412th Civil Engineer Directorate
Environmental Management Division
Edwards Air Force Base, California

ENVIRONMENTAL ASSESSMENT FOR THE ROUTINE AND RECURRING REALIGNMENT OF UNITS AND PERSONNEL AT EDWARDS AIR FORCE BASE, CALIFORNIA

FINAL

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FINDING OF NO SIGNIFICANT IMPACT FOR THE ENVIRONMENTAL ASSESSMENT FOR ROUTINE AND RECURRING REALIGNMENT OF UNITS AND PERSONNEL AT EDWARDS AIR FORCE BASE (AFB), CALIFORNIA

1.0 Introduction

The 412th Civil Engineer Group at Edwards AFB, California, proposes ongoing base-wide routine and recurring realignment of units and personnel to facilities with suitable working space in support of the Air Force mission. These realignments allow Edwards AFB to make optimum use of facilities in a cost efficient manner that is consistent with installation priorities while preserving the ability to accomplish the mission.

This environmental assessment (EA) documents the environmental analysis of relocation actions associated with the integrated approach to anticipated needs to continually relocate units and personnel on the base. This integrated approach will prevent duplication of effort (per Air Force Instruction 32-7062, *Comprehensive Planning*, and Title 40 Code of Federal Regulations [CFR] 1502.20), provide advance information for environmental planning and allow consideration of the environmental consequences of these actions consistent with the *National Environmental Policy Act of 1969* (NEPA), as amended. The EA provides the baseline environmental analysis of facilities within the developed portions of the installation that will be subject to future routine and recurring realignments of units and personnel.

2.0 Description of the Proposed Action and Alternatives

The Proposed Action (Alternative 1) is the realignment of unit personnel from currently occupied facilities into one or more destination facilities that require no rehabilitation (including building over groundwater plumes if they already have adequate vapor barriers). The EA also evaluated two other alternatives that may be selected for implementation as well: Alternative 2, realignment of unit personnel into one or more existing facilities that require minor rehabilitation; and Alternative 3, the No Action Alternative. Under Alternative 2 the destination facility would require minor rehabilitation for wear-and-tear level issues prior to relocation of unit personnel. Adoption of the best management practices as part of the proposed action, this action would be found to have no effect. Alternative 3 (No Action Alternative) is the status quo: the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices.

3.0 Environmental Consequences

The Air Force analyzed the following environmental issues and concerns: Air Quality, Biological Resources, Cultural Resources, Noise and Vibration, and Occupational Safety and Health. While potential impacts were identified, compliance with mitigation measures (adoption of best management practices) stated in Section 3 of the EA would ensure that anticipated impacts are reduced to less than significant levels. The analysis is based primarily on the following facts. The realignment of unit personnel will be limited to the existing built-up area of the installation and will not result in any on or off-base renovation or new construction. Any facility rehabilitation will be

limited to repairing minor wear and tear or implementing best management practices. Unit realignments and associated activities will not change the environmental conditions in or around the facilities, result in new wastestreams or increase demands on existing utilities. There are no expected increases in impervious surfaces. Furthermore, they are not expected to change the number of base personnel nor will they modify any activities (e.g. transportation related) that already occur.

A brief discussion of these issues follows:

Air Quality: A short-term local impact in increased air emissions and greenhouse gases could occur from the vehicles used to move furniture and equipment. These emission levels do not represent any significant increase to current base-wide emissions. However, consolidating personnel into facilities that are situated closer together could potentially provide a minor reduction in emissions due to fewer miles driven to a facility.

Biological Resources: Potential impacts to desert tortoise, birds and other wildlife and sensitive species are not likely to occur because realignment of units and personnel will occur within developed areas of the installation and will not require ground disturbance.

Cultural Resources: Cultural resources will not be impacted under the Proposed Action. Under Alternative 2, rehabilitation efforts could potentially impact historical facilities. Adoption of mitigation measures (the best management practices) defined in Section 3 of the EA reduces potential impacts to insignificant levels.

Noise and Vibration: Short-term minor increases in noise and vibration could occur from vehicles used to move furniture and equipment during realignment activities. A long-term impact could occur from increased noise and vibration exposure for personnel if they are moved to a facility located closer to the flightline. Because base personnel are required to apply hearing protection measures when noise levels increase for short periods of time, noise and vibration impacts would be reduced to insignificant levels.

Occupational Safety and Health: Potential impacts for all three alternatives include the exposure of realigned units and personnel to indoor air quality issues from outdoor air, radon and vapor intrusion from volatile organic compounds (VOCs) in nearby groundwater plumes. Under Alternative 2, indoor air quality could also be affected from the off-gassing of VOCs from new materials used in the minor rehabilitation of the facility. Under Alternatives 2 and 3, possible impacts from asbestos, mold, metals-based paints, polychlorinated biphenyls, universal waste or hazardous material could occur; however, mitigation measures (the adoption of best management practices) in section 3 of the EA reduces the potential impacts to insignificant levels.

4.0 Findings

This Finding of No Significant Impact and the attached EA have been prepared pursuant to the NEPA, Public Law 91-190 42 U.S. Code (USC) §4321 et seq., and the Council on Environmental Quality regulations for implementing NEPA; 40 CFR, Parts 1500–1508; and 32 CFR Part 989 – Environmental Impact Analysis Process. The review of the project considered all applicable laws,

regulations and Executive Orders, and would be expected to be completed in full compliance with them.

I have thoroughly reviewed the attached EA, proposed action, alternatives to the proposed action and the associated environmental effects of each. Additionally, my review of the public comments has revealed no new or significant environmental effects or issues of significant concern. Based on this review and consideration of all relevant factors, I have determined that neither the proposed action nor any alternative to the proposed action would have significant impacts on the human environment. Therefore, a Finding of No Significant Impact is warranted and an environmental impact statement is not required. This determination is made based upon the absence of significant impacts to the environment and base personnel at Edwards AFB. Background information in this EA, which supports the research and development of this Finding of No Significant Impact, is on file at Edwards AFB, and can be obtained by contacting the following:

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19 Sep 14

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Base Civil Engineer

Date

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LIST OF ABBREVIATIONS AND ACRONYMS

95 ABW	95th Air Base Wing
95 CE/CEV	95th Civil Engineer Directorate Environmental Management Division
412 CE	412th Civil Engineer Directorate
412 CE/CEV	412th Civil Engineer Directorate Environmental Management Division
412 MDG/SGPB	Bioenvironmental Engineering
ACM	asbestos containing material
AFB	Air Force Base
AFFTC	Air Force Flight Test Center
AFTC	Air Force Test Center
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
AFR	Air Force Regulation
AFRL	Air Force Research Laboratory
ANSI	American National Standards Institute
ATSDR	Agency of Toxic Substances and Disease Registry
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
AVAQMD	Antelope Valley Air Quality Management District
BMPs	best management practices
Cal/OSHA	California Division of Occupational Safety and Health
CATEX	categorical exception
CARB	California Air Resources Board
CCR	California Code of Regulations
CFR	Code of Federal Regulations
dB	decibel
DOD	Department of Defense
EA	Environmental Assessment
e.g.	*exempli gratia*, meaning “for example”
EIAP	Environmental Impact Analysis Process
EKAPCD	Eastern Kern Air Pollution Control District
EO	Executive Order
ERP	Environmental Restoration Program

LIST OF ABBREVIATIONS AND ACRONYMS (Concluded)

et seq.	*et sequentes* or *et sequentia*, meaning “and the following”
etc.	*et cetera*, meaning “and so forth”
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
HID	high intensity discharge
i.e.	*id est*, meaning “in other words”
INRMP	*Integrated Natural Resources Management Plan*
MDAQMD	Mojave Desert Air Quality Management District
NAAQS	National Ambient Air Quality Standard
NASA	National Aeronautics and Space Administration
NEPA	*National Environmental Policy Act*
NHPA	*National Historic Preservation Act of 1966*
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PCBs	polychlorinated biphenyls
pCi/L	picocuries per liter
ppm	parts per million
PM	particulate matter
PM2.5	particulate matter equal to or less than 2.5 microns in diameter
PM10	particulate matter equal to or less than 10 microns in diameter
RAMP	Radon Assessment and Mitigation Program
RCRA	*Resource Conservation and Recovery Act*
SAAQ	State Ambient Air Quality Standard
ssp.	subspecies
SVOC	semi-volatile organic compound
USAF	United States Air Force
U.S.C.	United States Code
U.S. EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound

1.0 PURPOSE AND NEED

1.1 Introduction

This Environmental Assessment (EA) evaluates the potential environmental effects associated with routine and recurring realignment of unit personnel at Edwards Air Force Base (AFB or base), California. This EA was prepared in accordance with the requirements of the following: the *National Environmental Policy Act* (NEPA) of 1969, as amended (42 United States Code [U.S.C.] § 4321 *et seq*.); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500–1508, and its mitigation planning and implementation procedures); U.S. Air Force Instruction (AFI) 32-7062, *The Environmental Impact Analysis Process* (EIAP); Title 32 CFR Part 989, which implements these regulations in the EIAP; and all other applicable federal and local regulations and Executive Orders (EO). The Air Force 412th Civil Engineer Directorate Environmental Management Division (412 CE/CEV) is representing the Department of Defense (DOD) as the lead agency.

This EA will result in a finding on routine and recurring realignment of unit personnel changes. Information in this EA will support a series of future realignment decisions, which will ultimately be made based on mission requirements and resource efficiencies. This EA provides an overarching perspective that will provide decision makers, as well as regulatory agencies and the public, with information on these potential impacts, enabling them to assess and compare those impacts and make informed decisions when selecting locations for the future realignments of unit personnel.

The mitigation measures recommended in this EA are designed to avoid or lessen potentially significant environmental effects of the Proposed Action and the alternatives. Use of these measures will allow Edwards AFB to ensure compliance with NEPA's procedural requirements by issuing an EA and a Finding of No Significant Impact (FONSI), or "mitigated FONSI." This will avoid the need to prepare a separate EA or Environmental Impact Statement (EIS) for each routine and recurring realignment of unit personnel.

1.2 Location of Proposed Action

The Proposed Action will occur on Edwards AFB, which 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 308,180 acres or 482 square miles (Figure 1).

The Proposed Action applies to all facilities in the "built-up" portions of the base where housing, commercial, and industrial buildings account for less than 16,000 acres of the total. The primary geographic extent to which the Proposed Action could affect the use of buildings includes the areas of the base designated as Main Base, North Base, South Base and West Gate area west of Rogers Dry Lake Bed, and the Air Force Research Laboratory (AFRL) east of Rogers Dry Lake Bed. These five areas within the base are shown in Figure 2.

