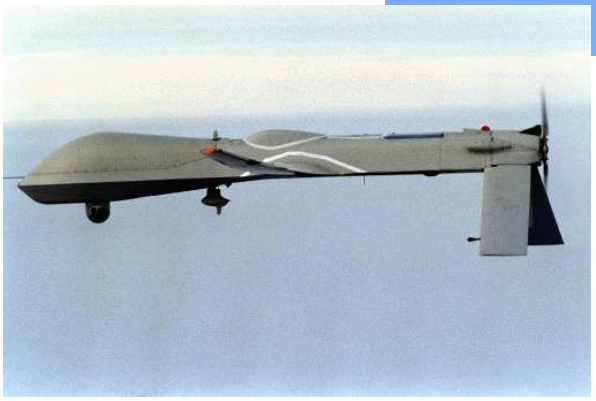
Final

Nellis and Creech Air Force Bases Capital Improvements Program Environmental Assessment



Prepared for
Headquarters Air Combat Command and Nellis AFB, NV

September 2008

ACRONYMS AND ABBREVIATIONS

99 ABW	99th Air Base Wing
ACC	Air Combat Command
ACES	Automated Civil Engineering System
ACM	Asbestos Containing Material
ADP	Area Development Plan
AFB	Air Force Base
AFOSH	Air Force Occupational Safety and Health
AGE	Aerospace Ground Equipment
AICUZ	Air Installation Compatible Use Zone
ATG	Adversary Tactics Group
BAQ	Bureau of Air Quality
BRAC	Base Realignment and Closure
BTS	Bureau of Transportation Statistics
CAA	Clean Air Act
CAS	Central Accumulation Site
CCHD	Clark County Health Department
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CIP	Capital Improvements Program
CCDAQEM	Clark County Department of Air Quality and Environmental Management
CO	Carbon Monoxide
COCM	Contractor-Owned-Contractor-Managed
CWA	Clean Water Act
CZ	Clear Zone
dB	Decibel
dBA	A-Weighted Decibel
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DOE	Department of Energy
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
ECIP	Energy Conservation Improvement Program
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
ECIP	Energy Conservation Improvement Program
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ESA	Endangered Species Act
ExpeRT	Expeditionary Readiness Training
FDE	Force Development Evaluation
FONSI	Finding of No Significant Impact
FY	Fiscal Year
gpd	Gallons Per Day
gpy	Gallons Per Year
HAZMAT	Hazardous Materials
HAZMART	Hazardous Materials Pharmacy
HQ	Headquarters
HVAC	heating, ventilation, and air conditioning
I-15	Interstate 15
IAP	Initial Accumulation Points
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
JSF	Joint Strike Fighter
kV	Kilovolt
LBP	Lead Based Paint
LEED	Leadership in Energy & Environmental Design
LF	Linear Feet
LOLA	Live Ordnance Loading Areas
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAFB	Nellis Air Force Base
NAC	Nevada Administrative Code
NDEP	Nevada Department of Environmental Protection
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSBDC	Nevada Small Business Development Center
NSOE	Nevada State Office of Energy
NTS	Nevada Test Site
NTTR	Nevada Test and Training Range
O_3	Ozone
Pb	Lead
$PM_{2.5}$	Particulate Matter Less than 2.5 Microns
PM_{10}	Particulate Matter Less than 10 Microns
PSD	Prevention of Significant Deterioration
RED HORSE	Rapid Engineer Deployable, Heavy Operations Repair Squadron Engineer
RCRA	Resource Conservation and Recovery Act
RS	Reconnaissance Squadron
SDCC	Southern Desert Correctional Center
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SNWA	Southern Nevada Water Authority
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxide
SPCC	Spill Prevention, Control, and Countermeasures
SWPPP	Stormwater Pollution Prevention Plan
UAS	Unmanned Aerial System
UFC	Unified Facilities Criteria
UNLV	University of Nevada Las Vegas
U.S.	United States
USACE	United States Army Corps of Engineers
USAFWC	U.S. Air Force Warfare Center
USCB	United States Census Bureau
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
VOC	Volatile Organic Compound
WINDO	Wing Infrastructure and Development Outlook
WS	Weapons School
WSA	Weapons Storage Area

FINDING OF NO SIGNIFICANT IMPACT

1.0 NAME OF THE PROPOSED ACTION

Nellis and Creech Air Force Bases Capital Improvements Program Environmental Assessment

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The United States Air Force (Air Force) proposes to update the 2002 Nellis Air Force Base (AFB) and Creech AFB General Plans including the Capital Improvements Program (CIP) and Area Development Plans (ADP). The Nellis and Creech AFBs General Plans were recently completed, but due to mission changes, changes to the 2002 General Plans and associated CIP have been initiated. The mission changes at Nellis and Creech AFBs are substantive enough to require update of the CIP projects list and development of ADPs to logically locate new improvements into areas of similar functions. An updated General Plan would also highlight outdated facilities that demand considerable energy. Replacing them with new energy efficient, updated facilities would yield considerable savings for the bases and conform to Department of Defense guidelines for Leadership in Energy & Environmental Design (LEED) facilities.

The Air Force also analyzed the no-action alternative. Baseline conditions as reflected by the no-action alternative provide a comparison to the environmental impacts of the proposed action.

3.0 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

The Environmental Assessment (EA) provides an analysis of the potential environmental consequences resulting from implementing the proposed action. Ten resource categories were thoroughly analyzed to identify potential impacts. According to the analysis in this EA, implementation of the proposed action would not result in significant impacts to any resource category or significantly affect existing conditions at Nellis or Creech AFBs. The following summarizes and highlights the results of the analysis by resource categories that initial evaluation indicated could be effected by the proposed action.

Land Use. ADPs developed for the General Plan update should enhance land use on Nellis and Creech AFBs by clustering compatible facilities closer to each other. New facilities would be sited to ensure compatibility with land uses in accordance with this update to the General Plan.

Infrastructure. A slight increase in electrical use would be anticipated as a result of the proposed infrastructure construction, repair and demolition projects; however, new facility construction would employ energy conserving equipment to the maximum extent possible. Potable water demand is not expected to increase because many of the projects include water saving aspects. Although a slight increase in wastewater flows could occur, no adverse impacts to wastewater treatment are anticipated. No significant impacts to utilities or infrastructure would result if the proposed action were implemented. Increases in construction traffic on and surrounding Nellis AFB and Creech AFB would be minor and temporary, comparable to current levels. Nellis AFB and Creech AFB roadways would be able to accommodate the anticipated traffic levels, although temporarily increased levels may create limited congestion during peak traffic hours.

Socioeconomics. Under the proposed capital improvements projects, no increase in permanently-based personnel would occur at Nellis and Creech AFBs in Clark County. The proposed action would not adversely affect housing, schools, or utilities in the Las Vegas area. Therefore, no significant impacts are anticipated if the proposed action would be implemented.

Biological Resources. Overall, there would be no adverse impact to vegetation, wildlife, wetlands, or special-status species from implementation of the proposed action. None of the ADPs intersect known desert tortoise habitat or Las Vegas Bearpoppy habitat, and therefore, these species would not be affected. However, should a project arise with the potential to affect desert tortoise, consultation with the U.S. Fish and Wildlife Service would be initiated. Consultation with the U.S. Army Corps of Engineers would be conducted and a Section 404 permit obtained for if required any Capital Improvements projects.

Air Quality. Air quality would be affected during facility construction period; however, the emissions would not pose an adverse impact. Maximum construction emissions of any criteria pollutant would not exceed *de minimus* thresholds. The maximum regional contribution for criteria pollutants would be negligible, ranging from 0.01 to 0.1 percent.

4.0 CONCLUSION

On the basis of the findings of the EA, no significant impact to human health or the natural environment would be expected from implementation of the proposed action or no-action alternative. Therefore, issuance of a Finding of No Significant Impact (FONSI) is warranted, and preparation of an Environmental Impact Statement, pursuant to the National Environmental Policy Act of 1969 (Public Law 91-190) is not required for this action.

Kenneth Keskel

KENNETH KESKEL
Colonel, USAF
Vice Commander

23 Sep 08

Date

NELLIS AND CREECH AIR FORCE BASES CAPITAL IMPROVEMENTS PROGRAM ENVIRONMENTAL ASSESSMENT

Responsible Agency: United States Air Force (Air Force), Nellis Air Force Base

Proposed Action: The Air Force proposes to update the 2002 General Plans of Nellis and Creech Air Force Bases (AFB), including the Capital Improvements Program (CIP) and Area Development Plans (ADP). The General Plan update would require construction of new facilities and demolition of outdated facilities at Nellis AFB and Creech AFB, Nevada.

Written comments and inquiries regarding this document should be directed to:

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In addition, the document can be viewed on and downloaded from the World Wide Web at www.nellis.af.mil/library/environment.asp

Designation: Draft Environmental Assessment (EA)

Abstract: The Air Force proposes to update the 2002 General Plans for Nellis and Creech AFBs. Recent substantive changes to the missions at Nellis and Creech AFBs have rendered major portions of the 2002 General Plans obsolete, including the CIP. An updated General Plan for each base would allow Commanders to implement plans that locate new facilities into areas of similar functions. Because CIP plans are outdated as well, ADPs would be formulated to further site new facilities into logical mission areas to increase operational readiness. Proposed improvements would comply with the Department of Defense's direction to design and build Leadership in Energy & Environmental Design (LEED) facilities and decrease energy consumption on military installations. The proposed action would include demolition, repair, maintenance, installation, and construction of numerous new facilities for equipment proposed for Nellis and Creech AFBs.

This Draft EA analyzes the potential environmental consequences of the proposed General Plan update including CIP and ADPs at Nellis and Creech AFBs and includes analysis of the no-action alternative.

Final

Nellis and Creech Air Force Bases Capital Improvements Program Environmental Assessment

United States Air Force
Air Combat Command

September 2008

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This Environmental Assessment (EA) analyzes the potential environmental consequences resulting from a proposal to update the Nellis and Creech Air Force Bases (AFBs) General Plans. Under this proposal, Nellis and Creech AFBs would update their 2002 General Plans to accommodate recent substantive mission changes, including beddown of 18 F-15C aircraft and 5 F-16 aircraft from the 2005 Base Realignment and Closure (BRAC) Commission decision, and the proposed beddown of the new F-35 Joint Strike Fighter (JSF). These actions also alter the Capital Improvements Program (CIP) or Area Development Plans (ADP) of each base, and require an update to those planned actions as well as the General Plans. This EA has been prepared by Headquarters Air Combat Command (ACC) in accordance with the requirements of the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and Air Force Environmental Impact Analysis Process, as promulgated in Title 32 of the Code of Federal Regulations (CFR) Part 989.

PURPOSE AND NEED FOR THE ACTION

The purpose of the proposed action is to update the 2002 Nellis and Creech AFBs General Plans to account for significant mission changes at both bases. An updated General Plan is desired to allow Commanders to implement plans that locate new facilities into areas of similar functions. In conjunction, because CIP plans are outdated as well, ADPs would be formulated to further site new facilities into logical mission areas to increase operational readiness.

PROPOSED ACTION AND NO-ACTION ALTERNATIVE

Nellis AFB proposes to initiate updates to the 2002 General Plan that would include construction, demolition, renovation, and maintenance activities at Nellis AFB and Creech AFB. By taking a comprehensive approach to planning and implementing facilities and infrastructure improvements over a multi-year period, Nellis and Creech AFBs would ensure that limited funds, energy conservation, and operational goals are maximized. Proposed improvements would comply with the Department of Defense's (DoD) direction to design and build Leadership in Energy & Environmental Design (LEED) facilities and decrease energy consumption on military installations.

In addition to the proposed action, the Air Force analyzed the no-action alternative.

MITIGATION MEASURES

In accordance with 32 CFR 989.22, the Air Force must indicate if any mitigation measures would be needed to implement the proposed action. However, no mitigation measures would be needed to arrive at

a finding of no significant impact (FONSI) if the proposed General Plan update action was selected for implementation at Nellis and Creech AFBs.

SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

This EA provides an analysis of the potential environmental consequences resulting from implementation of the proposed CIP update action and the no-action alternative. Ten resource categories were analyzed to identify potential impacts: land use and transportation; infrastructure; socioeconomics; cultural resources; biological resources; water resources; air quality; hazardous materials and waste; safety; and noise. According to the analysis in this EA, implementation of the proposed action or no-action alternative would result in no significant environmental impacts in any resource category. Implementing the proposed action would not significantly affect existing conditions at Nellis AFB or Creech AFB. The following Table ES-1 summarizes and highlights the results of the analysis by resource category.

Table ES-1. Comparison of Alternatives by Resource

Resource Category	***CIP Update***	***No-Action Alternative***
Land Use	• ADPs would ensure siting of compatible missions within appropriate land use categories and noise zones.	• Current land uses and transportation conditions would remain unchanged.
Infrastructure	• Slight increase of electrical use due to the proposed infrastructure construction, repair and demolition projects, however, use of energy efficient design and equipment would minimize impact. • No increase in personnel would occur and no increase in potable water use is anticipated. • Base roads and traffic would not be impacted since the proposed action has no increase in personnel.	• No change to existing infrastructure.
Socioeconomics	• Construction activity on Nellis and Creech AFBs would increase and support short-term beneficial impacts to the local community.	• No change to existing socioeconomic resources.
Cultural Resources	• Nellis and Creech AFBs have been inventoried and the proposed action would not impact any cultural resources. • All proposals for federal actions would be reviewed by the Nellis AFB Cultural Resources Manager.	• The effect on the environment would be unchanged relative to baseline.
Biological Resources	• No adverse impacts to vegetation, wetland or waters of the U.S., wildlife, or special-status species from implementing the proposed action at either base. • Consultation with the U.S. Army Corps of Engineers would be conducted and a Section 404 permit obtained, if required. • Consultation with the U.S. Fish and Wildlife Service (USFWS) for desert tortoise, Section 7, Endangered Species Act compliance, if required. • Construction is not planned in the Las Vegas bearpoppy habitat areas. However, consultation with the base biologist would be implemented prior to construction to assure there would be no impacts.	• No change to current baseline conditions on Nellis and Creech AFBs.

Table ES-1. Comparison of Alternatives by Resource (con't)		
Resource Category	***CIP Update***	***No-Action Alternative***
Water and Soil Resources	• Impacts would be minimized by use of best management practices required by the base and permits. • Overall water use would not increase at Nellis or Creech AFBs as the proposed action is not associated with any personnel increase. • Many projects include upgrades to the water system and/or use water saving devices and landscaping to conserve water.	• Ongoing activities at Nellis and Creech AFBs would continue at baseline levels; no additional effects on water resources would occur.
Air Quality	• Emissions generated by construction, demolition, and paving would be localized and temporary. • Maximum emissions of any criteria pollutant would not exceed *de minimis* thresholds.	• No change to existing emissions.
Hazardous Materials and Waste	• Any new waste streams would be handled in accordance with current Nellis AFB hazardous materials and waste plans. • Proposed facilities affected by the location of an active Environmental Restoration Program (ERP) site would seek the required ERP waiver from HQ ACC at the planning phase.	• Ongoing activities at Nellis and Creech AFBs would continue at baseline levels.
Safety	• Established safety guidelines and procedures which would continue to be observed. • No incompatible projects would occur within safety zones.	• No change to current practices would occur.
Noise	• Construction noise impacts would be localized within the installations, and of short-term duration. • No long-term increase of noise is anticipated.	• Baseline conditions would continue within current contours.

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CHAPTER 1

INTRODUCTION

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The General Plans for Nellis Air Force Base (AFB) and Creech AFB assess each base's ability to support future development. General Plans describe existing conditions, opportunities and constraints, short- and long-term projects, existing and future land uses, and the Capital Improvements Program (CIP) for the installation. Using this model, the Air Force completed General Plans for each base in 2002. However, planned major mission changes such as the proposed F-35 Joint Strike Fighter (JSF) beddown and the 2005 Base realignment and Closure (BRAC) actions required changes to the 2002 General Plans. Updated General Plans (2007) provide much more current information relating to the mission changes. The CIP, which describes discrete projects, such as major utility upgrades or construction of individual facilities, also reflects planned changes. In the case of Nellis and Creech AFBs, mission changes are substantial enough to require the development of Area Development Plans (ADPs) that logically locate new improvements into areas with similar functions. Because of the planned missions, Nellis AFB and Creech AFB propose to update and implement their general plans by issuing ADPs to formalize the siting of future facilities to ensure compatibility and efficiency.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Sections 1500-1508), and 32 CFR Part 989, *et seq*., Air Force Environmental Impact Analysis Process (EIAP), the 99th Air Base Wing (99 ABW) has prepared this Environmental Assessment (EA) that considers the potential consequences to the human health and the natural environment. This EA examines the consequences of implementing the proposed updates and implementation of the Nellis and Creech AFBs General Plans and includes analysis of the no-action alternative.

1.2 BACKGROUND

Nellis and Creech AFBs are under the command of the U.S. Air Warfare Center (USAFWC). Nellis AFB is home to large training exercises known as Red Flags, and also home for tactical testing under the 53rd Wing. Creech AFB is home to the Unmanned Aerial Systems, Predator (MQ-1) and the Reaper (MQ-9). Geographically, the bases are separated by about 45 miles.

Location of the Proposed Action

Nellis AFB

The base, located in the southeast corner of the state of Nevada, lies adjacent to the city of North Las Vegas (Figure 1-1). Nellis AFB is the center for Air Combat Command (ACC) training and testing activities at the Nevada Test and Training Range (NTTR), with the base providing logistical and organizational support for NTTR, aircraft training, and personnel. Situated in Clark County, the base lies 5 miles northeast of the City of Las Vegas. The unincorporated town of Sunrise Manor and undeveloped portions of Clark County surround the majority of the base, although open space dominates to the northeast. Covering 14,161 acres, the base contains three major functional areas (Figure 1-2). Area I, the Main Base, is located east of United States (U.S.) Highway 93 (US-93) and includes the airfield and most base functions. Northeast of the main base lies Area II, which houses the Red Horse Squadrons and the Weapons Storage Area (WSA). Area III, located northwest of the Main Base, includes a number of facilities such as a hospital, storage, and housing. The areas north and east of Nellis AFB are primarily open range and mountains, with urban uses along US-93. Directly southwest of the base, commercial and residential land uses mixed with some industrial activities, dominate the area.

Creech AFB

Creech AFB is located near the town of Indian Springs, Nevada; approximately 45 miles northwest of Las Vegas, along US-95 (refer to Figure 1-1). Air Force facilities are found on both the north and south side of the interstate, with the majority of assets located to the north (e.g., runways; hangars; and maintenance, administrative, and operational facilities) (Figure 1-3). The 11th, 15th and 17th Reconnaissance Squadrons (RS) primary mission is to provide theater commanders with deployable long-range, long-endurance, real-time aerial reconnaissance, surveillance, target acquisition and attack flying the Unmanned Aerial System (UAS) aircraft, MQ-1 Predator and the MQ-9 Reaper. All Predator squadrons operate out of Creech AFB and the Predator Operations Center-Nellis. The 30th RS conducts classified projects integrating Predator into warfighting capability. The MQ-9 Reaper, a newer, larger version of the Predator, is beginning to be delivered to Creech AFB. The Reaper is able to fly at higher altitudes, carry more weapons, and has a greater range than the Predators. Another one of Creech AFB's primary missions is to provide an emergency divert airfield for military aircraft training in NTTR and support the flying operations of the 57th Wing, other Air Force units, Navy, Marine Corps and allied air forces. Creech AFB is also the primary training site for the United States Air Force Thunderbirds flying F-16s. The 99th Security Forces Group, Ground Combat Training Squadron is also based at Creech AFB.

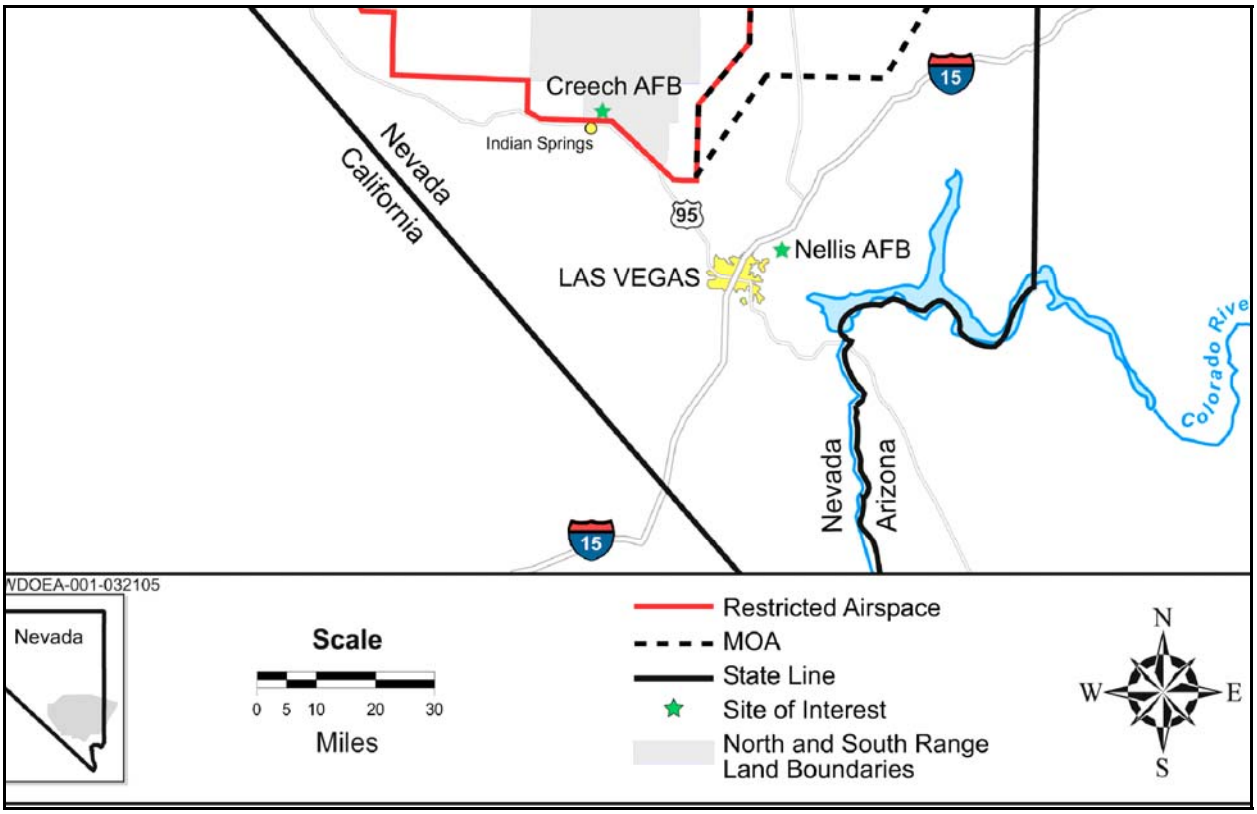


Figure 1-1. Nellis AFB and Creech AFB Location Map

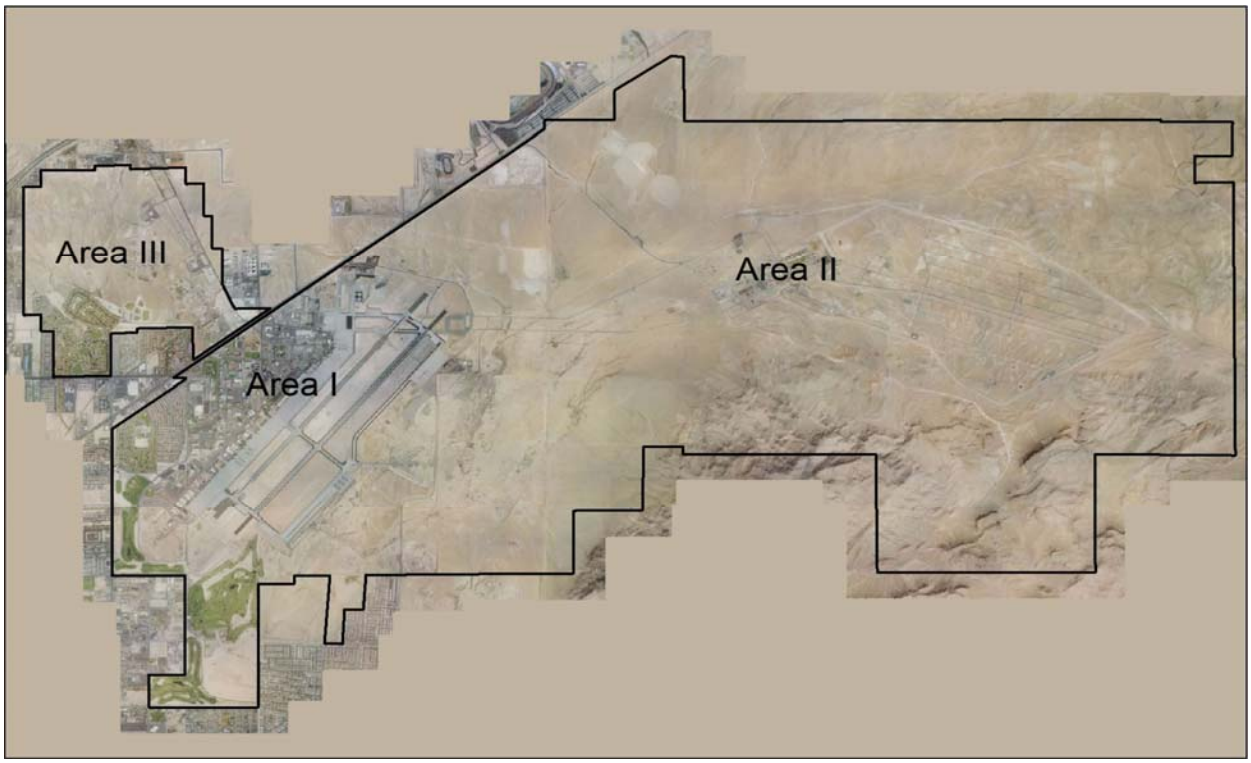


Figure 1-2. Nellis AFB Functional Areas Map

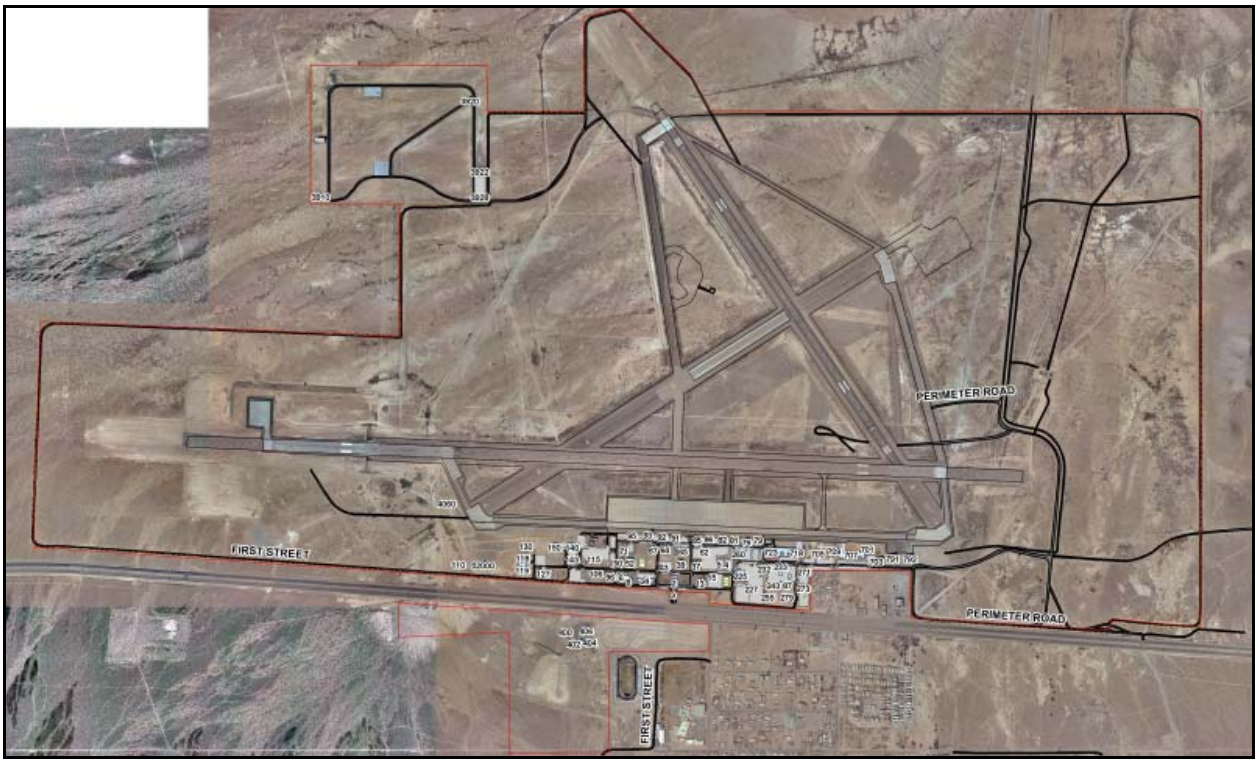


Figure 1-3. Map of Creech AFB

General Planning

Air Force Installation General Plans are authorized by Air Force Instruction 32-7062 to serve two purposes. First, they form a single, integrated, authoritative reference for existing and future installation development. Second, they provide a high level summary of environmental, land use, transportation, and infrastructure conditions for each installation.

