found in remote undeveloped areas in the eastern portions of the base.

Edwards AFB has taken measures to manage the Mohave ground squirrel. The squirrel has been sighted only on the eastern and northeastern parts of the base, primarily in undeveloped areas. Since the Mohave ground squirrel has occurred in the same habitat as the desert tortoise, the designated Critical Habitat and mandated management practices for tortoise within the Edwards AFB complex provide additional protection for the squirrel. Mohave ground squirrel population distribution is widely scattered east and south of Rogers Dry Lake in creosote bush scrub, interspersed with Joshua trees, and saltbush scrub habitat and the Edwards INRMP includes a management plan for this species (USAF 2015).

3.6.1.4.3 Migratory Birds

Edwards Air Force Base is home to a wide range of bird species protected under the Migratory Birds Treaty Act. Because of the limited hydraulic areas in the desert, the aquatic areas on Edwards AFB are common places for migratory birds. Piute Ponds in particular is an important

migratory bird area in California due to the large wetlands provided by the area attracting shorebirds and waterfowl. The Base aquatic areas typically support significant numbers of species of conservation concern, large concentrations of birds, suitable habitat, and/or substantial research or educational value. The INRMP provides details on the installation level requirements and management actions related to the Migratory Bird Treaty Act.

The burrowing owl (*Athene cunicularia*) is a federal and California species of concern and is protected under the auspices of the Migratory Birds Treaty Act. The burrowing owl is a California, Category 2 State Species of Concern. It is a small ground-dwelling owl that lives in modified rodent holes, and in ground cracks and crevices. Burrowing owls have been observed in colonies near developed areas of Edwards AFB. They live primarily in dry, open scrub or grassland. Areas of the AO may be habitat for the burrowing owl. Edwards AFB maintains an approximately 185 acre, fenced burrowing owl conservation area which provides alternative, desirable habitat for the owls. Specific goals and objectives for the management and enhancement of burrowing owls and their habitat on Edwards AFB are addressed in the Edwards AFB INRMP (USAF 2015).

3.6.2 Estimated Effects

Impacts to biological resources would be considered significant if the Alternatives resulted in:

- An adverse effect to available habitat or individual wildlife that resulted in a change of species composition on the Base;
- An adverse effect to Federally-listed endangered, threatened or candidate species or if it adversely modifies or destroys their critical habitat under ESA;
- An adverse effect to State-listed endangered, threatened of candidate species that could potentially cause it to become Federally-listed.
- Adverse, long term effects on birds protected by the MBTA.
- An impact to federally protected wetlands as promulgated under Section 404 of the CWA through direct removal, filling, changes in hydrology, or other means.

Since there are no jurisdictional wetlands on Edwards AFB and none of the alternatives would result in the creation or removal of wetlands or waters of the US, there would be no impacts to wetlands under any alternatives. Therefore, this resource is not discussed further.

Alternative 1

The primary concerns associated with Alternative 1 include effects on potential species habitat during development-related construction activities. Grading, short- and long-term vegetation loss, and adding of impervious cover would potentially affect available habitat on base. Ground-disturbing and demolition activities have the potential to impact animal species, including protected species.

Vegetation

Alternative 1 would be expected to result in minor long-term, adverse changes to vegetation communities within the proposed project area. With the annual rate of 30 acre disturbance under

Alternative 1, there could be a potential loss of up to 300 acres of scrub/shrubland vegetation, mesquite, and Joshua trees.

Much of the AO under Alternative 1 is currently developed or otherwise disturbed so impacts would only be to those remaining fragmented areas of vegetation. The AO under Alternative 1 contains approximately 817 acres of unvegetated and sparsely vegetated areas and approximately 990 acres of scrub/shrubland or woodlands. Since the impacts or loss of vegetation within the project area would be isolated and limited to no more than 30 acres per year (approximately 3 percent annually of the vegetated area), the overall effects to vegetation within the project area would be minor. Due to the quality of the vegetation communities present, and the size of the project area, impacts to base-wide vegetative resources under this alternative are expected to be negligible. Prior to demolition or construction activities the procedures and requirements set forth in the base INRMP and NEPA reviews process would be followed to ensure conservation of existing vegetation to the extent possible on Edwards AFB.

Any areas temporarily disturbed during construction activities would be managed through the use of standard best management practices for erosion control, and would be re-seeded with species that are native to the vegetative community. The decline in species composition would be limited to the project area, the effect on species composition throughout the rest of the base and the surrounding area would be insignificant.

Wildlife

Alternative 1 would be expected to result in minor short term adverse impacts to wildlife species. Initial ground clearing activities and construction related noise would disturb and deter most avian species, reptiles, and mammals that currently use the site. While the potential exists for the loss of less-mobile individual wildlife during clearing, it is considered a minor impact as most species are highly mobile, and the current use of the project area minimizes the regular use by wildlife. Under Alternative 1, much of the proposed project area is currently developed or maintained landscapes with few native wildlife species. Additional habitat is located outside the proposed project area and the majority of species would be able to relocate to nearby undisturbed areas. Because the existing vegetation within the proposed project area is generally either maintained or altered, the loss of quality habitat for wildlife and the impacts to wildlife species diversity is expected to be minimal.

Protected Species

Alternative 1 would be expected to result in negligible adverse impacts to protected wildlife species. As detailed in Section 3.6.1.4, no critical habitat for Federally-listed species is designated within the AO, although it is present in other areas of Edwards AFB. Favorable habitat for protected species has not been identified in the AO. Therefore the Alternative 1 is not anticipated to have an effect on Federally-list threatened or endangered species.

The state- and federally listed desert tortoise is known to occur on Edward AFB. Management practices are outlined in the INRMP, and critical habitat is designated for the tortoise on base. The USFWS has found that the AO is unsuitable habitat for the Desert Tortoise. During project construction, all measures required by the INRMP, relevant biological opinions in place for the desert tortoise, and best management practices will be implemented to avoid harming the desert

tortoise. Because the presence of the tortoise is unlikely in the AO, and because required management practices would be implemented to avoid harming the tortoise, actions under Alternative 1 are not expected to impact the desert tortoise or other state- or federally-listed threatened and endangered species.

The state listed Mohave ground squirrel could be present within the AO. Although the squirrel is typically found in undeveloped portions of the base, and the habitat of the AO is not favorable, limited individuals may be within scrub habitat of the AO. Most of the AO has previously been altered from the native habitat. Required measures taken for the protection of the desert tortoise on base are also typically protective of the Mohave ground squirrel. All management practices required would be implemented to avoid harming the Mohave ground squirrel during project implementation. Any potential impacts to the squirrel would be minimized through management practices. Therefore implementation of Alternative 1 is not anticipated to have an effect on the Mohave ground squirrel.

The burrowing owl is expected to be present within the AO. Ground-disturbing activities may negatively impact nesting sites of the burrowing owl. Individual owls would be negatively impacted if they are present at the time of the ground clearing and construction activities. Prior to ground disturbance or construction activities a survey for the burrowing owl would be conducted, and all mitigation measures for the protection of the burrowing owl would be implemented. The AO for Alternative 1 is largely developed, with little nesting areas available for the burrowing owl; therefore, the potential for impacts to the owl under Alternative 1 is expected to be minimal.

Alternative 2

Under Alternative 2 the impacts to biological resources would be similar to those described under Alternative 1 except that the there is less vegetation within the footprint of Alternative 2 and a greater amount of unvegetated or sparsely vegetated areas.

Vegetation

Alternative 2 would be expected to result in minor, long-term, adverse changes to vegetation communities within the AO. With the annual disturbance under Alternative 2, there could be a potential loss of up to 30 acres of scrub/shrubland vegetation, mesquite, and Joshua trees per year. The AO under Alternative 2 contains approximatley 848 acres of unvegetated and sparsely vegetated area and 864 acres of scrub/shrubland and woodlands. Loss of vegetation within the project area would be no more than 3.5 percent annually; therefore, the overall effects to vegetation within the project area would be slightly more than those for Alternative 1, but still minor.

Wildlife

Alternative 2 would be expected to result in minor, short-term, adverse impacts to wildlife species. Similar to Alternative 1, the potential exists for the loss of less-mobile individual wildlife during clearing. Under Alternative 2, there are approximately 100 fewer acres of vegetated areas within the AO; therefore, the annual 30-acres disturbance may impact a greater

percentage of wildlife habitat within the Alternative 2 footprint than those impacts expected for Alternative 1.

Protected Species

Alternative 2 would be expected to result in negligible adverse impacts to protected wildlife species. As detailed in Section 3.6.1.4, no critical habitat for Federally-listed species is designated within the AO, although it is present in other areas of Edwards AFB. Favorable habitat for protected species has not been identified in the AO. Therefore the Alternative 2 is not anticipated to have an effect on Federally-list threatened or endangered species.

The desert tortoise is not expected to be present anywhere within the AO under all alternatives; therefore, the impacts to the desert tortoise are expected to be similar to those of Alternative 1.

The state listed Mohave ground squirrel could be present within the AO for Alternative 2. Approximately 730 acres of scattered scrub/shrubland habitat is present in the AO under Alternative 2. As a result of the scattered and unfavorable habitat available to the Mohave ground squirrel, and the implementation of minimization measures, Alternative 2 is anticipated to have an insignificant effect on the Mohave ground squirrel.

The available cover under all Alternatives does not constitute ideal habitat for the burrowing owl. As a result of the limited habitat available under Alternative 2, and the implementation of minimization measures for the protection of the burrowing owl, the potential effects to the burrowing owl under Alternative 2 are expected to be minimal.

Alternative 3

The impacts under Alternative 3 are expected to be similar to those under Alternative 1 and 2; however, the extent of those impacts may be greater because the AO under Alternative 3 contains only 715 acres of scrub/shrubland and woodlands and 660 acres of unvegetated or sparsely vegetated areas. An annual loss of 30 acres of vegetation from the existing 715 acres of scrub/shrubland/woodlands represents approximately a 4 percent annual decrease in vegetation within the Alternative 3 footprint. As a result of this alternative, the potential effect to vegetation and wildlife would be greater than those for Alternatives 1 and 2, but the overall effect on biological resources is expected to be minimal. Any impacts would be minimized through the measures presented in Section 3.6.3.

No-action Alternative

Under the No-action alternative each new facility would continue to be considered on a case-by-case basis rather than a consolidated development approach. Therefore, overall impacts associated with the No-action Alternative would be similar to those associated with the action alternatives but assessed separately.

Cumulative Effects

Several nearby projects both on and off base would result in additional loss of the regional desert ecosystem. The desert system has decreased over the previous 50 years due to intensive

development. The development of on base utility corridors and the complete annual build of three additional 10 acre sites per year over 10 years along with regional Caltrans projects would reduce the amount of available habitat in the region. The alternative actions and the Caltrans project are within areas that are previously disturbed and fragmented by base development and an existing highway. Therefore, the loss of biological resources from these projects would be to low quality habitat. The proposed high speed rail project may be in areas where undisturbed habitat is present. Both the Caltrans project and the high speed rail project will, or have been through extensive environmental analyses and would be required to follow all mitigation measures to protect regional desert species. The Caltrans project is 13 miles long and the rail project would be approximately 90 miles long. Although any contribution to regional loss of desert habitat is adverse, the proposed potential impacts to 300 acres of largely disturbed biological resources on base over a 10 year period is a small percent of the overall impacts from all regional projects; therefore, the overall cumulative effect of the three alternatives would be minimal.

Summary of Effects

All alternatives considered would have similar impacts to biological resources. Due to the generally poor quality of the vegetation communities present, and the size of the project areas, impacts to base-wide vegetative resources under all alternatives are expected to be negligible. The limited decline in species composition would be to the project areas while the effect on species composition throughout the rest of the base and the surrounding area would be undetectable. Because the existing vegetation within the proposed project areas is generally either maintained or altered, the loss of quality habitat for wildlife and the impacts to wildlife species diversity is expected to be minimal. No critical habitat for federally-listed species is designated within the AO, nor has favorable habitat for protected species been identified in the AO. Therefore, the alternatives are not anticipated to have an effect on state- or federally-list threatened or endangered species. There would be very limited short-term effects and no long-term adverse impacts to migratory birds for any of the alternatives. Based upon the significance thresholds stated above, no significant impacts are expected under any of the alternatives.

3.6.3 Minimization Measures

The measures intended to minimize any effects to protected and sensitive species; migratory birds, raptors, and other wildlife located are provided as follows:

- The proponent/contractor will follow the Terms and Conditions of the applicable biological opinions and all applicable laws and regulations.
- A bat pre-survey is required prior to the demolition of any structure. If at-risk/sensitive or listed species of bats are observed consult with Environmental Management Office.
- Unless previously performed, all project-related workers shall receive a desert tortoise and Mohave ground squirrel awareness briefing that defines responsibilities and liabilities as provided by the ESA and US Air Force policies.
- All contractors shall be responsible for complying with the requirements of the *Migratory Bird Treaty Act*.

- Crevices, cracks, and burrows would be checked at all sites for owls before beginning construction.
- Occupied nests and burrows for owls would not be disturbed during the nesting season unless a qualified biologist verified through non-invasive methods that either the birds are not egg laying or that juveniles from occupied burrows are foraging independently.
- The Environmental Management Office would be contacted if an active migratory bird nest (i.e., nest with eggs, unfledged birds or adult birds observed in the nest), or a burrowing owl burrow is found within the project area and cannot be avoided.
- Any animal burrow discovered in close proximity to a potential building site and infrastructure where unit/personnel will occur must be protected from potential disturbance or destruction, and should be surrounded by appropriate barriers, flagging, or signage. Placement and eventual removal of barriers, flagging, or signage must be approved and coordinated with Edwards AFB Natural Resources Management personnel (412 CE/CEVA).
- Prior to project initiation, a survey of the construction area would be performed to identify owl burrows. If unoccupied, the burrows would be collapsed. Each collapsed burrow would be revisited to assure the burrowing owl did not return. If occupied, the burrow would not be disturbed. Active bird nests would be avoided.
- No more than thirty (30) days prior to the start of construction or vegetation removal activities, a qualified biologist shall conduct preconstruction avian nest surveys on the project site.
- All personnel involved in construction activities shall check under parked vehicles for desert tortoise and other wildlife species before moving vehicles, trailers and/or large pieces of material and equipment. If a desert tortoise is discovered under a vehicle, trailer, or large piece of material, Edwards AFB Natural Resources Management personnel (412 CE/CEVA) must be notified immediately.
- All construction vehicles and related equipment and materials used during construction activities should remain on established roads and parking areas. If this is not possible, an Edwards AFB (412CE/CEV) biologist or designated authorized biologist would survey or monitor the routes. Additionally, project-related equipment and vehicle operators must be alert for desert tortoise and other wildlife while traveling on access routes and within parking areas. Vehicle speeds shall not exceed 25 miles per hour on all unpaved roads, and posted speed limits must be strictly maintained.
- Littering of any kind must be avoided. All trash, especially leftover food and food containers, shall be placed in raven-proof receptacles and be disposed of properly to reduce the appeal to desert tortoise predators such as ravens, coyotes and feral dogs.
- Should any wildlife become trapped within structures, material, or equipment during construction activities, Edwards AFB Natural Resources Management personnel (412 CE/CEVA) must be notified immediately. All construction project-related personnel should watch for trapped, injured or dead wildlife, and report all such discoveries immediately. Project-related materials and equipment should be parked,

stored, and maintained in such ways so that they do not appeal to wildlife as shelter, nesting or roosting sites.

- Facilities and infrastructure (occupied and abandoned) should be surveyed no more than 72 hours prior to beginning the project-related activities to ensure that nesting birds are not present or located in sites that may be disturbed as a consequence of proposed project activities. Should nesting birds be encountered, all activities in the immediate area should cease and Edwards AFB Natural Resources Management personnel (412CE/CEVA) must be notified immediately. Any observed nesting activity should be reported to Edwards AFB Natural Resources Management personnel (412 CE/CEVA) immediately.

- The contracted biologist shall develop a migratory bird survey and monitoring plan for demolition, renovation or repair activities for the contractor that includes all related work activities that may potentially harm/harass migratory birds or their active nests. The plan shall reference the MBTA, include bird surveys, when surveys are to be conducted, data sheet showing what data to be recorded, handling of inactive nests, avoidance measures, protection measures, monitoring and results to be documented in an annual monitoring report. This plan shall be submitted to Environmental Management for comments and approval at least 30 days prior to beginning demolition, renovation or repair activities. The contractor shall submit a final plan to Environmental Management following incorporation of comments no later than 10 days prior to beginning demolition, renovation or repair activities.

- The contractor shall submit an annual monitoring report based on the requirements of the migratory bird survey and monitoring plan to Environmental Management 30 days following the end of the nesting season or 30 days following the end of demolition, renovation or repair activities in a given year.

- If there will be a delay in time between the abatement and demolition of a building, it is imperative that everything (i.e., windows, overhangs, holes, etc.) is sealed off to prevent birds from nesting. If nests are found, building demolition will be postponed until the nest has been vacated. Contact the Environmental Management Office for guidance.