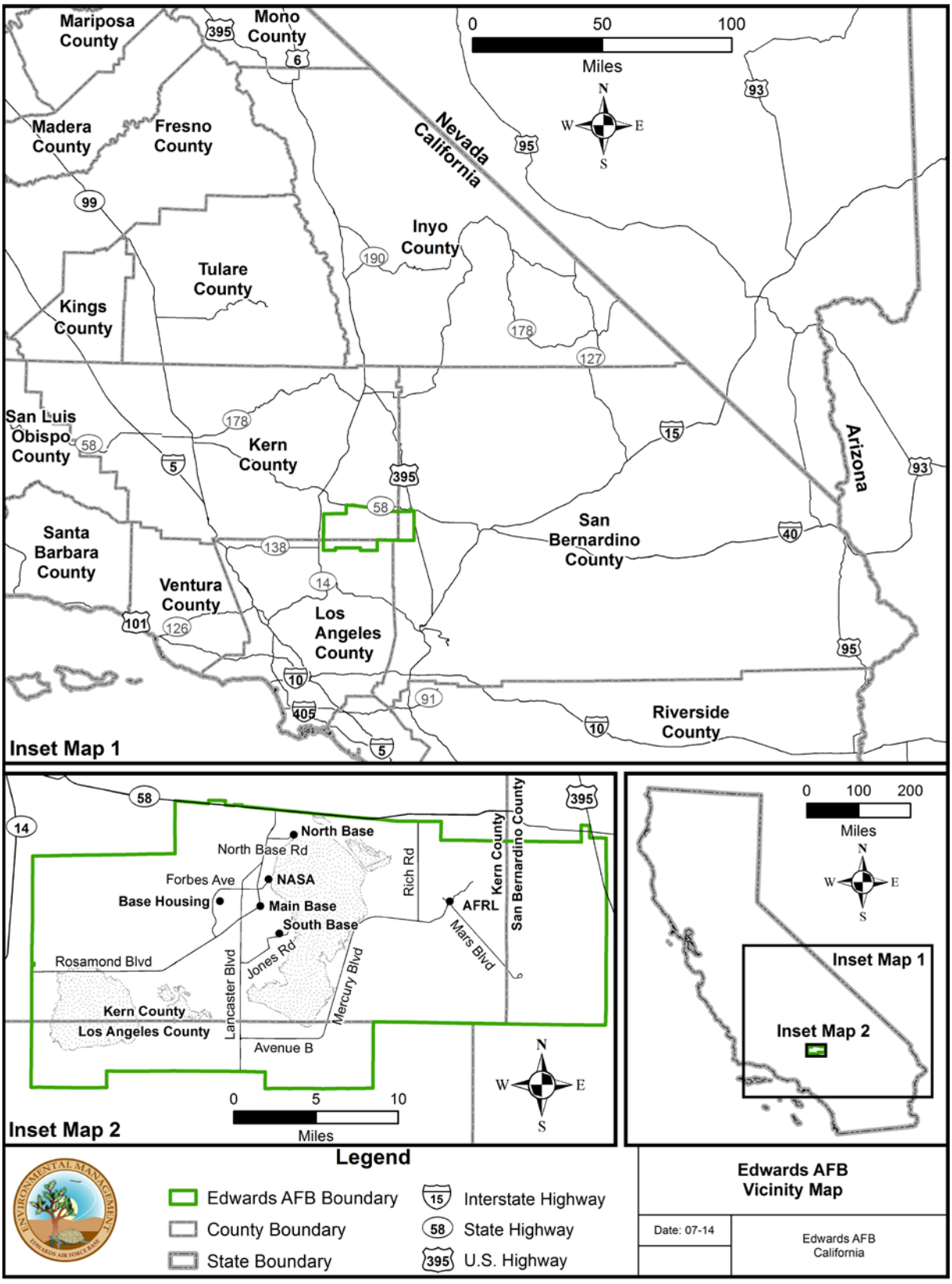

Figure 1. General Vicinity Map of Edwards AFB

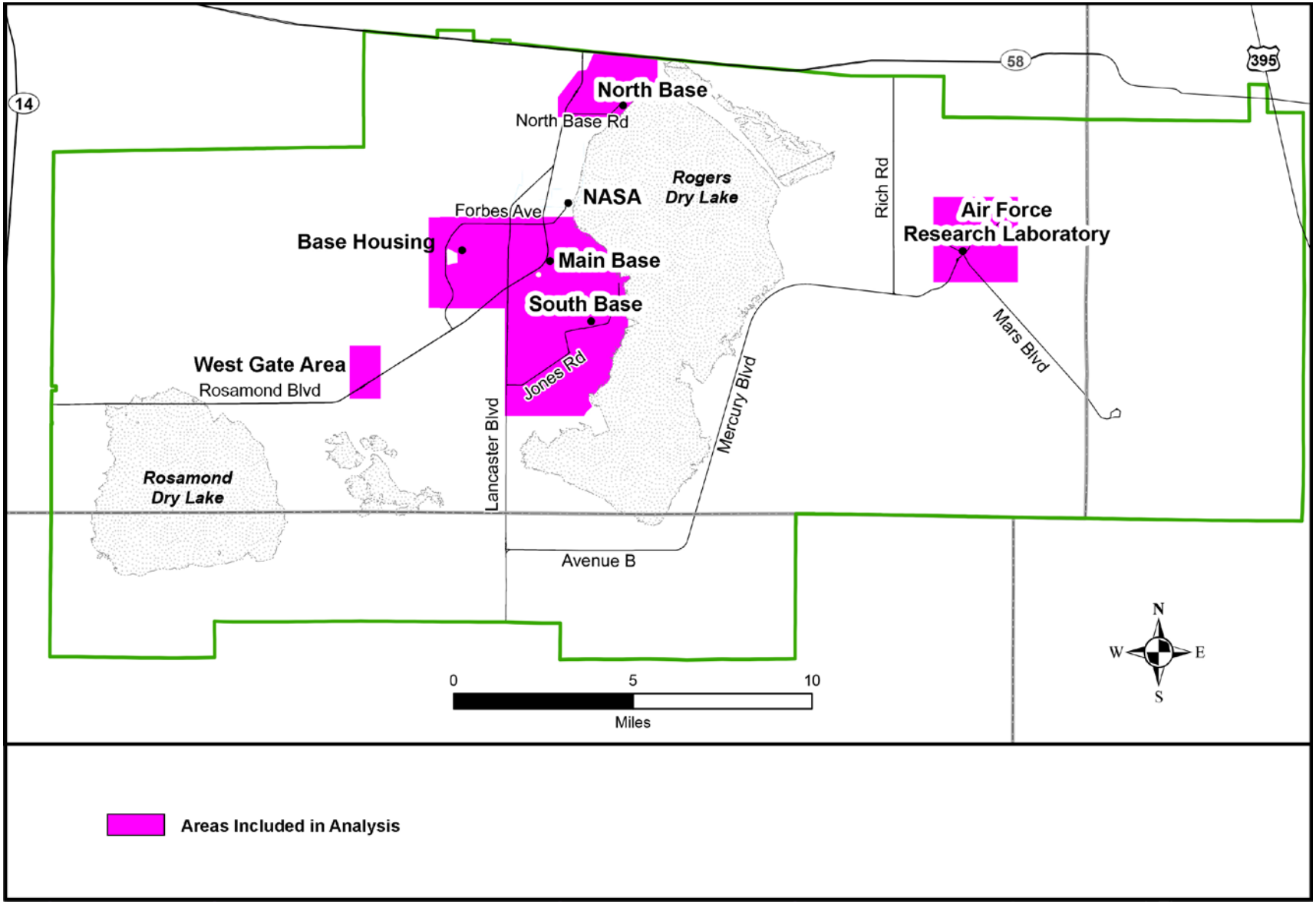

Figure 2. Location of Proposed Action

Three areas are being excluded because the buildings within these areas will not be involved in any future realignment decisions: buildings used by the Federal Aviation Administration (FAA), the National Aeronautics and Space Administration (NASA) and Muroc Joint Unified School District. The excluded areas are shown in Figure 3.

1.3 Purpose and Need of the Proposed Action

The underlying purpose and need for the Proposed Action is to support the Air Force mission at Edwards AFB by realigning unit personnel to facilities with suitable working space. The routine and recurring realignment of unit personnel allows Edwards AFB to make optimum use of facilities in a cost efficient manner consistent with base priorities while preserving the ability to accomplish the mission. The test mission at Edwards AFB is constantly changing, new test missions develop, last for months to years and terminate when finished. The goal is to meet Edwards AFB's changing mission requirements in a fiscally sound way. An example of a financial requirement is to meet the Air Force mandate to reduce its building footprint 20 percent by 2020.

The base must balance resource availability and critical mission requirements while looking for ways to increase operational efficiencies. Edwards AFB is developing this EA to document the environmental analysis of similar actions associated with the realignment of unit personnel due to the anticipated need to continually relocate unit personnel on the base. This approach will prevent duplication of effort (per Air Force Regulation [AFR] 19-2, paragraph 8, and Title 40 CFR 1502.20), while providing advance information for environmental planning. This EA provides the baseline environmental analysis of facilities within the developed portions of the base that will be subject to future routine and recurring realignments of unit personnel. By definition, facilities that are used for a period of nine months or longer by one or more people, and requires that personnel be relocated to it, will fall under the purview of this EA.

1.4 Future Use of this Document

Future proposed projects will be reviewed and evaluated to determine if they fall within the scope of this EA. If so, then those projects may use the environmental analysis presented here to support the preparation of a categorical exclusion (CATEX) or tier off this environmental document. In some cases a supplement to this EA may be required, and building-specific environmental technical studies will be attached to this EA. If a supplemental EA were required, a new Finding of No Significant Impact (FONSI) or mitigated FONSI, will be necessary. Future actions that are found to have a significant human health and environmental impact that cannot be mitigated to a level of insignificance will need to be addressed in an environmental impact statement.

The category of use for each facility is tracked in a database to determine the ability of obtaining funding for a facility that requires to be upgraded or modified, and prioritized, to meet specific mission realignment requirements. The category of use (if known) in the database is used to project future funding needs. Due to inconsistencies and tracking challenges, in some instances the 412th Civil Engineer Directorate (412 CE) was not aware of such requirements since the use of the facility was not being tracked in the Air Force database. Furthermore, any potential renovations to improve the suitability of a facility or that changes how the facility is used must consider all potential environmental, natural resource, and cultural resource impacts that could occur.

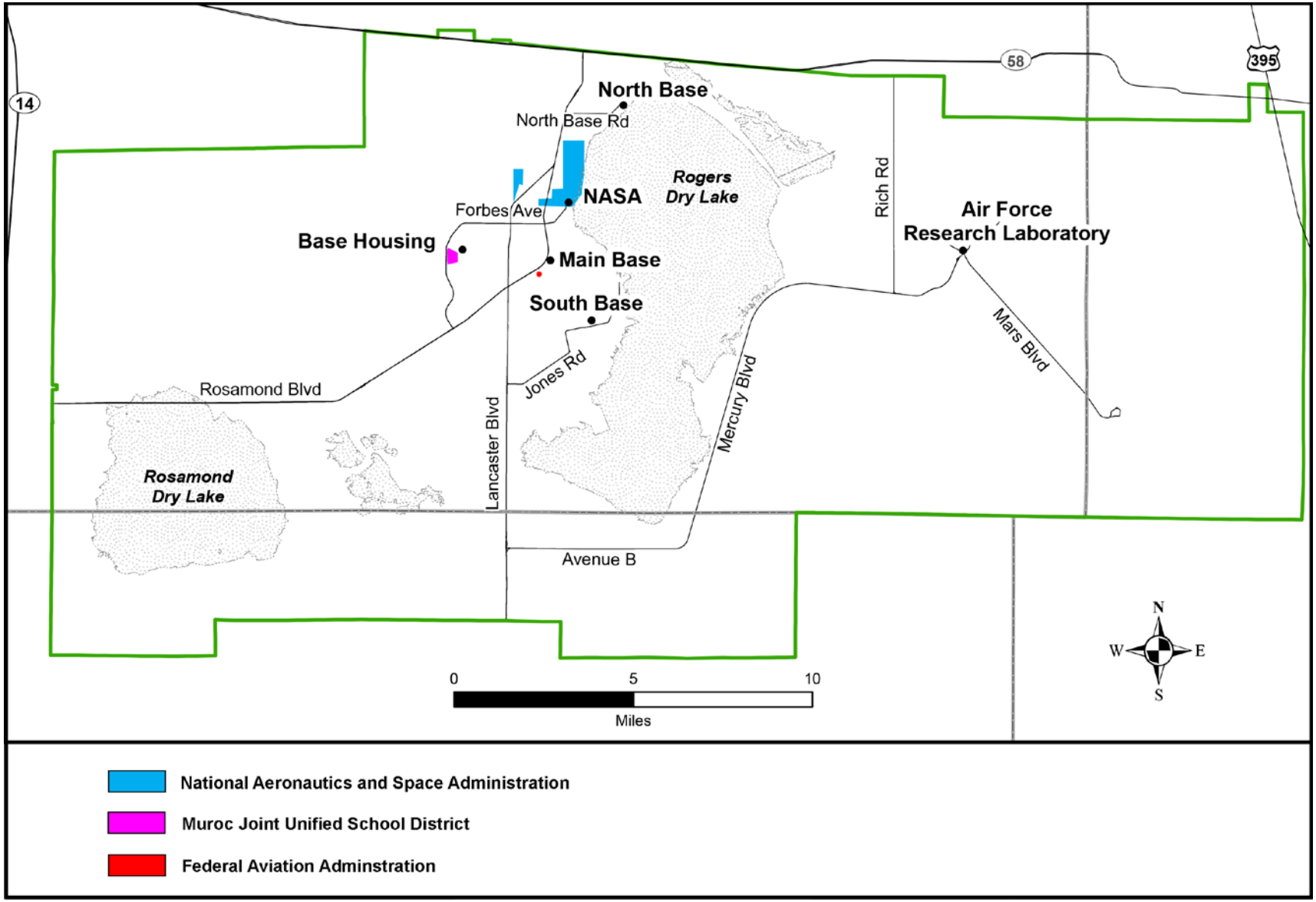

Figure 3. Areas Excluded from Analysis

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

This section is intended to provide the decision-maker and the public a clear understanding of the relevant issues and options associated with the proposed actions and alternatives. An alternative must fulfill the need and purpose of the Proposed Action and be consistent with the goals, policies, and management strategies of Edwards AFB. Potential alternatives were evaluated against the following characteristics:

a. rehabilitation and life cycle cost

b. environmental resources

c. human health

d. land use and mission conflicts

2.2 Alternative Identification Process

The criteria identified here establish a minimum set of requirements that must be met in order for an alternative to be considered viable. Those alternatives not meeting one or more of the selection criteria have been eliminated from further discussion. Alternatives meeting all selection criteria were retained and analyzed in Section 3 (Affected Environment and Environmental Consequences) of this EA.

Criteria used to select the alternatives discussed in this EA are described below. They address the need to provide a safe indoor and outdoor work environment for military and civilian personnel. A viable alternative would ensure that:

a. A destination facility's interior and exterior is environmentally safe for human occupation and requires no remediation.

b. A destination facility has only normal wear and tear issues.

c. Alternatives are in line with Air Force cost considerations, security issues, and convenience.

d. Alternatives support the Air Force's 20-percent footprint reduction goal by 2020.

e. Local roadway infrastructure and on-site parking facilities properly support the probable uses of the destination facility.

f. The overall environment on base meets federal, state, and Air Force health and safety requirements.

g. A destination facility fits the purpose and need with minor alterations.

2.3 Description of the Alternatives

2.3.1 Alternative 1: Realign Unit Personnel into One or More Existing Facilities That Require No Rehabilitation (Proposed Action)

Under Alternative 1, the realignment of unit personnel would occur at one or more existing destination facilities on the base. A destination facility is defined here as being one that would require no rehabilitation prior to movement of unit personnel from an existing facility or facilities. All routine and recurring realignment of unit personnel on the base would be from currently occupied facilities on the base. This represents the movement of unit personnel without any other actions necessary. None of these actions would result in the changing of the land use of the existing destination facilities. The result of this action would be found to have either a ***Positive Effect*** or ***No Effect,*** and no additional environmental analysis or remediation of the facilities is required. Alternative 1 allows the use of this EA for the immediate routine and recurring realignment of unit personnel. This is the preferred alternative.

2.3.2 Alternative 2: Realign Unit Personnel into One or More Existing Facilities That Require Minor Rehabilitation

Under Alternative 2 the realignment of unit personnel would occur at one or more existing destination facilities on the base. A destination facility is defined here as being one that would require minor rehabilitation prior to movement of unit personnel from an existing facility or facilities. All routine and recurring realignment of unit personnel on the base would be from currently occupied facilities on base. The result of this action would be found to have ***No Significant Effect,*** and only has normal wear and tear issues. Minor rehabilitation—normal wear and tear issues—includes, but is not limited to, replacing worn carpeting, painting, replacement of worn window and door hardware, and minor electrical upgrades for energy efficiency or worn outlet replacement. This alternative includes addressing minor environmental issues with best management practices (BMPs) to include abatement. Alternative 2 allows the use of this EA for the routine and recurring realignment of unit personnel once the minor rehabilitation of the destination facilities and implementation of BMPs has been completed.

2.3.3 Alternative 3: No Action Alternative

The No Action Alternative represents maintaining the status quo of operations for realigning unit personnel and individual assignments to various facilities on base. Consequences of the No Action Alternative are a potential redundant expenditure of time and effort exerted to repeatedly analyze similar issues and realignments carried out without coordination and appropriate review.

2.3.4 Alternatives Considered but Eliminated

Four alternatives were considered but eliminated from further discussion because they did not meet one or more of the selection criteria. The alternatives that were considered but eliminated are to realign unit personnel into:

a. Facilities that have minor or major environmental issues that are expensive to mitigate

b. Facilities that have minor or major environmental issues that cannot be mitigated

c. Leased off-base facilities

d. Newly constructed facilities

The above alternatives were eliminated due to cost considerations, security issues, convenience, and not meeting the Air Force's 20-percent footprint reduction by the year 2020.

2.4 Issues and Concerns

The scoping process identified the following environmental issues and concerns that require assessment when a unit or personnel will be moved to a new facility:

a. Air Quality (emissions, climate change)

b. Biological Resources (fauna)

c. Cultural Resources (historical)

d. Noise and Vibration (indoor and outdoor)

e. Occupational Safety and Health (indoor air quality, asbestos, mold, metals-based paint, etc.)