An Air Force General Plan synopsizes information from four component plans: composite constraints and opportunities; infrastructure; land use and transportation; and capital improvements program. Composite constraints and opportunities outline areas that limit development opportunities and identify those areas with the most potential for base development. Infrastructure reports the existing conditions of utilities and other essential services that allow for development. Land use and transportation describe the existing and future land uses and transportation network that can support development. Capital improvements program identifies the improvements required to meet mission needs. The following provides an expanded description of each component plan.

Composite constraints and opportunities describe resources such as Environmental Restoration Sites; threatened, endangered, and special-status species; hazardous waste sites; and wetlands and floodplains. Airfield criteria are another important aspect of this section. There are limits on building heights around the airfield for flight safety reasons. Explosive safety arcs are shown around areas where munitions are

stored and handled. All of these criteria are mapped and the result shows areas where certain limitations occur, as well as areas that are free of constraints.

Infrastructure consolidates all utility delivery systems and infrastructure into one source to provide a concise overview of the condition of these systems throughout the installation. Information includes capacity, system details, age, and condition of facilities. This overview provides decision makers with the information necessary to clearly comprehend these critical engineering systems and the capability to support development.

Land use and transportation analyzes and identifies the functional relationship of all activities that occur on the installation. This plan documents the relationship between activities and defines their importance as it relates to proximity. It also analyzes the transportation networks, both on and off the installation and provides recommendations on traffic movement and road development to improve efficiency. Finally, it provides recommendations for future land use and transportation. In the case of Nellis and Creech AFBs, the changes to land use warrant development of ADPs as incorporated in the CIP.

The CIP examines facility conditions, plans for future activities such as construction, repair, maintenance, demolition, and makes recommendations for architectural compatibility and landscaping. The CIP and the aforementioned land use and transportation section refer to the ADPs for further information regarding specific land use changes and facilities for the ADP areas. Small ADPs can be included in the CIP component plan, but in the case of Nellis AFB, an appendix, called the *Future Land Use and Facility Siting Guide* was developed. All ADPs are fully described in Appendix B.

1.3 PURPOSE AND NEED FOR ACTION

The purpose of the updates to the Nellis and Creech AFBs General Plans and the associated component plans is to reflect current conditions and make recommendations for improvements to the two bases. Along with this EA, the General Plans would allow the base to implement these recommendations for improvements.

The 2002 General Plans for Nellis and Creech AFBs started from a vision statement by Nellis AFB commanders in 2001 defining the direction for future development and the philosophy driving the direction. This vision was expressed as:

> Maintain, revitalize, and expand facilities to support 21st Century Air Force missions that play a predominant role in protecting and preserving the national interests of the United States of America. It is imperative that we recognize our goals and objectives and develop built-in flexibility to support changing requirements (NAFB 2002a).

By using this vision, and incorporating information from component plans, such as the Composite Constraints and Opportunities, the Capital Improvements Program and more detailed special studies, such as ADPs, the General Plan provides a concise reference for the Installation Commander to make and approve development decisions. It also is a tool for installation planners to make siting decisions that are compatible with this vision.

One of the key aspects of general planning is the built-in capability of revising as mission needs change while maintaining the overall vision. In the case of Nellis AFB, in 2002 the F-35 JSF was just in its infancy, and the latest round of BRAC was yet to occur. These changes at Nellis AFB, along with the build-up of the UAS mission at Creech AFB, maintain the overall vision, but changes to the plans are necessary to follow a logical development path for these new missions. The flexibility incorporated into the Nellis AFB General Plan was to include special studies, or ADPs, to further define specific areas of the base for similar needs.

The proposed updates to the Nellis and Creech AFBs general plans are needed to provide the installations and unit commanders with up-to-date development possibilities for the bases and to assist the base planners in compliance with the overall vision of the respective missions of Nellis and Creech AFBs. It is also an opportunity to delineate portions of the bases where new mission and facilities could be placed within compatible use areas. Additionally, the Capital Improvements Program assigns projects that not only meet this need but also provide the necessary repairs and maintenance to keep the installations running efficiently.

Some of the key changes to the existing conditions at Nellis AFB are privatization of military family housing and the natural gas systems and other utility systems. New missions that are expected include the build-up of the Aggressor Squadrons due to BRAC actions, the proposed beddown of the F-35 JSF at Nellis AFB, and the beddown of additional Predator aircraft at Creech AFB.

CHAPTER 2

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

The Air Force proposes to implement updates to the General Plan for Nellis and Creech AFBs. The updates include the ADPs, the CIP, and other infrastructure improvements all of which involve construction activities. The goal of this EA is to analyze the projects defined in these components of the General Plans and assess their potential impacts to the environment.

The following provides a description of the General Plan (2002), followed by a discussion of the planned section updates. The planned section updates represent the proposed action analyzed in this EA.

The body of the General Plan is comprised of five main chapters: Introduction; Plan Observations and Recommendations; Installation and Vicinity Profiles; Component Plans; and Plan Maintenance, Revision and Implementation. Appendices may be added to the General Plan to provide applicable special studies and other background information. The chapter sections include the following information:

- an introduction to the General Plan's content and structure, including goals and objectives of the plan;
- a discussion of significant base development issues and recommendations of how to address them;
- a descriptive overview of Nellis and Creech AFBs and the surrounding area;
- associated Component Plans, which include four main plans -- *Composite Constraints and Opportunities*; *Infrastructure*; *Land Use and Transportation*; and *CIP;* and
- an outline of the procedures, roles and responsibilities for maintaining, revising, and implementing the General Plan.

A more detailed discussion of the 2002 General Plan and the updates by chapter is provided in Appendix A.

In 2005 and 2006, changes to the General Plan were initiated and include:

1. New information regarding the existing land uses, facilities, and infrastructure that have changed since the 2002 Nellis AFB General Plan (NAFB 2002a). These updates tend to be informational and generally will not receive analysis because NEPA was performed on these projects prior to implementation.
2. Electronic formatting of the General Plan and placing it on the web-based Air Force Portal. Formatting and making the plan accessible is not considered to have an impact to the environment and, therefore, will not be analyzed in the EA.
3. New component plans, particularly the Infrastructure and CIP aspects of the General Plan, which involve construction activities and could potentially impact the environment. These plans are analyzed in the EA.

4. New appendices, which include the *Future Land Use and Facility Siting Guide* and an ADP for Creech AFB. The *Future Land Use and Facility Siting Guide* outlines six ADPs for Nellis AFB. The ADPs are subsets of the CIP and comprise the bulk of that component plan. For this reason, this EA will devote a large portion of the analyses to the ADPs.

2.1 PROPOSED ACTION

Nellis AFB proposes to update the 2002 General Plan with proposed improvements that would include construction, demolition, renovation, and maintenance activities at Nellis AFB and Creech AFB. The proposed action is divided into two major categories, Capital Improvements Program project list and Area Development Plans. The CIP list compiles all of the projects which require expenditures relative to the base's physical plan. The ADPs describe the development of certain areas for logical growth relative to the functionality of the area. The infrastructure and land use and transportation improvements are interrelated to both the CIP and the ADPs and have been included in these sections and not discussed as a separate section of the document.

2.1.1 Capital Improvements Program

As stated previously, updates to the General Plan that would require analyses are the projects in the CIP. The updates to the CIP portion of the General Plan are derived from Automated Civil Engineering System (ACES). Most of the projects have been analyzed in previous Nellis AFB NEPA documents including the Nellis AFB *Wing Infrastructure Development Outlook (WINDO) Final Environmental Assessment* (NAFB 2006a); *Nellis AFB BRAC EA* (Air Force 2007); *F-35 Force Development and Evaluation EIS* (in progress); and the *Predator EA* (Air Force 2003a) and are not discussed further as part of this proposal, but will be included in cumulative impacts. The ACES list all of the proposed projects which have been identified as a bona fide need by the individual proponents of each action. These projects are reviewed by the Civil Engineering Facility Review Board and approved by the 99th Air Base Wing Commander based upon criteria including mission requirements, quality of life, degradation of existing facilities, and other factors. Funding for all of the projects to be completed in the next 5 years is not feasible because of the limited amount of funds available. This funding limitation is due to the war in Southwest Asia, competing funding requests from every other military installation, the recent BRAC requirements, new missions such as the F-22 and Unmanned Aerial Systems, and the proposed F-35 JSF beddown. As a result, only a small percentage of the projects can be funded within one fiscal year. Projects not funded are carried over to the following fiscal year; in fact, many projects are still on the list that date back to the early 1990's.

New construction, additions, remodels, demolition, maintenance, and repair comprise types of projects on the ACES list and are further broken down by type, such as facilities, utilities, roads, airfield,

administrative, recreation, and others. Table 2-1 identifies the improvement types of work, definitions and examples for improvements by the type of activity.

Table 2-1. Capital Improvements Identification by Activity Type

Activity	*Definition*	*Examples*
Construction	New construction or addition, expansion, and renovation to existing facilities. All new construction must meet energy savings requirements.	Includes construction of buildings, roads, mission operation facilities, pads, access roads and parking lots and landscaping
Repair/Replace	Repair and/or replace existing equipment and infrastructure	Repair equipment, parking lots, manhole covers, fences, sprinkler system, as well as fuel tanks; install exterior lighting, also includes replacing existing landscaping with xeriscape
Installation	Installation of equipment, signs, utilities etc. to enhance the functionality of existing infrastructure	Install equipment to maintain operational mission such as emergency power, check valves, heating and air conditioning units, force protection, under-wing foam system, and fire hydrants
Maintenance	Routine maintenance	Routine maintenance to landscaping, road/parking lot pavement, ramps, water tanks, and hangars
Demolish	Demolition of existing infrastructure	Demolish roads, aged dormitories, buildings, pads, etc., potentially not related to new construction
Environmental	Monitoring and/or remediation of environmental spill sites, or other contracted documents such as Remedial Action Plans, Spill Response Plans, and Permit Fees	Long-term monitoring or planned remediation of identified sites, plans and permits which do not have physical impacts

Table 2-2 identifies the infrastructure types existing on Nellis AFB and Creech AFB and the variety of activities that are accomplished on each infrastructure type. For example, airfield improvements could involve construction, repair, maintenance, demolition, and perhaps, environmental remediation activities.

Table 2-2. Capital Improvements Identification by Infrastructure Type		
Facility Type	***Definition***	***Examples***
Facilities	Building construction or additions. This could include new, modular, addition/remodel, or storage facilities.	Includes all of the difference classes of buildings; industrial, administrative, community service, etc. An example of a holding pad would be a munitions storage pad.
Airfield	Maintenance, installation, and repair of airfield pavements and airfield related equipment	Revetment, paint taxi lines, install runway shoulders, extend/repair flight line, maintain airfield pavement, and aircraft arresting systems
Utilities	Installation and repair	Repair and install communication, electrical, sewer, natural gas, and water lines, and water conservation projects
Roads	Installation, repair or maintenance of roads, sidewalks and parking lots	roads, parking lots, etc. this also includes signal lights, roundabouts, and deceleration lanes
Security	Installation, construction, repair or maintenance of Antiterrorism/Force Protection items designed to improve the security of the installation.	Fencing, security barricades, lighting, security cameras, and vehicle inspection areas. Vegetation clearing and perimeter roads could fall in this category
Fences/walls	Perimeter structures primary for force protection and/or aesthetics	Fences and block walls, includes dumpster enclosures, fence line lighting and security equipment
Energy Conservation Improvement Program (ECIP) and *Greening of the Government* Projects	Installing and/or retrofitting systems and equipment which directly or indirectly result in energy savings	Photovoltaic Arrays, window film, HVAC controls, day-lighting projects
Recreation and quality of life projects	Installing or repairing recreational areas, unit gathering places, or items to improve worker comfort and well being	Volleyball courts, horseshoe pits, pavilions and BBQ areas, this also includes sunshades for flightline workers

Definitions of various types of CIP activities with representative projects are provided below.

Construction includes any type of construction activity and has the most potential for environmental impacts. All new facilities would be designed to comply with the Nellis AFB Design Compatibility Guidelines, August 2006 and major building projects must also comply with the Air Force Policy Memorandum requiring Leadership in Energy and Environmental Design (LEED) Green Building Rating System as the Air Force preferred self-assessment metric. The standards require energy saving building techniques, supplies and equipment to reduce environmental impacts and provide for energy savings from the construction and operation of these new facilities. Table 2-3 provides a list of various construction projects proposed for Nellis and Creech AFBs. The complete list is provided in Appendix B.

Table 2-3. Representative Construction Projects		
Project Number	***Project Title***	***Infrastructure Type***
LKTC071006	Construct 432 WG HQ Facility	New facility
LKTC071007	Construct 432 WG MSG Facility	New facility
LKTC071009	Construct Allied Support UK Temp Modular Facs	Modular Facility
RKMF060150	Construct External Wing Tank Maint Facs	New Facility
RKMF050037	Construct Holding Pad Bldg 11143 & 11144 57 EMS	Storage facility
LKTC051020	Construct Creech AFB MSA Munitions Holding Pad	Storage facility
LKTC051018	Construct Loading Ramps Creech MSA	Storage facility
RKMF060011	Construct Mobility And Training Facility	New Facility
RKMF083001	JTAC Virtual Training Facility	New Facility
RKMF970070	Construct Road LOLA Area	Road
RKMF 060050	Construct Patio Enclosure Bldg 330	Recreation
LKTC061033	Construct Access Roads	Road
RKMF050115	Alter Entrances And Install Security Barriers Multi Fac	Security

Note: LKTC indicates projects located at Creech AFB and RKMF denotes Nellis AFB projects

Repair/Replace includes the repair, replacement, or installation of real property, installed equipment, or facilities. A representative list of these types of projects is shown in Table2-4.

Table 2-4. Representative Repair Projects		
Project Number	***Project Title***	***Infrastructure Type***
RKMF 07-5002	Repair Interior Officers' Club	Facility
RKMF 07-0033	Repair Interior Weapons School Bldg 282	Facility
RKMF 07-0038	Repair Officer's Club	Facility
RKMF 07-0047	Repair Fire Suppression Warrior Inn Bldgs 464-467	Utility
RKMF 07-0049	Repair Fire Suppression System Various Facilities	Utility
RKMF 07-0066	Repair Corrosion Control Various Water Tanks	Utility
RKMF 07-0072	Repair Grease Trap Bldg 600	Utility
RKMF 07-0081	Repair Altitude Valves Facility 10420	Utility
RKMF 07-0086	Repair Interior Bldg 625 NOC	Facility
LKTC 07-1019	Repair HVAC Bldg 718	Energy
RKMF 07-0013	Repair 58 RQS Various Facilities	Facility
RKMF 07-3007	Install Water Efficient Landscaping	Facility/ECIP
RKMF 02-0028	Repair Sewer Pumping Stations	Environmental

Note: LKTC indicates projects located at Creech AFB and RKMF denotes Nellis AFB projects

Installation could be any type of equipment installation including utility equipment, playground equipment, landscaping, and security barriers. Table 2-5 presents a representative list of the installation projects proposed for Nellis and Creech AFBs.

Table 2-5. Representative Installation Projects		
Project Number	***Project Title***	***Infrastructure Type***
LKTC071013	Install Emergency Cutoff Switches Bldgs 707 & 718	Facility
RKMF060018	Install Fence Extension Area 2 99 SFS	Security
RKMF060019	Install Fence Vehicle Reinforcement Area 3 99 SFS	Facility
RKMF050033	Install Fire Suppression System Bldg 10136	Utility
RKMF050051	Install Landscaping Bldg 202 CAOC-N	Utility
RKMF050018	Install Landscaping TTF B-470	Utility
RKMF060120	Install Motion Activated Light Switches	Utility/ECIP
RKMF070068	Install Motion Sensors Bldg 625	Utility/Security
RKMF050062	Install Outlets/Conduit Bldg 10450 99 SSS	Facility
RKMF050113	Install Playground Surfacing	Recreation
RKMF070007	Install Pressure Regulating Valve, Area II	Facility
	Install Programmable Thermostats For HVAC	ECIP
RKMF050080	Install Security Barriers Bldg 6	Security
RKMF050072	Install Security Barriers Bldg 620 & USAF Warfare Center	Security
LKTC041035	Install Security Upgrades Final Barrier Main Gate	Security
LKTC041033	Install Security Upgrades Gate House Main Gate Bldg 1901	Security

Note: LKTC indicates projects located at Creech AFB and RKMF denotes Nellis AFB projects

Maintenance activities are self-explanatory in that these activities maintain existing infrastructure. Table 2-6 presents typical maintenance projects.

Table 2-6. Representative Maintenance Projects		
Project Number	***Project Title***	***Infrastructure Type***
RKMF070005	Maintain Airfield Pavements	Airfield
RKMF040195	Maintain CRU Flooring Bldg 840	Utility
RKMF070	Maintain Exterior Bldgs 620,	Facility
RKMF050027	Maintain Exterior Fighter Revetments 61900 & 61925	Airfield
RKMF050041	Maintain Fuel Storage Tanks Bldg 10513 57 EMS	Facility
RKMF077903	Maintain Hydrant & UST Leak Detection, Base & Range	Utility
RKMF060061	Maintain Landscaping Bldg 1300	Facility
RKMF050138	Maintain Landscaping Range Road Gate	Facility
RKMF050139	Maintain Landscaping RANW HQ Bldg 200	Facility
LKTC031043	Maintain Landscaping Various Facilities	Facility
LKTC086801	Maintain Operating Storage Flexible Membrane Liner, Creech	Facility
RKMF980075	Maintain Soil Stabilization WSA	Facility
RKMF070	Maintain Warning Signs Airfield	Airfield

Note: LKTC indicates projects located at Creech AFB and RKMF denotes Nellis AFB projects

Demolition activities involve the removing and disposal of real property facilities. Disposal of the debris would likely be taken to the Apex Landfill or other appropriate disposal facility. Table 2-7 shows the typical disposal projects associated with the CIP.

Table 2-7. Representative Demolition Projects		
Project Number	***Project Title***	***Infrastructure Type***
RKMF990147	Contaminated Soil Disposal	Environmental
RKMF040158	Demo Bldg 10111 Area II Guard Shack	Facility
RKMF050024	Demo Bldg 2210 Hollywood Guard House	Facility
LKTC051014	Demo Bldg 67 Admin Facility	Facility
RKMF050025	Demo Bldg 841 Base Cold Storage	Facility
RKMF010033	Demo Commissary Annex	Facility
RKMF020040	Demo Fire Training Facility Bldg 2185 99 CES	Facility
RKMF950064	Demo Intr Steam Plant B-10207	Facility

Note: LKTC indicates projects located at Creech AFB and RKMF denotes Nellis AFB projects

Environmental projects include installation, construction, repair, and clean-up of facilities (usually fuel storage and dispensing) that alleviates an environmental threat, such as secondary containment or monitoring devices. Additionally, the projects involve the expenditure of funds for investigative studies and/or permits. Table 2-8 illustrates examples of the various environmental projects.

Table 2-8. Representative Environmental Projects		
Project Number	***Project Title***	***Infrastructure Type***
RKMF096101	Facility Response Plan 5-year Update	Environmental
RKMF076903	Inspect Regulated UST, Facility 935	Environmental
RKMF117032	Range SPCC Plans 5-Year Update	Environmental
RKMF097028	Regulated UST Clark County Permit Fees	Environmental
RKMF107011	Regulated UST Leak Detection System Inspections	Environmental
RKMF097004	Spill Response Supplies	Environmental
RKMF077902	Update Nellis AFB Facility Response Plan and Range SPCC Plans	Environmental
RKMF990069	Conduct API out-of-service Inspections on Eastside Revetments	Environmental
RKMF086802	Construct Secondary Containment, Facility 854 and Station 80	Environmental
RKMF086907	Construct Type III System, Facility 62126	Environmental
RKMF076104	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF076190	Remove 8K Regulated UST @ 235 and Replace w/AST	Environmental
RKMF076151	Replace 2K Regulated UST, Facility 2814	Environmental
RKMF076902	Replace existing Military Gas Station, Facility 890	Environmental
RKMF077901	Revetment JP-8 Pipeline Remedial Actions	Environmental
RKMF086102	Repair Facility 61647, POL Recycling Facility	Environmental
RKMF066934	Repair Ground Fuels Product Storage, Facilities 891, 893, 895	Environmental
RKMF046180	Repair Issue & Receipt Filter Sep Relief System, Fac 1050	Environmental

Note: LKTC indicates projects located at Creech AFB and RKMF denotes Nellis AFB projects

2.1.2 Area Development Plans

ADPs are detailed plans that suggest specific sitings, building sizes, parking arrangements, and other important amenities in the future built and landscaped environment. All of the ADPs are appropriately placed within the context of the future land use plan and provide the installation with specific, approved

courses of action for key areas of the base. These ADPs serve as the foundation for the base CIP. Following is a synopsis of the ADPs for Nellis and Creech AFBs. A more complete discussion can be found in Appendix C.

Nellis AFB

The location of the six ADPs on Nellis AFB is provided in Figure 2-1.