- If a building is found to support a maternity colony, every effort shall be made to avoid renovation or demolition during the breeding season.

These minimization measures shall be updated to reflect current practices at the time of project execution.

3.7 CULTURAL RESOURCES

3.7.1 Existing Conditions

As defined in AFI 32-7065 *Cultural Resources Management Program*, cultural resources include structures, buildings, archaeological sites, districts, cemeteries, and objects that may be classified as archaeological or non-archaeological. Archaeological resources are defined as any material remains of past human life or activities which are of archaeological interest. Non-archaeological

resources include recognizable buildings, structures, and objects and often are associated with substantial archival information or oral history data.

The Area of Potential Effects (APE) for cultural resources is defined by 36 CFR 800.16(d) as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist."

Section 106 of NHPA requires that federal agencies give the Advisory Council on Historic Preservation (ACHP) a "reasonable opportunity to comment" on proposed actions. Federal agencies must consider whether their activities could affect historic properties that are already listed, determined eligible, or not yet evaluated under the NRHP criteria. Properties that are either listed on or eligible for listing in the NRHP are provided the same measure of protection under Section 106. Additional laws that pertain to the treatment of cultural resources during environmental analysis include the Archaeological Resources Protection Act (ARPA), the American Indian Religious Freedom Act (AIRFA), and the Native American Graves Protection and Repatriation Act (NAGPRA).

Compliance with the NHPA requires consultation with the State Historic Preservation Officer (SHPO) and/or federally recognized tribes to determine the project's effects on cultural resources. If an agency determines that a cultural resource is eligible for listing in the NRHP and the SHPO concurs with that determination, it is then considered to be a Historic Property.

As part of the analysis conducted in this EA, the California Office of Historic Preservation, interested Native American tribes, and other interested parties have been contacted to initiate the Section 106 consultation. This consultation fulfills 36 CFR Part 800, "Protection of Historic Properties" and DoD Instruction 4710.02, "DoD Interactions with Federally-Recognized Tribes." While IICEP letters serve as notification of a proposed action and seek to determine an agency's or tribe's interest, they do not substitute for the Section 106 process. The Section 106 process is initiated through a government-to-government letter that declares the intended purpose of initiating the Section 106 process, and through the on-going consultation, seeks ways to avoid, minimize, or mitigate adverse impacts.

Extensive surveys and evaluations of Edwards AFB's cultural resources have documented prehistoric, historic, and military-period archaeological sites and districts, as well as historically significant buildings, structures, and districts. For this EA, the APE is the proposed development areas within 2,500 feet of existing runways and taxiways, including those buildings, structures and districts, which may qualify as historic properties due to potential effects from the alternatives.

Cultural resources on Edwards AFB are currently managed under a Programmatic Agreement (PA) titled, *Programmatic Agreement Among the United States Air Force and the California State Historic Preservation Officer Regarding Implementation of the Air Force Flight Test Center Mission and the Integrated Cultural Resources Management Plan at Edwards Air Force Base, California,* as amended 2012 with the Edwards AFB Integrated Cultural Resources Management Plan (ICRMP) (USAF 2012a and 2012b). Cultural Resources on Edwards AFB are protected and confidential. For information beyond the general description presented below, the Base Historic Preservation Officer (BHPO) should be contacted.

3.7.1.1 Archaeological Resources

As of 2011, Edwards AFB has surveyed approximately 66 percent of land managed by the Base. As detailed within the January 2012 ICRMP, the archeological survey of Edwards AFB indicated the following:

- 4,657 sites have been identified
  - 1,218 have been determined ineligible.
  - 3,439 were determined to be NRHP-eligible, or have not yet been evaluated and therefore must be treated as eligible properties
    - 1,524 are prehistoric sites
    - 1,915 are historic sites

Additionally, there are five sacred sites on Edwards AFB that have been identified by an American Indian tribe and are identified on the NAGPRA Inventory (USAF 2012a and 2012b). Edwards AFB has established official contact with several Native American tribal groups that are affiliated, or claim affiliation, with the Antelope Valley. The BHPO provides the federally recognized tribes, consisting of the Chemehuevi Indian Tribe, Colorado River Indian Tribes, San Manuel Band of Mission Indians, and Morongo Band of Mission Indians, with information about all projects that may affect prehistoric cultural resources on Edwards AFB.

Edwards AFB is currently developing methods to define the potential of encountering archeological sites on Base. Initial mapping indicates a higher probability of encountering archeological sites within the North Base, the northern most section of the Main Base, and the central portion of the South Base project areas. However, it should be noted that a lower probability of archeological resources in other portions of the project area does not eliminate the potential for known or unknown resources.

3.7.1.2 Historical Resources

Edwards AFB tracks and evaluates all of the 3,035 facilities listed in Edwards AFB Real Property records (included in the Automated Civil Engineering System) for cultural resources. As detailed within the January 2012 ICRMP, the evaluation of Edwards AFB's facilities indicated the following:

- 1,030 facilities do not require any further assessment, as they are infrastructure elements.
- 698 facilities have been determined ineligible.
- 18 facilities have been determined individually NRHP-eligible.
  - 13 are at the main base.
  - 4 are at north base.
  - 1 is at Air Force Research Laboratory (AFRL).
- 96 facilities are eligible as contributing elements to proposed historic districts, not including those facilities found individually eligible, listed above.
  - 40 contribute to the proposed AFRL historic district.
  - 6 contribute to the X-15 historic district.
  - 49 contribute to the Jet Propulsion Laboratory historic district.
  - 1 contributes to the proposed Power Plant Branch historic district.
- 1,209 facilities have not been assessed.

- 54 facilities were 50 years or older by 2012 and will need to be assessed.
- 1,155 facilities were constructed after 1960 and will be assessed when they reach 50 years of age, or if it is otherwise determined necessary to assess them (USAF 2012a and 2012b).

As of January 2012, only 160 of the 3,035 facilities at Edwards AFB were located within the 2,500 foot buffer from the existing taxiways and runways at the North Base, Main Base, and South Base of the Edwards AFB Test Complex. The eligibility evaluation of Edwards AFB's facilities is on-going and the data presented within this EA is subject to change and is constantly being updated. Table 3-7 details the potential historic properties within the project area.

Table 3-8 Potential Historic Properties within Project Area

	Main Base	North Base	South Base	Total
Ineligible for NRHP Listing	49	15	6	70
Eligible for NRHP Listing	7	3	1	11
Not Yet Assessed for NRHP Eligibility	45	7	27	79
Subtotal	**101**	**25**	**34**	**160**

Source: USAF 2012b
Note: These numbers are current as of January 2012. Eligibility evaluation of Edwards AFB's facilities is on-going and the data presented within this EA is subject to change and is constantly being updated.

3.7.2 Estimated Effects

Significant impacts to cultural properties would occur only if any of the alternative actions would adversely affect historic properties. An adverse effect is an undertaking that diminishes the integrity of a property's location, design, setting, materials, workmanship, feeling, or association. An adverse effect can occur through the destruction or alteration of the property, isolation from or alteration of the environment, introduction of intrusive elements (visual, audible, or atmospheric), neglect, and the transfer, lease or sale of the property (36 CFR 800.5(a)(1)).

The nature and potential significance of cultural resources in the potentially affected areas were identified by considering the following definition: Historic properties, under 36 CFR Part 800, are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP." For the purpose of these regulations this term includes artifacts, records, and remains that are related to and located within such properties. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet NRHP-listing criteria.

Alternative 1

Under Alternative 1, the Section 106 process must be completed before any construction sites or undertakings are approved. Therefore, the Section 106 process would be completed as detailed in Edwards AFB Standard Operating Procedure (SOPs) No. 1 for *Section 106 Review of Federal Undertakings* and No. 2 for *Identifying Historic Properties*, included in Appendix D. The Section 106 process includes identifying the archeological and historic properties, evaluating the historic significance, and determining the scope of potential effects. Under Alternative 1, none

of the facilities within the APE are currently historic properties eligible for NRHP listing; therefore, no historic properties would be affected and the Section 106 process would be complete for historical resources. However, since the eligibility evaluation of Edwards AFB's facilities is on-going and buildings not currently eligible may become eligible in the future, any use of facilities within the Alternative 1 footprint should be re-examined for eligibility prior to their use for a new test mission.

Since Alternative 1 includes ground disrupting activities, the activities should be reviewed to determine if archeological resources within the APE may be affected. A pedestrian archeological survey would be required if the APE has not yet been surveyed for archeological resources. Additionally, the archaeological resurvey policy states that any portion of the APE associated with a Section 106 undertaking, falling within an area that has been surveyed 10 or more years prior to the initiation of the EIAP, is subject to resurvey in consultation with the BHPO. If archeological surveys indicate that there are no archeological sites within the APE or it is determined that the archeological resources are not eligible for NRHP listing, no historic properties would be affected and the Section 106 process would be complete. SOPs for inadvertent discovery of cultural resources can be found in the ICRMP, addressing roles, responsibilities and process requirements. A copy of the SOPs will be provided prior to onset of work.

However, if the archeological sites are determined eligible for NRHP listing, and therefore considered historic properties, Section 106 coordination would continue. The next step of the Section 106 process would be to assess the sites for the potential of adverse effects. An undertaking would have an adverse effect on a property if any part of the undertaking, directly or indirectly, might alter the characteristics that qualify the property as eligible or potentially eligible for inclusion on the National Register. If the proposed actions would not adversely affect any of the historic properties, the Section 106 process would be complete. However, if historic properties would be affected, consultation with BHPO and SHPO would continue until a resolution of potential adverse effects is reached in a Memorandum of Agreement (MOA) or a PA, completing the Section 106 process.

Alternative 2

Under Alternative 2, approximately 80 facilities within the footprint of the alternative would need to be evaluated under Edwards AFB SOPs No. 1 and 2 (Appendix D) to determine if they are eligible for NRHP listing or a component of a Historic District. Additionally, since eligibility evaluation of Edwards AFB's facilities is on-going and buildings not currently eligible may become eligible in the future, any use of facilities within the Alternative 2 footprint should be re-examined for eligibility prior to their use for a new test mission. Under Alternative 2, the Section 106 process must be completed before any construction sites or undertakings are approved. If it is determined that the facilities are not eligible for NRHP listing and the proposed undertaking would have no effect on a Historic District, the anticipated impacts would be similar those described above in Alternative 1 and the Section 106 process would be complete.

However, if the facilities are listed on, or eligible for NRHP listing they are considered historic properties, and therefore Section 106 coordination would continue. The next step of the Section

106 process would be to assess the facilities for the potential of adverse effects. An undertaking would have an adverse effect on an eligible or listed property if any part of the undertaking, directly or indirectly, might alter the characteristics or integrity of a property that could result in a change in the NRHP listing status. If the proposed actions would not adversely affect any of the historic properties, the Section 106 process would be complete. However, if historic properties would be affected, consultation with SHPO would continue until a resolution of potential adverse effects is reached in a MOA or a PA, completing the Section 106 process. It is expected that the Section 106 process would be completed in a timely manner. Impacts to archaeological resources and the resulting Section 106 coordination process would be the same as described for Alternative 1.

Alternative 3

Under Alternative 3, approximately 10 facilities have been determined to be eligible for NRHP listing; however, since eligibility evaluation of Edwards AFB's facilities is on-going and buildings not currently eligible may become eligible in the future, any use of facilities within the Alternative 3 footprint should be re-examined for eligibility prior to their use for a new test mission. Section 106 coordination would occur as detailed within Edwards AFB SOPs No. 1 and 2 (Appendix D), and summarized above under Alternative 2 until a MOA or PA is reached with California SHPO. Impacts to archaeological resources and the resulting Section 106 coordination process would be the same as described for Alternative 1. Under Alternative 3, the Section 106 process must be completed before any construction sites or undertakings are approved. It is expected that the Section 106 process under Alternative 3 would potentially take longer due to the expected impacts to historic facilities.

No-action Alternative

Under the No-action Alternative, no impact to cultural resources baseline conditions would occur. The No-action Alternative would involve continuation of existing ad hoc development methodology at Edwards AFB. Demolition and renovation of existing facilities to support new test missions would continue to be considered on a case-by-case basis for review of eligibility of facilities for listing on the NRHP and Section 106 coordination. If it is determined that eligible facilities would be affected, consultation with SHPO would continue until a resolution of potential adverse effects is reached in a MOA or a PA, completing the Section 106 process.

Cumulative Effects

It is not anticipated that the potential future actions would result in impacts that would cause degradation and/or loss of the characteristics that make the historic properties eligible for listing in the NRHP, including the introduction of physical, visual, audible, or atmospheric elements that are out of character with the historic properties and their setting. As required under Section 106, Edwards AFB BHPO will continue consultation with California SHPO for potential future actions to review for potential impacts to cultural resources. No construction activities or other undertaking would occur until consultation and concurrence from California SHPO is complete. Therefore, no significant cumulative impacts to cultural resources are expected as a result of the alternatives and other reasonably foreseeable future actions.

Summary of the Estimated Effects

As of the publication of this EA, historic properties would not be adversely affected under Alternative 1; however, the eligibility evaluation of Edwards AFB's facilities is on-going and the data presented within this EA is subject to change. Therefore, use of facilities within the Alternative 1 footprint should be re-examined for eligibility prior to their use for a new test mission. Under Alternatives 2 and 3, historic properties could potentially be affected and consultation with the SHPO would continue until a resolution of potential adverse effects is reached in a MOA or a PA, completing the Section 106 process. Facilities potentially impacted under these alternatives should also be re-examined for eligibility prior to their use as a new test mission since the eligibility evaluation of Edwards AFB's facilities is on-going.

3.7.3 Minimization Measures

No significant impacts to cultural resources are expected from implementation of the alternatives, as the Section 106 process would be completed during the project planning and prior to any demolition, renovation, or construction activities. The potential for the type and the degree of potential impacts to cultural resources would depend on both the alternative selected and the historic characteristics of the facilities. If, during the Section 106 process, potential, impacts to cultural resources resulting from the establishment of a new test mission are identified, then appropriate project specific minimization measures would be required. Minimization measures could consist of a MOA or a PA depending on the scope of the realignment and/or the nature of the effects to the historic properties. Consultation and an agreement must be reached prior to the execution of any federal undertaking with the potential to adversely affect a historic property, in order to complete the Section 106 review process. Inadvertent discovery of archeological site would initiate consultation with California SHPO regarding determination of NRHP eligibility and mitigation measures, if determined necessary.

3.8 GROUND SAFETY AND OCCUPATIONAL HEALTH

3.8.1 Existing Conditions

A safe environment is one that is free of dangers that could pose a threat to the health and wellness of workers or bystanders. It encompasses not only injury to individuals, but also damage or destruction of property or products. Numerous approaches can be implemented to improve safety and reduce the magnitude of a hazard; including the use of engineering controls, administrative controls, and the use of personal protective equipment (PPE). Naturally-occurring potential health and safety hazards include radiological risks, biological risks (poisonous plants, insects and wild animals), uneven terrain, and inclement weather conditions (heat and/or cold exposure, flash floods, etc.). Potential man-made safety and occupational health hazards include noise; radiological exposure; hazardous material/chemical exposure; ground traffic (i.e. driving or walking); electricity; and injuries/damages caused by construction equipment (e.g. suspended loads, hand and power tools). Additionally, the base has been historically used for bomb testing and as a result, it is possible that unexploded ordnance (UXO) could be present on the installation.

The primary safety categories discussed in this analysis include ground, traffic, and construction safety. Both naturally occurring and man-made safety hazards may be present at Edwards AFB at any time due to the varied activities that take place on the installation. Construction activities would occur within the boundaries of the installation with varying degrees of constraints applying at each particular area. Health and safety on Edwards AFB are regulated by the Air Force Mishap Prevention Program (AFI 91-202), the Air Force Consolidated Occupational Safety Instruction (AFI 91-203), and OSHA regulations 29 CFR 1910 and 29 CFR 1926. These standards specify the amount and type of training required for industrial workers, the use of PPE, engineering controls, and maximum exposure limits for workplace stressors. Contractors are responsible for their own health and safety. A contractor's attention to occupational health and safety rules and regulations will help avoid potential environmental issues and/or cross contamination in areas adjacent to the region(s) of influence. The health of military and civilian DoD personnel at Edwards AFB is supervised by Bioenvironmental Engineering Services and the Safety Department.

Project activities may be located adjacent to or on active ERP sites. Chemical hazards include, but are not limited to, asbestos-containing material, lead-based paint, and polychlorinated biphenyls. Chemical hazards are considered hazardous materials and potentially hazardous waste during disposal. Generation of hazardous materials and disposal of hazardous waste are discussed in more detail in Section 3.5, Hazardous Materials and Waste.

A good network of sidewalks, troopwalks and crosswalks are present at the installation, making for a pedestrian-friendly atmosphere. As such, pedestrian traffic is very high throughout the majority of the installation.