2.5 Issues and Concerns Considered but Eliminated from Further Study

Due to the nature of the Proposed Action and Alternatives a number of issues and concerns were considered but eliminated from further study. The realignment of unit personnel will be limited to the built-up area of the base and will not result in any on or off-base renovation or new construction. Any facility rehabilitation will be limited to repairing minor wear and tear or implementing BMPs. Unit realignments and associated activities will not change the environmental conditions in or around the facilities, result in new wastestreams, or increase demands on existing utilities. There are no expected increases in impervious surfaces. Furthermore, they are not expected to change the number of base personnel nor will they modify any activities (e.g. transportation related) that already occur. For these reasons, there will not be significant impacts to:

a. Aesthetics and Visual Resources

b. Air Installation Compatible Use Zone/Land Use

c. Environmental Justice and Protection of Children

d. Geology, Soils, Seismicity

e. Groundwater

f. Hydrology and Water Resources

g. Public Utilities and Energy

h. Socioeconomics

i. Transportation

2.6 Other Future Actions in the Region

There were no funded construction projects identified in the area of concern. Review of the *Federal Register* and Edwards AFB planning documents did not identify other actions within the geographic region of the base.

2.7 Summary of Impacts

The Proposed Action and Alternatives were considered in detail. Implementing the Proposed Action (Alternative 1) or either of the alternatives would result in no significant environmental impacts in any resource category. Table 1 summarizes and highlights the results of the analysis by resource category.

Table 1. Summary of Potential Environmental Impacts from Alternatives

Resource Category	Alternative 1: Proposed Action	Alternative 2: Minor Rehabilitation	Alternative 3: No-Action Alternative
Air Quality	Potential short-term increase in air and greenhouse gas emissions from vans or trucks during move. Potential long-term decrease in air emissions due to consolidation of personnel (reduction in driving). No significant adverse impacts are anticipated.[1]	Same as Alternative 1. Potential short-term local impact from minor rehabilitation activities.	No changes to baseline conditions at Edwards Air Force Base (AFB) would be anticipated. Potential impact to outdoor air quality may result from the lack of proper environmental review.
Biological Resources	No significant adverse impacts are anticipated because the existing facilities under the Alternative are in developed areas.[1]	Same as Alternative 1.	No changes to baseline conditions at Edwards AFB would be anticipated. Potential impact to biological resources may result from the lack of proper environmental review.
Cultural Resources	No significant adverse impacts are anticipated.[1]	Same as Alternative 1.	No changes to baseline conditions on Edwards AFB would be anticipated. Potential impact to historical buildings may result from the lack of proper environmental review.
Noise and Vibration	No significant adverse impacts are anticipated.[1]	Same as Alternative 1.	Baseline noise conditions at Edwards AFB would not change. Potential impact from noise and vibration may result from the lack of proper environmental review.
Occupational Safety and Health	No significant adverse impacts are anticipated.[1]	Same as Alternative 1. Potential short-term impacts to indoor air quality from new paints and adhesives. No significant adverse impacts from metals-based paints, mold, asbestos, universal waste, or polychlorinated biphenyls are anticipated.[1]	Baseline occupational safety and health conditions at Edwards AFB would not change. Potential impact from metals-based paints, mold, asbestos, universal waste or polychlorinated biphenyls may result from the lack of proper environmental review and non-adherence to base protocols.

[1] No significant adverse impacts are anticipated if best management practices and the mitigation measures listed throughout Section 3.0 of this report are implemented.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes existing environmental characteristics that may be affected by, and addresses impacts associated with the Proposed Action and Alternatives. Based on the assessment of the Proposed Action and Alternatives in Section 2, it was determined that there is a potential for the following resources to be affected: Air Quality, Biological Resources, Cultural Resources, Noise and Vibration, and Occupational Safety and Health. The NEPA requires consideration of context, intensity, and duration of impacts; indirect impacts; cumulative impacts; and measures to mitigate impacts. The following analysis addresses the potential impacts associated with the routine and recurring realignment of unit personnel at Edwards AFB and discusses the potential environmental consequences or impacts associated with Alternatives 1, 2 and 3.

This EA assesses both direct impacts (an effect that is caused by an action and occurs at the same time and place) and indirect impacts (an effect that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable). The analysis of environmental impacts considers the context, duration, intensity and type of impact.

3.1 Air Quality

3.1.1 Affected Environment

3.1.1.1 Overview

Air quality at a location is defined by the concentration of various pollutants in the atmosphere. An air pollutant is a substance that includes gases, dust, fumes, or odors in amounts that could be harmful to the health or comfort of humans, or that could cause adverse environmental impacts. Primary pollutants are released into the atmosphere; further pollution arises when primary pollutants undergo chemical reactions in the atmosphere resulting in secondary pollutants.

The United States Environmental Protection Agency (U.S. EPA) has identified hazardous air pollutants as listed in the *Clean Air Act* and developed emissions standards for common air pollutants including particulate matter (PM), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides and lead (also known as ***criteria pollutants***) (U.S. EPA 2014). The potential significance of the presence of these and other various pollutants is determined by various federal and state ambient air quality standards. The most common referred to is the National Ambient Air Quality Standards. These standards are found in the *National Emissions Standards for Hazardous Air Pollutants* located in 40 CFR 63; *New Sources Performance Standards* within 40 CFR 60, and other specific state and local regulations.

3.1.1.2 Outdoor Air Quality

Edwards AFB is located in the northwestern portion of the Mojave Desert Air Basin and is located within the jurisdictional boundaries of eastern Kern County, western San Bernardino County and northern Los Angeles County. The North Base, Main Base, South Base, West Gate area and the AFRL areas are located within the Eastern Kern Air Pollution Control District (EKAPCD) and the vast majority of permitted air emission sources on the base come under its

authority (Figure 4). The easternmost portion of the base, which includes the southeastern portion of the AFRL area, is located in San Bernardino County and comes under the authority of the Mojave Desert Air Quality Management District (MDAQMD). The southernmost area in northern Los Angeles County is under the authority of the Antelope Valley Air Quality Management District (AVAQMD). The areas for this proposed action do not lie in either MDAQMD or AVAQMD.

Air quality and climate change contaminants of concern have been studied and are documented in previous studies prepared for proposed actions at Edwards AFB (95th Air Base Wing [95 ABW] 2008a and 2008b; Air Force Flight Test Center [AFFTC] 1998 and 2005). According to these studies, the outdoor air quality in the vicinity of the base is, in general, degraded for ozone and ultra-fine PM, which means pollutants may be found at concentration levels above ambient air quality standards. Fine and ultra-fine PM—known as PM under 10 microns (PM_{10}) and PM under 2.5 microns ($PM_{2.5}$)—have been identified as possible nonattainment pollutants in some air quality basins.

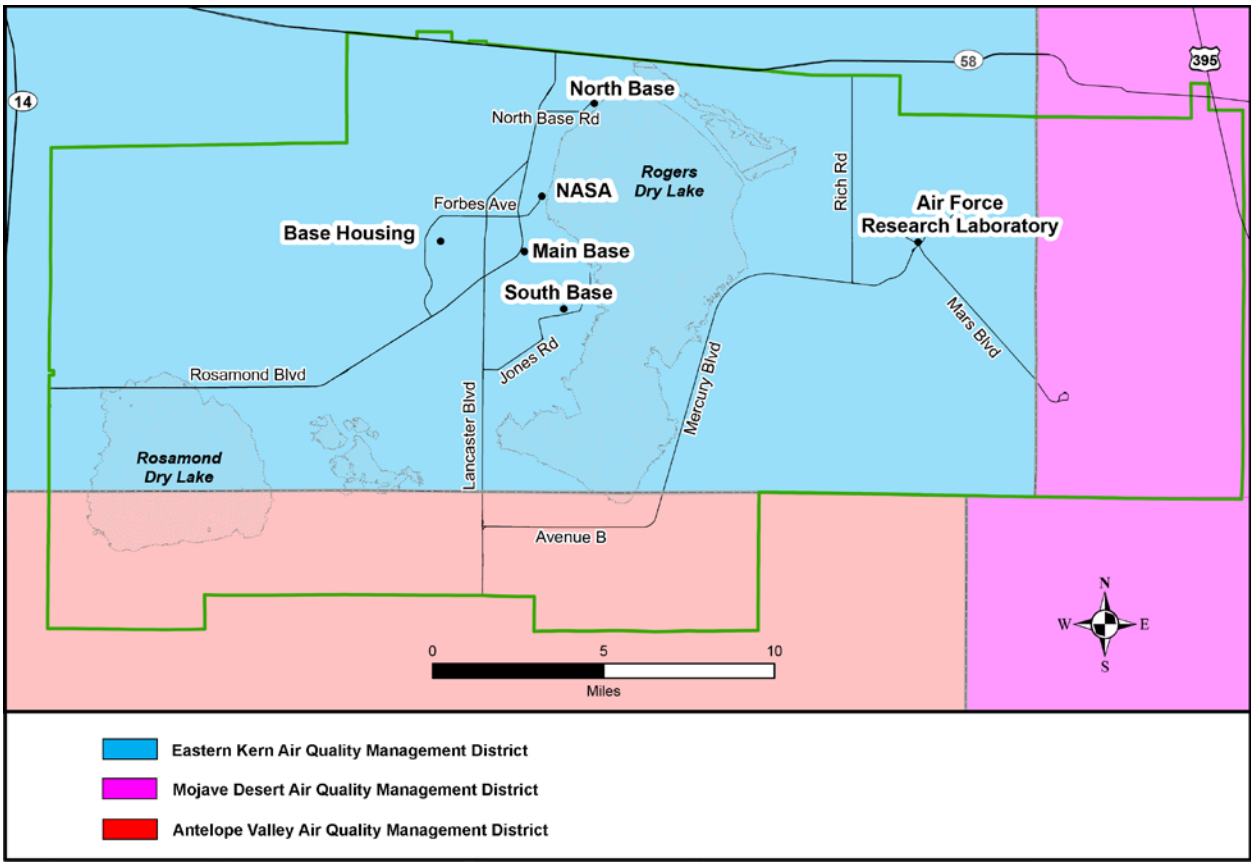

Figure 4. Air Quality Management Districts

The area subject to the Proposed Action and Alternatives is primarily under the jurisdiction of the EKAPCD. Current attainment status for the EKAPCD is shown in Table 2. As shown in the table, the majority of the region is in non-attainment of both national and state standards for ozone (8-hour) and non-attainment for state standards for PM_{10}. The area is in attainment or unclassified for the remaining criteria pollutants including carbon monoxide, nitrogen dioxide and sulfur dioxide.

Table 2. Eastern Kern Air Pollution Control District Attainment Status[1]

	Designation/Classification[2]	
Criteria Pollutant[3]	**National Ambient Air Quality Standards**	**State Ambient Air Quality Standards**
Ozone–1 hour	Attainment	Moderate Nonattainment
Ozone–8 hour (0.08 parts per million)	Nonattainment	Nonattainment
PM_{10}	Unclassified/Attainment	Nonattainment
$PM_{2.5}$	Unclassified/Attainment	Unclassified
Carbon Monoxide	Unclassified/ Attainment	Unclassified
Nitrogen Dioxide	Unclassified	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead Particles	Unclassified/Attainment	Attainment

Notes:

1. Eastern Kern Air Pollution Control District.2012. *Eastern Kern APCD Attainment Statu*s. Accessed online at: http://www.kernair.org/documents/EKAPCD Attainment Info 7-31-12.pdf.
2. Attainment– those that are in compliance with the National Ambient Air Quality Standard (NAAQS) and State Ambient Air Quality Standard (SAAQs)
   Nonattainment– those that do not meet the NAAQS or SAAQs
   Unclassified–those that are treated as attainment until proven otherwise
3. PM_{10}–particulate matter equal to or less than 10 microns in diameter
   $PM_{2.5}$–particulate matter equal to or less than 2.5 microns in diameter

Additionally, the 2011 Assembly Bill 2588 (Air Toxics "Hot Spots" Program) was enacted to determine if localized ambient air toxic quality exposed individuals or groups to a significant health risk. Health risk can be quantified using three different methods of assessing toxic air concentrations: 1) a "prioritization score," 2) a screening level risk assessment, or 3) refined risk assessment modeling. From modeling base emissions in 2011, human health risk analysis for Edwards AFB is quantified by a 3.0 cancer prioritization score or a 0.13 in 1 million cancer risk and a 2.6 non-cancer prioritization score or a 0.81 in 1 million non-cancer risk. These results place the base at Category No. 2, Intermediate Level Risk for human exposure to air toxics at the base (Stephens 2012).

3.1.1.3 Climate Change

Climate change refers to any significant change in the measures of climate lasting for an extended period of time. One aspect of climate change is global warming, which refers to a rise in global average temperature near Earth's surface. Many scientists believe the warming trend is caused by increasing concentrations of heat-trapping gases, called greenhouse gases (GHG), within the Earth's atmosphere. The following gases are considered the major greenhouse gases of concern: carbon dioxide, methane, nitrous oxide, and fluorinated gases; hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are of particular concern (U.S. EPA 2014).

The U.S. EPA implemented measures to reduce greenhouse gas emissions under the *Mandatory Greenhouse Gas Reporting* found in the *Federal Register*, Title 40, Part 98. The California Air Resources Board (CARB) implemented similar measures to reduce GHG emissions under the *California Global Warming Solutions Act of 2006*, Assembly Bill 32. Additionally, guidelines for EAs under the NEPA have been updated to include GHG emission estimates.

3.1.2 Environmental Consequences

3.1.2.1 Outdoor Air Quality

3.1.2.1.1 Alternative 1 (Proposed Action)

Short-term, local impacts to outdoor air quality from the Proposed Action would come from emissions generated by vans, trucks and other support vehicles during moving activities. However, the routine and recurring realignment of unit personnel on the base would not significantly increase the number of people or vehicles in service, nor affect the amount of stationary equipment used. Long-term local or regional impacts to air quality are not anticipated as a result of the Proposed Action since the number of people, vehicles, and stationary equipment would be similar to present operations at the base. Impact to outdoor air quality is expected to be negligible to minor. Alternative 1 has the potential for a minor decrease in emissions due to the integrated consolidation of personnel (e.g. putting like units near each other or in the same facility could reduce driving).

3.1.2.1.2 Alternative 2 (Minor Rehabilitation)

Impacts to outdoor air quality associated with Alternative 2 (Minor Rehabilitation) would be similar to those for Alternative 1. In addition, potential short-term, local impact associated with minor rehabilitation activities such as sanding and painting would produce fine dusts and volatile organic compounds (VOCs). However, impacts would be mitigated by using low-VOC paints, approved coating application methods, and following prohibitory rule limitations for architectural coatings, abrasive blasting and woodworking. No long-term local or regional impacts to air quality are anticipated. Impact to outdoor air quality is expected to be negligible to minor. Alternative 2 also has the potential for a minor decrease in emissions due to the integrated consolidation of personnel (e.g. putting like units near each other or in the same facility could reduce driving).