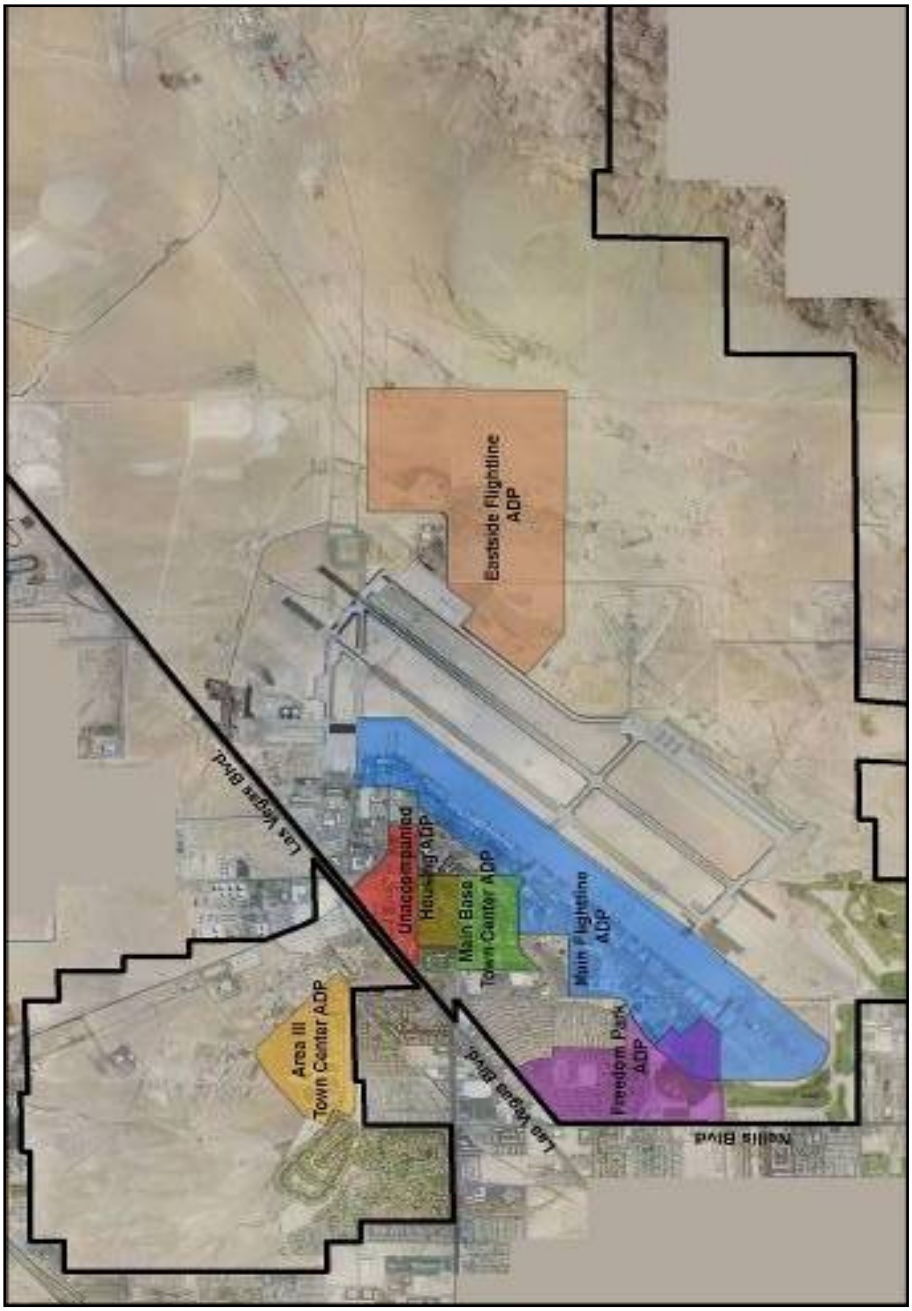
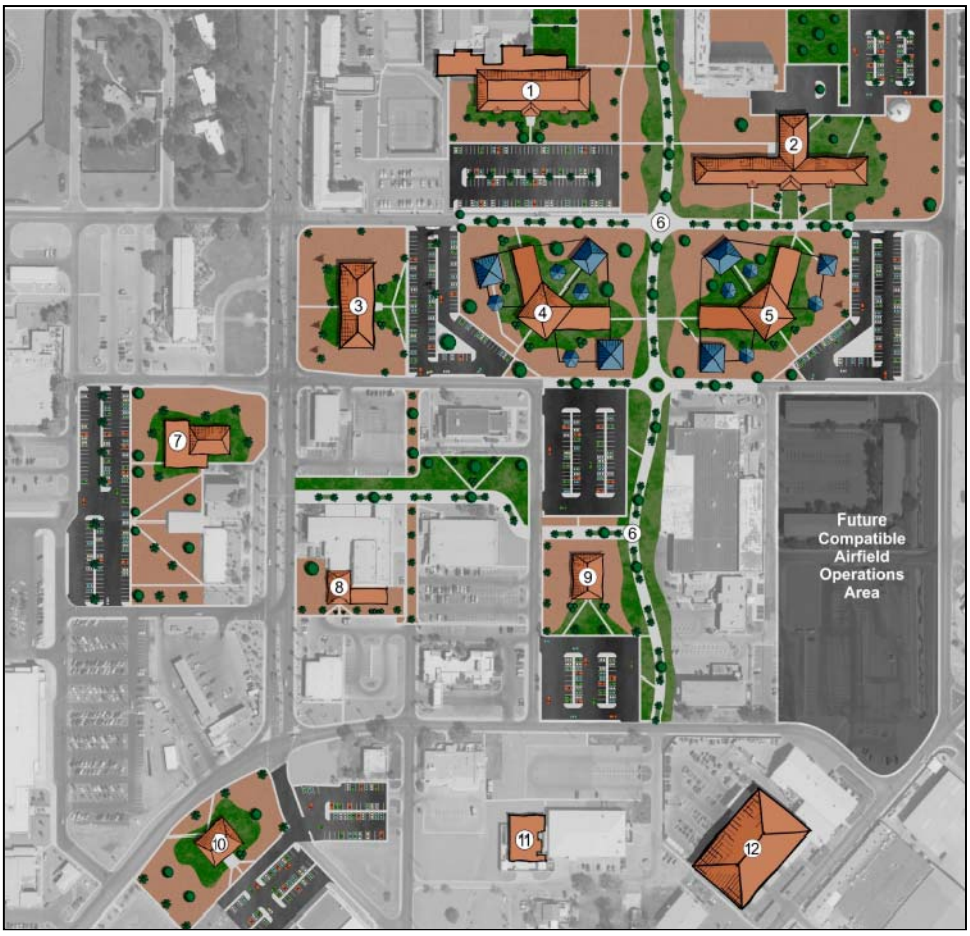


Figure 2-1. Nellis AFB ADP Locations

Main Base Town Center ADP

The Main Base Town Center is the epicenter of commercial and service activities at Nellis AFB for base personnel, visitors, and residents (Figure 2-2). This area contains a mix of amenities (service-related shops, restaurants, churches, etc.) centrally located near the vicinity users for easy access and supports the myriad missions of Nellis AFB. To enhance both safety and visual aspects of the Main Base Town Center ADP, road reconfiguration would create a campus feel and encourage pedestrian and bicycle circulation.



Note: Please refer to Appendix C for the key to the numbers on the figures

Figure 2-2. Main Base Town Center ADP

Area III Town Center ADP

The Area III Town Center ADP is designed to improve quality of life, preserve land use compatibility, and support environmental stewardship responsibilities for the benefit of housing area residents and off-base dependents (Figure 2-3). With a lack of existing constraints or conflicts, this area development is able to capitalize on logical and compatible land uses. Like the Main Base Town Center ADP, the Area III Town Center ADP is centrally located near the users, in this case, the housing area, FamCamp and the recreational vehicle park.

Note: Please refer to Appendix C for the key to the numbers on the figures

Figure 2-3. Nellis AFB Area III Town Center ADP

Unaccompanied Housing ADP

The Unaccompanied Housing ADP is an area of base concentrating on the needs of those residents who reside either in dormitories or visitor's quarters (Figure 2-4). The Unaccompanied Housing ADP is situated along Las Vegas Boulevard and near the Main Base Town Center ADP. The proximity to the Main Base Town Center ADP gives residents and visitors in the Unaccompanied Housing ADP convenient access to the amenities found within the base's main shopping area, yet allows separation from the activity and congestion also found there. The Unaccompanied Housing ADP would continue the concept of the campus environment with controlled parking, gathering spaces, and pedestrian/bicycle circulation enhancing a sense of community within the area.

Note: Please refer to Appendix C for the key to the numbers on the figures

Figure 2-4. Nellis AFB Unaccompanied Housing ADP

Freedom Park ADP

The Freedom Park ADP is designed to enhance training assets, preserve land use compatibility, and improve quality of life (Figure 2-5). It would expand Red Flag, flightline training and administration into the Freedom Park area, creating a logical land use progression from the flightline to lodging and recreational facilities. Freedom Park ADP facilities are designed to create an academic and test campus area that enhances training assets and improves the overall installation aesthetics. The Freedom Park ADP would radically transform the current area from the existing landmarks which include: Freedom Park Monument, Runner's World, Nellis Terrace Housing, Lomie G. Heard Elementary School, and the Recreational Ball Fields.

Note: Please refer to Appendix C for the key to the numbers on the figures.

Figure 2-5. Nellis AFB Freedom Park ADP

Main Flightline ADP

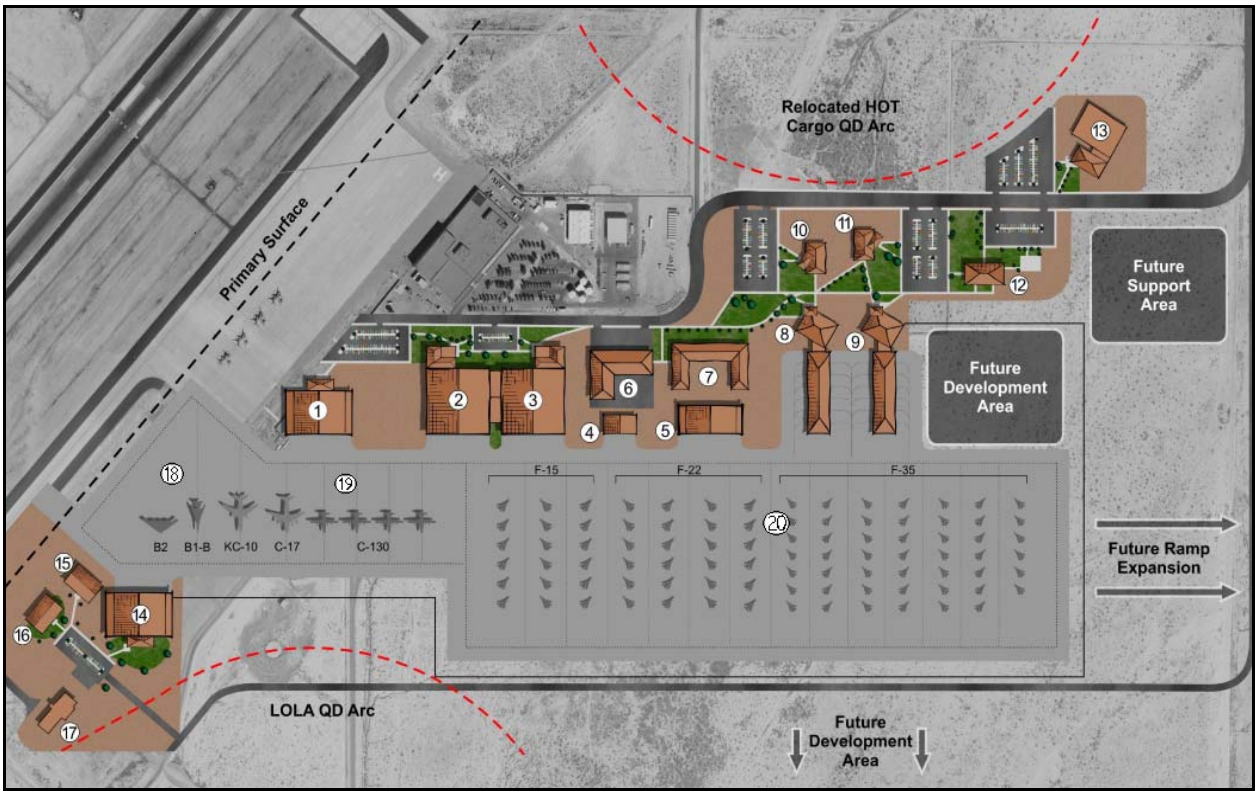
With two parallel, 10,000 foot runways, the main flightline of Nellis AFB is a vast and congested area. At this time, however, many functions located on the flightline would be better suited to locations further from the flightline and include mostly operational and administrative tasks. Relocation of these administrative tasks to locations just behind the flightline would be more compatible within the noise environment, as well as free space directly on the flightline for necessary operational and maintenance duties. Facilities located on the flightline must be compatible with high noise levels and should be directly related to airfield and aircraft operations, such as Red Flag or Thunderbird operations. Any new construction in the flightline area is restricted by Standard Airfield Criteria and can limit placement and height of new facilities, and must include noise abatement construction measures.

Note: Please refer to Appendix C for the key to the numbers on the figures

Figure 2-6. Nellis AFB Main Flightline ADP

East Side Flightline ADP

Like the Main Flightline ADP, the goal of the East Side Flightline ADP is to develop the east side of the flightline such that future development maximizes the use of the flightline for mission critical and related functions (Figure 2-7). Similarly, it would enhance the training value of Nellis AFB facilities, preserve installation viability, and enable future growth. Currently, the northeast side of the Nellis AFB runways is relatively undeveloped, with few functional areas located across from the main flightline. With increasing missions and aircraft beddowns, ramp space and maintenance areas are needed directly on the flightline and existing space on the west side is severely limited. Expanding the East Side flightline would solve existing flightline space issues and provide a long-term plan for optimum use of future eastside development. Like the Main Flightline ADP, any construction on the East Side flightline would be constrained by airfield criteria requirements for height and placement.



Note: Please refer to Appendix C for the key to the numbers on the figures.

Figure 2-7. Nellis AFB East Side Flightline ADP

Creech AFB ADP

The Creech AFB ADP encompasses an entire base and is predicated on a vision of what current and/or future missions the base would support. With several possibilities, spanning a broad spectrum of facility expansion, the ADP strives to capture the most likely scenario, but also remains flexible and open to other alternatives (Figure 2-8). The best development option is to continue the base growth adjacent to the Predator Beddown area. This offers the advantages of utilizing recent infrastructure upgrades in the area, consolidating new development with recent development, and using the on-base undeveloped areas for new growth before requiring use of adjacent military withdrawn land located in the range portion of the NTTR. This scenario gives flexibility for phased development and can adjust to the lack of base cantonment area expansion due to the failure to extend into NTTR that is co-managed by the US Fish and Wildlife Service; short-term development can still be accommodated.

Creech AFB started as an auxiliary airfield and has recently been designated an Air Force Base after gaining the Unmanned Aerial Systems (UAS) mission. This mission is likely to expand, and base build-out depends upon this growing mission and other possible missions. Development and facilities expansion need to accommodate likely changes, as well as anticipate unforeseen changes. Likely changes include the establishment of a headquarters area and some community support facilities. A small base scenario would involve limited boundary expansion, with most to the expansion being infill and consolidation in addition to redeveloping existing facilities. The estimated population support level of a small base is 2,000 people.

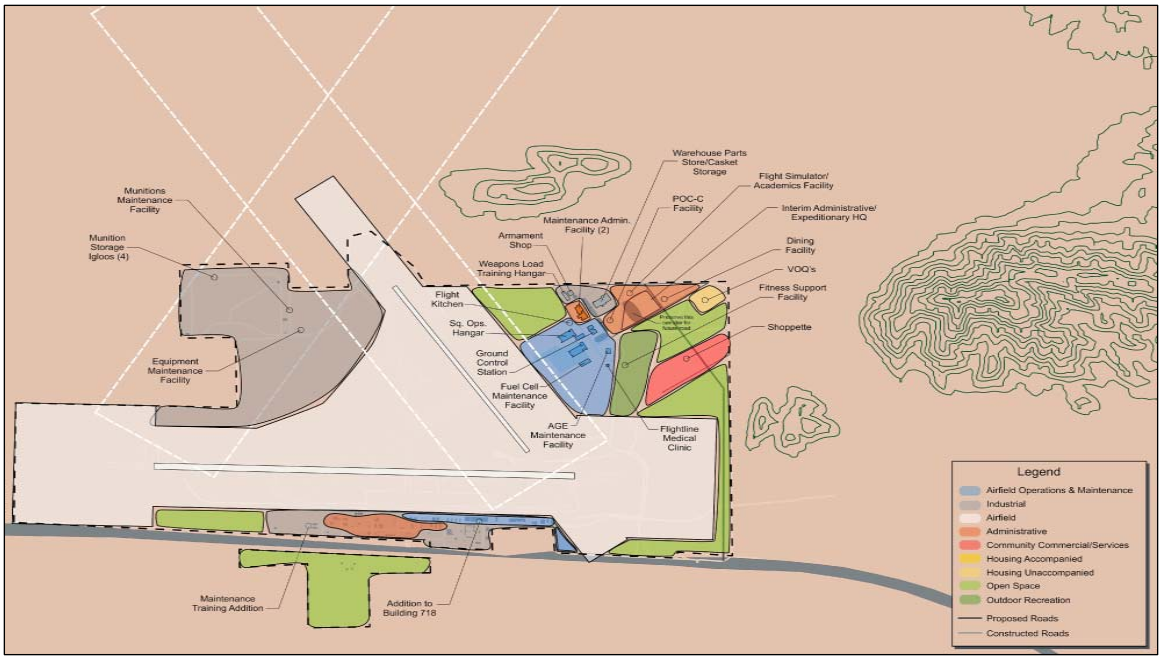


Figure 2-8. Creech AFB ADP

2.2 METHODOLOGY FOR IDENTIFYING PROPOSED ACTION AND ALTERNATIVES

The proposed action and alternatives were identified through a process that examined the basic requirements for the action; the exclusionary criteria that eliminated actions from consideration; and the need for additional analyses. Actions in locations that were not compatible, violated environmental constraints (such as locations of threatened or endangered species), or have already been analyzed under NEPA, were not included within the proposed action and alternatives.

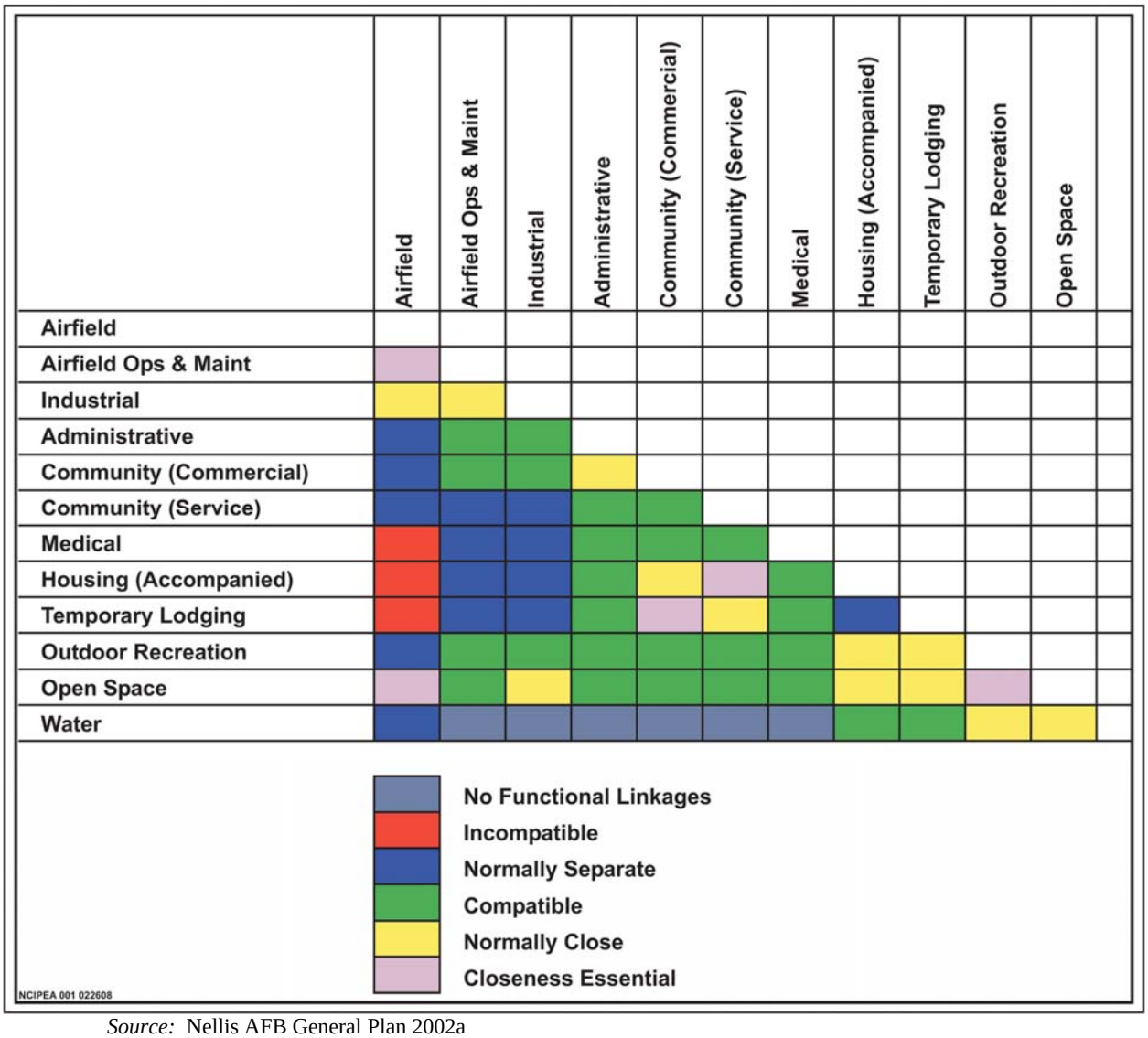
2.2.1 Basic Requirements and Exclusionary Criteria

The basic requirements for assembling the General Plan are to meet the 99 ABW Commander's vision for the future configuration of Nellis and Creech AFBs. Planning needs to account for current and anticipated mission needs and yet still be flexible to accommodate changes to the mission. In the case of Nellis and Creech AFBs, which are the home to the Weapons School, Red Flag, the 53rd Test Wing, and UAS operations, needs change frequently as airframes, tactics, equipment, and testing needs are constantly evolving. As the Air Force leaders in testing and training, Nellis and Creech AFBs are at the forefront of these changes. There are some constants, which in many respects are the focus of this EA. Flight operations have to occur along the flightline, community services and dormitories are required. The General Plan provides a logical configuration that accommodates the basic needs for flying operations, community necessities, and dormitories by utilizing existing locales for similar items, taking into consideration utility requirements and proximity to other different, yet compatible functions (i.e. dormitories should be located within walking distance from community services). Through the planning process, these compatibilities and incompatibilities were closely examined and are illustrated in Figure 2-9.

A well thought out General Plan includes combining like functions into compatible areas while avoiding placing incompatible functions adjacent to one another. Plans that would place incompatible and normally separate land uses close together were excluded, while those with compatible uses were consolidated.

2.2.2 Evaluative Criteria

Generally, planning can involve many different land uses and individual infrastructure, facility, and airfield needs. Many of the individual projects described in the General Plan are facilities that have been evaluated as part of previous planning and, by default, are placed in a specific ADP. For example, the Nellis AFB BRAC and Predator Beddown planning processes have already occurred and implementation has begun. It is not necessary to evaluate these projects as part of the proposed action or alternatives; rather they will be addressed in the cumulative impacts section, Chapter 5.



Source: Nellis AFB General Plan 2002a

Figure 2-9. Land Use Affinities Matrix

Planning also includes the long-term vision of the bases and describes projects that may not occur for 5 to 10 years from now or longer. Long-term projects are not analyzed in this Environmental Assessment for several reasons. First, mission changes and priorities can shift and the timelines could be extended. Secondly, long-term projects often change in scope, location, and mission such that what will be necessary to construct later may not match what is identified presently. Finally, the existing conditions and requirements that provide the basis for environmental analyses can change, rendering the resulting conclusions of the impacts dated or erroneous. In accordance with Air Force guidance, Nellis AFB will complete an Environmental Assessment within 5 years in conjunction with the next General Plan update.

2.3 ALTERNATIVES TO THE PROPOSED ACTION

During the planning of the CIP projects and the ADPs, numerous alternatives were investigated and are presented in Appendix D. Alternative analyses looked at configurations and layouts with the composite constraints in mind and the APDs selected. In the case of all of the ADPs and their alternatives, the alternatives were limited because the area for the ADP has existing facilities consistent with the ADP usage and the current land use designation. In the case of Creech AFB and the East Side Flightline, open land would be available and the configuration of the ADP could vary on different approaches; however, the purpose for the ADP would be the same and the areas investigated are essentially homogeneous. For these reasons, it was determined that an in-depth analysis for each alternative would arrive at the same conclusions for the proposed action. For the sake of brevity, this EA considers all of the alternatives and each will not be assessed individually.

2.4 NO-ACTION ALTERNATIVE

Under NEPA and CEQ regulations (40 CFR Part 1502.14(d)), "no action" means that the proposed action (i.e., Capital Improvements Program updates for Nellis and Creech AFBs) would not take place, and the resulting environmental effects from taking no action would be compared to the effects of permitting the proposed action to go forward. NEPA also requires analysis of baseline conditions as reflected by the no-action alternative to compare the impacts to those resulting from the proposed action. The following descriptions of the current status of Nellis AFB and Creech AFB provide a context for comparing the changes that would occur with implementing the proposed action.

2.4.1 Nellis AFB

Mission Characteristics

Nellis AFB is the "Home of the Fighter Pilot" and the U.S. Air Force Warfare Center (USAFWC) with 125 based aircraft. The USAFWC provides advanced combat training, tactics development, and operational testing. Until recently, the center also supported worldwide combat operations with the Predator and Reaper remotely piloted aircraft systems operating out of Creech AFB. In early 2007, the stand-up of the 432nd UAS Wing occurred to oversee UAS operations. The Wing reports directly to the 12th Air Force based out of Davis-Monthan AFB in Arizona. As weapons systems, enemy capabilities, and world situations change, changes at Nellis AFB occur to ensure that Nellis AFB and its training and testing missions produce the best trained and most capable aircrews in the world.

To fulfill its mission, Nellis AFB provides realistic combat training involving every type of aircraft in the Air Force inventory. It also supports test and evaluation programs and weapons schools for all Air Force fighter aircraft: A-10s, F-15C/Ds, F-15Es, F-16s, and F-22As. The organizational structure of Nellis AFB

includes four major wings and 60 other units. The USAFWC, headquartered at Nellis AFB, consists of five wings; three wings are based at Nellis AFB and two wings operate from Eglin AFB, Florida. Table 2-9 summarizes the major units and their functions. In addition, Nellis AFB and the NTTR host and conduct large-force exercises for U.S. and allied air forces. During these exercises, many transient aircraft operate out of Nellis AFB using ramp space and other facilities.

Table 2-9. Nellis AFB Units Relevant to the Proposed Action

Unit	***Relevant Functions***
USAFWC	• Manages all advanced pilot training and integrates test and evaluation requirements. • Oversees flying operations at Nellis AFB
57 WG Weapons School 414th Combat Training Squadron (Red Flag) 57 Adversary Tactics Group	• Oversees all flying operations at Nellis AFB including the Weapons School and 414th Combat Training Squadron. • Provides advanced realistic training in combined air, ground, and electronic threat environment. • Trains graduate-level fighter aircrews for all fighter aircraft. • Conducts large-force exercises involving combat training for multiple "friendly" and "adversary" forces. • Provides the "adversary" forces with the 64 and 65 AGRS.
53 WG 422nd Test and Evaluation Squadron	• Based at Eglin AFB except for the 422nd Test and Evaluation Squadron. • Responsible for operational testing and evaluation of new equipment and systems proposed for use by the forces. • Develops new tactics for aircraft in the Air Force inventory.
505 WG	• Provides command and control for training.
98 RANW	• Operates, maintains, and develops NTTR comprising about 3 million acres of land and 12,000 square nm of airspace. • Operates airfields at Creech AFB and the Tonopah Test Range.
99 ABW	• Host wing for Nellis AFB. • Oversees all day-to-day operations and functions of the base.

The 414th Combat Training Squadron conducts large-force exercises that maximize the combat readiness and survivability of participants by providing a realistic training environment. Red Flag is a special multi-week large force exercise that realistically simulates aircrew deployment and combat situations. Red Flags are complex, full-scale simulated wars, complete with aggressor aircraft using adversary tactics. These exercises teach units how to deploy and operate in an integrated manner. In a typical Red Flag exercise, Blue Forces (friendly) engage Red Forces (aggressor) in combat situations. Blue Forces are made up of units from ACC, Air Mobility Command, U.S. Air Forces Europe, Pacific Air Forces, Air National Guard, U.S. Air Force Reserve, Army, Navy, Marine Corps, and allied air forces. They are led by a Blue Forces commander who orchestrates the employment plan. Red Forces are composed of the 57th Adversary Tactics Group and provide the threats through the emulation of enemy tactics. In a typical year, the Air Force plans three to five Red Flag exercises at Nellis AFB and NTTR.