3.8.2 Estimated Effects

Ground safety and occupational health considerations for the general public and contractors are evaluated prior to commencement of any construction or destruction/demolition activities. With effective pre-planning and implementation most hazards can be eliminated or minimized. Numerous approaches are available to improve safety and reduce hazards, including the use of engineering controls, administrative controls, or the use of PPE.

Construction activities associated with the alternatives have the potential to temporarily increase the risks for accidents, injuries, or property damage. The analysis of construction safety considered health and safety of personnel for physical hazards, proper techniques, PPE, and best practices for construction site cleanliness. Impacts to ground safety, traffic, or construction safety would occur if there is a significant increase in the number and severity of incidents at the proposed construction sites.

Alternative 1

Under Alternative 1, contractors working onsite during construction, renovation, and demolition activities would be exposed to safety and health hazards faced at similar type sites such as:

- Motor vehicle operation and traffic (including pedestrians);
- Heavy equipment use (proximity to existing utilities, situational awareness);

- Bodily injury (sprains, strains, and falls);
- Hazardous materials (asbestos or lead based paint);
- UXO;
- Inclement weather conditions (ice, flood, heavy rains, etc.); and
- Interaction with the local biota (cacti and insect/animal/reptile bites).

During annual construction of facilities, there would be a short-term increase in personnel and vehicular traffic including heavy equipment. Workers could potentially be exposed to ACM and LBP during demolition activities and impacts and management techniques related to this are further discussed in Section 3.5. Risk of exposure to contaminated soils or groundwater during proposed activities would be minimal under Alternative 1 since development would not occur on land that has monitoring wells or contamination plumes (i.e. no relocation of wells or handling of potentially impacted soils).

Contractors must maintain cleanliness at the construction site to help minimize hazards. Construction debris which can be blown around a construction site can pose a hazard to those walking, working and driving in the area of the construction. Contractors responsible for construction, renovation, and demolition activities would be responsible for compliance with the applicable OSHA regulations and identifying and communicating appropriate protective measure for employees. As an additional safeguard to the public and construction personnel, delineation and demarcation of areas deemed high hazard zones should also be designated. This would restrict access to dangerous areas or operations and minimize some exposure/risk; further reducing potential safety hazards for the duration of proposed activities. During construction and demolition activities, any UXO found would be reported immediately to the base Expert on Demolition and all construction/demolition activities would cease until the UXO is cleared and the area is determined safe.

During construction, renovation, and demolition activities, measures must be implemented to avoid blocking or intruding upon pedestrian and vehicular pathways. If it is determined that interference with a though fare is unavoidable, the proper permits (if required) must be acquired prior to any activities in the area. Area specific requirements regarding staging/placement of related vehicles/equipment would be presented as part of a Journey Management Plan (JMP) within the site specific health and safety plan (SSHASP). Increased vehicular traffic due to proposed activities would typically occur during working hours only. Due to the addition of these vehicles, traffic congestion would increase, thereby increasing the potential for accidents, especially in the areas closest to the work being conducted. Prior communication to base residents and employees in advance of activities associated with the Proposed Action would be necessary to allow for planning alternate travel routes, as needed. Signage placed around the base to identify street detours and time delays, alternate parking areas, and potentially hazardous work areas would help to minimize congestion and the potential for accidents or injuries. All posted signs and placards must be adhered to while on the installation

Risk of a catastrophic event occurring during construction, renovation, and demolition activities described under Alternative 1 is considered to be low. The use of BMPs and adherence to federal, state, and local regulations, OSHA regulations, and implementation of a SSHASP with daily safety briefings with workers greatly reduces the potential for bodily injuries and damage

to property during any proposed activities. As a result, it is not expected that there would be a significant increase in the number and severity of incidents at the proposed construction sites.

Alternative 2

Ground safety and occupational health risks and impacts associated with Alternative 2 would be similar to those described for Alternative 1, except that additional hazards under Alternative 2 would include potential excavation of soils within ERP contamination plumes and exposure to hazardous materials such as asbestos or LBP in NRHP-eligible and non-eligible buildings. Thus, the need for delineation and demarcation of hazardous work zones to minimize risk and implementation of a JMP to accommodate additional vehicular traffic is more evident. Also, the risk of finding UXO would be less than under Alternative 1 since the Alternative 2 footprint contains less previously undisturbed area. During construction and demolition activities, any UXO found would be reported immediately to the base Expert on Demolition and all construction/demolition activities would cease until the UXO is cleared and the area is determined safe. BMPs under Alternative 2 would be the same as those described for Alternative 1, except that any contaminated soils or groundwater encountered would be managed according to established plans and state and federal regulations. These hazards and related protective measures for employees would be outlined in the SSHASP. It is not expected that there would be a significant increase in the number and severity of incidents at the proposed construction sites under Alternative 2.

Alternative 3

Ground safety and occupational health risks associated with Alternative 3 would be more pronounced compared to those described for Alternatives 1 and 2. Additional hazards include exposure to soils within ERP contamination plumes and working within the explosive safety distance around the ammunition storage area. Thus, the need for delineation and demarcation of hazardous work zones to minimize risk and implementation of a JMP to accommodate additional vehicular traffic is substantially evident. Also, the risk of finding UXO would be less than under Alternatives 1 and 2 since the footprint contains less previously undisturbed area than the other two alternatives. During construction and demolition activities, any UXO found would be reported immediately to the base Expert on Demolition and all construction/demolition activities would cease until the UXO is cleared and the area is determined safe. Risk of ACM, LBP, and PCB exposure during proposed activities would be the most pronounced with Alternative 3 considering development would include renovation or demolition of buildings eligible for NRHP listing. Development under Alternative 3 would require relocation of existing monitoring wells, installation of vapor barriers or other mitigation for buildings constructed over known contamination plumes, and/or remediation of ground contaminants. As a result, construction workers would likely be exposed to contaminated soil or groundwater. All hazards and related protective measures for employees would be outlined in the SSHASP. It is not expected that there would be a significant increase in the number and severity of incidents at the proposed construction sites under Alternative 3.

No-action Alternative

Under the No-action Alternative, any construction activities occurring in areas of soil or groundwater contamination may result in worker exposure to hazardous substances. Prior to construction activities, the areas selected for development should be compared against contamination plume maps to determine if remediation or additional investigation may be required. If it is determined that remediation is required, it would be conducted to state and federal regulations and standards and all hazards and protection measures would be identified within the SSHASP. Workers could potentially be exposed to ACM and LBP during demolition activities and impacts and management techniques related to this are further discussed in Section 3.5. Impacts from standard construction hazards would be the same as those described for Alternative 1. A temporary increase in vehicular traffic would occur during construction activities associated with the No-action alternative. However, since construction of new test mission facilities would not necessarily be co-located, traffic impacts would be distributed throughout the installation, thereby minimizing impacts. Signage and prior base communication could still be utilized to further minimize impacts. Under the No-action Alternative, it is not expected that there would be a significant increase in the number and severity of incidents at the proposed construction sites.

Cumulative Effects

Ground and construction safety impacts would be limited to the project sites and would not contribute to cumulative effects. Traffic increases near the alternative sites, in conjunction with increased traffic from concurrent construction projects discussed in Section 2.4 would be managed through signage and communication to Base residents and employees in advance of construction activities. Therefore, it is not expected that the alternatives, in conjunction with projects described in Section 2.4 would result in an increase in the number or severity of traffic accidents.

Summary of the Estimated Effects

All alternatives would result in an increased exposure to health and safety hazards including motor vehicle operation and traffic; heavy equipment use; sprains, strains, and falls; hazardous materials; UXO; inclement weather conditions; and interaction with the local biota. Alternatives 2 and 3 would also result in an increased exposure to excavated soils within ERP contamination plumes and hazardous materials such as asbestos or lead based paint in NRHP-eligible buildings. Additionally, Alternative 3 would also result in construction workers working within the explosive safety distance around the ammunition storage area. Through the use of BMPs; adherence to federal, state, and local and OSHA regulations; and implementation of a SSHASP with a JMP the potential for injuries and accidents would be greatly reduced. Therefore, none of the alternatives would be expected to result in significant impacts to ground safety or occupational health.

3.8.3 Minimization Measures

Should any of the alternatives be implemented, BMPs and adherence to federal, state, and local regulations, OSHA regulations, and implementation of a SSHASP with a JMP would greatly

reduce the potential for injuries and accidents. In order to minimize potentially hazardous interactions with the general public during construction activities it is suggested that hazardous areas be delineated with perimeter fencing/tape and placards warning of construction activity be set-up in the localized vicinity. These minimization measures shall be updated to reflect current practices at the time of project execution. Any UXO found during construction and demolition activities would be immediately reported to the base Expert on Demolition and all construction and demolition activities would halt until the area is cleared and determined safe.

3.9 UTILITIES AND INFRASTRUCTURE

Utilities and infrastructure resources refer to structures and systems that contribute to the functionality of inhabited areas. Infrastructure components at Edwards AFB include utilities (electricity, potable water, wastewater, stormwater, communications, solid waste, and natural gas), and transportation.

3.9.1 Existing Conditions

Energy and Communication

Energy resources at Edwards AFB include electricity generated off-base, solar power, natural gas, propane, and other petroleum-based products.

Electric power at Edwards AFB is provided by Southern California Edison to operate lighting, heating and cooling, computers, and pumps for gas and water. Solar energy is used for hot water, heating, some lighting, and to operate the emergency photo system on portions of Rosamond, Lancaster, and Mercury Boulevards (USAF 2012c).

Natural gas at Edwards AFB is provided by Pacific Gas & Electric to operate boilers, furnaces, and two emergency generators. One additional generator located in an area where natural gas services are unavailable is supplied with propane. Edwards AFB maintains approximately 13.4 miles of petroleum pipeline supplied from the CalNev Pipeline for jet fuel transportation throughout the installation.

Communication systems present at Edwards AFB include telephone, microwave, and local area networks (USAF, 2012). Edwards AFB needs increasingly more advanced communications facilities as phones and other forms of data transfer have increased the need for above and underground utility lines. Many communication lines traverse the AO, on North Base, Main Base, and South Base, with the majority of communication lines located within the Alternative 1 project area.

Solid Waste Disposal

The Edwards AFB Integrated Solid Waste Management (ISWM) Plan (WESTON 2014) describes Environmental Management's functional management of municipal solid waste disposal and recycling on Edwards AFB. The purpose of the Plan is to comply with federal, state and local regulations and Air Force policy (AFI 32-7042, Waste Management) and guidance on the management of nonhazardous municipal solid waste. Components of the Edwards AFB integrated waste management program include a Class III municipal solid waste (MSW) disposal site, a composting operation, a recycling operation, and a baler for compaction of MSW.

Edwards AFB operates a nonhazardous MSW landfill within the Main Base area (Main Base Active Landfill [MBAL]). Due to the volume of construction/demolition waste generated on base, most current construction contracts require the contractor to dispose of such wastes at an approved off-base landfill in order to reduce the impacts to the Main Base Landfill. The maximum permitted disposal quantity is 350 tons per day of MSW and 160 tons of green waste. According to the ISWM Plan, the MBAL permit is up for renewal at 2014 year-end, and the projected closure date is July 2023 (WESTON 2014).

The composting facility is operated at the MBAL. It uses Ag-bags for large-scale inbag composting to convert greenwaste (e.g., grass clippings, leaves, shrubbery trimmings, tree prunings, home garden refuse and non-treated wood products, etc.) collected within the military family housing area into finished compost product. Screener, grinder and bagger equipment are used to prepare and process the greenwaste, which is collected at the curbside.

Edwards AFB generated 5,791.63 tons of solid waste in Fiscal Year (FY) 2012, of which 3,864.86 tons (66.73 percent) were disposed of as refuse. The remaining 31.42 percent was recoverable for diversion (WESTON 2014).

Water Supply

Potable water at Edwards AFB is sourced from the Antelope Valley East Kern (AVEK) Water Agency and groundwater is supplied from on-base water wells and distributed via three independent systems. The system serving the Main Base, North Base, and South Base (and subsequently the AO for this project) is sourced from both on-base groundwater and surface water from AVEK.

Wastewater

The Edwards AFB wastewater collection and treatment system at Edwards AFB provides wastewater collection, onsite treatment, and onsite disposal of treated wastewater and sludge. One independent collection and treatment system serves the Main Base, North Base, and South Base (and subsequently the AO for this project). The treatment plants are regulated by the RWQCB, Lahontan Region. In addition to the wastewater treatment systems, some wastewater is collected in septic tanks (USAF 2012c).

Storm Water

Stormwater runoff at Edwards AFB is not connected to an ocean or water body. No permanent water bodies are present, as naturally occurring surface waters on Edwards AFB consist only of intermittent streams. Stormwater from major precipitation may enter dry lakebeds via dry washes and the Mojave Creek. The Mojave Creek connects to the Mojave-Soledad Mountain Drainage Area which discharges to Rogers Dry Lake (AAFES 2010). The Rogers Dry Lake is approximately 46 square miles, and stormwater runoff discharged to the dry lakebed is naturally retained until it is evaporated (USAF 2002).

Transportation

Edwards AFB has two primary roads that manage the majority of base traffic: Rosamond Boulevard and Lancaster Boulevard. Four secondary roads (Forbes Avenue, Wolfe Avenue,

Yeager Boulevard, and Fitz-Gerald Boulevard) distribute traffic from the primary roads to the residential areas, flightline areas, North Base and South Base, and within the Main Base. Fitz-Gerald Boulevard provides primary access to the Commissary, Army Air Force Exchange Service, and base housing. Jones Road and North Base Road are the sole access routes from Lancaster Boulevard to existing activity areas. All other roads on base are classified as tertiary, feeder, or unpaved roads serving individual areas.

Vehicular traffic accesses the base through three gates: West Gate, North Gate and South Gate. West Gate is located on Rosamond Boulevard, approximately 10 miles east of State Route (SR) 14. Rosamond Boulevard continues in an easterly direction on base, and continues through the Main Base to intersect with SR-58. North Gate is located on Rosamond Boulevard approximately 1.2 miles south of SR-58. South Gate is located on Lancaster Boulevard approximately 2 miles from the southern boundary. Lancaster Boulevard continues through the base in a northerly direction and passes through Main Base to its intersection with Rosamond Boulevard approximately 2 miles south of the North Gate. Traffic is comprised of both government and personal vehicles, in addition to commercial vehicles that deliver material to businesses and facilities in the area. Commercial and Air Force vehicles are used for work done in the area (e.g., repairs etc.). Emergency vehicles require access to all buildings and streets (AFFTC 1998). Security personnel may provide manual traffic control of high-volume intersections if needed.

3.9.2 Estimated Effects

The primary intent of the alternative is to effect a positive change to the current Edwards AFB infrastructure by consolidating or updating existing facilities. This is consistent with the Air Force policy to minimize facility space and more efficiently meet mission objectives. Impacts to utilities would be considered significant if implementation of an alternative resulted in prolonged disruption of utility services or a long-term reduction in utility supply for existing users.

Additionally, significant impacts to storm water would result from a long-term increase in erosion and sediment loading without the implementation of management techniques. Transportation impacts would be considered significant if additional traffic associated with the alternatives was not managed through use of signage and detours.

Alternative 1

Under Alternative 1, new test missions would utilize existing utility lines and service capabilities. Connection to these lines might result in a short-term disruption of service to nearby users, but would not be expected to result in a long-term reduction in supply. No long-term adverse impacts to Edwards AFB utilities would occur as a result of implementation of Alternative 1.

In order to minimize the potential for increased sediment loading of drainage areas and downstream surface water bodies, a SWPPP would be developed prior to construction of test facilities. The SWPPP would include the implementation of appropriate BMPs, such as silt fencing during construction activities. In addition, a General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit Order 2009-009-

DWQ) would be obtained from the SWRCB, and a Notice of Intent (NOI) would be filed prior to construction. As a result of Alternative 1, significant impacts to storm water runoff would not be expected.

A temporary increase in solid waste would result from construction of new test facilities and demolition of facilities no longer in use. Solid waste generated from Alternative 1 would be disposed of in accordance with the ISWM Plan. It is estimated that construction and demolition waste would be disposed by the contractor at an approved off-base landfill.

A temporary increase in vehicular traffic would occur during construction activities associated with Alternative 1. Prior communication to Base residents and employees in advance of activities associated with Alternative 1 would be recommended to allow for planning alternate travel routes, as needed. Additionally, signage would be erected to advise drivers of potential detours. The increased traffic would be expected to return to pre-construction levels after project completion. By implementing BMPs, it is not expected that Alternative 1 would result in significant impacts to transportation.

Alternative 2

Impacts to utilities and infrastructure would be similar to those described for Alternative 1, except that new facilities may be located outside the 500 feet utility buffer. Some additional utility lines may be necessary to support facilities located outside of the buffer. Connection to any existing utility lines might result in a short-term disruption of service to nearby users, but would not be expected to result in a long-term reduction in supply. Impacts to solid waste would be similar to those for Alternative 1 except that the contractor would also be responsible for removal or reuse of any soils excavated from contamination plumes. Any soils excavated from within a contamination plume must be disposed or reused in accordance with state and federal regulations. Impacts to storm water runoff and transportation, and the associated BMPs would be similar to those described for Alternative 1.