3.1.2.1.3 Alternative 3 (No Action Alternative)

Alternative 3 (No Action Alternative) is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. This alternative may result in inadequate coordination and appropriate environmental review of the destination facility and therefore impacts to outdoor air quality could occur.

3.1.2.1.4 Direct/Indirect Effects

No significant direct or indirect effects or measurable impacts on outdoor air quality were identified. The projected emissions associated with the routine and recurring realignment of unit personnel on the base for all of the alternatives have no discernable overall effect.

3.1.2.1.5 Mitigation Measures

As there would be no new or unique emissions, and local or regional issues are properly managed, no new minimization measures are proposed. Current policies for construction and remodeling activities will be followed. Mitigation measures concerning paint and chemical use in standard practice is discussed in further detail in Section 3.5.3.1.5.

3.1.2.2 Climate Change

3.1.2.2.1 Alternative 1 (Proposed Action)

The Proposed Action would require that relocation of unit personnel use medium and large-sized moving trucks that will generate GHG emissions. However, this would not result in any noticeable short- or long-term impacts to climate change because realignments of unit personnel on the base would not significantly increase the number of people, vehicles, or aircraft flights within or in close proximity to the base. The GHG emissions associated with medium- and large-sized moving trucks is considered to be a short-term, local effect because they are limited to the time the physical relocation occurs.

Overall, GHG emissions generated by utilities represent the primary impact for the base. Facility GHG emissions are disaggregated and changes to utilities in one location of the base may trigger additional reporting requirements and possible offsets. This could change the regulated sources on the base if the realignment triggers the threshold. Should this happen, controls would have to be applied and modification to permits would be required. Alternative 1 has the potential for a minor decrease in emissions due to the integrated consolidation of personnel (e.g. putting like units near each other or in the same facility could reduce driving).

In all cases the GHG emitted from realignments of unit personnel on the base would result in a short-term, negligible local impact with no discernable effect. No long-term, adverse regional impacts are identified.

3.1.2.2.2 Alternative 2 (Minor Rehabilitation)

Impacts to climate change associated with Alternative 2 (Minor Rehabilitation) would be the same as those for Alternative 1. In addition, potential short-term, local impact is associated with minor rehabilitation activities that release GHG from painting and modifications to ventilation and refrigeration systems. However, these releases would not represent any significant increase of these activities at the base and impact would be negligible to minor. Impacts to climate change from minor construction are expected to be negligible. Alternative 2 also has the potential for a minor decrease in emissions due to the integrated consolidation of personnel (e.g. putting like units near each other or in the same facility could reduce driving).

3.1.2.2.3 Alternative 3 (No Action Alternative)

Alternative 3 (No Action Alternative) is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. This alternative may result in inadequate coordination and appropriate environmental review of the destination facility and therefore impacts with increased GHG could occur.

3.1.2.2.4 Direct/Indirect Effects

No significant direct or indirect effects or measurable impacts on climate change were identified. The projected emissions associated with the routine and recurring realignment of unit personnel on the base for all of the alternatives have no discernable overall effect

3.1.2.2.5 Mitigation Measures

There would be no new or unique emissions, and local or regional issues are properly managed; therefore, no mitigation measures are proposed.

3.2 Biological Resources

3.2.1 Affected Environment

Various state, federal, DOD, and municipal laws, regulations, directives and instructions mandate the protection and management of threatened and endangered species at Edwards AFB. The Edwards AFB *Integrated Natural Resources Management Plan* (INRMP) contains laws, EOs, directives, regulations, policies, and 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 (95 ABW 2008c).

3.2.1.1 Habitats

Various habitats at Edwards AFB include creosote bush *(Larrea tridentata)* scrub, Joshua tree *(Yucca brevifolia)* woodland, halophytic phase saltbush *(Atriplex spp.)* scrub, arid phase saltbush scrub, and dry playa lakes. Destination buildings are located in proximity to the edges of these various habitats.

3.2.1.2 Vegetation

The base is composed of large areas of urban landscape which have undergone significant alteration due to construction, maintenance, infrastructure and landscaping. These areas tend to support several non-native invasive species such as red brome (*Bromus rubens)*, tansy mustard (*Descurrania pinnata)*, Russian thistle (*Salsola tragus)*, and split grass (*Schismus barbatus)*. Urban landscapes are often planted with ornamental species, especially in landscaped sections near housing areas, buildings and roadways.

3.2.1.3 Wildlife

The area's wildlife species can be found in their native habitat and travel through the built-up environment.

3.2.1.3.1 Desert Tortoise

The desert tortoise (*Gopherus agassizii*) is the only permanent resident species on base listed as threatened under the federal *Endangered Species Act*. Desert tortoises occur throughout Edwards AFB, but in extremely low numbers in suitable habitat but not around the immediate vicinity of destination buildings. The base provides protection to the desert tortoise by implementing specific terms and conditions from numerous U.S. Fish and Wildlife Service (USFWS) biological opinions (95 ABW 2008c and USFWS 2014).

3.2.1.3.2 Birds

Edwards AFB is home to a wide range of bird species protected under the *Migratory Bird Treaty Act*. Common birds found in developed areas of the base include: house finches (*Haemorphous mexicanus*), mourning doves (*Zenaida macroura*), common ravens (*Corvus corax*), barn owls (*Tyto alba*), and Say's phoebes (*Sayornis saya*). Some bird species will use buildings, associated structures, and landscaping for hunting, perching, and nesting. Landscaping and irrigation provides abundant food resources such as insects, rodents, and ornamental flowers that many birds find attractive, increasing their occurrence in these areas. Migratory birds have been acclimated to the presence of base personnel and tolerate small amounts of disturbance in close proximity to their nest.

3.2.1.3.3 Other Wildlife and Sensitive Species

A few common mammals found in the developed areas include black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audoboni*), bobcat *(Lynx rufus)*, foxes (*Vulpes spp*.), and coyote (*Canis latrans*).

The Mohave ground squirrel (*Xerospermophilus mohavensis*) is a California state-listed threatened species that resides in remote areas of the base, but not within the area of the destination facilities. Locations of sensitive wildlife and plants are found in the base's INRMP (95 ABW 2008c).

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1 (Proposed Action)

The Proposed Action does not require any construction or modification to base facilities, nor will it result in any ground disturbing activities; therefore, the realignment of units or personnel would not result in impacts to biological resources. Impacts to biological resources from the Proposed Action are anticipated to be negligible due to realignment of base personnel and their equipment into buildings already occupied by other base personnel.

3.2.2.1.1 Habitats

No impacts to habitats are expected since destination buildings already occur in developed and disturbed areas.

3.2.2.1.2 Vegetation

Sensitive plant species do not occur in the developed areas; therefore, no impacts to these species are expected.

3.2.2.1.3 Wildlife

3.2.2.1.3.1 Desert Tortoise

There is a potential for tortoises to be harmed during crossing roads traveled by base personnel during realignment activities from one location to another. However, Environmental Management natural resource staff provide continuous education awareness of desert tortoises to base personnel to avoid such mishaps through the terms and conditions of USFWS biological opinions (95 ABW 2008 and USFWS 2014). Impacts to desert tortoise from the Proposed Action are anticipated to be negligible due to the ongoing educational awareness program.

3.2.2.1.3.2 Birds

There is a potential to disturb some migratory birds during nesting at some destination building; however, these birds have been acclimated to base personnel entering and exiting buildings. Impacts to nesting birds are expected to be negligible during the short duration of moving personnel and equipment into buildings.

3.2.2.1.3.3 Other Wildlife and Sensitive Species

There is a potential for wildlife to be harmed during crossing roads traveled by base personnel during realignment activities from one location to another. However, Environmental Management natural resource staff provide frequent educational opportunities to enhance awareness of the desert environment and what base personnel can expect with wildlife interactions. This ongoing education helps to avoid such mishaps. Thus, impacts to wildlife desert tortoise from the Proposed Action are anticipated to be negligible due to the ongoing desert educational awareness program.

3.2.2.2 Alternative 2 (Minor Rehabilitation)

Impacts to biological resources associated with Alternative 2 (Minor Rehabilitation) would be the same as for Alternative 1. No significant adverse short- or long-term impacts are anticipated.

3.2.2.3 Alternative 3 (No Action Alternative)

Alternative 3 (No Action Alternative) is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. This alternative may result in an inadequate environmental review of the destination facility. However, impacts to biological resources are still not anticipated due to the ongoing desert educational awareness program.

3.2.2.4 Direct/Indirect Effects

All impacts to wildlife and plants have been discussed above.

3.2.2.5 Mitigation Measures

Alternatives 1 and 2 have a slight potential to negatively affect biological resources on base. However, through integrated planning and ongoing desert wildlife educational programs, most, if not all, adverse impacts can be avoided.

3.2.2.5.1 Desert Tortoise, Habitat, Vegetation, Wildlife and Sensitive Species

Implementation of the terms and conditions of its biological opinions for the desert tortoise and ongoing desert awareness of wildlife and sensitive species would avoid or negate any potential impacts to less than significant.

3.3 Cultural Resources

3.3.1 Affected Environment

As defined in AFI 32-7065 *Cultural Resources Management Program*, cultural resources include historic properties, cultural items, archaeological resources, and sacred sites as further defined by various laws and EOs. Cultural resources, which are sometimes referred to as "heritage resources," include expressions of human culture and history in the physical environment, such as buildings, structures, objects, districts, or other places. They can also be natural features, plants, and animals that are considered to be important to a culture, subculture, or community.

At Edwards AFB, cultural resources include prehistoric, historic, and military-period archaeological sites and districts as well as historically significant buildings, structures, and districts. Extensive surveys and evaluations of Edwards AFB's cultural resources have been conducted throughout the years. See the 2012 *Integrated Cultural Resources Management Plan* (ICRMP), Volume I for further details on Edwards AFB's cultural resources including tables indicating the National Register of Historic Places (NRHP) eligibility status for all buildings and

known archaeological sites (95th Civil Engineer Division/Environmental Management Division [95 CE/CEV] 2012).

The affected environment for cultural resources is limited to the built environment (buildings, structures, districts, etc.) that qualify as historic properties, as defined by the National Historic Preservation Act (NHPA), due to the potential effect resulting from the Proposed Action and Alternatives. Section 106 of the NHPA (36 CFR Part 800, Protection of Historic Properties) requires Federal agencies to take into consideration the effects of their undertakings on historic properties and provides a process which seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation among the agency official and other parties, including the State Historic Preservation Officer and Advisory Council on Historic Preservation, with an interest in the effects on historic properties. The Section 106 process must be completed before any undertaking is approved.

The realignment of unit personnel will not typically involve ground disturbing activities. The Proposed Action and Alternatives are anticipated to have little to no effect on the base's archaeological sites; therefore, no subsequent investigations are anticipated to be necessary.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1 (Proposed Action)

The Proposed Action does not require any construction or modification to base facilities, nor will it result in any ground disturbing activities; therefore, the realignment of units or personnel would not result in impacts to cultural resources.

3.3.2.2 Alternative 2 (Minor Rehabilitation)

While Minor Rehabilitation (as described in Section 2.3.2) does not require any construction or modification to base facilities, it does involve changes to the facilities that could potentially alter the character defining features of a historic property, which qualify it for listing on the NRHP, in a manner that would diminish its integrity [36 CFR Part 800.5(a)(1)]. Therefore the Section 106 process would have to be completed prior to the realignment of units and/or personnel into facilities that require minor rehabilitation. As stated, there is a potential to impact historic buildings from Alternative 2; however, this is not expected. Therefore, no significant adverse impacts to cultural resources are anticipated.

3.3.2.3 Alternative 3 (No Action Alternative)

Alternative 3 (No Action Alternative) is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. This could result in unit personnel realignments with modifications to the subject facilities that could potentially alter the character defining features of a historic property, which qualify it for listing on the NRHP, in a manner that would diminish its integrity [36 CFR Part 800.5(a)(1)]. While the status quo still requires that the Section 106 process be completed prior to realigning unit personnel, the organizations conducting the realignments may not be aware of this requirement which increases the chance of impacts to cultural resources. While no changes to baseline conditions at Edwards

AFB as a result of Alternative 3 are anticipated, this alternative may result in a lack of proper environmental review of the destination facility and therefore impacts to cultural resources could occur.

3.3.2.4 Direct/Indirect Effects

The Proposed Action and Alternatives have the potential for a negative direct effect on cultural resources if historic sites are damaged or destroyed.

3.3.2.5 Minimization Measures

No significant impacts to cultural resources are expected from implementation of the Proposed Action and Alternatives if the Section 106 process is completed during the planning of and prior to realignment. The potential for and the type and degree of impacts to cultural resources depend on the alternative selected and the historic characteristics of the facilities. If, during the Section 106 process, impacts to cultural resources resulting from the realignment of units and/or personnel are identified, then appropriate minimization measures would be required. Minimization measures could consist of a Memorandum of Agreement or a Programmatic Agreement depending on the scope of the realignment and/or the nature of the effects to the historic properties.

3.4 Noise and Vibration

3.4.1 Overview

Noise is generated by pressure fluctuations in the air. The common measure of noise, or sound pressure level, is the decibel (dB), with zero being the threshold of audible sound to the human ear. Examples of sound pressure levels are 40 to 50 dB in an office setting, 70 dB inside a car at high speeds, 80 to 85 dB at a distance of 50 feet from highway truck traffic, and 100 dB inside near an airport during aircraft flyovers (AFFTC 1998). Figure 5 summarizes typical weighted sound levels for a range of indoor and outdoor activities.

3.4.2 Affected Environment

Edwards AFB performs operations and activities that generate ground level noise and vibration on- and-off-base, which include:

a. Aircraft engine testing and maintenance

b. Aircraft flight and fly over testing

c. Routine aircraft overflight

d. Weapons and munition testing

e. Noise associated from precision impacts at the base

f. Mobile equipment use and vehicular traffic noise and vibration

g. Construction, demolition, and earth moving

3.4.2.1 Outdoor Noise and Vibration

Major sources of noise include operations noise from fixed wing aircraft and helicopters; engine testing; and vehicular traffic along primary and secondary streets and intersections. Noise levels less than the 65 dB are considered acceptable in residential areas (AFFTC 1998). Weapons testing often produce low-frequency noise and vibration that results from weapons detonation. These noise sources can create single event noise events that can travel extensive distances due to the valley topography of the area and can affect personnel indoors and outdoors locations.