Facilities and Infrastructure

Nellis AFB includes a well-developed infrastructure supporting a broad spectrum of functions and organizations. Covering 14,161 acres, the base consists of three functional areas (refer to section 1.2 and Figure 1-2). Area I, the main base, occupies about 30 percent of the base and contains runways, flightline, industrial facilities, housing, and administrative and support facilities and contains over 2,000 buildings, including more than 1,200 family housing units, dormitories, and billeting facilities. Area II covers approximately 60 percent of the base. Area III covers about 10 percent of the base.

Under the no-action alternative, planning for additional facilities would continue using the 2002 General Plan and not use the Area Development Plans for specific activities on Nellis and Creech AFBs. Although the planners would not use the updates to the General Plan, planning methodology and practices could yield almost the same results without the updates. However, a formalized layout for the facilities would not be implemented.

2.4.2 Creech AFB

Mission Characteristics

Creech AFB, formerly Indian Springs Air Force Auxiliary Field, is located in northwestern Clark County, adjacent to the town of Indian Springs. UAS training and testing, as well as Security Forces Expeditionary training are the primary operations occurring at Creech AFB. With the UAS and the Security Forces missions, Creech AFB plays a major role in the ongoing war on terrorism.

Facilities and Infrastructure

Creech AFB encompasses approximately 2,380 acres on both sides of US-95, with the runways and the installation facilities on the north side of the highway within the boundaries of the NTTR (refer to Figure 1-1). As a small base with a population less than 2,000, Creech AFB has no permanent party housing, no commissary or base exchange, and few amenities; facilities are limited to operational and support buildings. There are also two Visiting Officer Quarters and five Visiting Airman Quarters facilities that can accommodate 28 unaccompanied visiting officers, and 162 enlisted personnel.

Under the no-action alternative, previous planning for the base resulted in mixed land uses primarily because of the small area involved and the relative lack of mission activity prior to the first Predator Beddown. Recent efforts have improved planning at Creech AFB and any new facilities would likely fit better within existing land uses; however, a formalized and up-to-date General Plan would not be used.

2.5 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

The proposed action consists of a series of up to six ADP projects at Nellis AFB and one ADP project at Creech AFB. Given funding levels and other factors, not all may be implemented. If specific projects were found to be substantively changed in scope from the ADP projects list for Nellis AFB or Creech AFB, if environmental characteristics were changed, if regulations had changed, or if base mission changes affected the project (e.g., Base Realignment and Closure actions), the projects could be excluded without affecting other ADP projects. Analysis of an alternative composed of a subset of projects would reduce Nellis and Creech AFB's flexibility in decisions about ADP projects and limit the scope of environmental analysis. As such, alternative subsets of projects were not carried forward for further analysis.

2.6 REGULATORY COMPLIANCE AND PERMIT REQUIREMENTS

This EA examines the specific affected environment for implementation of projects within ADPs at Nellis and Creech AFBs. The analysis considers the current conditions of the affected environment, and compares those to the no-action alternative. It also examines the cumulative impacts within the affected environment at each of these locations as well as past, present, and reasonably foreseeable actions of the Air Force and other federal, state, and local agencies. The NEPA process is intended to assist the decisionmaker in understanding the environmental consequences and in taking appropriate actions that protect, restore, and enhance the environment. Other federal statutes that may apply to the proposed action are listed in Table 2-10.

Stormwater: Under the proposed action, the Nellis AFB water quality Program Manager would update applicable base permits and assist in obtaining all stormwater-related permits for new construction. Nellis AFB would need to reevaluate its National Pollutant Discharge Elimination System permit and Stormwater Pollution Prevention Plans to ensure compliance.

Permits: Should the proposed action be implemented, the Air Force would need to obtain new or update existing permits. These permits would apply to the removal and disposal of asbestos as a result of demolition of, or modifications to facilities; construction of new facilities; and stormwater discharge permits.

Asbestos and Lead-Based Paint Removal and Disposal: Prior to demolition or additions to buildings, asbestos surveys are required by Air Force regulation. For the removal of asbestos, a notification process with Clark County, the state health board, the EPA, and the base asbestos and lead-based paint coordinator is required. Removal would be contracted out to state-certified and licensed contractors. Contractors would obtain the necessary permits for the removal, handling, and transportation of asbestos. Contractors must have access to a permitted landfill for disposal of asbestos.

Table 2-10. Other Major Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects	
Environmental Resource	***Statutes***
Noise	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); U.S. Environmental Protection Agency (EPA), Subchapter G-Noise Abatement Programs (40 CFR 201-211)
Air	Clean Air Act (CAA) of 1970 (PL 95-95), as amended in 1977 and 1990 (PL 91-604); EPA, Subchapter C-Air Programs (40 CFR 52-99)
Environmental Justice	Executive Order 12898-Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations; Protection of Children from Environmental Health Risks and Safety Risks (Executive Order 13045)
Water	Federal Water Pollution Control Act of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); USEPA, Subchapter D-Water Programs (40 CFR 100-145); Water Quality Act of 1987 (PL 100-4); USEPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 401-471); Safe Drinking Water Act of 1972 (PL 95-923) and Amendments of 1986 (PL 99-339); EPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
Biological Resources	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79)
Wetlands and Floodplains	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); EPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (Executive Order 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233)
Cultural Resources	National Historic Preservation Act of 1966 (16 USC 470 et seq.) (PL 89-865) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the Cultural Environment-1971 (Executive Order 11593); Indian Sacred Sites-1966 (Executive Order 13007); American Indian Religious Freedom Act of 1978 (PL 94-341); Antiquities Act of 1906; Archaeological Resources Protection Act of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act of 1990 (PL 101-601)
Solid/Hazardous Materials and Waste	Resource Conservation and Recovery Act of 1976 (PL 94-5800), as Amended by PL 100-582; EPA, subchapter I-Solid Wastes (40 CFR 240-280); Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (PL 94-496); EPA, Subchapter R-Toxic Substances Control Act (40 CFR 702-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 162-180); Emergency Planning and Community Right-to-Know Act (40 CFR 300-399)

Construction: For new buildings, the base would submit plans and a request for location to the Nellis AFB zoning and development board. An air quality dust permit must be obtained from Clark County if construction at any site causes 0.25 acres or more of topsoil disturbance, trenching of 100 feet or more, or demolition of structures 1,000 square feet or more. Shoulder stabilization instead of paving must be maintained in compliance with the stabilization standards in section 9.3.2.1.5 of the Clark County Air Quality Regulations. Nellis AFB would apply for a Clark County Surface Disturbance Permit after finalization of the building footprints and prior to construction. An Authority to Construct permit is required for construction projects, whereas, demolition projects require completion of a Clark County Demolition Notification form.

Nellis AFB Plans and Protocols: In addition to the federal, state, and local regulations, Nellis AFB implements its environmental programs through various plans and protocols (Table 2-11). All of these plans conform to requirements defined in federal regulations and guidance. Project managers would coordinate with Nellis AFB Environmental Flight (99 CES/CEV) to ensure compliance with all local, state, and federal environmental regulations.

Table 2-11. Nellis AFB Environmental Plans

Resource Area	***Title***	***Date***
Cultural Resources	Integrated Cultural Resources Management Plan	2006
Air Quality	NAFB Air Emissions Inventory	2005
	NTTR Air Emissions Inventory	2003
Environmental Restoration Program	Environmental Restoration Plan. Management Action Plan	2004
Noise, Land Use and Planning	Air Installation Compatible Use Zone Study	2003
	General Plan for Nellis Air Force Base, Nevada. Includes General Plan Summary for Indian Springs Air Force Auxiliary Field	2002
Asbestos	Asbestos Management and Operations Plan	2003
Lead-Based Paint	Lead-based Paint Management Plan	2003
Environmental Emergencies	Facility Response Plan	2006
Hazardous Waste	Hazardous Waste Management Plan	2002
Hazardous Materials	Hazardous Materials Management Plan	2006
Natural Resources	Integrated Natural Resources Management Plan	1999*
Stormwater	Storm Water Pollution Prevention Plan	1998

*Revision expected in 2007

CHAPTER 3

DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 INTRODUCTION

NEPA requires focused analysis of the areas and resources potentially affected by an action or alternative. It also provides that an EA should consider, but not analyze in detail, those areas or resources not potentially affected by the proposal. Therefore, the Air Force must provide sufficient detail and depth of both description and analysis in this EA to allow decisionmakers and the public to differentiate among the alternatives.

This EA focuses on those resources that would be affected by proposed facility construction or renovation projects at Nellis AFB and Creech AFB. The analysis considers the current conditions of the affected environment at Nellis AFB and Creech AFB and compares those to conditions that might occur with implementation of projects that have not been addressed in previous NEPA documents.

3.1.1 Affected Environment

The proposed action affects the areas defined by Nellis AFB and Creech AFB. Evaluation and analysis of the proposed projects indicate that resources subjected to ground disturbing activities have the greatest potential to be affected. ADPs provide information such as facility siting locations, construction phases, and size of proposed projects on Nellis AFB and Creech AFB. The potential environmental impact of implementing the CIP and ADP projects on Nellis AFB and Creech AFB will be discussed in detail under each of the affected resources in Chapter 4, Environmental Consequences.

3.1.2 Resources Analyzed

Based on the components of the proposed action, the Air Force defined the environment potentially affected by construction or renovation projects at Nellis AFB and Creech AFB. This definition focused on specific resource categories. As a result of this review, ten resource categories are evaluated: land use infrastructure; socioeconomics; cultural resources; biological resources; water and soil resources; air quality; hazardous materials and waste; safety; and noise. Table 3-1 presents the evaluated resources.

Table 3-1. Resources Evaluated in the Environmental Impact Analysis Process		
Resource Categories	*Nellis AFB*	*Creech AFB*
Land Use	Yes	Yes
Infrastructure	Yes	Yes
Socioeconomics	Yes	Yes
Cultural Resources	Yes	Yes
Biological Resources	Yes	Yes
Water and Soil Resources	Yes	Yes
Air Quality	Yes	Yes
Hazardous Materials and Waste	Yes	Yes
Safety	Yes	Yes
Noise	Yes	Yes

3.1.3 Resources Eliminated from Further Analysis

The Air Force assessed numerous resources for potential to be affected by the proposed action or no-action alternative. In accordance with CEQ regulations, this evaluation determined two resources did not warrant further examination in the EA: 1) visual resources, and 2) environmental justice and protection of children.

Visual Resources. The Air Force anticipates no negative effects on or conflicts with visual resources as a result of the proposed projects for both Nellis AFB and Creech AFB. The justification is that construction and/or improvement projects would: 1) take place on each of the installations and would be consistent with the existing visual landscapes; 2) primarily occur in the developed portion of these installations; and 3) be built of similar materials as other structures on the installations; and 4) be landscaped consistent with the existing habitat. For these reasons, implementation of the proposed action or no-action alterative would not have an adverse impact to the visual environment at Nellis or Creech AFBs or the lands surrounding these installations.

Environmental Justice and Protection of Children. Environmental justice addresses the disproportionate effect a federal action may have on low-income or minority populations. E.O. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* ensures the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The existence of disproportionately high and adverse impacts depends on the nature and magnitude of the effects identified for each of the individual resources. The affected area includes locations of proposed projects within the confines of Nellis and Creech AFBs. Local emissions from construction activities would not approach any state or federal thresholds for the protection of human health and safety (see Section 3.8, Air Quality).

In 1997, Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks (Protection of Children)*, was issued to ensure the protection of children. The proposed ADP and

other projects at either base would not pose environmental and safety risks to children due to the fact that changes and improvements would be limited to the administrative, industrial, and/or operational areas on Nellis AFB and at Creech AFB. Access by the general public is prohibited and procedures prevent children from visiting these areas on the base. In summary, since there would not be a disproportionately high or adverse impact to minority or low-income groups and no aspect of the proposed action or no-action alternative would increase the health or safety risk to children, further analysis of environmental justice and protection of children as a resource was eliminated from further analysis.

3.2 LAND USE

Land can be used for residential, commercial, industrial, agricultural, transportation, recreational, or conservation purposes. Management plans, policies, ordinances, and regulations determine the manner in which a specific tract of land may be used. The status of land ownership is the primary driver that determines appropriate land use in a specific area. Both Nellis AFB and Creech AFB are U.S. Air Force military reservations. Thus, appropriate land use is primarily determined by Federal laws, Department of Defense directives, and Air Force policy and instructions.

Affected Environment

Nellis AFB and Creech AFB each include developed and undeveloped lands. Main categories of developed land uses include airfield; industrial support areas; administrative services areas; and housing, recreation, and services areas. Undeveloped lands are commonly called open space in planning documents and may include natural or cultural resources preservation sites, safety buffers, or other similar land uses. The affected environments are the locations proposed for ADP and other projects on both Nellis AFB and Creech AFB.

3.2.1 Nellis AFB

Land Use

Nellis AFB includes a well-developed infrastructure supporting a broad spectrum of functions and organizations. It is composed of 14,161 acres (refer to Figure 1-2) divided into three areas: Area I, the Main Base; Area II, and Area III.

Area I is located east of Las Vegas Boulevard and contains 30 percent of the total base land area. Area I contains the greatest variety of land use activities, including runways, industrial facilities, housing areas, and most of the base's administrative, training, and support facilities. There are more than 2,000 buildings that include family housing units (enlisted and officers), dormitories, and billeting facilities. Area II is located northeast of the Main Base and accounts for 60 percent of the total base land area. The

majority of Area II is undeveloped acreage. The Red Horse Squadrons and Security Forces are the primary occupants of the developed acreage West of Las Vegas Boulevard is Area III, containing 10 percent of the total base land area. The majority of base family housing units and recreational facilities are located in Area III. A solar photovoltaic array, the largest in North America, is currently under construction and will ultimately cover the majority of undeveloped space in Area III.

Open space accounts for about 66 percent of all Nellis AFB land. However, a great deal of this is mandatory open space to provide safety zones around munitions storage or similar facilities. Table 3-2 provides a summary of existing land use on Nellis AFB. The new designations refer to a reclassification of land usage under the new General Plan.

Table 3-2. Existing Land Use at Nellis AFB

Land Use Category	***Old Designation***		***New Designation***	
	Acreage	***% of Total***	***Acreage***	***% of Total***
Airfield	1,512	11	1,275	10
Aircraft Operations and Maintenance	289	3	406	4
Industrial	1,838	13	6,338	39
Administrative	86	<1	80	2
Community (Commercial)	61	<1	61	<1
Community (Service)	25	<1	70	1
Medical	28	<1	46	<1
Housing (Accompanied)	344	3	401	3
Housing (Unaccompanied)	70	<1	73	<1
Outdoor Recreation	595	4	740	4
Open Space	9,307	66	6,045	36
Water	6	<1	5	<1
Total	**14,161**	**100**	**15,540**	**100**

Source: NAFB 2002a
The total acreage differs because of differences between real property records and GIS data. Real property data uses survey data on the real property descriptions that was developed in the early 1900s. GIS using modern mapping calculates a different amount of acreage for the same pieces of property.

3.2.2 Creech AFB

Land Use

Creech AFB lies approximately 45 miles northwest of Las Vegas, Nevada along US-95. Creech AFB encompasses approximately 2,380 acres of land, mostly designated as open space in order to ensure Clear Zone (CZ) safety around the airfield. The main Creech AFB runway runs east-west across the base, whereas the northwest-southeast runway supports MQ-1 Predator and MQ-9 Reaper UAS operations. An inactive third runway extends southwest-northeast across the base.

Creech AFB serves as the practice base for the Nellis AFB-based Thunderbirds demonstration team, as well as the base for MQ-1 and MQ-9 UAS squadrons. Other related squadrons are also based at Creech AFB. In addition, Creech AFB supports Expeditionary Readiness Training (ExpeRT), and Security Force Training, and it also forms the primary emergency divert base for aircraft using the NTTR.
Aircraft operations and maintenance facilities at Creech AFB lie south of the main runway developed area of the base. Facilities including a wastewater treatment plant and storage buildings are situated north of the runway. The main base area contains several industrial land uses (i.e., supply, vehicle maintenance, and transportation facilities) as well as the shoppette, dining hall, and temporary lodging facilities
Table 3-3 provides a summary of existing land uses on Creech AFB.

Table 3-3. Existing Land Use at Creech AFB

Land Use Category	*Acreage*	*Percent of Total*
Airfield	227	9.55
Aircraft Operations and Maintenance	19	0.79
Industrial	193	8.12
Administrative	3	0.11
Community (Commercial)	0.5	0.02
Community (Service)	3	0.14
Medical	0.5	0.02
Housing (Accompanied and Unaccompanied)	6	0.24
Recreation	9	0.36
Open Space	1,919	80.65
Water	0	0
Total	**2,380**	**100.00**

Source: NAFB 2002a

3.3 INFRASTRUCTURE

The term infrastructure for this analysis refers to the basic services such as potable water, wastewater treatment, electrical and natural gas utilities, solid waste management systems, and roads essential to the functioning of an Air Force base in support of its respective mission. The January 2001 Infrastructure Program Review of Roadway Pavement Systems at Creech AFB reported that the overall engineering condition assessment rating of the pavement system was “adequate” (NAFB 2002a).

Affected Environment

For this EA, infrastructure resources within the boundaries both Nellis AFB and Creech AFB constitute the affected environment. Information contained in this section was derived from the 2006 Headquarters (HQ) ACC Infrastructure Assessment and the 2002 Nellis AFB General Plan and has been updated for current conditions. While planning studies such as the 2006 HQ ACC Infrastructure Assessment shows that Nellis AFB has adequate infrastructure resources and poses no constraints for development, future development at Creech AFB could be constrained by the following systems; potable water, electrical,

emergency generator, storm drainage, sewage treatment, heating, ventilation and air conditioning (HVAC), and airfield lighting.

3.3.1 Nellis AFB

Potable Water

Piped surface and ground water support base personnel and operations. This includes water for drinking, sewage systems, fire utilities, maintaining landscapes, and construction. All water sources for Nellis AFB meet EPA and State of Nevada standards. Nellis AFB's potable water sources include five active government-owned and operated wells and water purchased from Southern Nevada Water Authority via bulk-supply pipelines from Lake Mead. A small quantity is also purchased from the City of North Las Vegas Water District. Nellis AFB is allotted 7.1 million gallons per day (gpd) of surface and ground water (NAFB 2002a). Nellis AFB average daily water usage varies between 3.6 million gpd from October through April and 7 to 8 million gpd from May through September. There are nine potable water storage tanks on Nellis AFB. The total existing potable water storage is 7.5 million gallons. According to the *2006 HQ Infrastructure Assessment*, some components of the Nellis AFB water supply distribution system and wells are considered deteriorated. Installation of backflow prevention equipment, replacement of three aging wells, and replacement of deteriorated cast iron piping are required to update the existing system (Air Force 2006a).

Sanitary Sewer

Nellis AFB discharges approximately 1.5 million gpd of sanitary sewage from the base to the Clark County Water Reclamation District. This equates to about 90 to 95 percent of the base sanitary sewage. Industrial wastewater (i.e., aircraft wash water) from the flightline is also discharged through the sanitary sewer system to the Clark County Water Reclamation District with the sanitary wastewater. Approximately 496,000 linear feet (LF) of sewer pipeline is maintained by the base for collection and transfer of wastewater from housing, offices, shops, the hospital, and flightline areas. Septic tanks, not connected to the sewage collection system, are used for remote buildings on the base. The *2006 HQ ACC Infrastructure Assessment* rated the base's sanitary sewer collection system as degraded primarily due to defects in the collection system and pump stations (Air Force 2006a).

Electrical

The Nevada Power Company (a subsidiary of Sierra Pacific Resources) provides electric power to the base. Power is distributed throughout the base via 718,319 LF of above-ground cable, and another 1,175,415 LF of underground cable. Pole and pad-mounted transformers step down the 12.47 kilovolts (kV) power to the voltages that are required by the various facilities. Nellis AFB has privatized their

military family housing, resulting in two circuits being available for new expansion/construction projects on the base. Nellis AFB has indicated that the electrical system is adequate due to improvements made in 2003 (Air Force 2006a). To meet mandates of the Energy Policy Act of 2005, a solar photovoltaic array is under construction in Area III to provide the base a renewable energy source during periods of peak demand.

Emergency Generator

A back-up system comprised of 38 fixed generators and an additional 27 mobile generators provides power for contingency or emergency operations. The average age of the fixed generators is currently 5.5 years; the life expectancy is 20 years. A base-wide program to replace outdated and deteriorating generator units ensures the base has a reliable source of back-up power (Air Force 2006a).

Natural Gas

Southwest Gas Company supply line distributes gas to areas of the base via 206,000 LF (almost 40 miles) of polyethylene pipelines. The primary source of heating fuel on the base is natural gas. The base maintains three 1,000-cubic-foot cylinder tanks of natural-gas storage to refuel government vehicles. Supply from the company will be adequate to meet existing and projected demand. The natural gas distribution system on the base has been rated adequate (Air Force 2006a).

Storm Drainage

Stormwater in all areas of Nellis AFB generally flows to Clark County Regional Flood Control District channels to the southeast where it is routed into the Las Vegas Wash. Stormwater runoff is drained by three outfalls—one each in Area I, Area II, and Area III. Outfall 001 in Area I drains the main and comprises 10,760 acres of on-base property. Outfalls 002 and 003 consist of small brooks and swales. Under the CWA, facilities that discharge stormwater associated with industrial activity must apply for a stormwater permit. The EPA delegated permitting authority to the State of Nevada. Nellis AFB has authorization under Nevada Department of Environmental Protection (NDEP) General Permits No. NVR050000 and GNV0022233-2004 to discharge its stormwater through the base's three outfalls. The storm drainage system is considered adequate and can support future development on the base.

Central Heating and Cooling

Each facility on the base is equipped with its own heating and cooling system. The hospital complex is supported by a central energy plant (CEP), located in Building 1301. The CEP has a heating capacity of 26 million British thermal units (BTU) and is fueled by 3 high-pressure natural gas steam boilers. The remaining facilities on base are heated by 36 natural gas burning individual and multi-facility boilers with

at total heating capacity of 123,000 million BTUs. The *2006 HQ ACC Infrastructure Assessment* rated the base's heating and cooling systems as adequate (Air Force 2006a).

Liquid Fuels

Jet fuel (JP-8) is provided by Kinder-Morgan, located just north of the Nellis AFB Bulk Fuel Storage Tank facility. Nellis AFB manages one bulk storage system with four JP-8 field-erected aboveground tanks, with a total of 47,400 barrels or 1,990,800 gallons. Nellis AFB also manages two JP-8 operating storage tank facilities, the West Transient Ramp Type III Hydrant System and the Eastside Revetment modified Type III Hydrant System.

The West Transient Ramp system includes two 10,000 bbl field-erected tanks with six aircraft refueling fillstands and nine aircraft fueling outlets. This facility receives fuel from the four Bulk Operating Storage tanks, just outside of the north gate. Fuel is supplied through an 8-inch, cathodically protected, carbon steel pipeline that is approximately 9,000 LF length.

The Eastside Revetment receives fuel from the Kinder-Morgan Contractor-Owned-Contractor-Managed (COCM) 24,000 LF 8-inch pipeline that runs from their main storage facility outside of the north gate around the north perimeter of the Main Base to their two 10,000 bbl bulk storage tanks. A 6-inch cathodically protected carbon steel line, which runs approximately .75 miles, connects the Kinder-Morgan tanks to the base's four 25,000 gallon operating storage tanks. These four tanks feed fuel to 25 fighter revetments and three bomber pads through a combination of single-wall fiberglass reinforced plastic (FRP) pipeline and cathodically-protected carbon steel pipeline, approximately 13,000 LF in length.

For the Air Force pipelines, leak detection is provided through buried soil vapor probes, located every 20 feet along the entire length of the pipeline and is tested annually by a third-party contractor. Kinder-Morgan also performs periodic testing of their pipeline, but this testing is performed in-house. The base also has seven commercial and government fuel stations at Nellis AFB that provide unleaded, diesel, bio-diesel, and JP-8 products. Combined storage capacity of all fuel products on Nellis AFB, to include underground storage tanks, aboveground storage tanks, and electrical transformers, was calculated at 3,315,574 gallons in the August 2006 *Nellis AFB Facility Response Plan*, not including 840,000 gallons of storage capacity in the newly installed Kinder-Morgan tanks. The 2003 HQ ACC Infrastructure Assessment rated the base POL systems as *Adequate*, with an overall score of 88 percent.

Airfield Pavement

Airfield pavement systems consist of runways, taxiways, aprons, revetment areas, helicopter pads, and miscellaneous hangars accesses and pavement pads. The existing airfield pavement systems are currently

adequate; however, because the pavement systems consist of concrete and asphalt which can deteriorate from both load and climatic conditions, constant repairs are required (Air Force 2006a).

Airfield Lighting

The airfield lighting system consists of standard runway and taxiway edge lighting systems with a full approach lighting on both ends of Runway 03R/21L. The lights are controlled from the airfield lighting vault with a standard control system linked by cable to the control tower. The overall airfield lighting system is in good condition (Air Force 2006a).

Roads

The majority of the 147 miles of paved roads on the base meet at intersections controlled by stop signs. Unpaved roads are located in Areas II and III. The majority of the unpaved roads is located along the perimeter of the base and are minimally used for fence maintenance.

3.3.2 Creech AFB

Potable Water

The Creech AFB water system includes three wells, a liquid chlorine treatment system, a 150,000-gallon water tank, and an old 50,000 non-operational tank. Wells 62-1, 106-2, and Creech AFB Well 3 provide potable water to the base. The wells are monitored for compliance with drinking water standards on a regular basis by personnel from the Bio-environmental Group at Nellis AFB. The existing polyvinyl chloride piping and 150,000-gallon storage reservoir are considered adequate to meet the current water demands at Creech AFB (NAFB 2002a). The Air Force has authorization from the State of Nevada Engineer to pump a total of approximately 62.7 million gallons per year (gpy) from the three groundwater wells. Current demand on the Creech AFB water supply system is estimated at an annual average of 88,000 gpd (approximately 32 million gpy), or 51 percent of its total capacity for municipal and industrial uses. The *2006 HQ ACC Infrastructure Assessment* (Air Force 2006b) considered the potable water system at Creech AFB to be degraded after two of the three wells became inoperable. Both wells have since been repaired.