Alternative 3

Impacts to utilities and infrastructure would be similar to those described for Alternative 2, except new facilities would be constructed outside the 500 feet utility buffer and would require additional utility lines to support facilities located outside of the buffer. Impacts to solid waste, storm water runoff and transportation, as well as all associated BMPs would be similar to those described for Alternative 1.

No-action Alternative

Under the No-action Alternative, impacts would be similar to those associated with the action alternatives except that evaluation of utilities accessibility would be required for each new test mission facility constructed. A temporary increase in vehicular traffic would occur during construction activities associated with the No-action alternative. However, since construction of new test mission facilities would not necessarily be co-located, traffic impacts would be distributed throughout the installation, thereby minimizing impacts. Signage and prior base communication could still be utilized to further minimize impacts.

Cumulative Effects

Long-term construction and operation of future test mission facilities under any of the alternative actions would increase the installation's potable water usage, wastewater generation, solid waste generation, natural gas consumption, communication needs, and transportation requirements; however, these increases are currently anticipated due to the existing ad hoc test mission development methodology. It is expected that these needs can be met by existing or future planned infrastructure. Construction and demolition waste generated as a result of the alternatives and the projects listed in Section 2.4, would generate an increased load on off-base landfills. It is assumed that if the landfills in closest proximity to the projects are not able to accommodate the disposal, contractors would identify and use a landfill which could accept the waste.

Transportation impacts from the alternatives would be generally limited to the AO and would not be expected to contribute to cumulative transportation impacts with off-base projects or other projects on Edwards AFB.

Summary of the Estimated Effects

Under Alternative 1, existing utility lines would be used for construction and operation of new test cells. Under Alternatives 2 and 3, new utility lines would be constructed to support new test mission facilities. Under all alternatives, connection to existing lines might result in a short-term disruption of service to nearby users, but would not be expected to result in a long-term reduction in supply. Increased erosion resulting from construction under all alternatives would be managed through implementation of a SWPPP and BMPs. Solid waste generated from the alternatives would be disposed of in accordance with the ISWM Plan, as well as all state and federal regulations. Therefore, significant impacts to utilities are not expected.

Temporary increases in vehicular traffic would occur during construction activities associated with the three alternatives; however, communication to Base residents and employees in advance of activities, as well as detour signage would minimize impacts such that they would not be significant.

3.9.3 Minimization Measures

According to the California State Water Resource Control Board Construction Storm Water Program, projects that disturb one or more acres of soil must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity, which requires the implementation of a SWPPP and filing a NOI prior to construction. Therefore, any new test mission requiring construction that disturbs one or more acres of soil must implement a SWPPP and file an NOI.

Prior communication to Base residents and employees in advance of activities associated with the alternatives would be recommended to allow for planning alternate travel routes, as needed. Signage would also be erected to advise drivers of potential detours. Additional minimization measures could include the items listed below.

- All recycling on this project shall comply with all applicable sections of AFI 32-7001, Environmental Management (November 2011) and *U.S. Air Force Qualified Recycling Program Guide* (September 2010).

- The contractor would be responsible for developing a recycling/diversion plan and implementing a recycling/reuse effort to divert excess material during project activities. This plan must be submitted to the Integrated Solid Waste Manager for review prior to contract accomplishment.

- The proponent/contractor shall be responsible for collection, transportation and disposal or recycling of Inert Debris to include waste concrete, asphalt and concrete rinsate generated from project activities. These materials would be collected in a designated area within the project work site. At project completion, inert debris must be removed from the project site. Concrete rinsate must be dry and all residues shall be removed from the project site. Disposal of inert debris would be in an approved base inert debris processing location or off-Base landfill.

These minimization measures shall be updated to reflect current practices at the time of project execution.

3.10 SOCIOECONOMIC RESOURCES

The socioeconomic status of Edwards AFB and the area surrounding the project are addressed in this section. Due to the nature of the alternatives and the fact that impacts from changes in base populations (and therefore, housing and education) have previously been assessed in the 2014 EA for the Routine and Recurring Realignment of Units and Personnel at Edwards Air Force Base, California, the scope of this section is limited to an analysis of economic conditions at Edwards AFB. Construction workers would only be on Edwards AFB during working hours and would not constitute a change to the Base population.

3.10.1 Existing Conditions

Edwards AFB identifies its primary economic influence as a 75-mile radius surrounding the base. The surrounding communities and Edwards AFB depend on one another for employment, goods, and services. The installation generates economic activity in the region through employee payrolls, service contracts, construction programs, local procurements, and other expenditures.

Edwards AFB employs 2,001 Active Duty Military, 38 Air Reserve/National Guard, and 8,381 Civilian personnel, with an additional 1,991 military family members. In FY 2013 the total number of personnel including dependents at Edwards AFB was 12,411 people with a total payroll of $540,483,940 (USAF 2013). Additionally, there were an estimated 12,224 indirect jobs created in the local area, resulting in an estimated $646,329,698 annual dollar value. Contract expenditures, including construction, operations and maintenance, service contracts, and other expenditures totaled $248,665,000. Therefore, Edwards AFB's total economic impact to the region in FY 2013 was $1,435,478,638 (USAF 2013).

3.10.2 Estimated Effects

Socioeconomic impacts would be considered significant if long-term employment rates or Edwards AFB's annual total economic impact to the region decreased.

Alternative 1

Impacts to the Local Economy

Under Alternative 1, the regional economy would benefit from increased expenditures incurred at Edwards AFB from the construction associated with new or renovated facilities needed for incoming test missions. Construction materials and goods (e.g., gasoline for equipment and trucks) would be expected to be purchased from the local area. However, it should be noted that employment in the area would not increase since it is expected that the construction companies would utilize their current employees.

Impacts to the New Test Mission

Under Alternative 1, the construction or renovation of facilities for the new test missions would not incur additional costs and construction delays related to relocating monitoring wells, remediating contamination plumes, SHPO-required mitigation relating to NRHP-eligible or potentially eligible facilities, or installing new main utility lines. Constructing new test mission facilities in areas with minimal constraints would result in a reduced financial burden in funding the test missions, as compared to Alternatives 2 and 3. Additionally, co-locating new test mission facilities at Edwards AFB would reduce time and gasoline needed to travel across the installation from one support facility to another.

Alternative 2

Impacts to the Local Economy

Socioeconomic impacts to the local economy resulting from Alternative 2 will be similar to those described for Alternative 1.

Impacts to the New Test Mission

Under Alternative 2, co-locating new test mission facilities at Edwards AFB would reduce time and gasoline needed to travel across the installation from one support facility to another. However, the construction or renovation of facilities for new test missions in Alternative 2 locations may incur additional costs and construction delays related to relocating monitoring wells, remediating contamination plumes, and/or installing new main utility lines. Additionally, the client would have the added cost of undertaking Section 106 consultation to complete a determination of eligibility for any facilities potentially eligible for listing on the NRHP. Constructing new test mission facilities in areas with moderate constraints could cause some unexpected financial burdens and negatively impact the ability to fund the test missions.

Alternative 3

Impacts to the Local Economy

Socioeconomic impacts to the local economy resulting from Alternative 3 will be similar to that described for Alternative 1.

Impacts to the New Test Mission

Under Alternative 3, co-locating new test mission facilities at Edwards AFB would reduce time and gasoline needed to travel across the installation from one support facility to another. However, the construction or renovation of facilities for new test missions in Alternative 3 locations would incur additional costs and construction delays related to relocating monitoring wells, remediating contamination plumes, moving the ammunition storage area, and/or installing new main utility lines. Additionally, the client would incur the cost of conducting Section 106 consultation and the related mitigation for NRHP-eligible facilities, possibly to include Historic American Building Survey/Historic American Engineering Record reporting. Constructing new test mission facilities in areas with substantial constraints would cause unexpected financial burdens and negatively impact the ability to fund the test missions.

No-action Alternative

Under the No-action Alternative, Edwards AFB would be maintaining the status quo development method currently employed, which could result in redundant expenditures and potentially costly construction delays.

Cumulative Effects

Development of new test missions would increase local populations and associated housing and education; however, impacts from these components of Socioeconomic Resources have been previously assessed in the 2014 EA for the Routine and Recurring Realignment of Units and Personnel at Edwards Air Force Base, California. Short-term economic expenditures associated with construction, renovation, and demolition under the alternatives, along with other local development projects described in Section 2.4 would cumulatively benefit the regional economy.

The complete build out of Edwards AFB for new test missions (i.e. three, 10-acre sites annually of construction/renovation for 10 years) would result in a long-term regional economic benefit. Additionally, there is sufficient available space within the Alternative 1 footprint to accommodate the complete build out of Edwards AFB over a 10 year period. However, it is possible that mission requirements may limit options for construction. If this were the case, additional financial burdens may be experienced in order to construct within Alternative 2 or 3. For example, if the mission required close proximity to a runway, and if all land near a runway within Alternative 1 was already utilized by other new test missions, it would be necessary to utilize land within Alternative 2 or 3, potentially resulting in additional costs for conducting Section 106 consultation and the related mitigation, relocating monitoring wells, remediating contamination plumes, and/or installing new main utility lines.

Summary of the Estimated Effects

There are no significant effects expected to Socioeconomic Resources as a result of the considered Alternatives. The local economy would benefit from construction related expenditures. Although the client funding the test missions could incur some unexpected financial burdens from constructing facilities in Alternative 2 or 3 areas, there is sufficient available space within the Alternative 1 footprint to accommodate the complete build out of Edwards AFB over a 10 year period.

3.10.3 Minimization Measures

No mitigation or BMPs are recommended under the Alternatives.

3.11 CUMULATIVE IMPACTS

The USEPA has identified criteria to analyze all aspects of the natural environment when reviewing NEPA documentation. These criteria focus on ecological and evolutionary processes, such as natural disturbance regimes, hydrological processes, nutrient cycles, and biotic interactions. These processes summarize and capture the cumulative effects at the landscape scale.

As a practical matter, the guidance suggests that environmental assessments should focus on ecological processes and how they can be affected by various stressors (USEPA 1999). With the exception of complete annual build out at Edwards AFB (which encompasses all of the action alternatives presented in this EA), none of the past, present, and reasonably foreseeable future actions presented in Section 2.4 (Other Actions Announced for Edwards AFB and Surrounding Community) would occur within the AO landscape. Therefore, cumulative impacts in this section are limited to those resulting from complete build out of the AO. The 10 ecological processes identified by the USEPA that were evaluated to determine potential cumulative effects on the habitat and ecological resources are discussed as follows:

1) **Habitats Critical to Ecological Processes –** Due to extensive development and industrial use within the AO, there is little to no undisturbed vegetation. No jurisdictional wetlands or critical habitat for federally-listed endangered species are present within the AO. Surface water on the installation is limited to dry lakebeds and ephemeral streams. Therefore, no cumulative impacts to habitats critical to ecological processes would result from the complete build out of the AO.

2) **Patterns and Connectivity of Habitat Patches –** Since there are no rare habitats located within the AO and the closest critical habitat for federally-listed threatened species is approximately 5-12 miles away from the AO, complete build out of the AO would not result in a loss of rare habitats or connectivity among habitat patches. The build out would introduce approximately 300 acres of additional impervious surfaces to an area already covered by approximately 2,140 acres of impervious surface (a 14 percent increase), thereby improving homogeneity across the landscape.

3) **Natural Disturbance Regimes –** No natural disturbance regimes such as fire, flood, or insect infestations, would be expected to result from the complete build out of the AO.

This build out would add 30 acres of impervious surface annually over a period of 10 years. Storm water runoff generated by the additional impervious cover would terminate at the Rogers Dry Lake and would not be expected to result in flooding or creation of streams that would increase the vegetation (i.e. additional fire sources or food sources for insects) in the desert climate.

4) **Structural Complexity –** The existing structural complexity of the AO is limited due to its highly disturbed nature and industrial land use. The complete build out would introduce approximately 300 acres of additional impervious surfaces to an area already covered by approximately 2,140 acres of impervious surface (a 14 percent increase). The complete build out of the AO would result in a loss of some vegetation; however, since existing vegetation at the site is considered disturbed and not high quality habitat, any loss of structural complexity in the AO would be minimal.

5) **Hydrologic Patterns –** No jurisdictional wetlands are present within the AO. Surface water within the AO is limited to a few ephemeral streams. A small portion of the AO lies within the area defined as: "Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet." This area is immediately adjacent to the Rogers Dry Lake and any flooding of this area would result in short-term impacts to vegetation immediately adjacent to the Dry Lake; however, due to the shallow flood levels, it is not expected that flooding would remove existing vegetation. Storm water runoff generated by the complete build out would terminate at the Rogers Dry Lake. Additionally, storm water flow would be limited to storm water drainage systems and, as a result, would not impact streams, habitats, or floodplains.

6) **Nutrient Cycling –** Aquatic ecosystems are not present within the AO and would not be affected by the complete build out. Any limited terrestrial ecosystems present within the AO could experience a loss of nutrients as a result of erosion during construction; however, site-specific erosion control plans would be implemented to minimize surface soil runoff. The use of silt fences, covering of soil stockpiles, re-vegetation or covering with gravel base rock of disturbed areas in a timely manner, and wetting of soils would help to prevent erosion and therefore, nutrient loss.

7) **Purification Services –** The complete build out of the AO would generate additional construction and demolition waste; however, it would be managed and disposed following specific federal and state guidelines. Additional waste water generation would be managed using the existing on-base wastewater collection and treatment system. Any municipal solid waste generated would be disposed within the Class III MSW disposal site. The build out would not be expected to affect any aquatic ecosystems, including wetlands. Since additional wastes are not expected to be introduced into the ecosystem and since function of aquatic ecosystems would not be affected, the method by which the ecosystem breaks down waste and detoxifies contaminants and the ability of the ecosystem to process waste materials, toxics, or other contaminants would not be impacted.

8) **Biotic Interactions –** Although initial ground clearing activities and construction related noise would disturb and deter most avian species, reptiles, and mammals that currently use the AO, additional habitat is located outside the proposed project area and the majority of species would be able to relocate to nearby undisturbed areas. Smaller prey of these animals may remain within the AO; however, mobility of their predators makes it unlikely that there would be a reduction in predation pressure or increase in survivorship of any species. No impacts to the Mojave ground squirrel would be expected since favorable habitat is not located within the AO. Additionally, since the USFWS has found the land within the AO to be unsuitable for the Federally-listed Desert tortoise, the complete build out would not be expected to impact this species.

9) **Population Dynamics –** Avian species, reptiles, and mammals that currently use the AO would be expected to relocate to nearby undisturbed habitat during the complete build out of the AO. Therefore, population size and viability is not expected to be impacted. Federally- or State-listed species are not expected to be present within the AO and would not be impacted.

10) **Genetic Diversity –** Loss of genotypes, a reduction in generic variation, and genetically based deformities and reproduction dysfunction would not be expected because no species loss would be expected as a result of build out of the AO. Any species currently living within the AO would be expected to relocate to nearby suitable habitat, thus minimizing any potential for affecting genetic diversity.

The cumulative effects of complete build out of the AO were considered as they relate to the ten USEPA ecological processes and it was determined that any impacts would be short-term and minor.

Chapter 4

List of Preparers

CHAPTER 4
LIST OF PREPARERS

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Chapter 5

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CHAPTER 5
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Chapter 6

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CHAPTER 6
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Appendix A

Interagency and Intergovernmental Coordination for Environmental Planning

Sample Signed General Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) Letter (Note: Other General IICEP Letters were prepared in accordance with the sample presented here)

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 412TH TEST WING (AFMC)
EDWARDS AIR FORCE BASE CALIFORNIA

10 Feb 15

Mr. Thomas Rademacher
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Mr. Charles L. Fryxell, APCO
Antelope Valley Air Pollution Control District
43201 Division St., Ste. 206
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Dear Mr. Charles L. Fryxell

Enclosed for your review and comment is the Edwards AFB Test Complex Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI). This project is needed to support various Air Force test missions at the Test Complex by updating and enhancing the current test facilities, making optimum use of existing facilities (utilities and structures) in a cost efficient manner that is consistent with Base priorities while delineating zones of construction which can enhance test capabilities.

The EA analyzes the potential environmental effects of three alternatives associated with updating the current test facilities in the Test Complex. A No-action Alternative has also been examined which analyzes the potential effects of maintaining the existing ad hoc development methodology at Edwards AFB. Based on the EA, the Air Force has prepared a Draft FONSI.