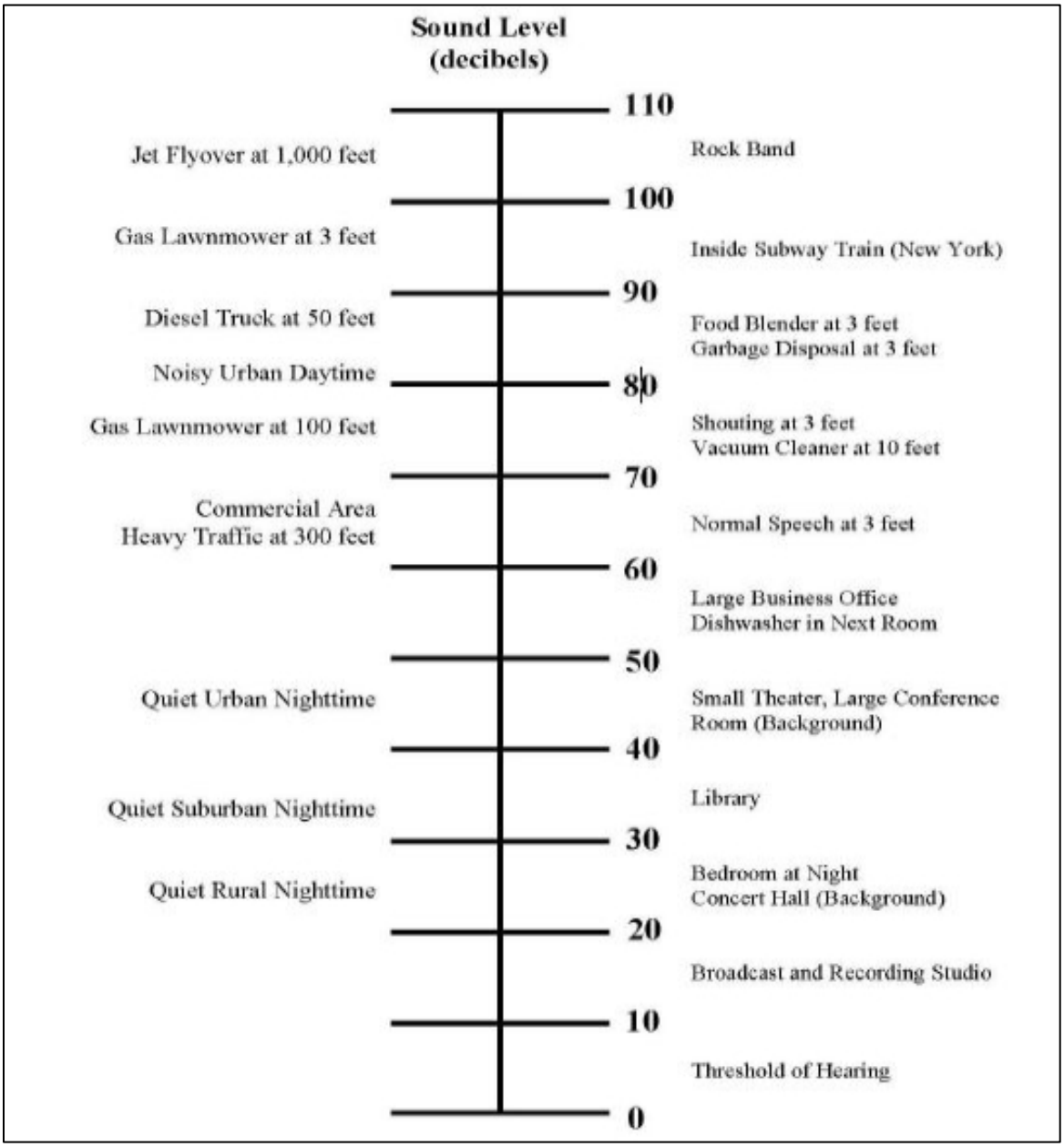

Figure 5. Comparative Levels of Common Sound (95th Air Base Wing 2008b)

To prevent harmful effects to military and DOD civilian personnel from exposure to hazardous noise, the Air Force has established protective measures in compliance with the Air Force Occupational Safety and Health (AFOSH) Standard 48-19, Hazardous Noise Program, 1993. Under this program, Bioenvironmental Engineering (412 MDG/SGPB) is responsible for conducting hazardous noise surveillance to determine if military or DOD civilian personnel, working in areas where hazardous noise exposure may occur, would require engineering and administrative controls or personal protection. Non-DOD civilian personnel working on the installation are exempt from AFOSH Standard 48-19, but must comply with applicable federal and state regulations (Edwards AFB 2009). An example of noise levels along the flightline are presented as noise contours in Figure 6.

3.4.2.2 Indoor Noise and Vibration

Levels of indoor noise and vibration are a function of a building's proximity to sources generating noise and vibration, the material construction of the building, and whether noise and vibration mitigation measures have been employed at the building and within the interior workspaces. Outdoor noise and vibration can indirectly affect indoor noise and vibration; amplifying or minimizing current indoor noise levels. Schedules for noise and vibration generating activity in relationship to schedules for building occupancy or duration of inhabitants will determine the potential for negative impact. This is especially prevalent if unit personnel are moved from a low- to high-level noise area. Heavy machinery and movement of equipment within confined space generates elevated noise levels that could be a concern for base personnel during the movement of unit personnel during the Proposed Action and Alternatives.

3.4.3 Environmental Consequences

3.4.3.1 Outdoor Noise and Vibration

3.4.3.1.1 Alternative 1 (Proposed Action)

The short-term impacts to outdoor noise and vibration from the Proposed Action would result from the medium- and large-sized moving vehicles used to move office equipment during the realignment activities. Noise and vibration associated with the medium- and large-sized moving vehicles is considered to be a short-term affect because they are limited to the time the physical relocation occurs. Continuous close proximity exposure to high-noise levels can cause hearing loss, communication interference, and stress reactions.

Long-term impacts to noise and vibration under the Proposed Action is especially prevalent if unit personnel are moved from a low- to high-level noise area. Notifying adjacent sensitive noise receptors prior to commencement of relocation activities would allow affected facilities and their personnel the option of planning activities around high-level noise occurrences to minimize exposure. The Proposed Action is not expected to have an effect on current baseline noise and vibration levels associated with aircraft and workplace noise. Impacts from noise and vibration are expected to be negligible to minor; therefore, no significant adverse impacts are anticipated for the Proposed Action.

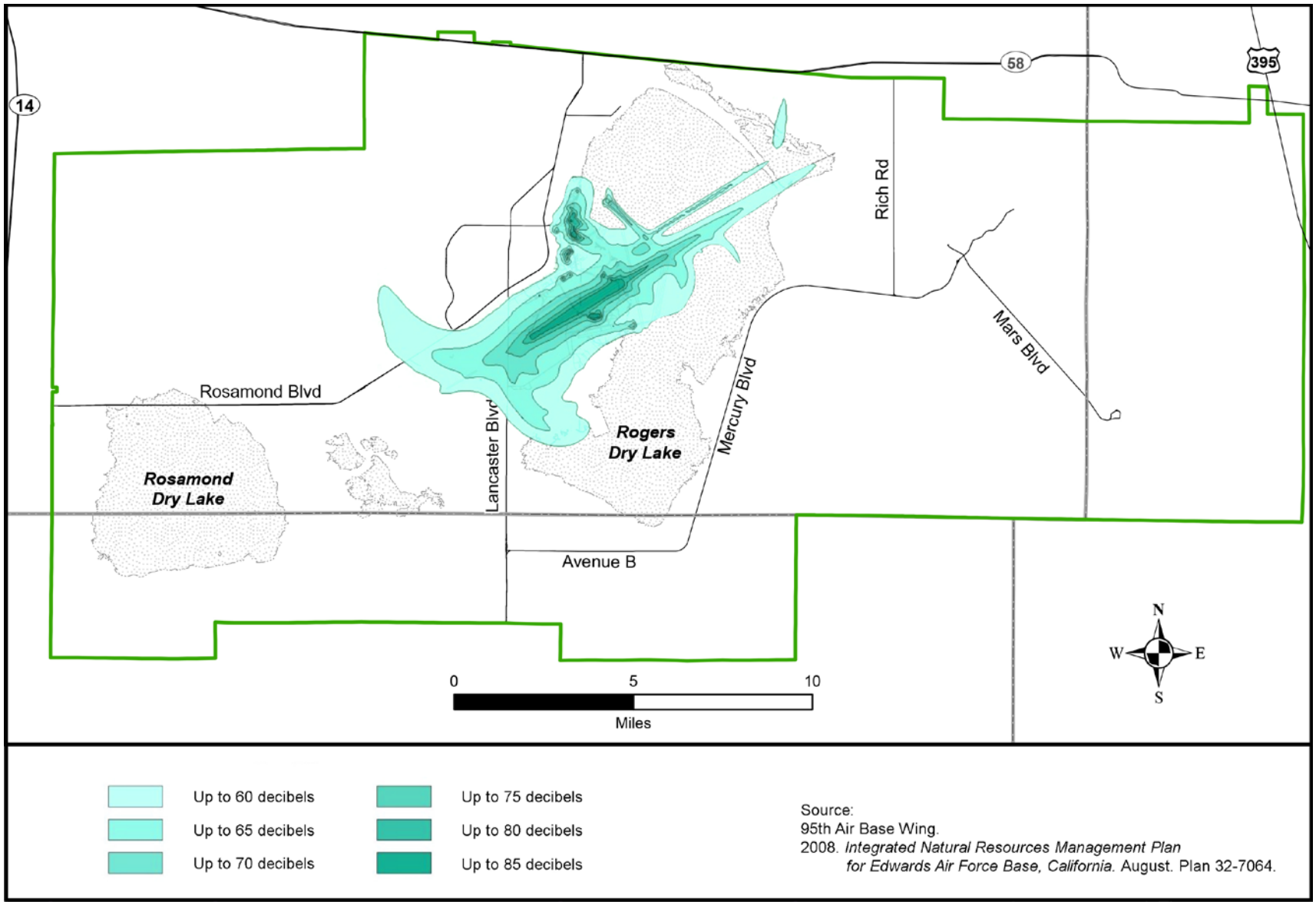

Figure 6. Flightline Noise Contours at Edwards AFB

The primary impacts to outdoor noise and vibration from Alternative 2 (Minor Rehabilitation) would be similar to the Proposed Action; except with the potential addition of equipment and personnel used for the rehabilitation of facilities. Minor long-term increases in ambient noise levels may be experienced if relocated facilities involve the operation of noise-generating equipment, if they are located in areas not previously frequented by heavy vehicle trip activity or near the flightline. The impacts to outdoor noise generated from Alternative 2 are expected to be in a local context, short-term in duration, and minor in intensity; therefore, no significant adverse impacts would be anticipated.

3.4.3.1.2 Alternate 3 (No Action Alternative)

Alternative 3 is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. Alternative 3 would not result in any noticeable short- or long-term impacts to outdoor noise and vibration because it would not significantly increase the number of people on the base, vehicles, or aircraft flights within or in close proximity to the base. Baseline indoor noise conditions at Edwards AFB are not expected to change. This alternative may result in inadequate environmental review of the destination facility and therefore impacts to outdoor noise and vibration could occur.

3.4.3.1.3 Direct/Indirect Effects

Realignment activities for all three alternatives have the potential for a negative direct effect of exposing personnel to hazardous noise levels, materials, and environmental conditions. Establishing noise safety awareness training prior to the start of realignment activities would have an indirect positive effect on personnel health and safety.

3.4.3.1.4 Minimization Measures

Major noise sources on the flightline area result from fixed wing and helicopter operations, engine testing, and the operation of powered support equipment. As such, personnel involved in realignment activities along the flightline may be exposed to increased noise levels that may be above acceptable levels established by AFOSH and Occupational Safety and Health Administration (OSHA) regulations. Personnel shall be responsible for implementing hearing protection measures and follow AFOSH regulations (AFFTC 2008).

3.4.3.2 Indoor Noise and Vibration

3.4.3.2.1 Alternative 1 (Proposed Action)

The primary impacts to indoor noise and vibration from the Proposed Action would result from medium- and large-sized moving vehicles used to move office equipment and external noise from flightline and daily working operations during the realignment of unit personnel on base. As the duration of physical relocation activities are limited, noise and vibration associated with medium- and large-sized moving trucks is considered to be a short-term impact.

Continuous close proximity exposure to high-noise levels can cause hearing loss, communication interference, and stress reactions. Long-term impacts to noise and vibration under the Proposed Action is especially prevalent if unit personnel are moved from a low- to high-level noise area. Notifying adjacent sensitive noise receptors prior to commencement of relocation activities would allow affected facilities and their personnel the option of planning activities around high-level noise occurrences to minimize exposure. The impacts to indoor noise generated from the Proposed Action are expected to be in a local context, short-term in duration, and minor in intensity; therefore, no significant adverse impacts would be anticipated.

3.4.3.2.2 Alternative 2 (Minor Rehabilitation)

The primary impacts to indoor noise and vibration from Alternative 2 (Minor Rehabilitation) would be similar to the Proposed Action; except with the addition of equipment and personnel used for the rehabilitation of facilities. Minor short-term increases in ambient noise levels may be experienced due to the operation of noise-generating equipment during the rehabilitation of facilities. The impacts to outdoor noise generated from Alternative 2 are expected to be in a local context, short-term in duration, and minor in intensity; therefore, no significant adverse impacts would be anticipated.

3.4.3.2.3 Alternate 3 (No Action Alternative)

Alternative 3 is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. Long-term impacts to noise and vibration under Alternative 3 is especially prevalent if unit personnel are moved from a low- to a high-level noise area. Baseline indoor noise conditions at Edwards AFB are not expected to change. Potential impact from noise and vibration may result from the lack of proper environmental review and therefore impacts to indoor noise and vibration could occur.

3.4.3.2.4 Direct/Indirect Effects

Realignment activities for all three alternatives have the potential for a negative direct effect of exposing personnel to hazardous noise levels, materials, and environmental conditions. Establishing noise safety awareness training prior to the start of realignment activities would have an indirect positive effect on personnel health and safety.

3.4.3.2.5 Mitigation Measures

Baseline indoor noise conditions at Edwards AFB are not expected to change; therefore no mitigation measures are proposed. Operation of rehabilitation equipment indoors may generate noise above acceptable levels established by OSHA regulations. Personnel shall be responsible for implementing hearing protection measures and follow AFOSH regulations (AFFTC 2008).

3.5 Occupational Safety and Health

3.5.1 Overview

A facility is evaluated as a suitable destination for personnel realignment when the destination facility complies with OSHA health and safety standards for personnel. Areas for which a facility is evaluated include:

a. Groundwater contamination and plumes

b. Indoor air quality and vapor intrusion

c. Other occupational safety and health concerns (i.e. pests, structural damage, mold)

d. Past, present, and future use or storage of hazardous materials and waste

e. Presence of asbestos-containing material, lead, and polychlorinated biphenyls (PCBs)

f. Previous activities (i.e., painting, vehicle maintenance, laboratory)

Furthermore, any potential renovations to improve the suitability of a facility or that change how the facility is used must consider all potential environmental, natural resource, and cultural resource impacts that could occur.