Sanitary Sewer

Creech AFB wastewater flows through a gravity collection system to an activated sludge treatment plant. Treated wastewater discharges to the groundwater of the State of Nevada via evaporation/percolation ditches. Treated effluent is held in percolation basins that are used to recharge groundwater supplies. The wastewater treatment plant has a design capacity of 90,000 gpd. Currently, the plant operates at

approximately 44 percent of capacity treating 40,000 gpd on average, with peak flows of approximately 60,000 gpd. Creech AFB maintains a wastewater collection system that collects and transfers wastewater to the influent pumping station. Upgrades to the influent pump station in recent years included the addition of valves, a valve volt, and an alarm system. Creech AFB has a looped recovery system for industrial wastewater. A National Pollutant Discharge Elimination System (NPDES) general permit has been issued to Creech AFB for contaminants from range activities that have the potential to be moved from surface water flows into stream channels (NAFB 2002a). The sanitary sewer collection system has been rated adequate (Air Force 2006b).

Electrical

The Nevada Power Company provides electrical power to Creech AFB. The electrical distribution system at Creech AFB consists of a 2,400/4,190 volt feeder. Power is provided to the feeder through a single 13.8/41.6 kV, 5 megavolt-ampere transformer to one of three oil circuit breakers located in a Nevada Power substation that also supplies the town of Indian Springs. The existing electrical substation is equipped with a voltage regulator and provides three circuits for base power distribution. A loop feed is utilized for a large part of the Creech AFB circuit. In addition, Creech AFB operates six standby power units and three equipment authorization inventory data systems for emergency operations. In 2006, the Creech AFB overhead electrical distribution system was considered degraded, due to the system's age (35 years) and configuration (Air Force 2006b). The electrical system would require a new substation to ensure support future development (Air Force 2006b).

Emergency Generator

Seven installed standby generators with an average age of 16 years, and 3 mobile generator units comprise the back-up power system for Creech AFB. In 2006, the Air Force rated the standby power systems as degraded for contingency or emergency operations (Air Force 2006b).

Natural Gas

There is no natural gas system on Creech AFB (Air Force 2006b).

Storm Drainage

The base currently utilizes a system of natural arroyos for stormwater runoff. The parched, sandy soils absorb most of the surface water runoff; however, occasional thunderstorms produce flooding in portions of the base. The storm drainage system is considered inadequate (NAFB 2002a).

Central Heating and Cooling

The majority of the facilities on the base are equipped with their own heating and cooling system. A few of the newer facilities, built in the last 3 years, have air-cooled chilled water systems and propane heating systems. The *2006 HQ ACC Infrastructure Assessment* rated the base's heating as adequate and HVAC (cooling) systems as degraded (Air Force 2006b).

Liquid Fuel

Creech AFB has four JP-8 operating storage tanks, one of which was deactivated in 2005 due to mission storage requirements. The shell capacity of the three remaining storage tanks is 130,000 gallons (70K, 2 each 30K). Useable fuel storage is 106,000 gallons. An additional six 5,000-gallon double-wall aboveground storage tanks, for a total capacity of 30,000 gallons shell capacity, provide fuel to vehicles. The overall POL system, based on the 2003 HQ ACC Infrastructure Assessment was rated *Adequate*, with an overall score of 87 percent.

Airfield Pavement

Airfield pavement systems consist of runways, taxiways, aprons, and miscellaneous hangars accesses and pavement pads. The existing airfield pavement systems are currently adequate; however, because the pavement systems consist of concrete and asphalt, which can deteriorate from both load and climatic conditions, constant repairs are required (Air Force 2006b).

Airfield Lighting

Creech AFB has two runways. Runway 13/31 has no approach lighting system and is approved for only Predator and Reaper daytime visual flight rule operations. The airfield lighting system for Runway 08/26 consists of medium intensity runway edge lighting on with no approach lighting on either end. The lights are controlled from the airfield lighting vault with a standard control system linked by cable to the control tower. The overall airfield lighting system is rated degraded (Air Force 2006b).

Roads

The January 2001 Infrastructure Program Review of Roadway Pavement Systems at Creech AFB reported that the overall engineering condition assessment rating of the pavement system was "adequate" (NAFB 2002a).

3.4 SOCIOECONOMICS

Socioeconomics is defined as the social and economic activities associated with the human environment, particularly population and economic activity. Economic activity typically includes employment, personal income, and industrial growth. Impacts on these two fundamental socioeconomic indicators can also influence other components such as housing availability and public services.

Socioeconomic data are presented at the county level in order to analyze baseline socioeconomic conditions in the context of county trends. Data have been collected from previously published documents issued by federal, state, and local agencies; from state and national databases (e.g., U.S. Census Bureau (USCB); University of Nevada Center for Business and Economic Research; and from Nellis AFB (e.g., the base's Public Affairs Office).

Affected Environment

Analyses of impacts to socioeconomic characteristics potentially resulting from implementation of ADP and other projects requires establishment of an affected environment – a primary geographical area within which direct and secondary socioeconomic effects would be noticed. The primary focus for socioeconomic affect for Nellis AFB is Las Vegas Valley, while the primary focus for Creech AFB is Indian Springs because of the small size and economic impact of Creech AFB.

3.4.1 Nellis AFB

Analyses of impacts to socioeconomic characteristics potentially resulting from implementation of the proposed action require establishment of an affected environment – a primary geographical area within which direct and secondary socioeconomic effects of the Nellis AFB proposed action and alternative actions would be noticed. Because direct socioeconomic effects associated with implementation of the alternatives actions would occur in the immediate vicinity of Nellis AFB and since infrastructure resources are generally influenced by the socioeconomic environment, the primary focus of this analysis is Clark County.

Nellis AFB is among the area's largest employers with a workforce that totaled 12,284 personnel in 2006 (NAFB 2006c). The types of personnel included 8,615 active duty military, 2,746 non-appropriated contract civilians and private business employees, and 923 appropriated civilians. The total annual payroll expenditures in 2006 were more than $857 million. Further, the Air Force estimates that the economic stimulus of Nellis AFB created approximately 5,386 secondary jobs in the civilian economy generating nearly $191 million in the local region. Nellis AFB also purchased considerable quantities of goods and services from local and regional firms. Construction costs, service contracts, materials, supplies, and equipment for the base totaled over $2.6 billion. In total, Nellis AFB contributed over $4.2

billion to the local economy in 2006. Also generating substantial economic activity are over 27,500 military retirees who receive and spend payrolls exceeding $519 billion in the region (NAFB 2006c). As one of the single largest government employers in Clark County, Nellis AFB and its continuing operations represent a significant source of regional economic activity.

One of the continually growing employment sectors in Clark County is construction. Rapid growth in regional population in the past 15 years is the cause of the continued growth in the construction industry. Recent data indicate that although population growth has slowed in the past 5 years, construction employment continues to grow (UNLV 2006). In the 5-year period between 2000 and 2005, the population in the Clark County increased 23 percent while the number of employed persons grew by nearly 19 percent (USCB 2006). In 2006, the construction industry in Clark County gained 11,100 jobs; however, residential and commercial construction permits dropped resulting in a 5 percent decrease in construction growth over the previous year (UNLV 2006).

3.4.2 Creech AFB

The affected environment for socioeconomics is the town of Indian Springs. The community of Indian Springs has few employment opportunities which are primarily limited to the combined elementary/middle/high school, the county branch library, and highway services. The population of Indian Springs in 2000 was 1,302 (USCB 2006). However, July 2005 population estimates indicate the population grew to 1,679 (NSBDC 2006).

The primary economic influences in the area are Department of Defense (DoD) and Department of Energy (DOE) operations in the region. In 2003, Creech AFB had 1,157 assigned personnel, with an ongoing increase of 143 positions from the UAS force structure changes expected (Air Force 2003a). The Southern Desert Correctional Center (SDCC) and Indian Springs Conservation Camp and Boot Camp, located just east of the community of Indian Springs and Creech AFB, provide additional influence on the local economy through employees and inmate visitors.

3.5 CULTURAL RESOURCES

Cultural resources management is directed by federal laws. Section 106 of the National Historic Preservation Act (NHPA) of 1966 requires that federal agencies take into account the effects of their undertakings on historic properties, which are locations, features, and objects older than 50 years and determined eligible for nomination to the National Register of Historic Places (NRHP).

Cultural resources are divided into three categories: archaeological resources, architectural resources, and traditional cultural resources or properties. Archaeological resources are places where people changed the ground surface or left artifacts or other physical remains (e.g., arrowheads or bottles). Archaeological

resources can be classed as either sites or isolates and may be either prehistoric or historic in age. Isolates often contain only one or two artifacts, while sites are usually larger and contain more artifacts. Architectural resources are standing buildings, dams, canals, bridges, and other structures. Traditional cultural properties are resources associated with the cultural practices and beliefs of a living community that link that community to its past and help maintain its cultural identity. Traditional cultural properties may include archaeological resources, locations of historic events, sacred areas, sources of raw materials for making tools, sacred objects, or traditional hunting and gathering areas.

Affected Environment

The Area of Potential Effect for this action is defined as the region of influence, or affected environment, since the proposed action and alternatives are unlikely to affect setting or be visually intrusive to NRHP-eligible resources beyond Nellis AFB.

Methods for inventory and evaluation are described in Appendix I of the 2007 Integrated Cultural Resources Management Plan (NAFB 2007). Efforts to identify and evaluate cultural resources properties for this project according to 36 CFR 800.4 were initiated in 1978 and continue to the present. Nellis AFB initiated a Native American Program in 1996 as a foundation for government-to-government consultation. Activities have included Annual Meetings, NTTR field trips, participation in professional meetings, and the formation in 1999 of a Document Review Committee which reads and comments on cultural resources reports prior to SHPO reviews.

The affected environment for cultural resources includes the Air Force-managed land within the boundaries of Nellis AFB and Creech AFB where construction or renovation projects under the proposed action could have an impact.

3.5.1 Nellis AFB

All of Nellis AFB, which includes Area I, Area II, and Area III, and the Small Arms Range, has been surveyed for archaeological resources and all sites evaluated. One NRHP-eligible site, a quarry, is located on Nellis AFB. All other sites were determined through SHPO consultation (letter dated April 12, 2001) to be ineligible for nomination. The Nevada SHPO has concurred with these determinations (Nevada SHPO 2004).

In 1988, an inventory and evaluation of World War II structures was completed at Nellis AFB, and no World War II structures on Nellis AFB were considered to be eligible to the NRHP.

In 2004, 336 Wherry houses constructed from 1950 to 1957 and 113 Capehart structures built on Nellis AFB in 1960 were proposed for demolition. Dobson-Brown (2004) conducted the field research and

argued the buildings lacked physical integrity for further eligibility consideration. The SHPO concurred with the recommendation (personal communication, Myhrer 2006). Following this review, Nellis AFB determined an updated historic building inventory for the Nellis AFB Las Vegas Valley properties and Creech AFB was necessary.

According to 36 CFR 60.4 (g), special properties may have achieved significance within the last 50 years due to exceptional importance within the appropriate local, state, or national historic context. Because the Cold War had impacts for the history of the nation, the Department of Defense Legacy Resource Management Program and the Air Force Federal Preservation Officer determined it necessary to evaluate Cold War facilities (both those less than and equal to or greater than 50 years old) to comply with Section 110. To ensure compliance with Section 106, an action memo was sent in 1992 to the Air Force Civil Engineer stating that the SHPO would be consulted prior to any actions with potential to affect Cold War facilities. A new building inventory for Nellis AFB is in process that will evaluate all Cold War facilities at Nellis AFB.

Nine structures, constructed between 1951 and 1971, were inventoried in 2006 (NAFB 2006b). The buildings are part of the larger survey and evaluation of 172 buildings from the Cold War era on Nellis AFB that is in process; however due to their proposed demolition as part of the BRAC and WINDO actions occurring on the base, a separate report on eligibility recommendations for Nevada SHPO Section 106 review was requested by Nellis AFB. These facilities include seven buildings that are older than 50 years (Buildings 67, 250, 258, 265, 839, 841, and 941) and two buildings that are less than 50 years old (Buildings 264 and 413). Consultation with SHPO on the ineligibility of the nine structures was completed in December 2006. The Nevada SHPO concurred that the nine structures were not eligible for nomination to the NRHP. The larger survey was completed in 2007 and is currently in consultation with SHPO.

3.5.2 Creech AFB

Creech AFB (formerly Indian Springs Air Force Auxiliary Field) has been 100 percent inventoried for cultural resources. No sites eligible for nomination to the NRHP exist on the installation (NAFB 2007).

3.6 BIOLOGICAL RESOURCES

Biological resources encompass plant and animal species and the habitats within which they occur. Plant species are often referred to as vegetation and animal species are referred to as wildlife. Habitat can be defined as the area or environment where the resources and conditions are present that cause or allow a plant or animal to survive at that location (Hall *et al.* 1997). Biological resources for this EA include vegetation, wetlands, wildlife, and special-status species occurring in the vicinity of the proposed projects on Nellis AFB and Creech AFB.

Vegetation

Vegetation includes all existing upland terrestrial plant communities with the exception of wetlands or special-status species. The affected environment for vegetation includes those areas subject to demolition and construction ground disturbance.

Wetlands and Jurisdictional Waters of the United States

Wetlands are considered special category sensitive habitats and are subject to regulatory authority under Section 404 of the Clean Water Act and Executive Order 11990 *Protection of Wetlands.* They include jurisdictional and non-jurisdictional wetlands. Jurisdictional wetlands are those defined by the United States Army Corps of Engineers (USACE) and EPA as those areas that meet all the criteria defined in the USACE's 1987 *Wetlands Delineation Manual* and under the jurisdiction of the USACE (USACE 1987). Wetlands are generally associated with drainages, stream channels, and water discharge areas (natural and man-made). The discussion on wetlands pertains to the potential to affect wetlands and jurisdictional waters of the U.S. due to construction or demolition activities under the proposed action.

Wildlife

For the purposes of this EA wildlife includes all vertebrate animals (i.e., fish, amphibians, reptiles, birds, and mammals) with the exception of those identified as threatened, endangered, or sensitive species. Wildlife potentially affected by demolition and construction activities and construction noise will be discussed.

Special-Status Species

Special-status species are defined as those plant and animal species listed as threatened, endangered, or proposed as such by the USFWS. The federal Endangered Species Act (ESA) protects federally listed, threatened, and endangered plant and animal species. Species of concern are not protected by the ESA; however, these species could become listed and protected at any time. Their consideration early in the planning process could avoid future conflicts that might otherwise occur. The discussion of special-status species focuses on those species with the potential to be affected by demolition, construction, and construction-related noise.

Affected Environment

The affected environment for biological resources includes areas of Nellis AFB and Creech AFB potentially affected by ground-disturbing activities such as demolition, construction, or infrastructure development and noise. All baseline data were gathered from previous studies such as the *Integrated*

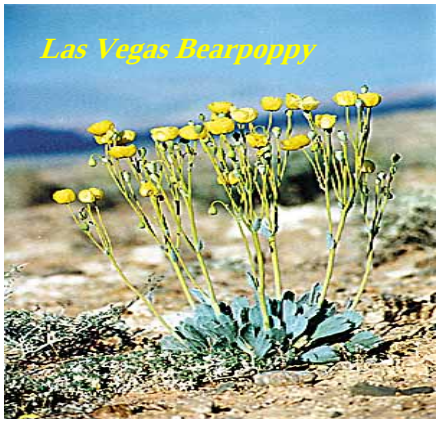
Natural Resource Management Plan for Nellis Air Force Base (Air Force 1999b). Areas on Nellis AFB could experience development constraints. The presence of several special-status species in Areas II and III on Nellis AFB could pose constraints on future development. The desert tortoise and the Western burrowing owl have the potential to affect development on Creech AFB.

3.6.1 Nellis AFB

The affected environment for biological resources includes areas of Nellis AFB potentially affected by ground-disturbing activities such as demolition, construction, or infrastructure development and noise.

Vegetation

Nellis AFB is located in the Mojave Desert. Large expanses of the valley floors in the Mojave Desert support the creosote bush (*Larrea tridentata*)-white bursage (*Ambrosia dumosa*) desert scrub community. The creosote bush and white bursage dominate plant communities at elevations from below sea level to about 3,940 feet (Hazlett *et al.* 1997). This desert scrub community, characteristic of much of the Mojave Desert can still be found in the less developed areas of Nellis AFB, such as the eastern portion of Area II. Tamarisk or salt cedar (*Tamarix* spp.) is an introduced, non-native perennial plant species that has had a notable effect on plant associations. Nellis AFB has an aggressive program to eradicate Tamarisk from the installation. Traditionally, non-native drought-tolerant deciduous trees and shrubs, evergreen trees and shrubs, perennials, ground covers, vines, and grasses have also been planted throughout the base, however, over the past several years the focus has been on planting native vegetation. Introduced native and non-native vegetation are contained mostly within and adjacent to developed areas at the base (Air Force 1999b).



Las Vegas bearpoppy (*Arctomecon californica*) and Las Vegas buckwheat (*Eriogonum corymbosum*), both plant species of concern, are present on gypsiferous soils in three different locations on Nellis AFB. These two plant species are discussed in detail in the special-status species section under Nellis AFB.

Wetlands and Jurisdictional Waters of the United States

The only waters on Nellis AFB that could be considered wetlands are the golf course ponds. However, USACE personnel have determined that these man-made water sources are not subject to wetlands protection under the provisions of the CWA because they are man-made and the water source is not natural (Air Force 1999b). Because the Las Vegas Wash is connected to the Colorado River, any ephemeral streams and washes eventually emptying into the Las Vegas Wash could be considered jurisdictional under Section 404 of the CWA. The Range Wash flows into a retention basin upstream of the Sloan Channel which eventually flows to the Las Vegas Wash (Air Force 1999b). Consultation with the USACE would be conducted to determine presence of jurisdictional waters of the U.S. prior to project initiation in undeveloped areas.

Wildlife

Due to its location adjacent to metropolitan Las Vegas and previous development and construction activities, Nellis AFB is primarily an urban environment with some relatively undisturbed lands lying to the east and north of the base. Wildlife species found on base are mostly limited to those that have adapted to high levels of human activity and disturbance. Three general habitat types are present on the base: urban areas, open space recreation (e.g., golf course), and native desertscrub vegetation. Common bird species in the urban areas include house finch and house sparrow. Open spaces are frequented by American coot (*Fulica americana*), horned lark (*Eremophila alpestris*), great-tailed grackle (*Quiscalus mexicanus*), and domestic geese and ducks. The areas with the most diverse wildlife are those containing native desertscrub vegetation. Area II (refer to Figure 1-2) comprises the most undisturbed native desertscrub habitat on the base. Coyote (*Canis latrans*), Gambel's quail (*Callipepla gambelii*), mourning dove (*Zenaida macroura*), desert spiny lizard (*Sceloporus magister*), and side-blotched lizard (*Uta stansburiana*) are common wildlife species found in the vicinity of the base (Air Force 1999b).

Special-Status Species

Only one federally-listed animal species, the desert tortoise (*Gopherus agassizii*), is present on the base in low densities in undeveloped portions of Area II. The desert tortoise was listed by the USFWS as threatened on April 2, 1990. It is the largest reptile in the arid southwestern U.S. Tortoises spend much of their lives in underground burrows that they excavate to escape the harsh summer and winter desert conditions. They usually emerge in late winter or early spring and again in the fall to feed and mate, although they may be active during summer when temperatures are moderate. Desert tortoises are herbivorous, eating a wide variety of herbaceous vegetation, especially flowers of annual plants. Historically the tortoise occupied a variety of desert communities in southeastern

California, southern Nevada, western and southern Arizona, southwestern Utah, and through Sonora and northern Sinaloa, Mexico. Today it can still be found in these areas, although the populations are fragmented and declining over most of its former range (Air Force 1999b).

A USFWS Biological Opinion (USFWS 2007) regarding future impacts to the desert tortoise population states the level of impact was "…not likely to jeopardize the continued existence of the threatened Mojave population of the desert tortoise …" The USFWS issued reasonable and prudent measures, including implementing terms and conditions designed to minimize incidental take in Areas I, II, and III. According to 50 CFR Section 402.16, any new Air Force action that may affect the desert tortoise in portions of Areas I and II, not considered in previous Biological Opinions, would require reinitiation of consultation with the USFWS. The opinion, however, noted that Area I contained no tortoises.

Two plant and two other animal Federal species of concern have been observed or occur on Nellis AFB. These are the Las Vegas bearpoppy, Las Vegas buckwheat, chuckwalla (*Sauromalus obesus*), and western burrowing owl *(Athene cunicularia)*. Four populations of Las Vegas bearpoppy have been located on Nellis AFB: three small populations in Area II and one large population in Area III. A conservation area containing the largest Las Vegas Bearpoppy and Las Vegas Buckwheat populations on the base has been established in Area III (Air Force 1999b). The Gila monster, classified as protected by the state, could be found in Area II. State protocols would be implemented if Gila monsters are encountered during construction.

The presence of chuckwalla on Nellis AFB has been confirmed due to observations of scat on the Sunrise Mountain foothills in the eastern portion of Area II. The chuckwallas inhabit rocky hillsides, talus slopes, and rock outcrops in areas dominated by creosote. Western burrowing owl is a species native to southern Nevada that adapts well to urban environments. The species prefer flat, previously disturbed areas like those found around the southern boundary of Nellis AFB where loose soil allows for excavation of burrows. Prior to the initiation of any project construction, surveys coordinated through the Natural Resources Manager would be conducted to determine the presence of any special status plant and wildlife species.

3.6.2 Creech AFB

Vegetation

Creech AFB is located in the northeastern portion of the Mojave Desert. The surrounding landscape is typical of the Mojave Desert, with low lying enclosed basins surrounded by low mountains and bajadas formed of coalescing alluvial fans. On the bajadas and mountain slopes, the vegetation is typically dominated by creosote bush where white bursage is commonly codominant. On valley bottoms and dry lake beds (playas) at lower elevations where soils are relatively fine, alkaline and clayey, saltbush,, shadscale (*A. confertifolia*), and allscale (*A. polycarpa*) dominate. Matchweed (*Gutierrezia sarothrae*), buckwheat (*Eriogonum* spp.), and cheesebush (*Hymenoclea salsola*) also occur in saltbush scrub (NAFB 1996).

Vegetation surrounding the Creech AFB was systematically evaluated and mapped by Nellis AFB (NAFB 1996). Mixed scrub vegetation typical of the Mojave Desert occurs on lands surrounding Creech AFB, where several associations including creosote bush, bursage, and different species of saltbush can be distinguished (NAFB 1996). Within the fenced area of the airfield, the vegetation is very sparse due to disturbance and is dominated by non-native Russian thistle. Surrounding vegetation and wildlife habitat outside of the fence consists of creosote bush scrub and saltbush scrub. Two different associations of creosote bush scrub are recognized: one dominated by creosote bush and white bursage, occurring to the southwest to southeast and to the south surrounding Indian Springs; and another including a mixed scrub association of creosote bush, fourwing saltbush, and shadscale, throughout the area north of Creech AFB. The saltbush scrub occurs on the northeast side of the airfield.

Wetlands and Jurisdictional Waters of the United States

There are no wetlands within the affected areas for the proposed actions at Creech AFB. However, there may be jurisdictional waters of the U.S. present as defined under Section 404 of the Clean Water Act. Appropriate documentation would be submitted and consultation conducted with the USACE to determine if jurisdictional waters of the U.S. are present for any project with the potential of affecting jurisdictional waters.

Wildlife

Wildlife that typically occur in creosote bush scrub and saltbush scrub habitats, have been observed on Creech AFB, primarily outside of the fenced area. Mammals include black-tailed jackrabbits (*Lepus californicus*), desert woodrat (*Neotoma lepida*), kangaroo rats (*Dipodomys* spp.), coyote, and desert kit fox (*Vulpes macrotis arsipus*). Several species of bats may occur in the general area, attracted by water and associated insects at the municipal sewage ponds and the springs in Indian Springs Valley (NAFB

1997). Pipistrelle (*Pipistrellus hesperus*) and California myotis (*Myotis californicus*) were documented in surveys at Indian Springs (NAFB 1997).

A diverse herpetofauna is present that includes desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callosaurus draconoides*), side-blotched lizard, horned lizards (*Phrynosoma* spp.), western whiptail (*Cnemidophorus tigris*), and the desert tortoise. Several snakes may also be present, including kingsnake (*Lampropeltus getulus*), rosy boa (*Lichanura trivirgata*), gopher snake (*Pituophis melanoleucus*), and Mojave rattlesnake (*Crotalus scutulatus*).

Bird species that include a variety of ground-dwelling seed or insect eaters such as jays, wrens, shrikes, towhees, sparrows, Gambel's quail, sage thrasher (*Oreoscoptes montanus)* and mourning dove; the omnivorous raven (*Corvus corax*); greater roadrunner (*Geococcyx californianus*), which feeds on snakes and lizards; and several species of raptors, including golden eagle (*Aquila chrysaetos*), redtailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), and northern harrier (*Circus cyaneus*). Burrowing owls occur at the northern end of the runways at Creech AFB (NAFB 1996).

Special-Status Species

With the exception of the desert tortoise and burrowing owl, no special-status plant or animal species are known or likely to occur in the areas subject to ground disturbance at Creech AFB. Desert tortoise occur on land surrounding Creech AFB, but were not detected in a survey of the airfield area (NAFB 1996), and their occurrence is unlikely given the level of disturbance and activity. Burrowing owls have been observed in burrows in the disturbed soil at the north end of the runway at Creech AFB (NAFB 1996). Prior to the initiation of any project construction, surveys coordinated through the Nellis AFB Natural Resources Manager would be conducted to determine the presence of burrowing owls or special status plant and wildlife species. The Gila monster protected by state law could potentially be found on Creech AFB. NDOW protocols would be implemented if Gila Monsters are encountered during construction.

3.7 WATER AND SOIL RESOURCES

Water Resources

Water resources include surface and ground water. Lakes, rivers, and streams comprise surface water resources that are important for economic, ecological, recreational, and human health reasons. Groundwater is used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition. Attributes of water resources considered in this EA include hydrologic setting, availability, use, quality (including protection zones), floodplains, flood hazard, and adjudicated claims to water rights for both surface and groundwater. The Clean Water Act (CWA) of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, and

aquifers. Jurisdictional waters of the U.S. are regulated resources and are subject to federal authority under Section 404 of the CWA. This term is broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands.