In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation in the process, and solicit any comments or concerns you may have on the Draft EA and Draft FONSI. Comments may be submitted no later than 30 days from receipt of this letter and should be provided to Mr. Gary Hatch by phone at (661) 277-8707, email at 412tw.pae@us.af.mil, or by mail to:

412 TW/PA
Attn: Mr. Gary Hatch
305 East Popson Avenue, Building 1405
Edwards AFB CA 93524

Sincerely

THOMAS A. RADEMACHER
Chief, Environmental Management Division,
Assets Branch

2 Attachments:
1. Edwards AFB Test Complex Draft Environmental Assessment
2. Edwards AFB Test Complex Draft Finding of No Significant Impact

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Final IICEP Mailing List

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Army Corps of Enginees	Los Angeles District					911 Wilshire Blvd. - P. O. Box 532711	Los Angeles	CA	90053
Bureau of Land Management	Barstow Area Office					2601 Barstow Road	Barstow	CA	92311-3221
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CALTRANS	Department of Transportation, District 9					500 South Main Street	Bishop	CA	93514
City of Lancaster	Planning Department					44933 N. Fern Ave.	Lancaster	CA	93534
City of Palmdale	Planning Department					38250 N. Sierra Highway	Palmdale	CA	93550-4798
HQ NTC Ft. Irwin	AFZJ-PW-EV	Mr.	Muhammad	Bari	Director of Public Works	PO Box 105097, Building 285	Fort Irwin	CA	92310-5097
Edwards Base Library	95 SPTG/SVMG					5 West Yeager Blvd., Building 2665	Edwards AFB	CA	93524
Kern River Valley Library		Ms.	Karen	Leifeld	Branch Supervisor	7054 Lake Isabella Boulevard	Lake Isabella	CA	93240
Kern County Library	Wanda Kirk Branch					3611 Rosamond Boulevard	Rosamond	CA	93560
Lahonton Regional Water Quality Control Board						15428 Civic Drive Suite 100	Victorville	CA	92392
Los Angeles County Library	Quartz Hill Branch					42018 N. 50th Street W.	Quartz Hill	CA	93536
Los Angeles County	Planning Department					Room 150 Hall of Records, 13th Floor, 320 W. Temple Street	Los Angeles	CA	90012
Mojave Desert AQMD		Mr.	Charles L.	Fryxell	APCO	14306 Park Ave.	Victorville	CA	92392-2310
Native American Heritage Commission						915 Capital Mall, Room 364	Sacramento	CA	95814
Naval Air Weapons Station	Environmental Office, Code 8G0000D	Mr.	John	O'gara	Head of Environmental Planning	#1 Administration Circle	China Lake	CA	93555
California State Clearinghouse	Office of Planning and Research					PO Box 3044	Sacramento	CA	95812-3044
Palmdale City Library						700 E. Palmdale Boulevard	Palmdale	CA	93550
San Bernardino County	Land Use Services Department, Planning Division					385 N. Arrowhead Ave., 1st Floor	San Bernardino	CA	92415-0182
San Bernardino County Public Library						304 East Buena Vista	Barstow	CA	92311
Trona Library						82805 Mountain View St.	Trona	CA	93562
US Department of the Interior	Fish and Wildlife Service, Ventura Field Office					2493 Portola Road, Suite B	Ventura	CA	93003-7726

Agency	Department	Title-1	Name	Last Name	Title-2	Address	City	State	Zip Code
US Department of the Interior	National Park Service, Death Valley National Park					PO Box 579	Death Valley	CA	92328
Environmental Protection Agency, Region IX	EIS Review Section					75 Hawthorne Street	San Francisco	CA	94105
Federal Aviation Administration, Western Pacific Region	Airspace Management Branch	Mr.	Charles	Lieberman		1500 Aviation Boulevard	Lawndale	CA	90261
Wright Patterson AFB	HQ AFMC/CEV					4225 Logistics Avenue, Suite 8	Wright Patterson AFB	OH	45433-5747
Inyo County Free Library						PO Box 745	Lone Pine	CA	93526
Inyo County Free Library						PO Box K, 168 N. Edwards St.	Independence	CA	93526
Inyo County Planning						PO Box L, 168 N. Edwards St.	Independence	CA	93526
Kern County	APCD	Mr.	Thomas	Paxson	P.E.	2700 M Street, Suite 302	Bakersfield	CA	93301-2370
Kern County Library	Beale Memorial Library, Main Branch					701 Truxton Ave.	Bakersfield	CA	93301
Kern County Library	Boron Branch					26967 20 Mule Team Road	Boron	CA	93516
Kern County	Department of Planning and Development Services					2700 M Street, Suite 100	Bakersfield	CA	93301-2323
Kern County Library	California City Branch					9507 California City Boulevard	California City	CA	93505
Kern County Library	Tehachapi Branch					450 West F Street	Tehachapi	CA	93561
Kern County Library	Mojave Branch					16916-1/2 Highway 14	Mojave	CA	93501
Los Angeles County Library	Lancaster Branch					601 W. Lancaster Boulevard	Lancaster	CA	93534
Ft. Irwin Library						Box 105091	Ft Irwin	CA	92310

= will be sent by State Clearinghouse

Newspaper tear sheet of Public Notice and Second Public Notice

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Test knowledge with Presidents' Day Quiz

William P. Warford

wpwcolumn@aol.com

Time for your annual Presidents Day weekend quiz.

I scoured the websites of the Library of Congress, the Smithsonian Air & Space Museum and Legends of America to come up with this year's questions. (See answers below.)

1. How many presidents held the rank of general in the army before becoming president?

a. Four
b. Two
c. Eight
d. Twelve

❑

2. Though it was phased out in 1934, the US once had in circulation a $500 bill. Which president was on it?

a. William McKinley
b. Theodore Roosevelt
c. Abraham Lincoln
d. Barack Obama

❑

3. Which president did not win a Nobel Peace Prize?

a. Jimmy Carter
b. Theodore Roosevelt
c. Woodrow Wilson
d. John F. Kennedy

❑

4. Who is the only president to be sworn in by a woman?

a. Harry Truman
b. Chester Arthur
c. Lyndon Johnson
d. Franklin Roosevelt

❑

5. Which president wrote his own epitaph, which did not mention that he served as president?

a. Thomas Jefferson
b. George Washington
c. Richard Nixon
d. Herbert Hoover

❑

6. Who was the first president to run against a woman candidate?

a. William Howard Taft
b. Ulysses S. Grant
c. Dwight Eisenhower
d. Ronald Reagan

❑

7. Who was the first Rhodes Scholar elected president?

a. George H.W. Bush
b. Bill Clinton
c. Richard Nixon
d. Barack Obama

❑

8. Who is generally accepted by the experts as the best athlete ever to serve as president?

a. Gerald Ford
b. Ronald Reagan
c. Barack Obama
d. James Knox Polk

❑

9. Who was the first president to hold a pilot's license?

a. Harry Truman
b. Dwight Eisenhower
c. John Kennedy
d. George H.W. Bush

❑

10. Who as the only president to have a child born in the White House?

a. Martin Van Buren
b. Theodore Roosevelt
c. Calvin Coolidge
d. Grover Cleveland

❑

OK, let's see how you did. Here the answers:

1d. Presidents who achieved the rank of general were George Washington, Dwight Eisenhower, Ulysses Grant, Andrew Jackson, William Henry Harrison, Zachary Taylor, Rutherford B. Hayes, James Garfield, Franklin Pierce, Andrew Johnson, Chester A. Arthur and Benjamin Harrison.

2a. William McKinley, or Bill to his friends, was on a big bill.

3d. John Kennedy won the Pulitzer Prize, but no Nobel.

4c. Lyndon Johnson was sworn in aboard Air Force One by a longtime friend, Judge Sarah Hughes, immediately following the murder of President Kennedy. Although the power of the presidency passes automatically to the vice president upon the death of a president, Johnson wanted a ceremony as soon as possible, with photos released to the world, as a symbol of continuity.

5a. Thomas Jefferson designed his own gravestone and wrote its inscription: "Here was buried Thomas Jefferson Author of the Declaration of American Independence Of the Statute of Virginia for religious freedom & Father of the University of Virginia." (I guess he didn't want to spring for the commas.)

Who was the first to fly a plane solo? Whose child was born in the White House?

What was that other job you held, Tom?

6b. Among the candidates in the race won by Grant in 1872 was Victoria Woodhull of the Equal Rights Party. I'm surprised Hollywood doesn't make a movie about her. She was a stockbroker, newspaper editor, women's rights advocate, supporter of free love and, it was rumored but there was never any proof, a prostitute.

Incidentally, the Equal Rights Party nominated as its vice presidential candidate Frederick Douglass, though the famous former slave did not acknowledge his nomination nor take part in the campaign. The ticket got no electoral votes.

7b. Bill Clinton was the first and so far only winner of the prestigious scholarship to go on to become president.

8a. Despite unfair portrayals as an oaf, Gerald Ford was the most valuable player on the national championship football team at Michigan, and passed up the chance to play professionally.

9b. First to fly was Ike, who soloed in 1937, when he was a lieutenant colonel serving in the Philippines. But he never qualified for Army wings.

10b. Ruth Cleveland was born in the White House in 1891.

William P. Warford's column appears each Tuesday, Friday and Sunday.

Board of Equalization set to trim excise tax on gas

By ANDREW CLARK
Valley Press Staff Writer

The honeymoon period of lower gas prices was great while it lasted before the familiar financial pain at the pump returned in recent weeks.

But the state Board of Equalization is preparing to cut the state excise tax on gasoline by 7.5 cents per gallon.

A vote is scheduled to take place Feb. 24 in Culver City.

Board of Equalization member George Runner of Lancaster said Friday that he was looking forward to approving the proposal.

"A gas tax cut of this magnitude would be great news for California drivers, who are currently forced to pay one of the highest gas tax rates in the nation," he said in a statement.

The gasoline excise tax pays for mass transit and road improvements.

The tax is one of three (the others are state and local sales taxes) levied on drivers.

The new tax rate would not take effect until July 1, the start of the new fiscal year.

Runner said the board adjusts the excise tax rate each year, but drivers wound up being overtaxed due to the drop in gas prices.

"People have been overpaying taxes," he said by phone.

"The proposed cut stems from falling gas prices and the resulting over collection of tax.

"It went down farther than we thought," he said.

Runner attempted to explain how the tax is formulated.

"Annual rate changes are required under a confusing and complicated formula enacted by the Legislature in 2010 in order to move a billion dollars to the General Fund," he said.

Runner, one of two Republicans on the five-member board, said the proposal to cut the tax has received bipartisan support.

aclark@avpress.com

Famous African-Americans' orations focus of celebration

Valley Press

PALMDALE — "Faith and Hope," featuring orations of famous African-Americans, will be the focus of the inaugural Black History celebration at the Legacy Commons for Active Seniors, 930 East Ave. Q-9, from 1 to 2:30 p.m. Thursday.

The ceremony will be officiated by Betty Smith, and the mistress of ceremonies will be Kathryn Wright. Bishop Henry Hearns will offer the opening prayer, followed by the Pledge of Allegiance and the anthem "Lift Every Voice" by Ruth Knight.

Guest speakers will include Cortez Bundley and Marcia Johnson.

Also featured will be a talent and fashion show, the Legacy Commons Line Dancers, a presentation on President Barack Obama by Herman Brown, the reading of the poem "Maybe" by Bruce Robertson and the grand finale of "Reach Out and Touch Somebody."

Refreshments will be served.

For details, call Jennifer Tallakson at (661) 267-5904.

Angeles Forest gets new fire chief

Valley Press

ANGELES NATIONAL FOREST — A 20-year U.S. Forest Service veteran has been named the new fire chief for the Angeles National Forest and San Gabriel Mountains National Monument's Fire and Aviation program.

Robert Garcia, the first Hispanic to hold the position, will succeed James Hall, who was the Angeles National Forest's first African-American fire chief.

Hall is retiring after 36 years of service.

A Southern California native, Garcia started his Forest Service career as one of the first graduates of the Angeles National Forest Wildland Fire Explorer Academy when it was established in 1995.

Currently, Garcia is the Angeles National Forest deputy fire chief.

He will manage the largest federal wildland firefighting organization in the nation.

Bulletin Board

TODAY

Joshua Tree Bridge Club, open game, 1 p.m., 1008 West Ave. M-14, Suite D, Palmdale. (661) 285-1779 or (661) 274-0959.

MONDAY

Joshua Tree Bridge Club, beginning lessons, 10 a.m.-noon, 1008 West Ave. M-14, Suite D, Palmdale. (661) 285-1779 or (661) 274-0959.

Broads and Beaus Toastmasters, noon-1 p.m., Los Angeles County Farm Bureau, Suite A, 41228 12th St. West, Palmdale. New members welcome. (661) 974-9904.

Livescan fingerprinting, 8:15 a.m.-3:30 p.m. Monday-Friday. Public, outside agencies and non-participating districts, $33 roller fee plus other clearances necessary. (661) 947-7191, Ext. 7224.

Lancaster West Rotary Club, noon, John P. Eliopulos Hellenic Center, 43404 30th St. West, Lancaster. (661) 945-5868.

Paraclete bingo, 6:30 p.m., 42145 30th St. West. All games pay $300 minimum.

TUESDAY

Joshua Tree Bridge Club, open game, 12:30 p.m., 1008 West Ave. M-14, Suite D, Palmdale. (661) 285-1779 or (661) 274-0959.

Palmdale Tumbleweed Club, 1-4 p.m., Larry Chimbole Cultural Center, 38350 Sierra Highway. Playing cards: Triple-deck pinochle, canasta. (661) 266-0284.

High Desert Knitting Guild, 7-9 p.m. Beginners, experienced welcome. (661) 942-2211.

Antelope Valley Showcase Chorus (formerly Harmony Showcase Chorus), Sweet Adelines Inc., 7 p.m., United Desert Charities Angel Hall, 2101 East Palmdale Blvd. (661) 273-0995.

Antelope Valley Sunrise Rotary Club, 7:15 a.m., Rancho Village Palmdale Senior Living, 39630 Fairway Drive. (661) 272-9926.

Plane Talk Toastmasters, noon-1 p.m., Conference Room B, Lockheed Federal Credit Union, 1011 Lockheed Way (Eighth St. East), Palmdale. (661) 572-4123.

Lancaster Photography Association, 6 p.m., Antelope Valley Senior Center, 777 West Jackman St. (661) 645-2556.

Rosamond Rotary, 7 p.m., Diamond Lil's, Diamond Jim's Casino, 118 20th St. West, Rosamond. (661) 713-9718.

Antelope Valley Blanketeers, 10 a.m.-2 p.m., Mission Bank (formerly Mojave Desert Bank), 43830 20th St. West, Lancaster. (661) 948-6855. Free crochet and knitting lessons.

AV Seniors Network, 10 a.m., The Lancaster United Methodist Church, 918 West Ave. J, Lancaster. (661) 942-0419.

WEDNESDAY

Eye-Opener Toastmasters, 7:15 a.m., Dining Room, University of Antelope Valley, 44073 Sierra Highway, Lancaster. (661) 247-5484.

Palmdale Rotary Club, 6:30 p.m., Sizzler Restaurant, 853 West Palmdale Blvd. (661) 273-5457.

Littlerock Library Book Club, 6:30 p.m., Littlerock Library, 35119 80th St. East. (661) 944-4138.

Joshua Tree Bridge Club, invitational, 12:30 p.m., 1008 West Ave. M-14, Suite D, Palmdale. (661) 285-1779 or (661) 274-0959.

Talents Unlimited Toastmasters, 7 p.m., Community Room, Robertson's Palmdale Honda, 455 Auto Vista Drive, Palmdale Auto Mall. (661) 949-7423.

Citywide Word Wizards Toastmasters, noon-1 p.m., Camille's Sidewalk Cafe, 44140 20th St. West, Lancaster. (661) 265-6279 or (661) 274-8929.

AV Professionals Plus Networking Group, 10 a.m.-noon, EDD Office, 1420 West Ave. I, Lancaster. (661) 350-5744 or Info@EUAVPPNG.org.

THURSDAY

Desert Candles Toastmasters Club 6:30 p.m., Main Meeting Room, The Sunset Grill, 8056 California City Blvd. (760) 373-2395.

Lancaster Sunrise Rotary, 7 a.m., Antelope Valley Family YMCA, 43001 10th St. West, Lancaster.

High Desert Toastmasters, 7-8:30 p.m. Keller Williams, 1401 West Rancho Vista Blvd. (Ave. P), Palmdale. (661) 944-1130 or BrendaAvadian@TheCaregiversVoice.com.

Rotary Club of Lancaster, 6:45 p.m., Dining Room, University of Antelope Valley, 44073 Sierra Highway, Lancaster, (661) 433-4705.

United Desert Charities, Angel's Bingo, 6:15-10:30 p.m., 2101 East Palmdale Blvd. (661) 224-9365.

Antelope Valley branch, NAACP, 7-9 p.m., Room 67, L.A. County Fire Department Training Facilities, 42110 Sixth St. West, Lancaster. (661) 860-7823.

FRIDAY

Joshua Tree Bridge Club, open game, 12:30 p.m., 1008 West Ave. M-14, Suite D, Palmdale. (661) 285-1779 or (661) 274-0959.

The Y Talkers Toastmasters, 6:30-8 p.m., Antelope Valley Family YMCA, 43001 10th St. West, Lancaster. (661) 349-0851 or (661) 965-4892.