Potential occupational safety and health issues associated with Edwards AFB include but are not limited to indoor air quality (including VOCs released from building materials and furniture, radon and vapor intrusion); asbestos; mold; metals-based paints; PCBs; universal waste and hazardous materials. The OSHA, California OSHA (Cal/OSHA) and AFOSH standards are enforced locally, as appropriate, by Bioenvironmental Engineering, Ground Safety, and the various contractors on base. Contractors are responsible for their employees' occupational safety and health and are regulated by both Cal/OSHA and Federal OSHA.

The safety personnel for each Air Force and contractor organization are responsible for monitoring the safety programs through a system of inspections, surveys, audits, and follow-up investigations. Elements of the safety program include accident and injury prevention and reporting, fire prevention and protection, emergency preparedness, and hazardous material and waste management. Emergency response plans are in place to address emergencies such as earthquakes, aircraft accidents, fires and explosions, bomb threats, civil disturbances, nuclear emergencies, and toxic vapor releases or chemical spills.

3.5.2 Affected Environment

3.5.2.1 Indoor Air Quality

Various cleaning materials, paints, thinners, wall paneling, adhesives, carpeting, flooring, and pesticides contain VOCs that are released during application, drying, or aging processes. Although a majority of off-gassing peaks within the first few hours, some products release only half of their VOCs within the first year and continue emitting VOCs throughout their life. Older facilities at Edwards AFB that have not recently been rehabilitated with painting and new floor coverings (carpet or tile) have already experienced a significant off-gassing of potential VOCs. New construction or those facilities that have or will experience minor rehabilitation may have

elevated levels of VOC due to off-gassing. However, with the introduction of low-VOC paints and adhesives, the amount of off-gassing is expected to be greatly reduced.

Air pollutants such as diesel exhaust, carbon monoxide, pollen, and dust may affect indoor conditions when outdoor air is taken into the facility's ventilation system, as well as open doors and windows, resulting in poor indoor air quality.

3.5.2.1.1 Radon

Radon is an odorless, tasteless, and invisible gas produced by the decay of naturally occurring uranium in soil and water. Radon is a form of ionizing radiation and a proven carcinogen. When present, radon will typically permeate through the ground and into buildings through cracks and other holes in the foundation and become trapped in buildings that do not have adequate ventilation or air movement. Lung cancer is the only known effect on human health from exposure to radon in air.

Edwards AFB underwent extensive radon testing as part of the AF Radon Assessment and Mitigation Program of 1987 (Maher and Hoak 1987). Results acquired from 1 of 61 screening samples taken exceeded the action level of 4 picocuries per liter (pCi/L), characterizing Edwards AFB as a "Medium Risk" installation. Subsequently, a detailed assessment was performed. This assessment of 2,644 structures at Edwards AFB between November 1989 and March 1991 found five additional structures (all homes) with indoor radon levels greater than or equal to 4 pCi/L. All other structures sampled, including administrative and other occupied work spaces, revealed radon concentrations less than 4 pCi/L and are not considered a hazard so no mitigation measures were required (Hale 2011).

Since the previous surveys were conducted, the old homes have been demolished and new homes have been built in the vicinity of the old sites. Samples were collected between 2006 and 2008 and again in 2009 at the new home sites and all results revealed radon levels well below action levels.

Based on previous testing conducted at Edwards AFB, the Bioenvironmental Engineering office (412 MDG/SGPB) at Edwards AFB does not consider radon within homes or workplace facilities to be a concern. However, if future testing is needed, the base is to follow guidance on testing and remediation requirements under AFI 48-148.

3.5.2.1.2 Vapor Intrusion

As a result of past waste disposal practices, groundwater is contaminated at numerous sites throughout Edwards AFB. Soil and groundwater VOC plumes have been identified beneath facilities located within the AFRL, Main Base, North Base and South Base areas. The VOC vapors can migrate upward from the impacted groundwater, ultimately finding their way into the atmosphere. Floor slabs and foundations of facility structures can act as a barrier to the upward migrating VOCs. However, vapors may migrate through the slab via cracks or expansion joints in the concrete and enter the workspace of the facility or building through a process known as vapor intrusion.

Similar to that of radon gas seeping into homes, VOC concentrations may accumulate and increase over time depending on the source and concentration of the VOC in the soil and groundwater and the effectiveness of ventilation of the facility. Personnel working inside facilities that are adjacent to or co-located over VOC-impacted soil or groundwater may be exposed to levels exceeding regulatory limits determined by the OSHA and Cal/OSHA (29 CFR 1910.1000 Table Z and California Standard Title 8 CCR 339).

During site investigations conducted since 1990, the Edwards AFB Environmental Restoration Program (ERP) installed and regularly samples hundreds of monitoring wells (ATSDR 2009). Samples from these wells serve to define the extent of groundwater plumes.

Through site investigations and sampling, Edwards AFB has delineated and characterized contamination within 29 groundwater plumes that contain a variety of VOC and semivolatile organic compounds (SVOC). Treatment systems have been operating at ERP sites since 1996 to remove groundwater contamination (AFFTC 2008). A map showing the general locations of consolidated groundwater plumes is provided in Figure 7.

3.5.2.2 Other Occupational Safety and Health Concerns

Most base facilities are 50- to 60-year-old structures and may include hazardous building materials or substances which may pose a risk with prolonged human exposure. Some of these potential hazards may become airborne, including asbestos fibers, mold spores, and metal particles from paint sanding.

3.5.2.2.1 Asbestos

Asbestos is a naturally occurring mineral located throughout California and elsewhere; naturally occurring asbestos is not found in the immediate Edwards AFB area. Because of its fiber strength and heat resistance, asbestos has been used in a variety of building construction materials for insulation and as a fire retardant. Asbestos has also been used in a wide range of manufactured goods, mostly in building materials, friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, coatings and within aircraft components. Materials that contain asbestos which are intact, or encased and in good condition do not pose a risk to adjacent personnel.

Exposure to airborne asbestos fibers increases the risk of developing lung disease. Asbestos that is disturbed or damaged in some way has the potential to release particles and fibers into the air. The U.S. EPA, OSHA (and Cal/OSHA), California Department of Toxic Substance Control, and Department of Transportation are some of the main regulatory bodies that regulate asbestos in one form or another.

Regardless of construction date, there is the potential for the presence of asbestos in all facilities and buildings on base, and the potential increases with the age of the structure. Per the U.S. EPA's *Managing Asbestos in Place: A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials* "Intact and undisturbed asbestos do not pose a health risk" (1990).

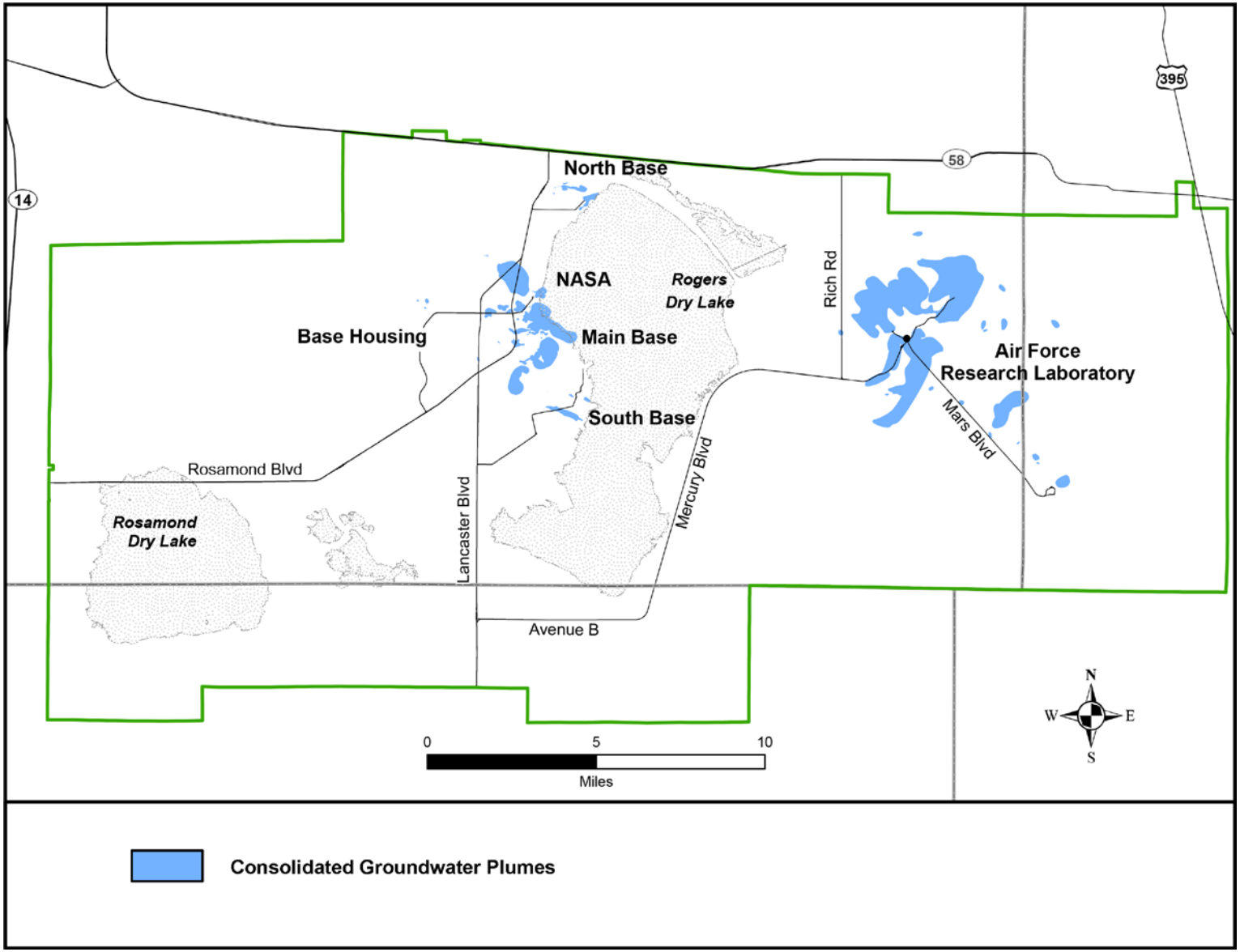

Figure 7. Consolidated Groundwater Plumes at Edwards Air Force Base

3.5.2.2.2 Mold

The environmental setting of Edwards AFB is that of a semi-arid desert climate. Regardless of the desert climate, mold is ubiquitous and can readily survive and propagate in a dry climate under the right conditions. In most cases, mold-related contamination is associated with water; the key to an effective mold program is controlling moisture in the facility. However, moisture control must be combined with adequate housekeeping and active participation of facility occupants in inspecting and responding promptly to initial signs of mold.

All molds have the potential to cause health effects. Molds produce allergens, irritants, and in some cases, toxins that may cause reactions in humans. The types and severity of symptoms depend, in part, on the types of mold present, the extent of an exposure, the ages of the individuals, and the individual's existing sensitivities or allergies. While there are no regulations governing mold-related situations, there are federal, state, and local guidelines to assist with mold-related situations.

3.5.2.2.3 Metals-Based Paints

Metals-based paints include those that contain lead, mercury, and chromium—all classified as heavy metals. In the past, heavy metals were frequently used in paints and because of the age of the facilities on base, they may be present on interior and exterior painted surfaces. While heavy metals may be more prevalent in pre-1978 paints and coatings, they may still be found in today's paints and coatings.

Because of their toxicity, metals-based paints are regulated federally and by California. Heavy metals are subject to land disposal restriction requirements during waste disposal.

In 1978, the U.S. Consumer Product Safety Commission lowered the amount of lead allowed in consumer paint from 5,000 parts per million (ppm) (0.50 percent) to 600 ppm (0.06 percent). Although paints with lead that exceed the 600-ppm level was banned for use in residential homes since that time, paint with higher lead levels was not banned from industrial and other similar uses. In 2008, the amount of lead allowed in household paint (and other products) was reduced to 90 ppm (0.009 percent) as part of the *Consumer Product Safety Improvement Act* (Public Law 110-314) and 16 CFR Part 1303. This law has been in effect since 14 August 2009.

Due to high lead exposure potential even from low-lead concentration coatings, OSHA regulates any detectable amount of lead for certain lead-related tasks (various tasks from manual sanding to welding on lead coatings). The California Department of Public Health (8 CCR, Title 17, Division 1, Chapter 8) makes it illegal to create a lead hazard (the lead concentration in a coating is not measured the same as a lead hazard). Therefore, similarly to OSHA, any lead concentrations less than the U.S. EPA's definition of lead-based paint has the potential to create a lead hazard. The U.S. EPA has established that paint, varnish, shellac, or other coatings on surfaces that contain more than 5,000 ppm of lead are considered lead-based paint. Lead-based paint becomes a health hazard when ingested. When paint is damaged—creating dust, chips, and fumes—it can easily become a lead hazard that can more readily make a hand-to-mouth transfer.

Mercury-based latex paints were commonly used in the United States prior to the 1950s as a fungicide to prevent the growth of bacteria. In 1991 its use in interior and exterior latex paint was discontinued. Mercury can still be found in some water-based paints as a fungus inhibitor. Chromium-based paint was and is used as an oxidizer preventative on structural steel and as a heavy-duty coating. Paints that contain any mercury or chromium are considered potential health hazards by OSHA.

3.5.2.2.4 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are suspected human carcinogens and can be found on the base in transformers, capacitors, and other high voltage electrical systems; fluorescent light ballasts; as well as other non-electric applications. The manufacture of PCBs in the United States was banned in 1979. Dielectric fluids in transformers, capacitors, and switches on base were replaced or the contents analyzed for the presence of PCBs. If PCB concentrations in the dielectric fluids were found to be above the 50-ppm federal regulatory threshold limit (California regulates PCBs at 5 ppm) the base replaced the electrical equipment or the dielectric fluids. While there are no known federally regulated PCB articles on the base, per the Civil Engineering Electric Shop and the U.S. EPA-required annual PCB document log, it is possible that older electrical systems still containing PCBs have not been identified and addressed at some facilities on base. Testing of these materials is required when repairs or decommissioning occurs. Additionally, PCB light ballasts are still occasionally discovered. When disturbing suspect PCB items, adequate due-diligence evaluation is required by U.S. EPA regulations (40 CFR 761) to eliminate the possible exposure to these substances and to ensure proper disposal.