Criteria for water quality within the State of Nevada are contained in the Nevada Administrative Code (NAC), Chapter 445A.119, and apply to existing and designated beneficial uses of surface water bodies. Water quality standards are driven by the beneficial uses of specific water bodies. Beneficial uses include agriculture (irrigation and livestock watering), aquatic life, recreation (contact and non-contact), municipal or domestic supply, industrial supply, and wildlife propagation.

The State of Nevada has adopted drinking water standards established by the EPA, under the Safe Drinking Water Act. The Nevada Department of Health regulates drinking water quality for public supply systems. Drinking water standards consist of maximum contaminant levels established for various water quality constituents to protect against adverse health effects.

Soil Resources

Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Relative to development, soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

Affected Environment

General water and soils information pertain to Nellis AFB and Creech AFB where ADP or other projects would occur. Water and soils resources pose no constraints to development at either base.

3.7.1 Nellis AFB

Water Resources

The Sierra Nevada, stretching along Nevada's western border, interrupts the prevailing easterly flow of storm systems and the state's access to precipitation, resulting in a "rain shadow." Surface water is sparse in Nevada. Typically, as much as 75 percent of Nevada's precipitation falls during the winter. The Great Basin subprovince drains internally; precipitation has no surface water outlet to the Pacific Ocean. Average precipitation depends mainly on elevation and ranges from 4 inches on the desert floor to 16 inches in the mountain areas. With the exception of locally intense thunderstorms that can produce flash flooding, much of the warm weather precipitation is lost to the atmosphere through evaporation and transpiration. Flash floods produce high peak flows over short periods.

Nevada's groundwater is typically found in unconsolidated deposits of sand, gravel, silt, and clay that partly fill the many basins. Most groundwater development is in basins where water is readily obtained from shallow unconsolidated deposits where well yields are more predictable than in the mountains.

Nellis AFB lies in the southern portion of the Las Vegas Valley within the Colorado River Basin. Natural surface waters and perennial streams are nonexistent on base. A 100-year floodplain lies adjacent to the southeastern portion of the golf course; no 100-year floodplains occur within the developed portions of the base. The minimal precipitation that is captured on base is drawn into the valley's principal basin-fill aquifer, shallow aquifers, and the Colorado River.

Nellis AFB is underlain by carbonate rock aquifers of the Death Valley and Colorado aquifer systems (USGS 1997), which are hydrologically connected to shallower alluvial aquifer systems composed of sand and gravels. The principal aquifer in the Las Vegas Valley hydrologic basin is naturally recharged by 9.8 to 11.4 billion gpy mostly from the Spring Mountains on the west valley boundary. Recharge of the shallow aquifers is also occurring, primarily as a result of irrigation water percolating into the ground.

A few ephemeral streams occur on Nellis AFB (personal communication, Roe 2006), particularly in Area II. No natural lakes or other open bodies of water, excluding manmade impoundments, are found on Nellis AFB. However, low precipitation, a lack of slope, and the paucity of ephemeral streams create a context where the potential for water erosion is rare. Seven man-made ponds are found within the boundary of Nellis AFB on the Sunrise Vista Golf Course.

Sources of groundwater are available from the principal alluvial-fill aquifer underlying the Las Vegas Valley. In addition to on-base wells, wells are located in both the northwest part of the valley for the Las Vegas Valley Water District/Southern Nevada Water Authority and in the northern end of the valley for North Las Vegas Water District. The current water supply at Nellis AFB is considered adequate.

Soil Resources

Nellis AFB is located in the southern part of the Las Vegas Valley. The elevation of Nellis AFB is about 2,000 feet above sea level. The ground surface over most of Nellis AFB is disturbed by man-made features, such as airfields, roads, and buildings. Over most of the base, slopes are 1 percent or less.

Nellis AFB lies primarily on two types of soil, the Las Vegas-Destazo complex and the Las Vegas-Skyhaven complex (USDA 1985). These soils are very similar physically and chemically. Las Vegas soils comprise 60 percent of Nellis AFB soils and Skyhaven and Destazo soils together comprise 25 to 30 percent, leaving 10 to 15 percent McCarran-Grapevine complex, Weiser-Goodsprings complex, and Glencarb silt loam. The main soil types share the following attributes:

- moderately slow permeability;

- slight potential for water erosion;
- high potential for wind erosion; and
- a shallow hardpan layer that limits construction.

These attributes indicate that ground disturbance at Nellis AFB, such as construction, could lead to a high degree of wind erosion. Erosion from precipitation and runoff is minimal, due to soil characteristics and lack of slope on Nellis AFB.

3.7.2 Creech AFB

Water Resources

Natural surface water is scarce on and around Creech AFB. Average annual precipitation is approximately 4 inches. Surface flow is primarily towards the two local playas, located north of the airfield where it collects and evaporates. Playas are not substantial recharge zones due to low infiltration and high evaporation rates. Evaporation rates in the area are very high and have been estimated at approximately 58 to 69 inches per year (Air Force 1999c). The Creech AFB General Plan identifies the current water supply at Creech AFB as adequate, yet stressed.

The northwest corner of the installation is within a 100-year floodplain. Other than constructed ponds and structures, no permanent surface water occurs on or in the vicinity of Creech AFB. Surface water in the vicinity of Creech AFB flows through braided, ephemeral streams, which usually flow for brief periods immediately following precipitation events.

Groundwater in the region is high in total dissolved solids at levels of 500-1,000 mg/l and rich in calcium and magnesium bicarbonate; however, the groundwater is well within the EPA standards for drinking water quality (NAFB 2002b).

Soil Resources

Creech AFB is located in the southern opening of the Indian Springs Valley. The valley is bound by the Spotted Range and Buried Hills to the west and the Pintwater Range to the east. The valley areas are dominated by Quaternary alluvial deposits with patches of Quaternary playa and marsh deposits north of Creech AFB. The local mountains (southern Pintwater Range and Spotted Range) are primarily paleozoic limestone, dolomite, shale, and quartzite. Due to western winds, the west sides of the mountains in the area are commonly flanked by dunes on top of deep alluvial fans (Air Force 1999c).

Soils in the vicinity of Creech AFB have not been mapped in detail. Soil information for the area is based on general descriptions from various resource surveys, geologic studies in adjacent areas, and general observations. Soils in the area are aridisols developed in carbonate parent material from local mountains (Air Force 1999b). Aridisols generally have poorly developed A horizons with clear B and C horizons and are sandy, loose, and prone to erosion in areas not protected by desert pavement. Soils can form anywhere that sediments accumulate; however, soils develop very slowly in desert environments and are easily disturbed. Much of the area has a surface crust known as desert pavement, which is an armored surface crust of packed angular to sub-rounded rock fragments covering the soils surface. Desert pavement is common to arid environments and acts as a shell to softer, more vulnerable soils below. Lenses of caliche (sediment cemented together with sodium salts) and clay are also known to be present at depth (USACE 2003).

3.8 AIR QUALITY

Understanding air quality for the affected area requires knowledge of: 1) applicable regulatory requirements; 2) types and sources of air quality pollutants; and 3) location and context of the affected area.

Applicable Regulatory Requirements

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. The Clean Air Act (CAA) and its subsequent amendments established the National Ambient Air Quality Standards (NAAQS) for six "criteria" pollutants: 1) ozone (O_3); 2) carbon monoxide (CO); 3) nitrogen dioxide (NO_2); 4) sulfur dioxide (SO_2); 5) particulate matter (PM) less than 10 and 2.5 microns (PM_{10} and $PM_{2.5}$); and 6) lead (Pb). These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. The Nevada Division of Environmental Protection (NDEP), Bureau of Air Quality (BAQ) has adopted the NAAQS, with the following exceptions and additions: 1) the state annual SO_2 standard is more stringent than the national standard; 2) Nevada has added an 8-hour CO standard specific to elevations greater than 5,000 feet above mean sea level; and 3) Nevada has added standards for visibility impairment and 1-hour hydrogen sulfide (H_2S) concentrations. The national and state ambient air quality standards are presented in Appendix D.

The CAA requires each state to develop a State Implementation Plan (SIP) which is its primary mechanism for ensuring that the NAAQS are achieved and/or maintained within that state. According to plans outlined in the SIP, designated state and local agencies implement regulations to control sources of criteria pollutants. The CAA provides that federal actions in nonattainment and maintenance areas do not hinder future attainment with the NAAQS and conform with the applicable SIP. There are no specific

requirements for federal actions in unclassified or attainment areas. However, all federal actions must comply with state and local regulations.

The CAA also establishes a national goal of preventing degradation or impairment in any federally-designated Class I area. As part of the Prevention of Significant Deterioration (PSD) program, mandatory Class I status was assigned by Congress to all national parks, national wilderness areas, memorial parks greater than 5,000 acres and national parks greater than 6,000 acres in existence on August 7, 1977. The PSD program is applicable only to stationary sources. These "mandatory" Class I areas may not be redesignated to a less protective classification. Forty-eight areas within the National Park System are designated Class I (large national parks and wilderness areas established since 1977, such as most park areas in Alaska, have not been designated subsequently as Class I.). In Class I areas, visibility impairment is defined as a reduction in visual range and atmospheric discoloration. Stationary sources, such as industrial complexes, are typically an issue for visibility within a Class I PSD area. The closest Class I Areas to the proposed action are Grand Canyon and Death Valley National Parks, and are beyond the 100 kilometer distance limitation from Nellis AFB for implementing additional PSD source requirements. Death Valley is 54 kilometers from Creech AFB.

Types and Sources of Air Quality Pollutants

Pollutants considered in the analysis for this EA include the criteria pollutants measured by state and federal standards. These include SO_2 and other compounds, volatile organic compounds (VOCs), which are precursors to O_3; nitrogen oxides (NO_x), which are also precursors to O_3 and include NO_2 and other compounds; CO; and PM_{10}. These criteria pollutants are generated by the types of activities (e.g., construction and aircraft operations) associated with the proposed action. Airborne emissions of lead are not included because there are no known significant lead emissions sources in the region or associated with the proposed action and the no-action alternative.

Affected Environment

Nellis AFB and Creech AFB comprise the affected environment. Both of the bases are located in Clark County, Nevada, a PSD area for all pollutants.

3.8.1 Nellis AFB

For the proposed action, the air quality affected environment for Nellis AFB is the Las Vegas Valley. The Las Vegas Valley has a CO air pollution problem, exceeding federal air quality standards on a seasonal basis. In Las Vegas, as in other urban areas, motor vehicles form the major source of CO emissions, comprising approximately 88 percent of total daily emissions. During the winter months local

inversions stagnate air masses and trap pollutants causing local buildup of CO and thus exceedences of federal air pollution standards.

Because of these conditions, a portion of the Las Vegas Valley is designated in nonattainment for carbon monoxide, particulate matter, and 8-hour ozone. This nonattainment region is defined by the boundaries of Hydrographic Area 212 and includes the portion of Clark County in which Nellis AFB is located. The USEPA has classified the Las Vegas Valley area as a "serious" nonattainment area for PM_{10} and carbon monoxide. It is basic (subpart 1) nonattainment for 8-hour ozone whose precursor pollutants are NO_x and VOCs. In accordance with federal requirements, the Clark County Board of Commissioners has developed both a CO SIP (CCHD 2000) and a PM_{10} SIP (CCHD 2001) for nonattainment areas of the county; currently, the ozone SIP is being developed for USEPA signature. Table 3.-4 provides the emissions budget for CO. For PM_{10}, Clark County has established a goal of 72,726 tons per year by 2006 (CCHD 2001). Federal facilities located in NAAQS nonattainment or maintenance areas must comply with federal air conformity rules and regulations under 40 CFR Part 51.

Table 3-4. Las Vegas Valley CO Emissions Budget (tons)

		1996	*2000*	*2010*	*2020*
CO	Daily	479.1	387.2	425.2	579.7
	Annual	174,871.5	141,328.0	155,198.0	211,590.5

Source: Carbon Monoxide State Implementation Plans, Las Vegas Valley Nonattainment Area, Clark County Nevada (CCHD 2000).

Ground-based air emissions at Nellis AFB are primarily generated from maintenance shops, aerospace ground equipment (AGE), boilers, and paint booths. Emissions associated with airfield operations (landing, takeoff, touch-and-go) are calculated based on aircraft activity summaries generated in support of the 1999 F-22 FDE beddown and reflect the baseline for this EA (Table 3-5). These data include the number of aircraft operations conducted by base-assigned and transient aircraft and apply the same information used to characterize the airfield noise environment.

Table 3-5. Summary of Baseline Emissions at Nellis AFB (tons/year)

Source	*CO*	*VOCs*	*NO_x*	*SO_x*	*PM_{10}*[1]
Ground-Based	19.544	37.030	33.385	3.653	37.286
Aircraft	928	318	444	345	26
Total	**947.544**	**355.030**	**477.385**	**348.653**	**63.286**
Clark County[2]	487,741	65,574	82,956	47,273	69,899
Nellis AFB Percent Contribution	0.194	0.541	0.575	0.738	0.091

Sources: Ground-based emissions, Air Emissions Inventory for 2005 at Nellis AFB (Air Force 2005); aircraft emissions (Air Force 1999a)

Notes: [1]$PM_{2.5}$ was regulated in 2005 and is not reflected in these inventories.
[2]Clark County 1999 Emissions (EPA 2005).

The total annual CO emissions at Nellis AFB represent about 0.7 percent of the 2000 CO emissions budget for Clark County under its current plan. PM_{10} emissions for Nellis AFB account for about 0.09 percent of the Clark County 1999 total. Both VOCs and NO_x (ozone precursors) at Nellis AFB represent

less than 1 percent of the total Clark County contribution. None of these pollutants represents a substantive contributor to nonattainment for the Las Vegas Valley area.

3.8.2 Creech AFB

Creech AFB is located in Clark County and therefore is regulated by Clark County Department of Air Quality and Environmental Management regulations. Table 3-6 provides a summary of actual emissions at Creech AFB for 2005. Air emissions are primarily generated from maintenance shops.

Table 3-6. Summary of Baseline Emissions at Creech AFB (tons/year)

	CO	*VOCs*	NO_x	SO_x	PM_{10}[1]
Creech AFB	0.109	8.197	0.506	0.931	0.035
Clark County	487,741	65,574	82,956	47,273	69,899
Creech AFB % Contribution	0.000	0.0125	0.0006	0.0020	0.0001

Sources: 2005 Air Emissions Inventory for Creech AFB; (Air Force 2005); Clark County 1999 Emissions (EPA 2005).
Notes: $PM_{2.5}$ was regulated in 2005 and is not reflected in these inventories.

3.9 HAZARDOUS MATERIALS AND WASTE

Hazardous materials (HAZMAT), listed under the Comprehensive Environmental Response, Compensations, and Liability Act (CERCLA), and the Emergency Planning and Community Right-to-Know Act, are defined as any substance that, due to quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment. Examples of HAZMAT include petroleum products, synthetic gas, and toxic chemicals. Hazardous wastes, listed under the Resource Conservation and Recovery Act (RCRA), are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes, that pose a substantial present or potential hazard to human health or the environment. Additionally, hazardous wastes must either meet a hazardous characteristic of ignitability, corrosivity, or reactivity under 40 CFR Part 261, or be listed as a waste under 40 CFR Part 263.

Hazardous materials and wastes are federally regulated by the EPA, in accordance with the Federal Water Pollution Control Act; CWA; Toxic Substance Control Act; RCRA; CERCLA; and CAA. The federal government is required to comply with these acts and all applicable state regulations under Executive Order 12088 and DoD Directive 4150.7, Air Force Instruction 32-1053. Additionally, Executive Order 12088, under the authority of the EPA, ensures that necessary actions are taken for the prevention, management, and abatement of environmental pollution from HAZMAT or hazardous waste due to federal activities. Other topics commonly addressed under hazardous materials and waste includes underground storage tanks and potential contaminated sites designated under the Air Force's ERP.

Asbestos-containing material (ACM) is any material containing more than 1 percent by weight of asbestos and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure. Asbestos is

made up of microscopic bundles of fibers that may be airborne when distributed or damaged. Due to its availability to withstand heat, fire, and chemicals, asbestos was historically used in construction materials, and is typically found in ceiling tiles, pipe and vessel insulation, floor tile, linoleum, mastic, and on structural beams and ceilings. Laws which address the health risks of exposure to asbestos and ACMs include Toxic Substance Control Act, Occupational Health and Safety Administration regulations (29 CFR), and CAA (Section 112 of the CAA, as amended, 42 USC § 7401 *et seq*.). EPA regulations concerning asbestos are contained in 40 CFR 61. The regulations require that the EPA or authorized state agencies be notified of asbestos removal projects.

Lead-based paint (LBP) was commonly used from the 1940s until the 1970s for exterior and interior painted surfaces. In 1978, the U.S. Consumer Product Safety Commission lowered the legal maximum lead content in most kinds of paint to trace amounts, therefore, buildings constructed after 1978 are presumed not to contain LBP. The use and management of LBP is regulated under Section 1017 of the Residential Lead-Based Paint Hazard Reduction Act of 1992. Section 1017 requires the implementation of federally supported work involving risk assessments, inspection, interim controls, and abatement of lead-based paint hazards. Regulations relating to LBP can be found at 29 CFR, 40 CFR, and 49 CFR.

Affected Environment

This discussion of HAZMAT and waste includes the sites and facilities at Nellis AFB and Creech AFB where hazardous materials are used, stored, or disposed. The affected areas for potential impacts related to HAZMAT and waste consists of Nellis AFB and Creech AFB with an emphasis on aircraft maintenance and munitions handling areas. Potential hazardous waste contamination areas that are under investigation as part of the Air Force ERP are also discussed. Constraints to development could occur when proposed projects are sited on or near ERP sites.

3.9.1 Nellis AFB

Hazardous Materials and Hazardous Waste Generation

Activities at Nellis AFB require the use and storage of a variety of hazardous materials that include flammable and combustible liquids, acids, corrosives, caustics, anti-icing chemicals, compressed gases, solvents, paints, paint thinners, and pesticides. The Nellis AFB Hazardous Waste Management Plan (Air Force 2002a) provides guidance and procedures for proper management of RCRA and non-RCRA hazardous waste generated on the base to ensure compliance with applicable regulations. To manage these materials, Nellis AFB uses a hazardous material pharmacy (HAZMART) pollution prevention system. This process provides centralized management of the procurement, handling, storage, and issuing of hazardous materials, as well as the turn-in, recovery, reuse, recycling, and disposal of hazardous wastes. The HAZMART approval process also includes review and approval by Air Force personnel. In

addition, the base has a Facilities Response Plan, (Air Force 2002a), which includes site specific contingency plans.

Nellis AFB generated approximately 113,900 pounds of RCRA hazardous waste in 2005 (personal communication, Rodriguez 2006), and is therefore considered a large quantity generator by the EPA. Hazardous waste at Nellis AFB is accumulated at an approved 90-day storage area on the base, or at satellite accumulation points. Approximately 100 satellite accumulation points are located at Nellis AFB (Air Force 2002b). One 90-day storage area is operated at Nellis AFB as a collection area for wastes received from satellite accumulation points. Each accumulation point must comply with requirements for siting, physical construction, operation, marking, labeling, and inspection and must maintain a container inspection log. Generators of hazardous wastes are responsible for properly segregating, storing, characterizing, labeling, marking, and packaging all hazardous waste for disposal as mandated in the Hazardous Materials Table in 49 CFR Part 172.101.

A variety of activities on base, including aircraft maintenance and support, civil engineering, and printing operations, have been identified as primary contributors to hazardous waste streams. Numerous other shops add to hazardous waste streams, including AGE, Aircraft Structural Maintenance, Fuels Management, Non-Destructive Inspection, Munitions and Armament Shops, In-Squadron Maintenance, and the Wheel and Tire Shop. Routine activities conducted on the flightline generate paints containing lead-mercury-chromium, hazardous waste containers, and contaminated rags. Wastes derived from maintenance activities include petroleum, oils, and lubricants, paints and paint-related wastes such as thinners and strippers, batteries, contaminated spill absorbent, adhesives, sealers, solvents, fuel filters, photochemicals, ignitable wastes, and metals. Basic processes and waste handling procedures for general aircraft maintenance activities are identified in the Nellis AFB Hazardous Waste Management Plan (Air Force 2002b). Hazardous waste quantities directly related to aircraft maintenance activities are listed in Table 3-7, and represent an average, based on data from August 2005 through January 2006. If annualized, the total would be approximately 37,920 pounds of hazardous waste resulting from based aircraft maintenance activities for Nellis AFB. This would account for approximately one-third of the total hazardous wastes generated by Nellis AFB for 2005.

Table 3-7. Baseline Aircraft Related Hazardous Waste by Activity at Nellis AFB

Activity	***Pounds of Waste (average per month)***
Corrosion Control	1,200
AGE	10
In-Squadron Maintenance	870
Propulsion and Test Cell	1,080
Total	3,160

Source: personal communication, Beckworth 2006

Nellis AFB has a proactive program to identify asbestos and lead in all structures in order to reduce potential hazards to occupant, workers, and the environment during construction projects. Many

buildings on base date from the 1940s through the 1980s; asbestos-containing materials have been identified in many of these facilities. Renovation or demolition of on-base structures is reviewed by Civil Engineering personnel to ensure appropriate measures are taken to reduce potential exposure to, and release of, friable asbestos. Non-friable asbestos is not considered a hazardous material until it is removed or disturbed. The Nellis AFB Asbestos Management and Operations Plan (Air Force 2003d) and Nellis AFB Lead-Based Paint Management Plan (Air Force 2003e) provides guidance on the proper handling and disposal of ACM and lead-based paint.

Environmental Restoration Program Sites

Environmental Restoration Program (ERP) sites are those sites where contamination occurred prior to 1985 and thus, remediation efforts are directed by CERCLA. Remediation measures require containment and could include contaminant removal and disposal. ERP sites on Nellis AFB include abandoned landfills, underground contaminant plumes, and ordnance disposal pits. There are currently nine ERP sites in active remediation on the base (Air Force 2004).

3.9.2 Creech AFB

Hazardous Materials and Hazardous Waste Generation

Activities at Creech AFB require the use and storage of a variety of hazardous materials associated with general aviation and vehicle maintenance activities. These include, but are not limited to, batteries, anti-freeze, paint, aerosol cans, and solvents (Air Force 2003a). The 98th Range Wing contracts management of the 90-day Central Accumulation Site (CAS) at the base. The CAS accepts all types of hazardous wastes from all Creech AFB units. Creech AFB organizations operate Initial Accumulation Points (IAP) storing no more than 55 gallons of hazardous wastes or 1 quart of acutely hazardous waste prior to transfer to the CAS. Both the IAPs and CASs are subject to regular inspections, which could include operation and facility surveys, waste stream analyses, personnel review for training requirements, and documentation requirements. The Defense Reutilization and Marketing Office (DRMO) contracts for the removal of accumulated hazardous waste and shipment for disposal.

Environmental Restoration Program Sites

For approximately 60 years, Creech AFB, formerly Indian Springs Air Force Auxiliary Field, has been used as a support area for activities at Nevada Test and Training Range.

There are 13 ERP sites present on Creech AFB. Of these ERP sites, 11 are identified as “No Further Action Required” and two have “Long Term Monitoring” Requirements.

3.10 SAFETY

Safety for this EA addresses ground and munitions safety. Ground safety considers issues associated with operations and maintenance activities. Munitions safety assesses the management and use of ordnance or munitions associated with air base operations.

Operations and maintenance activities are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements. In addition, Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design Criteria*, limits locations and heights of objects and facilities around and in the immediate vicinity of an airfield to minimize hazards to airfield and flight operations. Any condition not meeting these requirements is classified as an approved waiver, a permissible deviation, an exemption, or a violation (UFC 3-260-01). Quantity-distance criteria specified in DoD 6055.9-Std, *DoD Ammunition and Explosives Safety Standards* and Air Force Manual 91-201, *Explosive Safety Standards*. The standards include implementation of safe distances between non-explosive related facilities and personnel from weapons-loaded aircraft. Antiterrorism/Force protection measures are required in facility siting and construction to reduce the vulnerability of personnel and property.

Munitions are handled and stored in accordance with Air Force Manual 91-201, *Explosive Safety Standards*, and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data.

Affected Environment

This section addresses the day-to-day operations and maintenance activities conducted at Nellis AFB and Creech AFB.

3.10.1 Nellis AFB

Ground Safety

The Nellis AFB military fire department provides fire and crash response. Under current operations, the unit is fully capable of meeting its requirements. There are no identified equipment shortfalls or limiting factors (personal communication, Ridgeway 2005). The base maintains detailed mishap response procedures to respond to a wide range of potential incidents. These processes assign agency responsibilities and prescribe functional activities necessary to react to major mishaps, whether on or off base. Initial response to a mishap considers such factors as rescue, evacuation, fire suppression, safety, and elimination of explosive devices, ensuring security of the area, and other actions immediately

necessary to prevent loss of life or further property damage. After all required actions on the site are complete, the base civil engineer ensures cleanup of the site.

Munitions Safety

Personnel at Nellis AFB control, maintain, and store all ordnance and munitions required for mission performance. This includes training and inert bombs and rockets, live bombs and rockets, chaff, flares, gun ammunition, small arms ammunition, and other explosive and pyrotechnic devices If a malfunction prevents release of ordnance during a mission, and the pilot must return to the base with "hung" ordnance, the aircraft is parked in revetments in the hung ordnance area while the ordnance (i.e., any ordnance of which an attempt to release, jettison, launch, or fire from an aircraft did not actuate as designed) is rendered safe. Sufficient storage facilities exist for current types and amounts of ordnance, and all facilities are approved for the ordnance they store.

3.10.2 Creech AFB

Ground Safety

Day-to-day operations and maintenance activities conducted at Creech AFB are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by AFOSH requirements. The fire department of Creech AFB is fully capable of responding to existing fires and accidents. However, on the installation, fire protection systems are degraded for Life Safety Code deficiencies at the combined briefing facility and a hangar with only water fire suppression systems. The Air Force and the Clark County are party to mutual support fire suppression agreements (personal communication, Williams 2005).

Munitions Safety

Ordnance are handled and stored in accordance with Air Force explosive safety directives Air Force Manual 91-201, and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data. Safety clearance zones protect areas where munitions are stored, maintained, and handled. These zones are geographically defined as Quantity-Distance arcs, and are based on the types and amounts of explosive material involved. On Creech AFB, no encroachment into these safety areas currently occurs (Air Force 2003c).

While the facilities on Nellis AFB are certified in all storage and maintenance requirements for this ordnance, they often operate at, or near capacity due to the large volume of other ordnance they must manage to support other requirements at Nellis AFB.