Shoptalk Toastmasters, 7-8:30 a.m., Antelope Valley Family YMCA, 43001 10th St. West, Lancaster. (661) 992-8338 or shoptalktm@gmail.com.

United Desert Charities, Angel's Bingo, 6:15-10:30 p.m., 2101 East Palmdale Blvd. (661) 224-9365.

AV Caged Bird Society, (661) 264-0874 or (661) 947-1588.

SATURDAY

Speakers in the Wind Toastmasters, 9-10:30 a.m., William Shaw Building, 9657 East Ave. Q-10, Sun Village. (661) 400-1026 or (661) 609-7212.

Pro Talk Toastmasters, 10-11:15 a.m., Northwest Meeting Room, Lancaster Public Library, 601 West Lancaster Blvd. (760) 695-7840.

Leona Valley Sertoma, 8 a.m., Creekside Cafe, 40352 90th St. West, Leona Valley. (661) 270-9268.

PUBLIC NOTICE

NOTICE OF AVAILABILITY
ENVIRONMENTAL ASSESSMENT AND
DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR UPDATING AND ENHANCING THE CURRENT TEST FACILITIES
AT EDWARDS AIR FORCE BASE, CALIFORNIA

Edwards Air Force Base (AFB) is seeking public comments on an environmental assessment (EA) prepared to analyze updating test mission capabilities to support new test missions at the Edwards AFB Test Complex. This project is needed to support various Air Force test missions at the Test Complex by updating and enhancing the current test facilities, making optimum use of existing facilities (utilities and structures) in a cost efficient manner that is consistent with base priorities while delineating construction zones.

The EA, prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations, and Air Force instructions implementing NEPA, evaluates potential impacts of three action alternatives on the environment. The alternatives provide a range of development scenarios while considering standard mission requirements for new test missions and three levels of land use constraints. A No-action Alternative has also been examined which analyzes the potential effects of maintaining the existing development methodology at Edwards AFB. Based on the EA, the Air Force has prepared a Draft Finding of No Significant Impact (FONSI).

Copies of the EA and Draft FONSI are available at the Edwards AFB library; Rosamond, Mojave, and Boron Branches of the Kern County Library; Lancaster Branch of the Los Angeles County Library; the Palmdale City Library; and other regional libraries. A link to download a digital copy can be found on the Edwards Air Force Base Environmental Management Facebook page. Additionally, the documents can be requested through the Public Affairs Office at 412 TW/PA, 305 E. Popson Avenue, Edwards AFB, CA 93524, (661) 277-8707, 412tw.pae@us.af.mil.

Comments may be submitted through 17 March 2014 and be provided to:

412 TW/PA
412th Test Wing Public Affairs, Attn: Mr. Gary Hatch
305 East Popson Avenue, Building 1405, Edwards AFB CA 93524
661 277-8707, 412tw.pae@us.af.mil

4177763

Keeping lid on crime across east Kern County

Kern County Report
Bill Deaver

wdeaver@mojave.ca.us

Good work by proactive sheriff's deputies resulted in an increase in narcotics arrests which led to a downturn in other crimes in 2014 in east Kern County, according to sheriff's Sgt. Steven Williams, commander of the Mojave-Boron sheriff's stations.

"Drugs are the biggest problem here in Mojave," Williams said. "Drugs lead to a lot of the other crimes, like burglaries and thefts. If you look at the stats, our narcotics offenses are up, but other crime is down."

"When you put the drug users in jail, the other crimes go down," Williams noted.

"Here in Mojave I have some deputies who are a little more proactive than I had in the past. That's helped out. They take zero tolerance on some of the things that go on around here, and I'm sure that's had some impact," he said.

In 2014, narcotics cases increased in Rosamond and Mojave, with a slight drop in Boron, according to information provided by the Kern County Sheriff's Office.

Rosamond, the most populous community of the three, recorded 293 narcotics cases in 2014, up from 184 in 2013, and even fewer in the previous three years.

Mojave listed 84 narcotics cases, up from 57 in 2012 and 2013. Boron had 67, down from 69 the previous year.

Breaking down the numbers

But the number of burglaries in the three communities dropped last year to 73 from 110 in 2013 to 73 Mojave, to 113 from 124 in Rosamond and to 47 from 51 in Boron.

Larceny, which is theft from other than break-ins, went down everywhere except Boron, with 34 cases in 2014 compared to 34 in 2013.

Larceny cases in Mojave dropped from 90 in 2013 to 58 in 2014, and in Rosamond from 141 in 2013 to 116 last year.

Figures released by the department show calls for service dropped a bit in the three towns from 2013 while registering an increase over 2010.

Rosamond reported a steady decrease over the previous four years, with 12,039 calls for service in 2014, 12,673 in 2013, 12,469 in 2012, a high of 13,146 in 2011 and 12,540 in 2010.

Boron service calls stayed pretty steady during the period, with 3,550 in 2014, down from 3,907 in 2013 and 3,678 in 2012, with 3,324 reported in 2011 and 3,563 in 2010.

Mojave was down a bit last year with 10,864 from 11,664 in 2013, and up from 10,280 in 12012, 9.460 in 2011, and 9,247 in 2010.

Only one homicide

Only one homicide was recorded in the area during 2014, occurring in November in Rosamond.

One homicide was reported in 2013 and one in 2012, with none reported in 2011 and 2010.

Simple assault cases dropped from 161 in 2013 to 145 in Rosamond, from 93 to 88 in Mojave, and from 28 to 24 in Boron. Rape cases remained in single digits in the three communities over the past five years, with none reported in Boron in 2014 and 2010.

CHP reports fewer fatalities in 2014

Fewer people died on east Kern highways and roads during 2014 than in the three previous years, according to a report from CHP Traffic Officer Darlena Dotson.

Dotson, spokeswoman for the department's Mojave Office, which covers all of east Kern, reported that eight people lost their lives in individual crashes during the past year, compared to 14 in 2013, nine in 2012, and ten in 2011. Eight died in 2010, Dotson reported.

The number of traffic collisions rose a bit in 2014 to 218 from 204 the previous year, but was way down from 274 in 2012. There were 206 crashes in 2011 and 233 in 2010.

Arrests for driving under the influence of alcohol and drugs were down a bit in 2014, from 391 in 2013 to 371 last year.

That compares to 493 arrests in 2010, 442 in 2011 and 368 in 2012, according to Dotson.

Old Dutch Cleanser mine

When I was a kid many (many!) years ago, my folks used a product called Old Dutch Cleanser to handle the really dirty cleaning jobs.

The product is similar to Ajax — a white powder that's good at removing "stubborn stains" on just about any surface.

The can still features a drawing of a stick-wielding woman dressed like the popular image of a Dutch woman — blue dress and hooded cap. It was an icon in its day and is still around.

Labels and advertising for this product claimed it contained something called "seismotite."

Seismotite was the trade name concocted by the makers for the more common mineral pumice.

When we moved to Mojave and I got around to checking maps of the region, one of my favorite hobbies, I discovered a "seismotite" mine in the El Paso Mountains in the Red Rock Canyon area.

These are the mountains on the right of Highway 14 when you are traveling north, or on the left while driving toward Randsburg from 14.

According to an online report on the "Old Dutch Cleanser Mine" written by Dr. Ralph Pray of Monrovia in Prospecting and Mining Journal in 2003, the mine closed in 1947.

Efforts are underway to re-open the mine, efforts complicated by the fact that the land the mine is on is an "in-holding" in Red Rock Canyon State Park.

An in-holding is private property surrounded by government land. The mine and some other properties became in-holdings when the area was taken into the state park system in 1970. I served on a local and state advisory committee during that process.

The Kern County Planning Department scheduled a pubic hearing for a "mitigated negative declaration" on the mine project for Jan. 8, but it was continued and no date set.

Such a declaration is a much simpler process than a full environmental impact report that can require applicants to "mitigate" effects of the action, if approved.

Opposition surfaces

The delay resulted from what a county staffer said was "additional analysis is needed to comprehensively evaluate the project's potential impact on the environment," and asked that it be referred back to staff for additional study.

According to Carolyn Nepris-Jones, president of the Red Rock Canyon State Park Interpretive Association, the item was continued because of a "outpouring of support" from folks opposed to the re-opening including the state Parks Department, Center for Biological Diversity and others.

State Parks' response stated that "based on our review of the (mitigated negative declaration), we believe the project will result in significant and unavoidable impacts to (the state park) and the surrounding area …"

The state comments include concerns about effects on air quality, wildlife, plants and birds from trucks using roads between the mine and a nearby county road, plus on cultural and archaeological resources and recreational opportunities.

In light of these concerns, the parks department letter asks that a full environmental impact report be completed for the project.

The Center for Biological Diversity made the same request in its filing.

No date has been set for another hearing.

Community News

Moose Lodge offers plenty to do, enjoy

LANCASTER — Lancaster Moose Lodge, 44545 Division St., has set a week of activities.

■ Today, 9 a.m.-noon: Breakfast buffet with omelet station. The cost of $6.95 includes orange juice, coffee or tea. By Three Roses Catering. 6-10 p.m.: Family karaoke.

■ Monday, 5 to 7 p.m.: WOTM $5 dinner.

■ Tuesday, 6 to 9 p.m.: Joel's line dancing. 7 p.m.: Darts.

■ Wednesday, 4:30 to 7 p.m.: $6 dinner by Three Roses Catering. Choice of two entrees, soup and salad included.

■ Friday, 4:30 to 7:30 p.m.: Dinner by Three Roses Catering. Full menu with a prime rib special and weekly specials. 8 p.m. to closing: Rock show by Anti Klub.

■ Saturday 8 p.m.: Heavy, Heavy Rock show.

Members and guests are welcome to all events. For details, call (661) 942-0104.

VFW post open in Palmdale

PALMDALE — The new Veterans of Foreign Wars Post 3552 is at 39463 10th St. East. A fund-raising breakfast is from 9 to noon Sunday.

Karaoke and dinner begins at 5 p.m. Friday. Bullet bingo night begins at 6:30 p.m. Tuesday.

Donations are used for area veterans and their families.

For details, call (661) 273-3204.

Sunday Night Dance set at Elks Lodge

LANCASTER — The Sunday Night Dance meets from 6 to 10 p.m. Sunday at the Elks Lodge, 240 East Ave. K.

The event is aimed at singles and couples 30 and older; proper attire is required. Open to the public.

Doors open at 5:30 p.m.

The cost is $6.

For details, call (661) 902-1469.

Have breakfast with veterans at Palmdale post

PALMDALE — The Palmdale Veterans of Foreign Wars Post, 39463 10th St. East, offers breakfast from 9 a.m. to noon Sunday.

For details, call (661) 273-3204.

Antelope Valley Eagles offer nine-ball pool

LANCASTER — The AV Eagles, 232 West Newgrove St., offer nine-ball pool at 1 p.m. Sunday, tacos from noon to 3 p.m. Tuesday, and steak and karaoke at 6 p.m. the third Saturday of the month.

Activities are open to members and their guests.

For details, call (661) 948-8622.

City seeks help to teach seniors about computers

PALMDALE — The city is seeking volunteers to teach seniors about computers at Legacy Commons, 930 East Avenue Q-9.

Instructors will be asked to teach one to two hours per week during the center's operating hours of 8 a.m. to 4:30 p.m. Monday through Thursday and 8 a.m. to noon Friday.

Applicants must have thorough knowledge of computers and possess good communications skills.

For details, call (661) 267-5904.

Roadrunners 4H club seeks new members

LANCASTER — The Roadrunners 4H club is looking for new members. People interested in arts, crafts, cooking, shooting sports, livestock and more are welcome to join the club.

For details, call Community Leader Aimee Nelson at (661) 418-9364 or AV 4H Program Coordinator Charlene Moore at (661) 974-8824.

Antelope Valley Caged Bird Society offers help

QUARTZ HILL — The Antelope Valley Caged Bird Society can be reached at (661) 947-1588 or avcbs.info@gmail.com.

Meet and Mingle offers fun, fellowship for 50-plus

PALMDALE — The Meet and Mingle Social Club allows singles 50 and older to enjoy fun and fellowship.

Meetings are free.

For details, call (661) 728-0813.

Partners for Health offers to give homes minor repairs

AV Partners for Health is offering a program that gives free minor home repairs for qualified homeowners in the unincorporated areas of the Antelope Valley.

For details, call (661) 942-4719 Ext. 563.

Rebels adult softball team seeking veteran players

LANCASTER — The Rebels adult softball team is looking for experienced softball players, who are over 30 years old, to play in the upcoming competitive softball season.

For details, call (661) 943-6614.

Busy week of activities set at senior center

MOJAVE — The Mojave Senior Center has a full week planned at the Mojave Veterans Memorial Building, 15580 O St.

Step right up and play bingo at 6 p.m. Tuesday. Doors open at 5 p.m.

Learn artistry using beads from 9 a.m. to 1 p.m. Wednesday.

Ladies can challenge each other in bingo at 10 a.m. Thursday, and later, make crafts from 1 to 3 p.m.

For details, call (661) 816-3497.

Antelope Valley Rescue mission feeds the needy

LANCASTER — The Antelope Valley Rescue Mission, 44211 Yucca Ave., Suite A, serves a free breakfast for the homeless and hungry from 7:45 to 8:30 a.m. Monday through Friday and 8:45 to 9:30 a.m. Saturday. Dinner is served from 4:45 to 5:30 p.m. Monday through Thursday.

Provide meals for Grace Resources soup kitchen

Organizations, businesses and individuals are being sought to provide meals for a twice-weekly soup kitchen supported by Grace Resources.

For details or to volunteer, call (661) 350-3119.

Nonprofit seeks to help youth, needs supplies

Bags4Kids, a nonprofit that helps at-risk youth with basic necessities, is in need of school supplies, baby items, toys and hygiene items.

Donations can be dropped off at Bohn's Printing, 656 West Lancaster Blvd.; Al's Sew 'N' Vac, 904 West Lancaster Blvd.; and Optimist Youth Homes, 520 West Palmdale Blvd., Unit H. For details, call (760) 373-7632.

Help seniors to compute

PALMDALE — The city is seeking volunteers to teach seniors about computers at Legacy Commons, 930 East Avenue Q-9.

Instructors will be asked to teach one to two hours per week during the center's operating hours of 8 a.m. to 4:30 p.m. Monday

SECOND PUBLIC NOTICE

NOTICE OF AVAILABILITY
ENVIRONMENTAL ASSESSMENT AND
DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR UPDATING AND ENHANCING THE CURRENT TEST FACILITIES
AT EDWARDS AIR FORCE BASE, CALIFORNIA

Edwards Air Force Base (AFB) is seeking public comments on an environmental assessment (EA) prepared to analyze updating test mission capabilities to support new test missions at the Edwards AFB Test Complex. This project is needed to support various Air Force test missions at the Test Complex by updating and enhancing the current test facilities, making optimum use of existing facilities (utilities and structures) in a cost efficient manner that is consistent with base priorities while delineating construction zones.

The EA, prepared in accordance with the National Environmental Policy Act (NEPA), Council on Environmental Quality regulations, and Air Force instructions implementing NEPA, evaluates potential impacts of three action alternatives on the environment. The alternatives provide a range of development scenarios while considering standard mission requirements for new test missions and three levels of land use constraints. A No-action Alternative has also been examined which analyzes the potential effects of maintaining the existing development methodology at Edwards AFB. Based on the EA, the Air Force has prepared a Draft Finding of No Significant Impact (FONSI).

Copies of the EA and Draft FONSI are available at the Edwards AFB library; Rosamond, Mojave, and Boron Branches of the Kern County Library; Lancaster Branch of the Los Angeles County Library; the Palmdale City Library; and other regional libraries. A link to download a digital copy can be found on the Edwards Air Force Base Environmental Management Facebook page. Additionally, the documents can be requested through the Public Affairs Office at 412 TW/PA, 305 E. Popson Avenue, Edwards AFB, CA 93524, (661) 277-8707, 412tw.pae@us.af.mil.

Comments may be submitted through 17 March 2014 and be provided to:

412 TW/PA
412th Test Wing Public Affairs, Attn: Mr. Gary Hatch
305 East Popson Avenue, Building 1405, Edwards AFB CA 93524
661 277-8707, 412tw.pae@us.af.mil

4177763

GETTING IN TOUCH WITH THE Antelope Valley Press

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No comments were received during the Public Comment period for the Public Draft EA

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Draft Environmental Assessment IICEP Responses

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

March 19, 2015

Dan Reinke
U.S. Air Force
12 Lab Road, Bldg 4231
Edwards AFB, CA 93524

Subject: Test Complex at Edwards Air Force Base
SCH#: 2015024001

Dear Dan Reinke:

The State Clearinghouse submitted the above named Joint Document to selected state agencies for review. The review period closed on March 17, 2015, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Document Details Report
State Clearinghouse Data Base

SCH#	2015024001
Project Title	Test Complex at Edwards Air Force Base
Lead Agency	U.S. Air Force

Type	JD Joint Document
Description	Note: EA/FONSI

The test mission at Edwards AFB is constantly changing, new test missions develop, last for months to years and then terminate. Edwards AFB is developing this EA to analyze the update and enhancement of test facilities at the Edwards AFB Test Complex to meet changing test mission requirements, by outlining zones of construction that can enhance the test capabilities. The proposed actions include areas on North Base, Main Base and South Base that lie within 2,500 feet of existing runways and taxiways. Three action alternatives were considered to update and develop new test mission capabilities at the Edwards AFB, CA Test Complex. The alternatives provide a range of development scenarios while considering standard mission requirements for new test missions, and varying levels of land use constraints.