3.5.2.2.1 Universal Waste

Universal wastes are hazardous wastes that are widely produced by households and many different types of businesses. Universal wastes include televisions, computers and other electronic devices as well as batteries, fluorescent lamps, mercury thermostats, and other mercury containing equipment, among others. The California hazardous waste regulations identify seven categories of hazardous wastes that can be managed as universal wastes. Any unwanted item that falls within one of these wastestreams can be handled, transported and recycled following the simple requirements set forth in the universal waste regulations (40 CFR 273 and 22 CCR 66273 *et seq*.). Under the California Universal Waste Rule, all facilities on base are required to properly manage and recycle universal waste. The rule also applies to base offices and prohibits disposal of any universal waste in the trash or landfill.

Fluorescent lamps and high-intensity discharge (HID) lamps contain small amounts of mercury and other regulated metals. Under the regulations, broken lamps may be required to be managed as hazardous waste and not universal waste.

3.5.2.2.2 Hazardous Materials and Waste

Hazardous materials are those that could cause injury or death; or pollute or damage land, air, or water. Hazardous wastes are defined as hazardous materials that are no longer suitable for their intended use, and can be liquids, solids, gases, or sludges. These can be classified into listed, characteristic, universal, and mixed wastes. For purposes of this EA, the terms hazardous

materials and hazardous waste are those substances as defined by the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (42 U.S.C. 9601, *et seq*.) and the *Resource Conservation and Recovery Act of 1976* (RCRA) (42 U.S.C. 6901–6991).

Edwards AFB uses a wide variety of hazardous materials in support of research activities and in support of the Air Force mission requirement.

Both hazardous materials and wastes are managed at the base and are situated at various locations at or near existing facilities. All organizations and contractors are required to maintain inventories of all their hazardous materials. Organizations are required to reduce the quantity of hazardous materials used or replace them with non-hazardous or less hazardous material, if possible, as a part of the Pollution Prevention Program. Guidelines used by Edwards AFB include AFI 32-7042, *Waste Management* and AFI 32-7086, *Hazardous Materials Management.*

3.5.3 Environmental Consequences

3.5.3.1 Indoor Air Quality

The indoor environmental air quality of a facility generally can be managed through proper ventilation. The American National Standards Institute (ANSI) and the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) develop consensus standards and guidelines for heating, ventilation and air conditioning systems. The ASHRAE guidelines provide specific details on ventilation for acceptable indoor environmental air quality. Rates for proper ventilation can be found in ANSI/ASHRAE 62.1-2010.

3.5.3.1.1 Alternative 1 (Proposed Action)

Impacts to indoor air quality from the Proposed Action could come from the presence of outdoor air pollutants (including air toxics). A potential short-term, local source of outdoor air pollutants would be from emissions generated by vans, trucks or other support vehicles during moving activities. However, the routine and recurring realignment of unit personnel on the base would not significantly increase the number of people or vehicles in service, or affect the amount of stationary equipment used. Conversely, the intensity of the impact would depend on the proximity of sensitive receptors and whether or not a regulated source or operation is being moved as part of the realignment.

Potential short- and long-term impacts to indoor air quality could result from VOC vapor intrusion associated with groundwater plumes located beneath or immediately adjacent to a building. While the co-location of a VOC-impacted groundwater plume and destination facilities does not automatically imply that indoor air quality has been degraded, verification may be required before realignment could be implemented.

3.5.3.1.2 Alternative 2 (Minor Rehabilitation)

Impacts to indoor air quality associated with Alternative 2 (Minor Rehabilitation) would be the same as those for Alternative 1.

The off-gassing of VOCs from new materials used in the minor rehabilitation of the destination facility could potentially cause short- and long-term local impact to the occupational and health and safety of realigned unit personnel. Sources of impact could include adhesives and glues, paints, cleaning materials, and flooring materials (e.g. carpet, vinyl flooring). There is the potential for long-term off-gassing at diminishing concentrations depending on the type of VOC-containing materials that are used. Although short-term minor to moderate impact could be expected from high-VOC containing materials, long-term (and in some cases short-term) adverse impact is not anticipated if the minimization measures identified below are implemented.

3.5.3.1.3 Alternative 3 (No Action Alternative)

Alternative 3 (No Action Alternative) is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. The indirect effect of migration of VOC into building interior spaces immediately above or adjacent to a groundwater contamination plume would not be changed. This alternative may result in inadequate coordination and appropriate environmental review of the destination facility and therefore impacts to indoor air quality could occur.

3.5.3.1.4 Direct/Indirect Effects

A potential direct effect from emissions generated by vans, trucks or other support vehicles during moving activities could impact indoor air quality. However, the projected emissions associated with the routine and recurring realignment of unit personnel on the base for all of the alternatives have no discernable overall effect.

Potential significant direct effects or measurable impacts on indoor air quality from emissions generated from minor rehabilitation activities or vapor intrusion associated with VOC-impacted groundwater plumes are identified. Emissions from rehabilitation (off-gassing) is expected to be negligible to minor; those associated with vapor intrusion could range to moderate depending on the proximity of the destination facility to the VOC-impacted groundwater plume and the results of indoor air testing.

Long-term vapor intrusion impacts are not anticipated to be significant if the mitigation measures to reduce impacts are implemented. Should the concentration of the VOC inside a facility exceed that which could be mitigated by implementation of the proposed mitigation measures, then the designation facility would no longer be covered by this EA.

3.5.3.1.5 Mitigation Measures

Initial off-gassing of VOC from materials used in the minor rehabilitation of a destination facility may result from the use of paints, floor coverings (carpet and tile), and adhesives and glues. The short- and long-term impact associated with the off-gassing of VOC can be minimized to below significant levels by:

a. Using “green” low-VOC paints, adhesives and glues.

b. Using materials that have a low potential for VOC off-gassing.

c. Allowing at least 72 hours and (up to two weeks in some cases) for ventilation before occupying the facility.

d. Maintaining adequate passive or active ventilation within the facility.

Utilizing low-VOC paints and floor covering adhesives would greatly reduce any short-term impacts and could virtually eliminate any potential future long-term impacts.

Potential impacts to indoor air quality could result from diesel exhaust emissions (e.g. from forklifts or other support equipment) in proximity to the facilities in which personnel are moving. For diesel equipment used indoors, ensure that the facility is in compliance with AFI 91-203, *Air Force Consolidated Occupational Safety Instruction* (dated 15 June 2012, paragraph 35.3.5.1) prior to occupancy.

Prior to realigning unit personnel to facilities requiring minor rehabilitation, indoor air samples may be collected to evaluate whether VOC off-gassing from painted surfaces or flooring adhesives is present. Using the proper BMPs addressed above, short- and long-term impacts would be eliminated.

Prior to realigning unit personnel into the destination facilities, Real Property and Space Utilization Offices staff will confirm the location of any impacted groundwater plumes that could pose a source for VOC vapor intrusion. Should a potential source be identified, indoor air quality sampling may be performed at the destination facilities to evaluate if any environmental impact to indoor air quality is present. Eight-hour human health exposure limits will be evaluated for facility indoor air quality, which will be compared to regulatory limits and to outdoor air quality (baseline) data. A health risk assessment could be performed to evaluate the need for engineering controls to bring the indoor air quality into compliance. For example, an engineering control that is compliant with this EA would include increasing the indoor air-exchange (ventilation) rate within the facility. Following application of engineering controls, post-minimization indoor air sampling would be performed prior to occupancy to verify compliance. If deemed necessary, this may be followed up with annual indoor air compliance verification sampling.

Other potential engineering controls could include the application of a sealing material to the floor slab or installation of vapor extraction wells adjacent to or beneath the building slab to actively reduce the concentration of the VOC vapors. However, these are beyond the scope of this EA. Should the results of the sampling indicate that VOC vapor intrusion has diminished the indoor air quality, and that the proposed engineering controls cannot achieve regulatory compliance, then the proposed realignment would be no longer be covered by this EA and would be subject to a realignment-specific EA or environmental impact statement.

Realignment activities may be located within or adjacent to ERP sites. If personnel notice odors within buildings during activities, they shall report this observation immediately to Bioenvironmental Engineering.

3.5.3.2 Other Occupational Safety and Health Concerns

3.5.3.2.1 Alternative 1 (Proposed Action)

Potential short and long-term, local impacts to the occupational safety and health of unit personnel being realigned on the base from the Proposed Action could come from exposure to asbestos, mold, metals-based paints, PCBs, universal waste, and hazardous materials and waste. However, the routine and recurring realignment of unit personnel would not be expected to increase the risk of exposure in those facilities where no rehabilitation is required prior to the realignment. There are no short- or long-term impacts anticipated.

Intact and undisturbed asbestos materials do not pose a health risk. The mere presence of asbestos in a building does not endanger the health of the building occupants. Asbestos containing materials (ACMs) that are in good condition and are not damaged or disturbed are not likely to release asbestos fibers into the air. When BMPs are in place and ACM is properly managed, release of asbestos fibers into the air is prevented or minimized, and the risk of asbestos-related disease can be reduced to a negligible level.

If ACMs are disturbed during the realignment activities, short- and long-term adverse impact could be moderate to major, requiring immediate action to mitigate the impact prior to occupancy of the facility. Any such activity would negate the use of Alternative 1.

The presence of mold would negate the use of Alternative 1.Impacts to the occupational safety and health of unit personnel being realigned into a facility containing metals-based paints would be negligible provided that any surfaces that contain these materials are in good condition and do not require any mitigation prior to the realignment to the destination facility. No potential adverse impacts are anticipated.

Potential short-term, local, and minor to moderate impact to the occupational safety and health of unit personnel resulting from exposure to mercury could result from the improper handling or disposal of fluorescent and HID lamps. However, the impact would be negligible provided that potential mercury-containing lamps are not improperly disturbed during the realignment to the destination facility or during routine operations and maintenance. Additionally, the routine and recurring realignment of unit personnel on the base would not significantly change the use or handling of the fluorescent and HID lamps. Unless a release of mercury resulting from the improper handling or breakage of these lamps occurs, no potential adverse impacts are anticipated.

Potential short- and long-term impacts to the occupational safety and health of unit personnel resulting from exposure to hazardous materials and waste, is anticipated to be negligible because there is no history of usage or storage in these facilities. The routine and recurring realignment of unit personnel on the base would not significantly change the use or handling of hazardous materials and waste. No potential adverse impacts are anticipated.

3.5.3.2.2 Alternative 2 (Minor Rehabilitation)

The potential impacts to occupational safety and health associated with Alternative 2 (Minor Rehabilitation) would be the same as for Alternative 1. In addition, potential short- and long-term local impacts to the occupational safety and health of unit personnel being realigned on the base from the Proposed Action could come from exposure to asbestos, mold, metals-based paints, or PCBs.

Potential short- and long-term impacts could result from the presence of mold, if found, at the destination facility. Occurrence of mold on interior surfaces would represent a short-term local impact that can be effectively removed using BMPs for mold; therefore, no potential adverse impacts are anticipated. If mold is discovered and requires mitigation greater than the BMPs, such activity would negate the use of Alternative 2.

Impacts to the occupational safety and health of unit personnel resulting from exposure to PCBs would be negligible provided that any potential PCB-containing electrical equipment, if discovered, is not disturbed during the realignment to the destination facility. Additionally, the routine and recurring realignment of unit personnel on the base would not significantly change the use or handling of the electrical equipment. No potential adverse impacts are anticipated.

Potential short-term, local adverse impact to the occupational safety and health of unit personnel being realigned could result from exposure to asbestos, mold, or metals-based coatings only if damaged or non-intact materials are left in an unrepaired condition, or if any undocumented repairs/renovations are performed without adherence to recommended BMPs. However, any impact would be reduced to a negligible level since BMPs for all work that includes mold, asbestos, or lead, are either more stringent than, or at least in compliance with all applicable federal, stated, and local rules and regulations. After proper remedial actions are completed, and prior to occupancy, no significant short- or long-term adverse impacts are anticipated if the mitigation measures identified in Section 3.5.3.2.5 are implemented.

3.5.3.2.3 Alternative 3 (No Action Alternative)

Alternative 3 (No Action Alternative) is the status quo. As such, the various organizations would continue to realign their unit personnel using their own internal processes and not through one managed by the Real Property and Space Utilization Offices. This alternative may result in inadequate coordination and appropriate environmental review of the destination facility and therefore impacts to unit personnel being realigned on the base could occur.

3.5.3.2.4 Direct/Indirect Effects

Potential direct effects related to minor facility rehabilitation could result from the exposure of unit personnel to asbestos, metals-based paint, and mold if BMPs are not followed. Other potential direct effects not directly related to minor facility rehabilitation could be from exposure to mercury associated with fluorescent and HID lamps, and PCBs from electrical equipment (to a much lesser extent). A potential indirect effect could be from hazardous waste and materials but is not expected to have any discernable overall effect because the facility does not have a history of hazardous waste storage or use, or has been cleaned using appropriate BMPs.

3.5.3.2.5 Mitigation Measures

3.5.3.2.5.1 Asbestos

Prior to realigning unit personnel into destination facilities, qualified personnel will evaluate the areas scheduled for occupancy for suspect ACM, regardless of construction date, per the Air Force and BMPs. An assessment of the suspect materials' condition will be made including a review of historic asbestos records, and a list of known and suspected ACMs (material, location, and quantity) will be prepared to notify facility occupants of the presence of asbestos and to comply with OSHA Hazard Communication requirements.

If the ACMs are intact, in good condition, and undisturbed, they typically would not pose an occupational safety and health risk. However, if the ACM is damaged, deteriorated, disturbed, or would require disturbance as part of the planned rehabilitation, then prior to any occupancy, the affected areas will have the needed abatement activities performed in accordance with the applicable federal, state, and local rules and regulations. Should asbestos abatement be required, refer to federal, state, local, and the Edwards AFB Asbestos Specifications, Section 02080, *Asbestos Management Plan and Asbestos Operating Plan* for all aspects of asbestos-related planning, programing, handling, and disposal operations (412 CE 2014).

Per the U.S. EPA's *Managing Asbestos in Place: A Building Owner's Guide to Operations and Maintenance Programs for Asbestos-Containing Materials*, "when ACM is properly managed, release of asbestos fibers into the air is minimized and the risk of asbestos-related disease can be reduced to a negligible level." (U.S. EPA 1990)

3.5.3.2.5.2 Mold

Prior to occupancy of a destination facility, the areas scheduled for occupancy will be evaluated for visible mold. Visual inspections for signs of leaks, water damage, stains, and records showing past problems with water will help determine the presence of molds, mildew, and fungal growth. A musty or mildew odor is another indicator of potential fungal growth. Asbestos and lead-based paint must also be considered when addressing mold-contaminated building materials.

The U.S. EPA's *Mold Remediation in Schools and Commercial Buildings* (2008) along with Air Force Bioenvironmental Engineering guidance (Headquarters Office of the Surgeon General 2005) and protocols (Ronyak *et al.* 2003) do not recommend sampling for mold, as a visual inspection is typically sufficient to identify a mold problem in a facility. Any mold inspection, remediation, or mitigation will utilize the above referenced guidance documents.