3.11 NOISE

Noise is often defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, diminishes the quality of the environment, or is otherwise annoying. Response to noise varies by the type and characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day. Noise may be intermittent or continuous, steady or impulsive, and may be generated by stationary or mobile sources.

The time of day when a sound is emitted is an important factor in its annoyance potential. Sounds that may be barely noticeable at midday may be seriously disruptive at midnight. A number of measurement scales that attempt to account for this time factor have been developed. One of the more commonly used and accepted metrics of this type is the Day-Night Average A-Weighted Sound Level (DNL). DNL represents a 24-hour average sound level in which a 10-dBA penalty is added to any sounds occurring between the hours of 10:00 p.m. and 7:00 a.m. DNL has been widely accepted as the best metric to determine community reaction to noise.

Affected Environment

Local agencies, including cities and counties, are responsible for defining and enforcing land use compatibility in various noise environments. The Air Installation Compatible Use Zone (AICUZ) study is the Air Force's vehicle for presenting their noise environment at two locations: Nellis AFB and Creech AFB.

The AICUZ program promotes compatible land development in areas subject to aircraft noise and accident potential. Clark County has incorporated these AICUZ recommendations as an integral part of their comprehensive planning process and are regulated in the Clark County Unified Development Code, Title 30, Section 30.48, Part A, Airport Environs Overlay District, dated June 21, 2000, under the authority of Chapter 278, Planning and Zoning, of the Nevada Revised Statutes. Noise compatibility and airport environs implementing standards have also been adopted in the Clark County "Public Health and Safety Programs: Airport Environs Plan," an amendment of the Clark County Comprehensive Plan (Clark County 1998).

Modeling for the AICUZ study noise contours were developed using the following data: aircraft types, runway utilization patterns, engine power settings, altitude profiles, flight track locations, airspeed, number of operations per flight track, engine maintenance, and time of day. These studies were based on a representative day which evaluated airfield activity during a 24-hour period when the airfield is in full operation. The advantage of this approach is that it is unaffected by daily, monthly, and yearly fluctuations in the tempo (rate) of use by individual aircraft at the base. The AICUZ study employed the same fundamental computer-aided modeling approach using the NOISEMAP model.

3.11.1 Nellis AFB

The affected environment for Nellis AFB is the base and adjacent commercial and residential areas affected by noise contours generated at the base. Sound levels from flight operations at Nellis AFB exceeding ambient background noise typically occur only beneath main approach and departure corridors and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft take off and gain altitude, their contribution to the noise environment drops to levels indistinguishable from the ambient background. The height at which the noise becomes indistinguishable varies depending on the aircraft and meteorological conditions.

The 2003 Nellis AFB AICUZ study identified baseline noise levels ranging from 65 DNL to greater than 85 DNL for the lands encompassing Nellis AFB (Figure 3-3). All lands affected by greater than 85 DNL occur within Nellis AFB, with most of the area affected by 75 to 85 DNL also on base. Lower noise levels (65 to 75 DNL) affect lands primarily outside the base. For off-base areas, noise levels range from 65 DNL to greater than 80 DNL (Air Force 2003c). Total acreage of areas affected by the noise levels is shown in Table 3-8.

Table 3-8. Baseline Noise (DNL) Contours for Nellis AFB and Environs

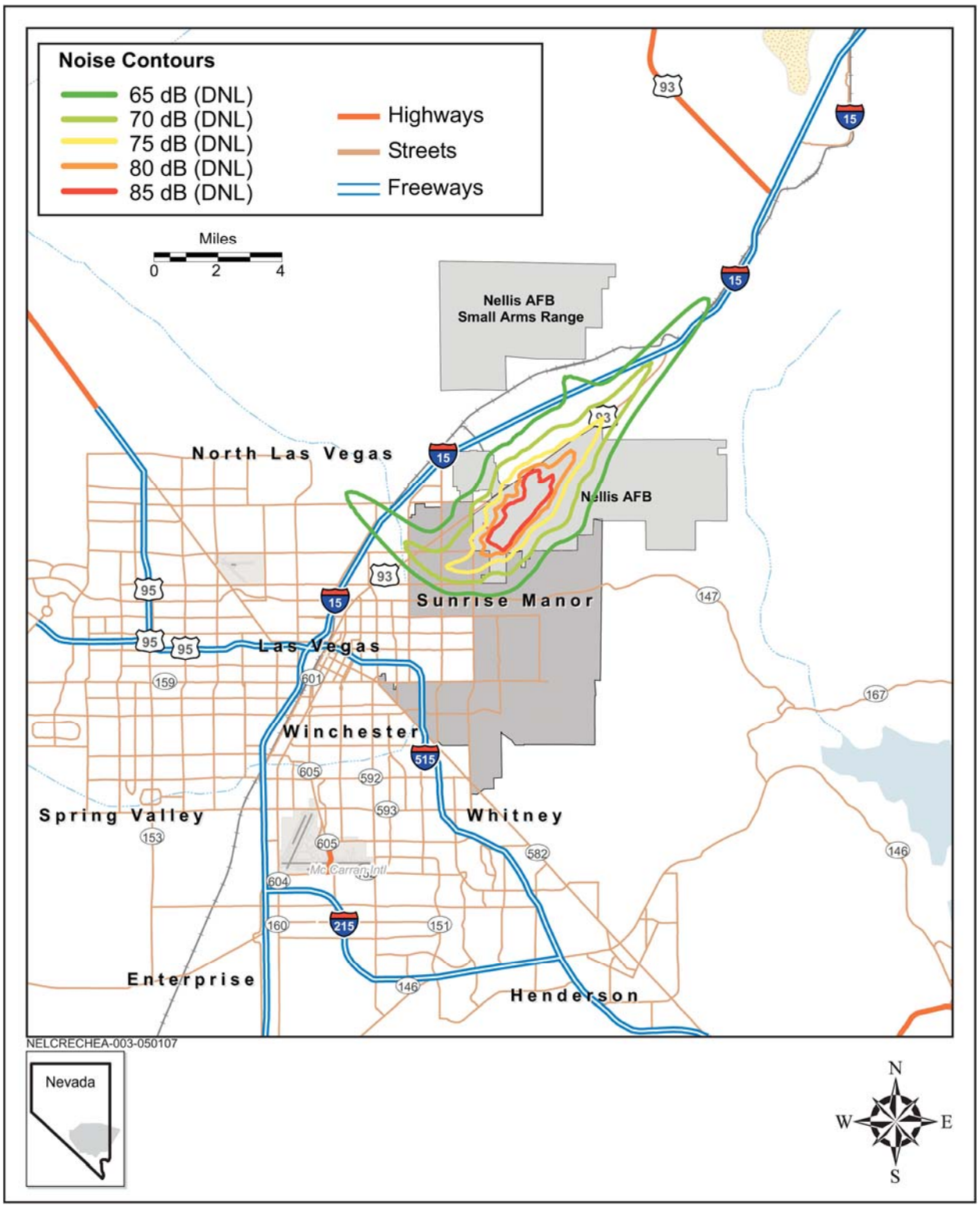
	65-70	***70-75***	***75-80***	***80-85***	***>85***	***Total***
Acres	8,882	4,787	2,202	1,066	1,161	18,098

Source: Air Force 2003c

Current noise levels of 65 DNL to greater than 85 DNL affect approximately 18,098 acres at Nellis AFB, with the highest noise levels on and around the runway and flightline. Nellis AFB currently has a program to reduce noise over off-base residential areas. Existing noise abatement procedures for flights over residential areas to the south and southwest and North Las Vegas include the following:

- expedited climb to 2,500 to 3,500 feet MSL for all aircraft;
- 60-degree banked right turn upon departure to avoid populated areas;
- no unrestricted afterburner climbs on weekends or holidays, or before 10 a.m. daily, limited exceptions (functional check flights, incentive flights, operational missions, and syllabus requirements.)
- a departure to the north between 10 p.m. and 8 a.m.; and
- practice approaches only after 9:00 a.m. daily.

To the maximum extent possible, engine runup locations have been established in areas that minimize noise for those in the surrounding communities, as well as for people on base. Normal base operations do not include late-night engine runups, but heavy work loads or unforeseen contingencies sometimes require a limited number of nighttime engine runups.



Source: Air Force 2003c

Figure 3-3. Nellis AFB Baseline Noise Contours

3.11.2 Creech AFB

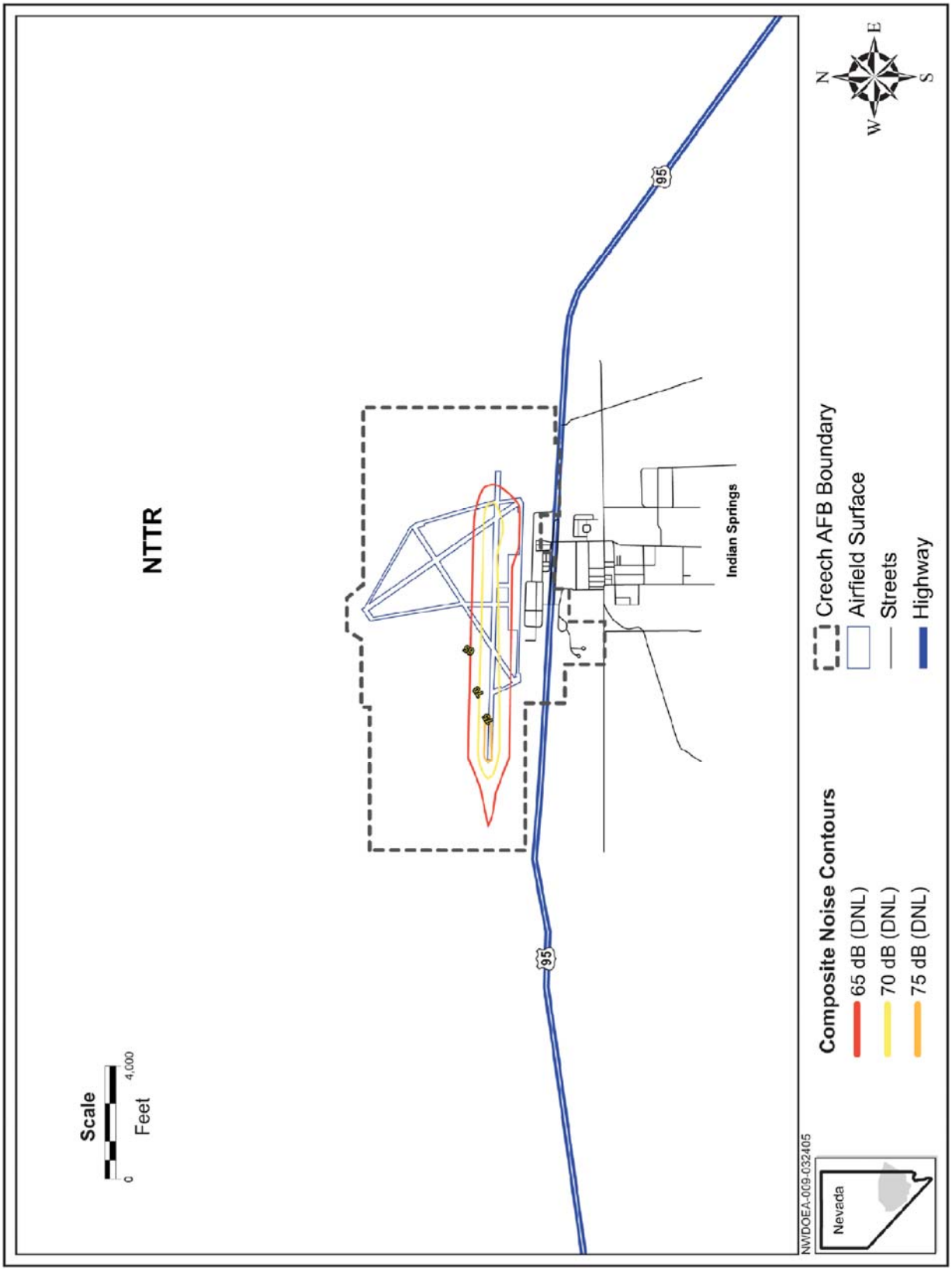
Analysis of existing aircraft noise exposure and compatible land uses around Creech AFB was accomplished using the NOISEMAP suite of computer programs. The existing operating characteristics of Creech AFB were used with the NOISEMAP model to simulate the propagation of noise in the vicinity, and to develop noise contours. In addition to the operating data for the base, aircraft approaches, departures, and closed pattern operations were assigned appropriate flight tracks, power applications, altitudes, and speeds. Consistent with the requirements of the DNL metric, all operations between 2200 and 0700 hours were assigned a 10 dB penalty to reflect heightened sensitivity during that time period. The noise contours for Creech AFB, which cover the range of noise level from 85 to 65 DNL in 5 dB increments, are presented in Table 3-9 along with the total area within each contour. Figure 3-4 presents the existing noise contours at Creech AFB.

Table 3-9. Baseline Noise (DNL) Contours for Creech AFB

	65-70[a]	***70-75***	***75-80***	***80-85***	***>85***	***Total***
Acres	448	320	0	0	0	768

Source: Air Force 2003c

The Nellis-based Thunderbirds demonstration team uses Creech AFB for training and practice. Creech AFB is also used as a field for realistic military training during Flag and other exercises. The current noise environment at the airfield is dominated by F-15 and F-16 aircraft, which average 0.15 and 0.46 operations per day. Although these operating levels are quite low, they are equivalent in noise to over 600 UAS operations per day due to the dominant noise characteristics of these turbofan-powered aircraft.



Source: Air Force 2003c

Figure 3-4. Creech AFB Baseline Noise Contours

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 ANALYSIS APPROACH

The approach used for this environmental impact analysis is to assess and compare potential impacts to environmental resources with implementation of the proposed action or the no-action alternative at Nellis AFB and Creech AFB. Alternatives to the proposed action are discussed in Chapter 2 and vary from the proposed action in terms of placement of facilities within an area; therefore, the impacts associated with the alternatives would be approximately the same as the proposed action and need not be discussed further in this EA. The direct and indirect effects are identified, and where appropriate, the implementation of best management practices to minimize potential environmental impacts along with any additional practical mitigation to minimize impacts is identified. Short- and long-term impacts are identified, where possible. In general, one long-term beneficial impact from implementation of the proposed action projects would be energy conservation for Nellis and Creech AFBs. Potential impacts are quantified wherever possible and discussed at a level of detail necessary to determine the significance of the impacts. Cumulative effects of the proposed action and alternatives when considering past, present, and foreseeable future actions are presented in Chapter 5.

4.1.1 Environmental Effects

This portion of the analysis considers the potential environmental impact to resources from implementation of proposed construction and renovation projects. Just as cumulative effects in Chapter 5 (see Section 5.1) consider potential environmental impacts resulting from "the incremental impacts of an action when added to other past, present, and reasonable foreseeable future actions..." this analysis will evaluate the potential effects to individual resources due to the projects occurring in the same relative vicinity.

Each section in this chapter includes four main parts; Nellis AFB impacts due to the proposed action broken down by "generic" activities and ADPs in general, Nellis AFB impacts specific to a given project, Creech AFB impacts, and the no-action alternative. Since Creech AFB was developed as an all-encompassing ADP, it is not necessary to break out "generic" from specific projects.

4.2 LAND USE

This section focuses on the impacts to land use from implementation of the proposed action. The threshold level of significance for land use is the potential for the proposed action to change the land use in such a manner as to cause incompatibility with adjacent land management and/or uses.

4.2.1 Nellis AFB

Environmental Consequences Common to All Projects

While the ADPs provide specific development direction for each ADP, the overall future land use by categories is listed in Table 4-1 and shown on Figure 4-1 which depicts the land uses in the more traditional terms (i.e. airfield, community commercial, open space etc.).

Table 4-1. Current and Projected Land Use

Land Use Category	*Current Acreage*	*% of Total*	*Future Acreage*	*% of Total*
Airfield and Airfield Pavements	1,275	8	1,517	10
Aircraft Operations and Maintenance	406	3	587	4
Industrial	6,338	41	6,115	39
Administrative	80	<1	298	2
Community Commercial	61	<1	91	<1
Community Service	70	<1	151	1
Medical	46	<1	46	<1
Housing (Accompanied)	401	3	406	3
Housing (Unaccompanied)	73	<1	64	<1
Outdoor Recreation	740	5	642	4
Open Space	6,045	39	5,618	36
Water	5	<1	5	<1
Total	**15,540**	**100**	**15,540**	**100**

Figure 4-1. Future Land Use for Nellis AFB

Environmental Consequences for Specific Actions in ADPs

Main Base Town Center ADP

Land use impacts from the proposed actions would be beneficial to the Main Base Town Center ADP by relocating large parking lots to the more industrial use areas east of Ellsworth Avenue, creating landscaped gathering spots, and orienting buildings toward view corridors (refer to Figure 2-2). Existing vehicle circulation patterns would be modified to improve the design of the campus setting of the ADP. This modification would also reduce cut-through traffic, create a safer pedestrian atmosphere, and minimize costs for new road construction. Several existing through roads would be closed, freeing land from Antiterrorism/Force Protection restrictions and limiting conflicts between pedestrian and vehicular spaces. Transportation changes within this ADP include:

- Convert Carswell Avenue to a pedestrian/bicycle corridor from Fitzgerald to Devlin Drive
- Close Devlin Drive between Stealth Avenue and Plattsburgh Avenue
- Close portions of Swabb Boulevard
- Realign the intersection of Devlin Drive and Ellsworth Avenue
- Realign Tyndall Avenue
- Realign the intersection of Holloman Avenue and Ellsworth Avenue

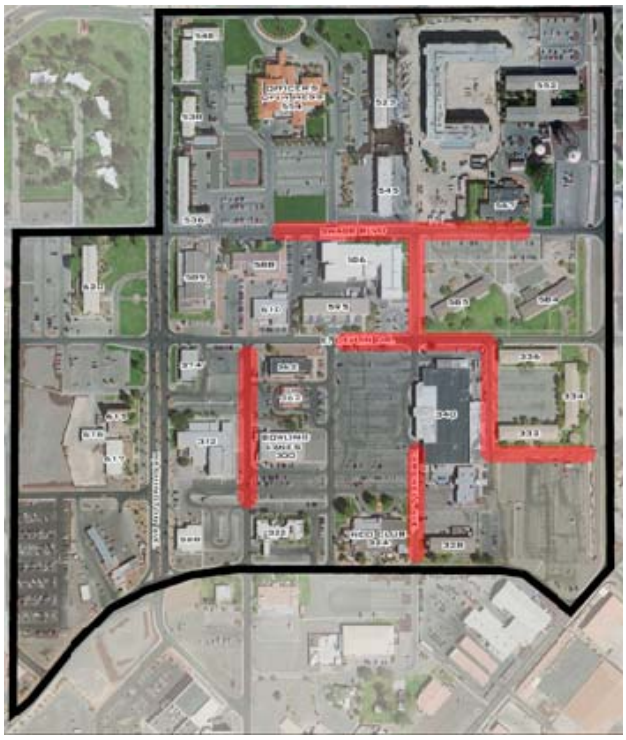


Figure 4-2. Main Base Town Center Road Closures

Figure 4-2 shows the proposed road closures in the ADP. Please refer to Section 4.3.1 for impacts associated with road construction.

Area III Town Center ADP

The Area III Town Center ADP creates a campus environment that provides a balance between childcare, indoor and outdoor recreation, and community support that enhances land use. The establishment of the pedestrian circulation system would link the family housing to recreational facilities, the youth center, the Child Development Centers, and the gym annex found within the ADP and is compatible with surrounding uses. No adverse impacts from land use within the Area III Town Center ADP are anticipated from implementation of the proposed action.

The establishment of a pedestrian trail system would reduce the dependency on vehicular traffic in the area. The construction of a new connecting road to the future family housing area would also decrease traffic loads on Stafford Drive and provide some personnel with a more efficient route. Implementation of the proposed action would not result in adverse impacts to transportation within the Area III Town Center ADP.

Unaccompanied Housing ADP

Land use within the Unaccompanied Housing ADP (refer to Figure 2-4) would remain dormitories and lodging facilities with expanded gathering spaces conducive to formal and informal groups. The pedestrian corridor through this area would allow residents and visitors easy access to recreational opportunities, dining facilities, clubs, and the sports lounge. The proposed actions for the Unaccompanied Housing ADP would result in no change to land use, and therefore, no adverse impacts.

To the greatest extent possible vehicular traffic would be confined to the outer perimeter of the dormitory and lodging facility blocks. Access roads are necessary for emergency services and deliveries and are provided. The well-planned pedestrian corridor through the dorm and lodging areas to the Main Base Town Center would encourage residents to use facilities available to them, but also encourage them to leave cars parked. No adverse impacts from implementation of the proposed action are anticipated.

Freedom Park ADP

One of the main goals behind the proposed actions for this ADP (see Figure 2-5) was to create an orderly transition from the industrial, mission-focused land uses at the flightline to the community-oriented land uses associated with the Fitness Center and recreational fields. By placing administrative land uses (the Academic/Test Campus) between the flightline and the recreation areas, this ADP would provide an effective buffer, minimizing the negative impacts of incompatible land uses. Implementation of this ADP would have beneficial impacts to land use in this area of Nellis AFB.

Current facility locations in this ADP make driving a necessity. The proposed Academic/Test Campus, recreational facilities expansion, centralized parking, and road reconfiguration should decrease vehicular circulation, along with the efficient pedestrian routes between buildings, resulting in beneficial transportation impacts from the proposed action within this ADP.

Main Flightline ADP

Land uses with this ADP (see Figure 2-6) would change slightly by removing incompatible facilities (administrative and academic functions) from the flightline to areas more consistent with their missions, freeing flightline space for missions directly relating to aircraft operations. Similarly, all facilities related

to Red Flag would be consolidated into one area at the southern end of the flightline. This environment would be pedestrian-friendly and would handle the influx of hundreds of Red Flag exercise personnel. The proposed ADP actions would enhance land use efficiency of the flightline and promote training and academic efficiency for the relocated organizations.

Realignment of Tyndall Avenue at Ellsworth Avenue to Holloman Avenue would adjust the traffic flow along Tyndall Avenue to make room for future expansion of side load hangars that meet AT/FP criteria. Personnel parking would be combined to create more efficient parking that also meets AT/FP standards. Tyndall Avenue would be closed near the Red Flag area to create an aircraft ramp and maintenance expansion area. Traffic would be rerouted down Holloman Avenue back to Tyndall Avenue. This would encourage drivers that do not need to be on the flightline road to use other routes throughout the base. Additionally, it would create a campus area for Red Flag by eliminating pedestrian/vehicular conflicts.

East Side Flightline ADP

Land use for the East Side Flightline ADP (see Figure 2-7) would expand development significantly, but would generally not alter land uses. Existing and future land use on the east side of the runways has been categorized as Aircraft Operations and Maintenance. The area is primarily operational with the DOE Ramp and the LOLA. Most of the remaining area is mostly disturbed but undeveloped and vacant. Proposed facilities within the ADP are directly related to aircraft operations and include hangars, maintenance and squadron operations facilities, and aircraft parking aprons. The proposed facilities are compatible with the existing land uses; however, the land on the eastern side of the Eastside ADP is not owned outright by the Air Force, rather it is withdrawn from public domain from the Bureau of Land Management for military purposes. The original military purpose was for a buffer area to the LOLA; development of this area could require a change to the language of the withdrawal.

Roads in the ADP area would be significantly rerouted to make room for the expansion of the aircraft parking ramp and to move roads from the Q-D arcs whenever possible. Perimeter Road would be relocated around the clear zone of the runways to eliminate safety and security hazards and would bring the traffic from the north. Once in the area, those personnel that work on the south side of the proposed apron would be routed around the outer edge of the site to their facilities.

4.2.2 Creech AFB

Environmental Consequences Common to All Projects

Proposed projects at Creech AFB would not conflict with existing land uses or management plans and would occur within areas of compatible land use, outside safety zones, and away from sensitive locations (refer to Figure 2-8). Proposed actions for Creech AFB require expansion and development of the base for existing and likely future missions. Most of the expansion planned is through infill and consolidation

in addition to redeveloping existing facilities. Neither existing nor future land use, management, nor ownership would be negatively affected by the proposed projects; no adverse impacts would be anticipated.

4.2.3 No-Action Alternative

Under the no-action alternative, Nellis AFB would not implement projects not identified in previous EIAP documents at this time. Existing conditions to land use resources would remain unchanged under the no-action alternative.

Under the no-action alternative, no changes to land use or to accessing areas would be expected at Creech AFB. Existing conditions of these resources would remain unchanged with selection of this alternative.

4.3 INFRASTRUCTURE

4.3.1 Nellis AFB

Environmental Consequences Common to All Projects

Energy Conservation Improvement Program (ECIP) projects are designed to improve energy and water efficiency in existing DoD facilities to reduce utility costs and decrease energy and water consumption. . Many of the projects for this Capital Improvements Program EA have ECIP designs embedded within the project (see Table 2-2). The benefits of the ECIP projects are greater than its costs, and the program has the potential to provide cost-effective energy conservation in the future. As such, and to the extent possible, each construction or repair project at Nellis AFB and Creech AFB has ECIP principles as a stated objective and a number of them are specifically identified within the Infrastructure section.

Potable Water

Demand for potable water is not expected to dramatically increase during or after implementation of the proposed action as no increase in personnel would be expected to occur. The demand for potable water would continue to increase as population of Nellis AFB grows; however, the current supply is more than adequate to meet future demands. Current potable water usage averages 3.95 million gpd. In order to reach or exceed the current allotment of 7.1 million gpd, the population of Nellis AFB would have to double in size. Additionally, a planned water system telemetry project, and improvements to water lines and several wells would enhance potable water conservation at Nellis AFB.

Sanitary Sewer

There are no known impediments to wastewater treatment capacity in the near or distant future. The Southern Nevada Water Authority has proposed construction of and improvements to regional wastewater facilities in future years to accommodate projected regional population growth (SNWA 2004). An increase in wastewater flows would occur as a result of the increase in facility space. No adverse or significant impacts to wastewater treatment would be anticipated under the proposed action at Nellis AFB. Beneficial impacts from repair to sewer pumping stations and sewer lines would occur with planned projects.

Electrical

An increase in electrical use would be anticipated as a result of the overall increase in facility space. However, a solar photovoltaic array is under construction on Nellis AFB, which offsets peak demand and will decrease energy consumption. New facility construction would employ energy-conserving equipment to reduce the impact on the existing electrical infrastructure. The current electrical system capacity would be adequate to meet the new requirements. Projects planned to conserve electrical energy include installation of compact fluorescent bulbs throughout dormitories and lodging, programmable thermostats for HVAC, and daylighting and upgraded controls in four hangars. Nearly every proposed project would enhance energy conservation at the base by installing the newest, most energy efficient appliance or apparatus relative to the action.