Lead Agency Contact

Name	Dan Reinke		
Agency	U.S. Air Force		
Phone	661 277 9133	*Fax*	
email			
Address	12 Lab Road, Bldg 4231		
City	Edwards AFB	*State* CA	*Zip* 93524

Project Location

County	Kern, Los Angeles, San Bernardino			
City	Lancaster			
Region				
Lat / Long	34° 55' 56" N / 117° 52' 57.74" W			
Cross Streets				
Parcel No.				
Township	*Range*	*Section*	*Base*	

Proximity to:

Highways	Hwy 58
Airports	
Railways	US Gov. RR
Waterways	Small intermittent creeks/streams
Schools	6
Land Use	Light Industrial

Project Issues Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Economics/Jobs; Noise; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Cumulative Effects; Other Issues

Reviewing Agencies Resources Agency; Department of Fish and Wildlife, Headquarters; Department of Parks and Recreation; Department of Water Resources; Office of Emergency Services, California; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, Division of Transportation Planning; Air Resources Board; Regional Water Quality Control Bd., Region 5 (Fresno); Native American Heritage Commission; Public Utilities Commission

Date Received 02/17/2015 *Start of Review* 02/17/2015 *End of Review* 03/17/2015

Note: Blank data fields result from insufficient information provided by lead agency.

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Appendix B

Air Pollutant Emissions Calculations

Alternative Actions - Test Complex
Edwards AFB, California
Appendix B - Air Emission Calculations

Contents:

Tables

Emission Calculations:

Construction/Demolition Equipment Emissions:

Construction EF (lb/1,000 ft^2)= Average Construction Equipment Usage Rate (hr/ 1,000 ft^2) x Equipment EF (lb/hr)

Where,
EF = emission factor

Pollutant Emissions (lbs) = Construction EF (lb/1,000 ft^2) x total square feet of construction or demolition

Privately Owned Vehicle (POV) and On-Road Diesel Vehicle Emissions

Pollutant emissions = {Total vehicle miles traveled per year (miles/yr) * Pollutant EF (g/mile)}/453.59 g/lb

Where,
EF = emission factor
453.59 g/lb = conversion factor from grams to pounds

Table B-1

Summary of Annual Emissions from All Construction Sources[a]
Test Complex
Edwards AFB, California

Action	Annual Emissions (ton/yr)						
	VOC	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	CO_2
Alernative 1	4.0	31.2	60.1	3.6	3.6	0.12	12,831
Alternative 2	4.0	31.2	60.1	3.6	3.6	0.12	12,831
Alternative 3	4.0	31.2	60.1	3.6	3.6	0.12	12,831
No-action Alternative	4.0	31.2	60.1	3.6	3.6	0.12	12,831

CO = carbon monoxide

CO_2 = carbon dioxide

NO_x = oxides of nitrogen

$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter

PM_{10} = particulate matter equal or less than 10 micrometers in diameter

SO_2 = sulfur dioxide

ton/yr = US (short)tons per year

VOC = volatile organic compounds

Notes:

a To be conservative, it has been assumed that all Alternative activities would take place in a single year. It is has been assumed that no new test mission would ever require more construction or demolition square footage than used in Table C-2. Therefore, the most conservative estimate of emissions would be the same for each Alternative.

Table B-2

Summary of Annual Construction Equipment Exhaust Emissions[a]
Test Complex
Edwards AFB, California

Action	Annual Emissions (ton/yr)						
	VOC	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	CO_2
Alernative 1	4.0	30.7	59.6	3.6	3.6	0.11	12,642
Alternative 2	4.0	30.7	59.6	3.6	3.6	0.11	12,642
Alternative 3	4.0	30.7	59.6	3.6	3.6	0.11	12,642
No-action Alternative	4.0	30.7	59.6	3.6	3.6	0.11	12,642

CO = carbon monoxide

CO_2 = carbon dioxide

NO_x = oxides of nitrogen

$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter

PM_{10} = particulate matter equal or less than 10 micrometers in diameter

SO_2 = sulfur dioxide

ton/yr = US (short)tons per year

VOC = volatile organic compounds

Action =	Alternative 1	Alternative 2	Alternative 3	No-Action	
Total New Construction =	1,209,600	1,209,600	1,209,600	1,209,600	square feet/year
Total Demolition[b] =	403,200	403,200	403,200	403,200	square feet/year

Notes:

a To be conservative, it has been assumed that all activities would take place in a single year. The new construction is based upon three hangars, three buildings, and three parking lots (~1.2M sq. ft.) and demolition of one hangar. It has been assumed that no new test mission would ever require more construction or demolition square footage than used in these calculations. Therefore, the most conservative estimate of emissions would be the same for each Alternative.

Table B-3
Construction Emission Factors
Test Complex
Edwards AFB, California

Average Construction Equipment Usage Rates (hours)[a]				Equipment Emission Factors[b,c,d,e]						
	New Construction		Demolition							
Construction Equipment	Single Story (per 1,000 ft^2)	Multi-Story (per 1,000 ft^2)	Single/Multi-Story (per 1,000 ft^2)	VOC (lb/hr)	CO (lb/hr)	NO_X (lb/hr)	PM_{10} (lb/hr)	$PM_{2.5}$ (lb/hr)	SO_2 (lb/hr)	CO_2 (lb/hr)
Backhoe	2.6901	2.1943	-	0.007	0.084	0.107	0.011	0.011	0.0002	21.0
Bulldozer	1.1833	1.3866	-	0.077	0.390	1.157	0.069	0.069	0.002	245
Concrete Truck	7.5282	3.7641	-	0.143	1.135	2.138	0.128	0.128	0.004	454
Crane	10.3343	15.5449	3.0000	0.034	0.137	0.459	0.028	0.028	0.001	97.5
Dump Truck	4.2281	3.4009	7.9600	0.143	1.135	2.138	0.128	0.128	0.004	454
Front-end Loader	2.6800	2.5183	4.0000	0.015	0.070	0.202	0.018	0.018	0.0004	43.0
18-Wheel Truck	28.0799	30.0545	-	0.143	1.135	2.138	0.128	0.128	0.004	454

Pollutant	Construction Equipment Emission Factors		
	New Construction		Demolition
	Single Story (lb/1,000 ft^2)	Multi-Story (lb/1,000 ft^2)	Single/Multi-Story (lb/1,000 ft^2)
VOC	6.2	6.0	1.3
CO	47.5	45.3	9.7
NO_X	92.1	89.1	19.2
PM_{10}	5.6	5.4	1.2
$PM_{2.5}$	5.6	5.4	1.2
SO_2	0.2	0.2	0.0
CO_2	19,544	18,898	4,076

CO = carbon monoxide
CO_2 = carbon dioxide
ft^2 = square feet
g/hp-hr = gram per horsepower - hour
hp = horsepower
lb = pound
lb/hr = pound per hour
NO_x = nitrogen oxides
PM_{10} = particulate matter equal or less than 10 micrometers in diameter
$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter
SO_2 = sulfur dioxide
VOC = volatile organic compound

Notes:

a Source: 1996 Means Building Construction Cost Data, 54th Annual Edition

b Source: USEPA, Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling-CI, July 2010. Assumed Tier 3 for all equipment. The g/hp-hr emission factors converted to lb/hr; using horsepower from Nonroad Engineand Vehicle Emission Study (11/91), Table 2-04 and NONROAD2008 load factor.

c CO_2 emission factor source: Table 4.9 of USEPA's Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories, April 2009. Emission factors given in Table 4.9 are based upon the reference in footnote b above. The g/hp-hr emission factors converted to lb/hr; using horsepower from Nonroad Engine and Vehicle Emission Study (11/91), Table 2-04 and NONROAD2008 load factor. Assumed Tier 3 for all equipment.

d Assumed $PM_{2.5} = PM_{10}$

e Assumed 15 ppm sulfur content.

Table B-4

Summary of Annual Emissions from Construction POV[a]
Test Complex
Edwards AFB, California

Car/Light Truck (Exhaust Emissions)

Days worked	Total Number of Worker Vehicles	Vehicles Miles Traveled (miles/day)	Vehicles Miles Traveled (miles/Action)	Emission Factor[b] (g/mile)						
				CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2
250	25	50	312,500	1.3	0.12	0.0019	0.0017	0.0035	0.054	349

Car/Light Truck (Exhaust Emissions Continued)

Action	Annual Emissions Each Action (ton/yr)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2
Alernative 1	0.45	0.043	6.52E-04	5.96E-04	1.21E-03	0.019	120
Alternative 2	0.45	0.043	6.52E-04	5.96E-04	1.21E-03	0.019	120
Alternative 3	0.45	0.043	6.52E-04	5.96E-04	1.21E-03	0.019	120
No-action Alternative	0.45	0.043	6.52E-04	5.96E-04	1.21E-03	0.019	120

CO = carbon monoxide

CO_2 = carbon dioxide

g/mile = gram mile

NO_x = oxides of nitrogen

$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter

PM_{10} = particulate matter equal or less than 10 micrometers in diameter

POV = privately owned vehicle

SO_2 = sulfur dioxide

ton/yr = US (short)tons per year

VOC = volatile organic compounds

Notes:

a Construction worker private vehicle travel to the work site. Assumed two workers per vehicle. Conservatively assumed every worker vehicle would travel 50 miles per day for each day worked. Workers and miles traveled assumed to be the same for each Alternative.

b Emission Factor Source: California Air Resources Board (CARB), EMFAC2011 on-road emission factor model. Assumed all LDA-Gas passenger vehicle class with aggregated speed and aggregated model years for 2015.

Table B-5
Summary of Annual On-Road Diesel Vehicle Combustion Emissions
Test Complex
Edwards AFB, California

Action	Annual Emissions (ton/yr)						
	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2
Alernative 1	0.086	0.47	5.27E-03	4.85E-03	6.51E-04	0.021	68.2
Alternative 2	0.086	0.47	5.27E-03	4.85E-03	6.51E-04	0.021	68.2
Alternative 3	0.086	0.47	5.27E-03	4.85E-03	6.51E-04	0.021	68.2
No-action Alternative	0.086	0.47	5.27E-03	4.85E-03	6.51E-04	0.021	68.2

CO = carbon monoxide

CO_2 = carbon dioxide

g/mile = grams per mile

mph = miles per hour

$PM_{2.5}$ = particulate matter equal or less than 2.5 micrometers in diameter

PM_{10} = particulate matter equal or less than 10 micrometers in diameter

NO_x = oxides of nitrogen

SO_2 = sulfur dioxide

ton/yr = US (short)tons per year

VMT = vehicle miles traveled

VOC = volatile organic compounds

Notes

a Annual emissions = EMFAC2011 EF (g/mile) * Annual VMT

EMFAC2011 Vehicle Type Category[a]	LHD1-DSL[b]	T6[c]	
Roadway Type	Paved[d]	Paved[d]	
Annual Average VOC Emission Factor :	0.231	0.171	g/mile
Annual Average NO_x Emission Factor :	4.288	6.411	g/mile
Annual Average CO Emission Factor :	1.044	0.522	g/mile
Annual Average CO_2 Emission Factor :	523.7	1165.4	g/mile
Annual Average SO_2 Emission Factor :	0.0050	0.0111	g/mile
Annual Average PM_{10} Emission Factor :	0.0451	0.0784	g/mile
Annual Average $PM_{2.5}$ Emission Factor :	0.0415	0.0721	g/mile

	LDDT[e]	HDDV3[f]	
Total Annual VMT (Same for all Alternatives)	62,500	25,000	miles/yr

Notes:

a Emission Factor Source: California Air Resources Board (CARB), EMFAC2011 on-road emission factor model.

b LHD1-DSL = Light heavy duty diesel powered trucks (8,500 - 10,000 pounds.)

c T6 instate heavy = Medium-Heavy Duty Diesel instate Truck with GVWR>26000 lbs.

d Aggregate Speed and aggregated model years for 2015.

e LHD1 VMT based upon 5 vehicles traveling 50 miles/day for 250 working days/year.

f T6 VMT based upon 2 loads/day traveling 50 miles per load.

Appendix C

Department of Defense Instruction 4165.57, Air Installation Compatible Use Zones, Appendix 3 to Enclosure 3, Recommended Land Use Compatibility in Noise Zones, Table 2

APPENDIX 3 TO ENCLOSURE 3

RECOMMENDED LAND USE COMPATIBILITY IN NOISE ZONES

Suggested land use compatibility guidelines in noise zones are shown in Table 2. Additions to some land use categories have been incorporated into Table 2 subsequent to issuance of the SLUCM to reflect additional land uses and to clarify the categorization of certain uses. The land use compatibility recommendations are provided for local governments as well as DoD personnel for on-base planning.

Table 2. Land Use Compatibility in Noise Zones

LAND USE		SUGGESTED LAND USE COMPATIBILITY				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
10	Residential	N[1]	N[1]	N	N	N
11	Household units	N[1]	N[1]	N	N	N
11.11	Single units: detached	N[1]	N[1]	N	N	N
11.12	Single units: semidetached	N[1]	N[1]	N	N	N
11.13	Single units: attached row	N[1]	N[1]	N	N	N
11.21	Two units: side-by-side	N[1]	N[1]	N	N	N
11.22	Two units: one above the other	N[1]	N[1]	N	N	N
11.31	Apartments: walk-up	N[1]	N[1]	N	N	N
11.32	Apartment: elevator	N[1]	N[1]	N	N	N
12	Group quarters	N[1]	N[1]	N	N	N
13	Residential hotels	N[1]	N[1]	N	N	N
14	Mobile home parks or courts	N	N	N	N	N
15	Transient lodgings	N[1]	N[1]	N[1]	N	N
16	Other residential	N[1]	N[1]	N	N	N
20	Manufacturing					
21	Food and kindred products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
22	Textile mill products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
23	Apparel and other finished products; products made from fabrics, leather, and similar materials; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y[2]	Y[3]	Y[4]	N
25	Furniture and fixtures; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
26	Paper and allied products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
27	Printing, publishing, and allied industries	Y	Y[2]	Y[3]	Y[4]	N

Table 2. Land Use Compatibility in Noise Zones, Continued

Land Use		Suggested Land Use Compatibility				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
20	Manufacturing (continued)					
28	Chemicals and allied products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
29	Petroleum refining and related industries	Y	Y[2]	Y[3]	Y[4]	N
30	Manufacturing (continued)					
31	Rubber and misc. plastic products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
32	Stone, clay and glass products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
33	Primary metal products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
34	Fabricated metal products; manufacturing	Y	Y[2]	Y[3]	Y[4]	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y[2]	Y[3]	Y[4]	N
40	Transportation, communication and utilities					
41	Railroad, rapid rail transit, and street railway transportation	Y	Y[2]	Y[3]	Y[4]	N
42	Motor vehicle transportation	Y	Y[2]	Y [3]	Y[4]	N
43	Aircraft transportation	Y	Y[2]	Y[3]	Y[4]	N
44	Marine craft transportation	Y	Y[2]	Y[3]	Y[4]	N
45	Highway and street right-of-way	Y	Y	Y	Y	N
46	Automobile parking	*Y*	Y	Y	Y	N
47	Communication	Y	25[5]	30[5]	N	N
48	Utilities	Y	Y[2]	Y[3]	Y[4]	N
49	Other transportation, communication and utilities	Y	25[5]	30[5]	N	N
50	Trade					
51	Wholesale trade	Y	Y[2]	Y[3]	Y[4]	N
52	Retail trade – building materials, hardware and farm equipment	Y	25	30	Y[4]	N
53	Retail trade – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	Y	25	30	N	N
54	Retail trade – food	Y	25	30	N	N

Table 2. Land Use Compatibility in Noise Zones, Continued

Land Use		Suggested Land Use Compatibility				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
50	Trade (Continued)					
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	25	30	N	N
56	Retail trade – apparel and accessories					
57	Retail trade – furniture, home, furnishings and equipment					
58	Retail trade – eating and drinking establishments	Y	25	30	N	N
59	Other retail trade	Y	25	30	N	N
60	Services					
61	Finance, insurance and real estate services	Y	25	30	N	N
62	Personal services	Y	25	30	N	N
62.4	Cemeteries	Y	Y[2]	Y[3]	Y[4,11]	Y[6,11]
63	Business services	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y[2]	Y[3]	Y[4]	N
64	Repair services	*Y*	Y[2]	Y[3]	Y[4]	N
65	Professional services	Y	25	30	N	N
65.1	Hospitals, other medical facilities	25	30	N	N	N
65.16	Nursing homes	N[1]	N[1]	N	N	N
66	Contract construction services	Y	25	30	N	N
67	Government services	Y[1]	25	30	N	N
68	Educational services	25	30	N	N	N
68.1	Child care services, child development centers, and nurseries	25	30	N	N	N
69	Miscellaneous	Y	25	30	N	N
69.1	Religious activities	Y	25	30	N	N
70	Cultural, entertainment and recreational					
71	Cultural activities (& churches)	25	30	N	N	N
71.2	Nature exhibits	Y[1]	N	N	N	N
72	Public assembly	Y	N	N	N	N
72.1	Auditoriums, concert halls	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y[7]	Y[7]	N	N	N
73	Amusements	Y	Y	N	N	N

Table 2. Land Use Compatibility in Noise Zones, Continued

Land Use		Suggested Land Use Compatibility				
SLUCM NO.	LAND USE NAME	DNL or CNEL 65-69	DNL or CNEL 70-74	DNL or CNEL 75-79	DNL or CNEL 80-84	DNL or CNEL 85+
70	Cultural, entertainment and recreational (continued)					
74	Recreational activities (including gold courses, riding stables, water recreation)	Y	25	30	N	N
75	Resorts and group camps	Y	25	N	N	N
76	Parks	Y	25	N	N	N
79	Other cultural, entertainment and recreation	Y	25	N	N	N
80	Resource production and extraction					
81	Agriculture (except live stock)	Y^{8}	Y^{9}	Y^{10}	$Y^{10,11}$	$Y^{10,11}$
81.5	Livestock farming	Y^{8}	Y^{9}	N	N	N
81.7	Animal breeding	Y^{8}	Y^{9}	N	N	N
82	Agriculture related activities	Y^{8}	Y^{9}	Y^{10}	$Y^{10,11}$	$Y^{10,11}$
83	Forestry activities	Y^{8}	Y^{9}	Y^{10}	$Y^{10,11}$	$Y^{10,11}$
84	Fishing activities	Y	Y	Y	Y	Y
85	Mining activities	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y

KEY TO TABLE 2 – LAND USE COMPATIBILITY IN NOISE ZONES

SLUCM – Standard Land Use Coding Manual, U.S. Department of Transportation

Y (Yes) – Land use and related structures compatible without restrictions.