If fungal growth is identified where it can create a potential hazard for building occupants, then prior to occupancy, repairs will be made in accordance with Air Force and BMPs that require facilities be maintained in a safe and habitable manner.

3.5.3.2.5.3 Metals-Based Paints

Prior to realigning unit personnel into the destination facilities, qualified personnel will perform an environmental audit to evaluate if metals-based paint is present or a concern that there is a related hazard. The presence of metals-based paint at the destination building will be assessed based on its age, material condition, or the assumption that all paint contains some concentration of lead. Testing would be required if any paint or coatings are in disrepair or would be disturbed during rehabilitation. Of the three types of metals-based paint, lead-based paint is the most common.

If metals-based paint is present, appropriate actions must be taken to protect workers associated with minor facility rehabilitation and those personnel involved with realignment activities. Prior to commencing any action, it should be determined whether the metals-based paint requires removal or can be left in place during minor rehabilitation. The following rules should be consulted as part of the evaluation and planning process:

a. Title 8 CCR, Section 1532, *Cal/OSHA Lead in Construction Standard*.

b. Title 8 CCR, Section 5198, *Cal/OSHA General Industry Standards, Lead*.

c. 29 CFR 1910.1025, *OSHA General Industry Standards, Lead*.

d. 29 CFR 1926.62, *OSHA Lead in Construction Standard*.

e. 8 CCR, Title 17, Division 1, Chapter 8, *Accreditation, Certification, and Work Practices for Lead-Based Paint and Lead Hazards*.

f. Edwards AFB Lead in Paint Specifications, Section 02090.

g. Edwards AFB Lead Management Plan.

If the results of the evaluation indicate that the metals-based paint is not a hazard, no additional action would be necessary. Should the areas with the metals-based paint require removal or disturbance for any reason (deterioration, damage, full removal, repainting preparation, etc.), the remediation would be performed in accordance with all applicable federal, state, and local regulations, and be completed and restored to a habitable space prior to occupancy.

3.5.3.2.5.4 PCBs

While there are no known federally regulated PCB articles on base, it is possible that older electrical systems still containing PCBs were not identified or addressed at some facilities. Typically, such electrical equipment would be subject to routine operation and maintenance activities. When disturbing suspect PCB items, adequate due-diligence evaluation is required by U.S. EPA regulations (40 CFR 761) and BMPs to eliminate the possible exposure to these substances. When required, proper handling and disposal should be completed in accordance with the following:

a. Edwards AFB *Hazardous Waste Management Plan*.

b. 22 CCR 66262, *Standards Applicable to Generators of Hazardous Waste*.

c. 22 CCR Division 4.5, Chapters 10-43, *Environmental Health Standards for the Management of Hazardous Waste*.

d. 40 CFR 260-299, regarding U.S. EPA regulations pertaining to general hazardous waste management system.

e. 40 CFR 761, *Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions.*

3.5.3.2.5.5 Universal Waste

Fluorescent and HID lamps contain small amounts of mercury and other regulated metals and must be handled as universal waste. Consequently, these lamps cannot be placed into ordinary trash bins or municipal landfills. Intentionally breaking lamps is prohibited as it creates a hazardous waste. Normal operational and maintenance activities at the destination facility will generate these lamps as part of the normal duty cycle. When these lamps are replaced, they must be handled and disposed/recycled properly in accordance with federal, state, and base requirements in accordance with *Standards for Universal Waste Management* (40 CFR 273 and 22 CCR 66273 *et seq.*).

3.6 Cumulative Impacts

The Council on Environmental Quality's regulations to implement NEPA requires the assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "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 what agency (federal or non-federal) or person undertakes such other actions" (40 CFR §1508.7). Cumulative impacts are addressed for all of the alternatives considered.

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis. Thus the cumulative impacts of an action can be viewed as the total effects on a resource. The following summarizes the cumulative impacts for the Alternatives 1 and 2 in each resource area.

3.6.1 Air Quality

Minor pollutant emissions from the Alternatives 1 and 2 and other foreseeable projects are unavoidable. These include emissions from vehicles used in the realignment of unit personnel, chemicals and techniques used in remodeling efforts, and changes in heating/cooling utilities which represent the primary contributor to GHG emissions. These emission levels, which do not represent any significant increase to current base-wide emissions, when combined with those from other foreseeable projects would comprise a minimal proportion of baseline emissions.

Compliance with all *Clean Air Act* Title V hazardous air pollutant requirements, or any other more stringent state or local requirements would be required for all alternatives and other projects. In addition, air emissions from future projects would be evaluated on a project-by-project basis to ensure anticipated emissions meet regulatory requirements. Consequently, significant cumulative impacts to air quality would not occur.

3.6.2 Biological Resources

Cumulative effects to desert tortoise, birds and other wildlife and sensitive species are not likely to occur because large portions of the base, where Alternatives 1 and 2 are most likely to occur, contain large areas of pavement and buildings (facilities). Implementation of the minimization measures listed in this document would be required, ensuring that no cumulative effects to the desert tortoise, birds and other wildlife and sensitive species would result. The Proposed Action, as well as other foreseeable projects located outside of these areas, would be evaluated on a case-by-case basis regarding desert tortoise, bird and other wildlife and sensitive species impacts, with appropriate USFWS coordination. Therefore, no cumulative effects to the desert tortoise and their habitat are anticipated.

3.6.3 Cultural Resources

The Proposed Action and other foreseeable project activities that may affect cultural resources include the modification of existing facilities. No adverse cumulative impact has been identified. Compliance with the listed mitigation measures in Section 3.3 is required, and would reduce potential impacts to cultural resources to insignificant levels.

3.6.4 Noise and Vibration

Unavoidable impacts arising from Alternatives 1 and 2 and other foreseeable projects would include exposure of workers and realignment personnel to short-term minor increases in noise and vibration during realignment activities. Increased exposure of personnel would also result from the realignment activities associated with remodeling, but would be expected to minor and of temporary duration. However, a routine and recurring realignment of unit personnel under the Alternatives 1 and 2 would not significantly increase the number of people, vehicles, or aircraft flights on the base. The long-term cumulative impacts of noise and vibration associated with the Alternatives 1 and 2 would be negligible to minor provided the appropriate hearing safety procedures by unit personnel are followed. Therefore, cumulative effects to personnel with respect to noise and vibration arising from the Alternatives 1 and 2 and other foreseeable projects are not anticipated.

3.6.5 Occupational Safety and Health

The appropriate use of BMPs should eliminate any expected exposure for realigned unit personnel under Alternatives 1 and 2 (including exposure to VOC from off-gassing of building materials, asbestos, mold, metals-based paints, PCBs, universal waste and hazardous materials). Any potential impacts are minimized to below thresholds of significance. All projects would be required to comply with the numerous Air Force, federal, state and local regulations and standards established to ensure the protection of workers and personnel from these potential health hazards, as specifically identified in this document.

3.6.6 Unavoidable Adverse Impacts

Unavoidable adverse impacts include those impacts that are negative, occurring regardless of any identified minimization measures. There are no identified unavoidable adverse impacts from Alternatives 1 or 2.

3.6.7 Short- and Long-Term Impacts

There were no short- or long-term impacts identified. The realignment of unit personnel will be limited to the built-up area of the base and will not result in any on- or off-base major renovation or new construction. Any facility rehabilitation will be limited to repairing minor wear and tear and implementing BMPs. Unit realignments and associated activities will not change the environmental conditions in or around the facilities, result in new wastestreams, or increase the demands on existing utilities. There are no expected increases in impervious surfaces. Furthermore, they are not expected to change the number of base personnel nor will they modify any activities (e.g. transportation related) that already occur.

3.6.8 Irreversible and Irretrievable Commitments of Resources

There is no irreversible or irretrievable commitment of resources associated with the Proposed Action or either alternative.

4.0 REFERENCES

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5.0 PERSONS AND AGENCIES CONTACTED

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APPENDIX A

DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC COMMENT EFFORTS

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DRAFT ENVIRONMENTAL ASSESSMENT PUBLIC COMMENT EFFORTS

1.0 Document Availability

The Adobe Acrobat™ portable document format (PDF) file of the draft *Environmental Assessment for the Routine and Recurring Realignment Of Units and Personnel at Edwards Air Force Base, California* was uploaded to www.edwards.af.mil on 13 August 2014. Once it was loaded into the content management program that hosts Edwards.af.mil (Air Force Public Information Management System [AFPIMS]), it was available to anyone with a web address for the file.

The public comment period officially started on 15 August 2014.

The public could comment through e-mail or postal mail.

The Finding of No Significant Impact (FONSI) was signed by the base Civil Engineer on 19 September 2014.

2.0 Publicity

The Air Force made the following efforts to publicize the availability of the draft document for public comments:

Staff posted the text from the public notice (Figure A-1) and a link to the document on the Edwards Air Force Base Environmental Management Facebook Page on 13 August 2014 (Figure A-2). Facebook reports the post reached 39 people.

A public notice (Figure A-1) ran in the *Desert Wings* (base newspaper) on 15 August 2014.

3.0 Results

Jet Fabara from 412th Test Wing Public Affairs reported that the file on Edwards.af.mil had 52 page visits and 97 pageviews from 13 August through 12 September 2014.

Per Gary Hatch 412th Test Wing Public Affairs (412 TW/PA), he received no comments through either his e-mail account nor the 412tw.pae@us.af.mil mail address.

August 15, 2014 Desert Wings 9

Voting now open for American Airman Video Contest

Voting for the 2014 American Airman Video Contest is now open and runs until Aug. 22 at 3 p.m., CDT.

The contest launched July 1 for all total force Airmen to showcase their Air Force stories in short selfie videos.

"Every Airman has a story — and smartphone technology now allows those Airmen to share those stories with a wider audience than ever before," said Air Force Chief of Staff Gen. Mark A. Welsh III at the start of the contest.

The finalist videos from Air Force major commands and agencies are now available for public voting on the Air Force's YouTube channel at http://www.youtube.com/user/AFBlueTube. Voters can "like" their favorite videos, and the video with the most "likes" by Aug. 22 at 3 p.m. CDT will win.

The winning video will be featured in a special presentation by Welsh during the Air Force Association's Air and Space Conference and Technology Exposition in September in Washington D.C.

For more information about the contest, visit http://airforcelive.dodlive.mil/contest.

"Our Airmen are an amazing communication resource," Welsh said. "No one tells the Air Force story like they do."

2015 AFA Aerospace Award nominees sought

by Janis El Shabazz
JB San Antonio-Randolph, Texas

Air Force officials are soliciting nominations for the 2015 Air Force Association Aerospace Awards for outstanding contributions to national defense in a variety of fields.

Available awards include the following:

Theodore Von Karman Award – for contributions in the field of science and engineering relating to aerospace activity by an Air Force military member, Air Force civilian, unit or group of individuals.

David C. Schilling Award – for contributions in the field of flight, in the atmosphere or space, by an Air Force military member, Air Force civilian, unit or group of individuals.

Gill Robb Wilson Award – for contributions in the field of arts and letters covering a wide range of activities, such as writing, speaking, media relations, sculpting or painting, by an Air Force military member, Air Force civilian, unit or group of individuals.

Citation of Honor – for contributions significantly exceeding standard performance by an Air Force military member, Air Force civilian, unit or group of individuals.

Each major command, field operating agency and direct reporting unit may nominate one person for each award. Previous award winners may not be-nominated for the same category. Organizations and base-level personnel must contact their MAJCOM, FOA or DRU for applicable suspense dates and additional information regarding nomination procedures.

Completed nomination packages are due to the Air Force Personnel Center Recognition Programs office by Jan. 7, 2015.

Paid Public Announcement

Notice of Availability

Environmental Assessment for the Routine and Recurring Realignment of Units and Personnel

The United States Air Force is seeking public comment on an environmental assessment evaluating potential environmental effects associated with routine and recurring realignments of unit personnel at Edwards Air Force Base, Calif. Information in this EA will support a series of future realignment decisions, which will ultimately be made based on mission requirements and resource efficiencies. This environmental assessment evaluates the potential environmental effects of the proposed action for realigning unit personnel into facilities that do not require any rehabilitation. A second alternative covers realignments into facilities requiring minor rehabilitation activities.

Under the **Proposed Action (Alternative 1),** the realignment of unit personnel would occur at one or more existing destination facilities on the base that do not require any rehabilitation. All routine and recurring realignment of unit personnel on the base would be from currently occupied facilities on the base. This represents the movement of unit personnel without any other actions necessary. None of these actions would result in the changing of the land use of the existing destination facilities. Alternative 1 allows the use of this EA for the immediate routine and recurring realignment of unit personnel.

Under **Alternative 2,** the realignment of unit personnel would occur at one or more existing destination facilities on the base that require some level of rehabilitation. Minor rehabilitation includes replacing worn carpeting, painting, replacing worn window and door hardware, and minor electrical upgrades for energy efficiency or worn outlet replacement. This alternative includes addressing minor environmental issues with best management practices (BMPs) to include abatement. Alternative 2 allows the use of this EA for the routine and recurring realignment of unit personnel once the minor rehabilitation of the destination facilities and implementation of BMPs have been completed.

The **No-Action Alternative (Alternative 3)** *represents maintaining the status quo of operations for realigning unit personnel and individual assignments to various facilities on base. Consequences of the No Action Alternative are a potential redundant expenditure of time and effort exerted to repeatedly analyze similar issues and realignments carried out without coordination and appropriate review.*

This assessment is part of the Environmental Impact Analysis Process that identifies potential environmental impacts on the physical, natural and human environment associated with the implementation of this proposed project. The resulting analyses and documentation are intended to comply with 32 Code of Federal Regulations Part 989, *Environmental Impact Analysis Process*; and the provisions of the 1969 *National Environmental Policy Act* and implementing regulations.

Copies of the environmental assessment are available for public review on the Edwards AFB website at *http://www.edwards.af.mil/shared/media/document/AFD-140811-019.pdf.* The document is also available at the Edwards AFB Library at 5 W. Yeager Blvd., Edwards, Calif.

The deadline for public comments is August 30, 2014.

Mail comments to:
412th Test Wing Public Affairs
Attn: Gary Hatch
305 E. Popson Ave.
Edwards AFB CA 93524

Comments may also be faxed to (661) 277-2732 or e-mailed to *412tw.pae@edwards.af.mil.* If you have questions, you may call Hatch at (661) 277-8707.

412th Civil Engineer Directorate
Environmental Management Division
Edwards Air Force Base, CA 93524-8060

Figure A-1 Public Notice from the *Desert Wings*

Figure A-2 Facebook Post

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