N (No) – Land use and related structures are not compatible and should be prohibited.

Y^{x} – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

N^{x} – No with exceptions. The land use and related structures are generally incompatible. However, see note(s) indicated by the superscript.

25, 30, or 35 – The numbers refer to noise level reduction (NLR) levels. NLR (outdoor to indoor) is achieved through the incorporation of noise attenuation into the design and construction of a structure. Land use and related structures are generally compatible; however, measures to achieve NLR of 25, 30, or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.

DNL – Day-Night Average Sound Level.

CNEL – Community Noise Equivalent Level (normally within a very small decibel difference of DNL)

Ldn – Mathematical symbol for DNL.

Table 2. Land Use Compatibility in Noise Zones, Continued

NOTES FOR TABLE 2 – LAND USE COMPATIBILITY IN NOISE ZONES

1. General

a. Although local conditions regarding the need for housing may require residential use in these zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these zones. Existing residential development is considered as pre-existing, non-conforming land uses.

b. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 decibels (dB) in DNL 65-69 and 30 dB in DNL 70-74 should be incorporated into building codes and be considered in individual approvals; for transient housing, an NLR of at least 35 dB should be incorporated in DNL 75-79.

c. Normal permanent construction can be expected to provide an NLR of 20 dB, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded sound transmission class ratings in windows and doors, and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

d. NLR criteria will not eliminate outdoor noise problems. However, building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

2. Measures to achieve NLR of 25 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

3. Measures to achieve NLR of 30 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

4. Measures to achieve NLR of 35 must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.

5. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.

6. Buildings are not permitted.

7. Land use is compatible provided special sound reinforcement systems are installed.

8. Residential buildings require an NLR of 25

9. Residential buildings require an NLR of 30.

Table 2. Land Use Compatibility in Noise Zones, Continued

NOTES FOR TABLE 2 – LAND USE COMPATIBILITY IN NOISE ZONES

10. Residential buildings are not permitted.

11. Land use that involves outdoor activities is not recommended, but if the community allows such activities, hearing protection devices should be worn when noise sources are present. Long-term exposure (multiple hours per day over many years) to high noise levels can cause hearing loss in some unprotected individuals.

Appendix D

Standard Operating Procedure No. 1 for *Section 106 Review of Federal Undertakings* and No. 2 for *Identifying Historic Properties*

STANDARD OPERATING PROCEDURE NO. 1
for
Section 106 Review of Federal Undertakings

Contact: 95 ABW/CEV Base Historic Preservation Officer, (661) 277-1401.

Scope: This Standard Operating Procedure (SOP) outlines the steps to be taken to complete Section 106 review, per the Programmatic Agreement between the United States Air Force and the California State Historic Preservation Officer Regarding Implementation of the Air Force Flight Test Center Mission and the Integrated Cultural Resources Management Plan at Edwards Air Force Base, California (PA), for all Federal undertakings at Edwards Air Force Base (AFB). It is intended for the Base Historic Preservation Officer (BHPO) and any qualified personnel authorized by the BHPO to implement this SOP.

Examples of applicable personnel are:

- BHPO
- Archaeologists
- Architectural Historians
- Environmental Impact Assessment Program Project Reviewers
- Any personnel reviewing undertakings for applicability of Section 106 review

Statutory Reference(s):

- Antiquity Act of 1906
- Historic Sites, Buildings and Antiquities Act of 1935
- National Historic Preservation Act of 1966, as amended through 2000
- National Environmental Policy Act of 1974
- Archeological and Historic Preservation Act of 1974
- Archeological Resources Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990
- Indian Sacred Sites of 1996
- EO 11593 – Protection and Enhancement of the Cultural Environment
- EO 13007 – Indian Sacred Sites
- EO 13175 – Consultation and Coordination with Indian Tribal Governments
- DODI 4710.02 – DOD Interactions with Federally-Recognized Tribes
- DODI 4715.16 – Cultural Resources Management
- Department of Defense American Indian and Alaska Native Policy of October 1998 (Air Force Directive 070828-063)
- Department of Defense American Indian and Alaska Native Policy Memorandum dated 27 January 1999
- Presidential Memorandum dated 29 April 1994 - Government-to-Government Relations with Native American Tribal Governments

- Program Comment for Department of Defense World War II- and Cold War- Era Ammunition Storage Facilities
- Program Comment for Department of Defense Cold War-Era Unaccompanied Personnel Housing
- Program Comment for Capehart Wherry Era Military Housing at Air Force and Navy Bases

Applicability:

This SOP does not apply to any action that may result in an adverse effect to the Rogers Dry Lakebed National Historic Landmark (NHL) at Edwards AFB.

Typical locale which may be impacted by these requirements:

- Base-wide
- Edwards AFB remote sites or annexes (owned, licensed or leased land separate from the contiguous installation)

Typical actions that may trigger these requirements:

- Construction and maintenance
- Ground-disturbing activities such as digging, bulldozing, clearing or grubbing
- Off-road traffic
- Demolition
- Erosion or bioturbation
- Field training exercises
- Research, development and testing activities

Procedure:

This section outlines the procedure, in accordance with the PA. The process is intended to be used predominantly by personnel in the Cultural Resources Management and Environmental Impact Assessment Programs. It serves as a decision-making guide and checklist to ensure the execution of the NHPA Section 106 review process, when conditions present themselves as described under the Applicability section of this SOP. **NOTE: The BHPO has been given the authority to make certain determinations without requiring further consultation with the SHPO, via the PA. However, tribal consultation MUST occur in accordance with applicable laws.**

1. BHPO determines if the action is a Federal undertaking, in accordance with 36 CFR 800.16(y), without further consult with the State Historic Preservation Officer (SHPO), except as may be desired by the BHPO. An action is an undertaking, if:
    - Funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency;

- Carried out with Federal financial assistance;
- Requires a Federal permit, license or approval; and
- Subject to State or local regulation administered pursuant to delegation or approval by a Federal agency

2. BHPO determines the area of potential effect (APE) of the undertaking, without further consult with the SHPO, except as may be desired by the BHPO. The APE will include:

   - Geographical area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties;
   - The entire facility, when an undertaking directly affects an addition, annex or part of that facility;
   - The entire district or archaeological site, when an undertaking affects a facility that is a contributing element or feature to an eligible district or site;
   - The entire extent of an archaeological site, if any part of the site falls within the defined APE;
   - The entire historic property, if the APE occurs within 25 meters of an established boundary of that historic property; and
   - All areas of surface and subsurface disturbance, any associated lay down or staging areas, and a 25-meter buffer surrounding each area of ground disturbance and associated activities.

   The Edwards AFB Installation Commander, or acceptable designee (i.e. BHPO), shall initiate follow-up and/or routine consultations with interested Federally-recognized American Indian tribes in defining an APE for any undertaking that has the potential to cause effects to archaeological properties to which American Indian tribes may attach religious and cultural significance.

3. The BHPO, or qualified personnel under the direction or supervision of the BHPO, shall identify or supervise the identification of historic properties within the APE for all proposed undertakings, per *Standard Operating Procedure No. 2* and in accordance with 36 CFR 800.4. If a cultural resource has not been previously evaluated for NRHP eligibility, Edwards AFB may treat the property as eligible. Such determinations will require no SHPO review.

4. The BHPO, or qualified personnel under the direction or supervision of the BHPO, will review, analyze, and document the undertaking's potential for effect on eligible or potentially eligible properties identified within the APE for the undertaking. This review process described herein will occur in tandem with the National Environmental Policy Act review process conducted through the Environmental Impact Analysis Program, via AF Forms 332 and 813. This finding will be made available to the SHPO for review within the ICRMP Annual Report.

5. When the BHPO, or qualified personnel under the direction or supervision of the BHPO, determines that a proposed undertaking has "no potential to affect historic properties", the

BHPO shall document the finding as such and no further review will be required. Should the undertaking change, it will be subject to additional review for scope and effect.

6. When the BHPO, or qualified personnel under the direction or supervision of the BHPO, determine that a proposed undertaking may affect historic properties, alternatives will be considered and/or avoidance measures implemented. If an adverse effect can be avoided, the finding shall be documented as having "no adverse effect on historic properties." Further review and/or consultation will be required only if the undertaking changes or unanticipated effects are discovered. Should the undertaking change, it will be subject to additional review for scope and effect.

7. When the BHPO, or qualified personnel under the direction or supervision of the BHPO, determine that a proposed undertaking poses the potential of an adverse effect to historic properties and an alternative or modification to the undertaking cannot be implemented, a finding of "adverse effect to historic properties" shall be documented and the **BHPO will consult with the SHPO, Advisory Council on Historic Preservation and other interested parties to initiate mitigation of the adverse effects**.

STANDARD OPERATING PROCEDURE NO. 2
for
Identifying Historic Properties

Contact: 95 ABW/CEV Base Historic Preservation Officer, (661) 277-1401.

Scope: This Standard Operating Procedure (SOP) outlines the management steps to be taken to identify historic properties, as stipulated in the *Programmatic Agreement between the United States Air Force and the California State Historic Preservation Officer Regarding Implementation of the Air Force Flight Test Center Mission and the Integrated Cultural Resources Management Plan at Edwards Air Force Base, California* (PA), in accordance with Section 106 and 110 of the National Historic Preservation Act (as amended). It is intended for the Base Historic Preservation Officer (BHPO) and any qualified personnel authorized by the BHPO to implement this SOP. This SOP does not address fieldwork and recording practices or procedures.

Examples of applicable personnel are:

- Base Historic Preservation Officer
- Archaeologist
- Architectural Historians
- Any qualified consultant under the direction or supervision of the Base Historic Preservation Officer who may be contracted to identify or evaluate historic properties.

Statutory Reference(s):

- Antiquity Act of 1906
- Historic Sites, Buildings and Antiquities Act of 1935
- National Historic Preservation Act of 1966, as amended through 2000
- Archeological and Historic Preservation Act of 1974
- Native American Graves Protection and Repatriation Act of 1990
- Indian Sacred Sites of 1996
- EO 11593 – Protection and Enhancement of the Cultural Environment
- EO 13007 – Indian Sacred Sites
- EO 13175 – Consultation and Coordination with Indian Tribal Governments

Applicability:

Typical locale which may be impacted by these requirements:

- Base-wide

- Edwards Air Force Base remote sites or annexes (owned, licensed or leased land separate from the contiguous installation)

Typical actions that may trigger these requirements:

- General cultural resources management
- Acquiring or leasing land
- Long-range planning and development/redevelopment
- Construction and maintenance
- Ground-disturbing activities such as digging, bulldozing, clearing or grubbing
- Off-road traffic
- Demolition
- Erosion or bioturbation
- Field training exercises
- Research, development and testing activities

Procedure:

This section outlines the procedure. The process is intended to be used by the BHPO and cultural resources management personnel, to identify historic properties. **NOTE: Although the BHPO has been given the authority to make certain determinations without requiring further consultation with the SHPO, via the PA, consultation with interested Federally recognized tribes must still occur, in accordance with applicable laws.**

1. The BHPO, or qualified personnel under the direction or supervision of the BHPO, shall determine the scope of identification efforts or area of potential effect (APE), per the PA and in accordance with 36 CFR 800(a). No further consult with the SHPO need occur, except as may be desired by the BHPO.
2. The BHPO, or qualified personnel under the direction or supervision of the BHPO, shall identify or supervise the identification of historic properties within the APE of the identification effort or Federal undertaking. Where existing information regarding the presence or absence of historic properties within an APE is absent or inadequate, the BHPO will conduct, supervise or direct to be conducted, historic property surveys sufficient to identify any potential historic properties within the APE.
3. The BHPO, or qualified personnel under the direction of supervision of the BHPO, shall evaluate properties to determine their eligibility for the NRHP, either in conjunction with the Section 106 Review of Undertakings (see SOP No. 1 Review of Undertakings) or while conducting proactive historic property identification for planning or preservation purposes.
4. The BHPO may, in consultation with the SHPO and other consulting parties to the PA, as deemed necessary or desirable by the BHPO, make determinations of eligibility for the NRHP. Edwards AFB shall include the results of any such determinations in the ICRMP Annual Report
5. In instances where proposed undertakings have the potential to adversely affect prehistoric archaeological properties, the EAFB Installation Commander, or acceptable designee, will

consult with American Indian tribes to assist in affirming the eligibility recommendations and to determine if they attach religious and cultural significance to the historic properties.

6. The identification and evaluation results will be provided in the Integrated Cultural Resources Management Plan (ICRMP) Annual Report.
7. Consistent with 36 CFR 800.4, when the condition of cultural resources changes or when new information is forthcoming that affects past eligibility determinations, the BHPO may, in consultation with the SHPO and other consulting parties to the PA, as deemed necessary or desirable by the BHPO, reevaluate the eligibility of selected properties previously determined eligible or ineligible for listing in the NRHP. Edwards AFB shall include the results of any such updated determinations in the ICRMP Annual Report.
8. The BHPO will apply the Department of the Interior Standards for the Evaluation Process, to include:
    a. Groups of related properties should be evaluated at the same time whenever possible; for example, following completion of a theme study or community survey.
    b. Evaluation should not be undertaken using documentation that may be out of date. Prior to proceeding with evaluation, the current condition of the property should be determined and previous analyses evaluated in light of any new information.
    c. Evaluations must be performed by persons qualified by education, training and experience in the application of the criteria. Where feasible, evaluation should be performed in consultation with other individuals experienced in applying the relevant criterion in geographical area under consideration; for example SHPO or local landmarks commission.
    d. Evaluation is completed with a written determination that a property is or is not significant based on provided information. This statement should be part of the record.
    e. Apply the appropriate Department of the Interior guidelines for the property type, such as:
        i. Guidelines for Evaluating and Documenting Historic Aviation Properties
        ii. How to Evaluate and Nominate Designed Historic Landscapes
        iii. Guidelines for Evaluating and Registering Historical Archeological Sites
        iv. Guidelines for Identifying, Evaluating and Registering Historic Mining Properties
        v. Guidelines for Evaluating and Nominating Properties that Have Achieved Significance in the Past Fifty Years
        vi. Guidelines for Evaluating and Documenting Properties Associated with Significant Persons
        vii. Guidelines for Evaluating and Documenting Traditional Cultural Properties
        viii. Apply applicable state guidelines, including:
        ix. California Historic Military Buildings and Structures Inventory: Volume I: Inventories of Historic Buildings and Structures on California Military Installations
        x. California Historic Military Buildings and Structures Inventory: Volume II: The History and Historic Resources of the Military in California, 1769-1989

xi. California Historic Military Buildings and Structures Inventory: Volume III: Historic Context: Themes, Property Types, and Registration Requirements
xii. California Historic Military Buildings and Structures Inventory: Volume IV: Appendices