Emergency Generator

Nellis AFB has recently replaced many back-up generator systems throughout the base with generators meeting Tier 2 standards. This has resulted in a more reliable back-up power configuration with lowered emissions. Mission-critical facilities are supported by 43 fixed Real Property Installed Equipment generator systems. An additional 17 mobile Equipment Authorization Inventory Data generators are available for contingency or emergency operations. New facilities projects, such as those anticipated in the proposed action, would continue, where required, to be provided with back-up power systems meeting Tier 2 standards.

Natural Gas

The Southwest Gas Corporation has experienced no problems in meeting demands in southern Nevada and as such has not publicly placed limitations on future development. In fact, customer demand for natural gas has been declining in the region in the past several years (NSOE 2005). No adverse or significant impacts to natural gas would be anticipated under the proposed action at Nellis AFB.

Storm Drainage

The implementation of the proposed action would create additional impervious surfaces covered by buildings and paving, increasing storm water runoff; however, this increase is not considered significant or adverse. Drainage from these surfaces would be controlled using grading, curbs, drains, gutters, and other standard construction and post-construction storm water controls designed to prevent offsite impacts from storm water runoff. Proposed action projects at Nellis AFB would entail the extension, replacement, or addition of storm water drainage infrastructure through digging of trenches, either from existing lines along the nearest road or other primary locations. Trenches could also run from new buildings, roads, and aircraft parking ramps to discharge points in existing systems or additional locations in local drainage systems. Sustainable design measures would be incorporated into these systems and retention and detention structures would be implemented to minimize impacts from uncontrolled storm water discharges. Any facilities constructed for industrial operations, such as aircraft maintenance, would be designed to meet spill prevention, control, and countermeasures (SPCC) requirements under applicable state and Federal requirements. Such measures for utility systems would reduce the potential for adverse impacts from the storm water system. Numerous planned drainage repair projects would result in beneficial environmental impacts from the proposed action.

Central Heating and Cooling

Nellis AFB has no central heating plant, with the exception of the base hospital complex. All base facilities are equipped with individual heating and cooling systems. However, Nellis AFB is actively researching the feasibility of more energy efficient systems, such as Gas Engine Driven Air Conditioning (GEDAC).

Liquid Fuels

Nellis AFB stores and pumps JP-8 jet fuel provided via pipeline from the CalNev Pipe Line Company for aircraft operations. To augment the east side flightline storage capacity, the base is planning to install a 10,000 barrel operating tank to relieve the just-in-time resupply rate of fuel from bulk storage to the east side. The proposed action projects would be beneficial to liquid fuels distribution at the base. Fuels projects associated with the proposed action include several projects to construct secondary containment; several repair projects to bring systems up to Unified Facilities Codes, replacement of underground storage tanks with above ground storage tanks, and installation of one tank for E-85 alternative fuel. All of these projects would provide beneficial impacts by reducing the risk of spillage or by providing means for supplying cleaner burning fuels.

Airfield Pavement

Proposed action projects would include increases in aircraft parking ramp space at Nellis AFB. This would also increase the amount of impervious surfaces at the base. This increase would not be considered adverse or significant due to construction and post-construction storm water controls. See storm drainage section below.

Roads

Data collected by the Bureau of Transportation Statistics indicate approximately 87 percent of vehicular travel is via personal vehicle. In 2006, 12,284 employed persons (i.e., active duty military and civilians) lived off base resulting in about 8,772 vehicle trips during each peak travel period in the vicinity of and at Nellis AFB (BTS 2001). During this same period, Creech AFB employed nearly 1,300 persons (see section 3.4.2) resulting in approximately 390 vehicle trips during peak periods (Air Force 2003a). In order to evaluate the impact to vehicular volume at Nellis and Creech AFBs, an assumption was made that 150 daily work-week construction vehicles would be additive to personnel vehicle trips.

Traffic levels on the base would be moderate to high during construction period if numerous projects were implemented in the same relative timeframe. Overall, the roadways leading to and on the installations would be able to accommodate the anticipated level of traffic associated with construction equipment and employees; however, the increased levels may create congestion on the installations during peak traffic periods. Long-term beneficial transportation impacts include road reconfigurations which would create walking trails throughout popular pedestrian portions of the base and allow more direct routing for remaining roadways. Both changes would reduce vehicle trips, conserving fuel and trimming emissions.

Environmental Consequences for Specific Actions in ADPs

Infrastructure impacts described above apply to all areas of the base.

4.3.2 Creech AFB

Potable Water

Demand for potable water is not expected to have an adverse impact as no increase in Creech AFB personnel would occur under the proposed action projects. The State of Nevada has authorized a total of 62.7 million gpy from the three wells at Creech AFB. Implementation of the proposed action may temporarily increase the water demand at Creech AFB during construction. However, this increase would be within the State allocation for the Creech AFB wells and would not substantially affect the water

supply. Recent correspondence with the State Engineer has stated that no additional water allotments would be allocated for Creech AFB.

Sanitary Sewer

An increase in wastewater flows would occur as a result of the increase in facility space; however, no adverse impacts to wastewater treatment would be anticipated under the proposed action as no personnel increase is associated with the proposal.

Electrical

An increase in electrical use would be anticipated as a result of the proposed infrastructure, construction, repair and demolition projects. Under the proposed action, construction and demolition projects would be implemented at Creech AFB. New facility construction would employ energy conserving equipment to reduce the impact on the existing electrical infrastructure and proposed electrical system upgrades. Current system capacity would be adequate to meet the new requirements and increased electrical demand is not expected to overload the current power supplied by Nevada Power Company. A study is currently underway to examine the feasibility of installing a solar photovoltaic array at Creech AFB. If installed, the array would provide the base with a cost-efficient, renewable energy source to augment the existing energy supply.

Emergency Generator

Tier 2 back-up generator systems would be installed at new facilities projected under the proposed action, resulting in a beneficial impact due to increased efficiency and lower emissions.

Natural Gas

The Southwest Gas Corporation has experienced no problems in meeting demands in southern Nevada and as such has not publicly placed limitations on future development. In fact, customer demand for natural gas has been declining in the region in the past several years (NSOE 2005). No adverse or significant impacts to natural gas would be anticipated under the proposed action at Creech AFB.

Storm Drainage

The implementation of the proposed action would create additional impervious surfaces covered by buildings and paving, increasing storm water runoff; however, this increase is not considered significant or adverse. Drainage from these surfaces would be controlled using grading, curbs, drains, gutters, and other standard construction and post-construction storm water controls designed to prevent offsite impacts

from storm water runoff. Proposed action projects at Creech AFB would entail the extension, replacement, or addition of storm water drainage infrastructure through digging of trenches, either from existing lines along the nearest road or other primary locations. Trenches would also run from new buildings, roads, and aircraft parking ramps to discharge points in existing systems or additional locations in local drainage systems. Sustainable design measures would be incorporated into these systems and retention and detention structures would be implemented to minimize impacts from uncontrolled storm water discharges. Any facilities constructed for industrial operations, such as aircraft maintenance, would be designed to meet SPCC requirements under applicable state and Federal requirements. Such measures for utility systems would reduce the potential for adverse impacts from the storm water system.

Central Heating and Cooling

Creech AFB has no central heating plant and all facilities are heated and cooled individually. Proposed action facilities would upgrade and install energy efficient HVAC systems, resulting in a positive benefit.

Liquid Fuels

The Creech AFB liquid fuels system is substandard to the typical installation system and proposed action projects would improve the status of support. Fuels projects associated with the proposed action include several projects to construct secondary containment; several repair projects to bring systems up to Unified Facilities Codes, and replacement of underground storage tanks with above ground storage tanks. All of these projects would provide beneficial impacts by reducing the risk of spillage or by providing means for supplying cleaner burning fuels.

Airfield Pavement

Proposed action projects could include increases in aircraft parking ramp space at Creech AFB. This would also increase the amount of impervious surfaces at the base. This increase would not be considered adverse or significant due to construction and post-construction storm water controls. Refer to Storm Drainage section above.

Roads

There would be minimal affects to roads and transportation; traffic levels would likely be low during construction periods. Construction of new roadways is unlikely under the proposed action, which features infill and consolidation of current base areas. Effects of projects under the proposed action on existing transportation resources would not be measurable or noticeable.

4.3.3 No-Action Alternative

Under the no-action alternative, infrastructure improvements would rely on repairing infrastructure as problems arise on a reactionary basis vice a proactive basis. Fuels projects would not occur and the potential for spillage and an enhanced delivery system for E-85 02 diesel fuels would not occur.

4.4 SOCIOECONOMICS

Socioeconomic resources are defined as the basic attributes associated with the human environment, particularly population and economic activity. Population is described by the change in magnitude, characteristics, and distribution of people. Economic activity is typically composed of employment distribution, personal income, and business growth. Socioeconomics for this EA focus on the general features of the local economy that could be affected by the proposed action or alternative.

4.4.1 Nellis AFB

Environmental Consequences Common to All Projects

Construction activity on Nellis AFB under the proposed action would add expenditures of millions of dollars spanning the next few years. It is estimated that these expenditures would support nearly 380 infrastructure and 100 construction/demolition projects. Construction activity would contribute to the local economy although the potential effects would be temporary.

Environmental Consequences for Specific Actions in ADPs

Socioeconomic impacts described above apply to all areas of the base.

4.4.2 Creech AFB

Environmental Consequences Common to All Projects

Construction activity on Creech AFB under the proposed action would have expenditures of several million dollars over the next few years. Construction activity would contribute to the local economy although the potential effects would be temporary, as the population already working for DoD and DoE would remain about the same.

4.4.3 No-Action Alternative

Projects using the ADP plans would not occur under the no-action alternative. Some construction, demolition, or renovation would still occur using the 2002 General Plan, therefore socioeconomic impacts resulting from the no-action alternative would only be slightly increased from current conditions.

4.5 CULTURAL RESOURCES

Procedures for assessing adverse effects to cultural resources are discussed in regulations for 36 CFR Part 800 of the NHPA. An action results in adverse effects to a cultural resource eligible to the National Register when it alters the resource characteristics that qualify it for inclusion in the register. Adverse effects are most often a result of physical destruction, damage, or alteration of a resource; alteration of the character of the surrounding environment that contributes to the resource's eligibility; introduction of visual, audible, or atmospheric intrusions out of character with the resource or its setting; and neglect of the resource resulting in its deterioration or destruction; or transfer, lease, or sale of the property. In the case of the proposed action, potential effects to cultural resources could result from ground disturbing activities associated with construction or demolition of significant structures.

4.5.1 Nellis AFB

Environmental Consequences Common to All Projects

Under the proposed action, numerous buildings, parking lots, and concrete pads would be constructed, and roads built and rerouted over the period of 5 to 10 years. Some buildings would also be demolished during this time to make room for the improved facilities.

Proposals for federal actions are reviewed following 36 CFR 800 guidelines by the Nellis AFB Cultural Resources Manager. Areas of Potential Effect that have not been inspected will be field surveyed by qualified archaeologists. Native Americans will be invited to participate in the process. Actions in areas not previously reviewed through consultation, regardless of the need for field inventory or the ability to ensure avoidance of eligible properties will be subjected to consultation with Native Americans and SHPO to ensure no adverse effects to cultural resources occur due to the proposed actions.

4.5.2 Creech AFB

Environmental Consequences Common to All Projects

The assessment of affects to cultural resources associated with Creech AFB and the provisions for Native American and SHPO involvement would be the same as described above for Nellis AFB.

4.5.3 No-Action Alternative

Under the no-action alternative, ADP projects would not occur, however some construction or renovations projects would still occur using the 2002 General Plan. Therefore, impacts to cultural resources would require individual analyses on a project-by-project basis to ensure there would be no impact to National Register-eligible or listed resources.

4.6 BIOLOGICAL RESOURCES

Impacts to biological resources would be considered significant if one or more of the following conditions would result:

- Substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations by the Nevada Department of Wildlife (NDOW) or the USFWS;
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations by NDOW or USFWS;
- Substantial adverse effect on federally-protected wetlands as defined by Section 404 of the Clean Water Act;
- Interfere substantially with the movement of native resident or migratory fish or wildlife species, wildlife corridors, or wildlife nursery sites;
- Conflict with local policies or ordinances protecting biological resources; or
- Conflict with the provisions or an approved local, regional, or state habitat conservation plan.

The definition of "substantial" is dependent on the species and habitats in question and the regional context in which the impact would occur as determined through consultation with USFWS, and the appropriate State and local Natural Resources management agencies. Impacts may be considered more adverse if the action affects previously undisturbed habitat or if the impact would occur over a large portion of available habitat in the region. These issues are discussed below with regard to their potential significance. Prior to the initiation of any project construction, surveys would be conducted to determine the presence of burrowing owls or special status plant and wildlife species, coordinated through the Nellis AFB Natural Resources Manager.

4.6.1 Nellis AFB

Environmental Consequences Common to All Projects

No adverse impacts to vegetation or wildlife would be expected since the construction and demolition projects would occur in previously developed areas of the base. Potential impacts to wildlife from construction noise would be short-term and not be expected to affect wildlife on the base that are already

exposed to aircraft flight activities. No adverse impacts to rare plants species would be expected. Populations of Las Vegas bearpoppy and Las Vegas buckwheat located in Areas II and III would not be impacted because facility and infrastructure improvement projects are not planned to take place where these plant species are located. Except in Area II, construction would not occur in areas likely to be inhabited by the chuckwalla. In Area II, surveys would be conducted prior to construction and any chuckwalla found would be removed. The western burrowing owl is common on the base and provisions of the Migratory Bird Treaty Act would be followed prior to the start of construction. These provisions include surveys, removal, and limiting ground disturbing activities to non-breeding season for the owls.

Environmental Consequences for Specific Actions in ADPs

Only construction activities in the Eastside Development ADP could intersect arroyos which could be jurisdictional waters of the U.S. Consultation with the USACE would be conducted to determine presence of jurisdictional waters of the U.S. prior to project initiation. The first two phases of the ramp space (closest to the existing flightline) would not intersect the arroyos. Future projects located in these areas would require verification of the proximity to jurisdictional waters during the site selection process. An individual Section 404 Permit would be obtained prior to construction activities that intersect jurisdictional waters. The USACE also issues general nationwide permits every 5 years, most recently in February 2007. Depending on the terms of the nationwide general permit and the amount of disturbance, the development may qualify for the general permit rather than a specific permit.

4.6.2 Creech AFB

Environmental Consequences Common to All Projects

Under the proposed action, no adverse impacts to vegetation or wildlife would occur. Proposed projects would occur in previously developed or disturbed areas resulting in insignificant impacts to biological resources. Because construction activities on Creech AFB would occur on previously developed areas within the main cantonment areas of the base, there would be no impact to water sources or wetlands, or jurisdictional waters of the U.S. located within the affected areas for the proposed infrastructure improvements. Wildlife in the area may be potentially impacted from construction noise; however, the period of construction would be short-term and limited to the vicinity of the construction site. No adverse impacts to rare plants species would be expected. In addition, potential adverse impacts to wildlife special-status species from construction and infrastructure improvement activities would not be expected. If during any ground disturbing activity the presence of desert tortoise is observed, the Air Force would comply with the requirements of the 2003 USFWS Biological Opinion for the protection of the species (USFWS 2003).

4.6.3 No-Action Alternative

Construction, demolition, or infrastructure improvement projects would be implemented in accordance with the old General Plan. Impacts to vegetation, wildlife, or special-status species would require individual analyses on a project-by-project basis under the no-action alternative at Nellis and Creech AFBs.

4.7 WATER AND SOIL RESOURCES

In terms of water resources, no aspect of current operations at Nellis AFB and Creech AFB affect either hydrologic setting or water sources; this would not change under the proposed action. Therefore, this analysis focuses on potential effects on water use, availability, and quality. The principal factors influencing stability of structures are soil and seismic properties. Soil, in general, refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the ability for the ground to support structures and facilities. Relative to development, soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

A significant impact on water resources would (a) violate any water quality standards; (b) substantially deplete groundwater supplies or interfere substantially with groundwater recharge; or (c) otherwise substantially degrade water quality. A significant impact on soils would result in substantial soil erosion or loss of topsoil.

4.7.1 Nellis AFB

Environmental Consequences Common to All Projects

Water Resources

Under the proposed action, construction and demolition activities are expected to have no appreciable effects on the surface waters at Nellis AFB or in the surrounding areas. Surface water for Nellis AFB is transported via pipelines from Lake Mead. Sources of groundwater are available from the principal alluvial-fill aquifer underlying the Las Vegas Valley. Although implementation of the proposed projects would increase the use of water, the increase would be temporary. Affect on the availability of ground water at Nellis AFB or in the surrounding areas would be minimal.

Use of water for the proposed infrastructure improvement projects would not significantly affect availability of surface water or ground water at Nellis AFB or elsewhere in the area. Nellis AFB currently is allotted 4,000 acre feet per year from Lake Mead; anticipated increases due to construction

and facility use are anticipated to be within current water allocation and would not require Nellis AFB to seek additional water rights. Construction of new facilities with more efficient water conservation design and measures and demolition of existing facilities would help offset any increased water use. Xeriscaping, or drought-tolerant landscaping, projects are planned throughout the base for conservation of water resources.

Projected on-base construction would disturb existing groundcover, but the potential for soil loss, erosion, and sedimentation would be temporary and limited in scope. There are several ephemeral streams in Area II away from proposed construction sites; however, no natural lakes, or other open bodies of water are present at Nellis AFB and no avenue for sediments to be introduced into surface waters exists.

The proposed action includes paving and construction of buildings with impermeable surfacing. If the area of disturbance for the proposed action is 1 acre or more, it is subject to NPDES permit conditions. Nellis AFB would amend its existing NPDES permit to accommodate such construction. During construction at Nellis AFB, soils would temporarily be exposed to compaction, impeding drainage and reducing water infiltration. However, existing water filtration is limited due to the types of soils found at Nellis AFB. In addition, construction and demolition activities could increase runoff volumes and alter current hydrological processes. However, the base lacks significant open water bodies and the area altered would minimally impact the small portion (about 10 percent) of the existing permeable surfaces at Nellis AFB. The base's internal stormwater flow patterns might be redirected, but the main outfall discharge to Sloan Channel would remain the same. Since no surface water resources of consequence are located on base and there would not be any negligible increase and/or change from existing impenetrable surfaces, implementation of the proposed action would not adversely impact surface water. Existing spill prevention, control, and countermeasure procedures would provide for protection of surface water sources during construction and use of facilities, so the potential for base or off-base surface water quality to be affected would be negligible.

Construction and paving associated with the proposed improvement projects could result in slightly fewer acres available to facilitate groundwater recharge, but the impact would not be adverse given the low average annual precipitation, minimal recharge associated with the soils found at the base, and the lack of year-round surface water on the base. No floodplains have been identified on base. Since the existing potential for flooding on Nellis AFB is minimal, the proposed action would not increase flood hazards on the base.

Soil Resources

Under the proposed action, construction of new facilities and demolition at Nellis AFB would occur over several years. Depending on the size of the area of disturbance for projects, they may be subject to conditions of existing NPDES permits. The existing Stormwater Pollution Prevention Plan (SWPPP) would need to be updated to reflect these new facilities prior to construction. The SWPPP would specify

measures to reduce or eliminate any adverse erosion and sedimentation impacts (e.g., culvert and storm water runoff drainage).

Site grading associated with construction of new facilities and demolition of existing facilities would be the primary activity with the potential to affect soils. Grading would cause loss of some disturbed ground cover for new facilities, which would increase the potential for soil erosion. However, several factors indicate that erosion and soil loss would be negligible. First, the area affected would be between 4 to 16 acres within the developed portion of Nellis AFB. Most of the proposed construction would replace existing buildings. Second, construction activities would take place over 5 to 10 years, limiting the total area exposed to erosion at any point in time. Third, low precipitation (4 inches per year) and low runoff (0.2 - 2.1 inches per year), combined with the flat topography of the base would substantially reduce the potential for erosion. Lastly, Air Force requirements to employ standard construction practices (e.g., soil stockpiling, watering), and follow NPDES permits and SWPPP requirements would further limit both wind and water erosion. Based on these factors, construction grading would not measurably degrade soil resources through erosion or loss. In summary, there would neither be adverse nor measurable impacts to soil resources if the proposed action were implemented.

Generic construction projects that do not have definitive locations or designs could impact ERP sites. Some proposed General Plan projects may also never occur. The impact of these projects on ERP sites is only able to be accessed in a general manner, using broad assumptions; specific analysis would be accomplished upon project approval. Usually, facilities can be located on ERP sites with an ERP waiver acquired from HQ ACC and the State. Design of the facility would need to make provisions for monitoring and/or ongoing remediation efforts if applicable. Planners would coordinate with the installation ERP manager for requirements and to apply for an ERP waiver. An ERP waiver must be obtained prior to construction.

Environmental Consequences for Specific Actions in ADPs

The largest expanse of new area to be graded would be the Eastside Flightline. The potential for erosion and stormwater run-off would be greatest in this area. A Stormwater Permit would be required for construction activities in this area and would include a Stormwater Pollution Prevention Plan. This plan would outline best management practices to minimize run-off and erosion during construction activities.

4.7.2 Creech AFB

Environmental Consequences Common to All Projects

Water Resources

Construction-related excavation and grading activities required for the proposed action could potentially impact surface water quality during stormwater run-off and erosion events. Standard erosion control measures will be included in construction procedures. Design and construction would follow all applicable and appropriate regulations and ordinances regarding stormwater retention and treatment. Additional hard surfaces from structures and paving would have the potential to concentrate rain water and to increase stormwater run-off and erosion events. Facilities constructed as part of the proposed development would include stormwater runoff control features such as gutters, concrete swales, and culvert drain systems. If the area of disturbance for the proposed action 1 acre or more, it is subject to NPDES permit conditions. Nellis AFB would amend its existing NPDES permit for Creech AFB to accommodate such construction. The lack of precipitation and existing spill prevention, control, and countermeasure procedures would provide for protection of surface water during construction and use of facilities, so the potential for base or off-base surface water quality to be affected would be negligible.

The northwest corner of the installation is within a 100-year floodplain. The focus for development at Creech AFB is to the east. Since the existing potential for flooding on Creech AFB is minimal, the proposed action would not increase flood hazards on the base.

Soil Resources

The soil erosion potential from water and wind from construction projects would be generally slight to moderate due to the type of soil as well as slight slope found at Creech AFB. Construction activities would involve removal of a minimal amount of vegetation and soils as well as grading. These activities would expose underlying soil to wind and water erosion and could result in sedimentation in surface impoundments. However, best management practices such as proper grading, stabilization, culverts to channel storm water runoff, and watering construction sites to limit fugitive dust, would minimize adverse effects.

Under the proposed action, construction of new facilities at Creech AFB would occur in the next 2 years. New construction may be subject to conditions of existing NPDES permits depending on the disturbance area. The existing SWPPP would be updated to reflect new facilities prior to construction. The SWPPP would specify measures to reduce or eliminate any adverse erosion and sedimentation impacts (e.g., culvert and storm water runoff drainage). Compliance with established plans and policies and incorporation of standard erosion control measures into project design and construction requirements would reduce erosion potential to less than significant.

Creech AFB has several ERP sites which could be impacted by the proposed action. During design, the facility locations would be coordinated with the Nellis AFB ERP manager to obtain an ERP waiver from HQ ACC and the State of Nevada.

4.7.3 No-Action Alternative

Implementation of the no-action alternative would require that Nellis AFB continue to use the 2002 General Plan when planning additional facilities. Nellis AFB would continue to manage the soils and water resources, found at Nellis and Creech AFBs, in accordance with state and federal regulations.

4.8 AIR QUALITY

A significant impact would occur if the project would violate any ambient air quality standard (NAAQS or state of Nevada); increase the number or frequency of violations; contribute substantially to an existing or projected air quality violation; conflict with or obstruct implementation of the applicable air quality plan; result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable ambient air quality standard; expose sensitive receptors to substantial pollutant concentrations; or create objectionable odors affecting a substantial number of people.

4.8.1 Nellis AFB

Environmental Consequences Common to All Projects

Air emissions resulting from the proposed action were evaluated in accordance with federal, state, and local air pollution standards and regulations. According to the EPA, air quality impacts from a proposed activity or action would be significant if they:

- increase ambient air pollution concentrations above any NAAQS;
- contribute to an existing violation of any NAAQS;
- interfere with or delay timely attainment of NAAQS; or
- impair visibility within any federally-mandated federal Class I area.

According to EPA General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to cause violations in a NAAQS nonattainment area (i.e., Nellis AFB) must undergo a conformity analysis. Therefore, the approach Nellis AFB used was to determine the greatest amount of ground-disturbance activities that could occur in a given year before *de minimus* thresholds of any of the three criteria pollutants were met.

Two demolition/construction scenarios were developed to calculate *de minimus* thresholds for CO, VOC, NO_x, SO_x, and PM_{10} emissions. The primary emissions for demolition activities are fugitive dust and exhaust emissions from transport vehicles and heavy equipment. Emissions from construction activities, which include paving, are primarily generated by construction equipment and hauling vehicles, which emit exhaust and create fugitive dust. Scenario 1 models demolition of a two-story, 2,000 square-foot concrete building located on 1 acre of land, and 3 acres of construction for a 30,000 square-foot concrete maintenance shop with a 100,000 square-foot parking lot. Scenario 2 increases demolition to 2 acres and construction to 14 acres. These scenarios assume that all best management practices, such as watering loose soil and avoiding unnecessary periods of engine-idle, are in place.

In the first scenario, emissions were well below *de minimus*, but in the second scenario, PM_{10} exceeded *de minimus* by 0.26 tons per year. Therefore, if a single project disturbs 16 or more acres in 1 year, a general conformity determination would be required. Table 4.2 contains the results of the emissions calculations and Appendix F provides the worksheets from which these figures were derived.

It is highly unlikely that proposed demolition and construction would exceed the 16-acre limit. No single proposed project encompasses 16 acres. Proposed construction projects average less than a quarter acre in size, Road and airfield projects would be larger; most would be less than a few acres, but the eastside ramp would be nearly eight acres. In addition, funding and manpower constrain the amount of development that could occur in a single year. Therefore, any impacts to air quality in any year would be below *de minimus* thresholds.

Table 4-2. Nellis AFB Projected Scenarios Pollutant Emissions (tons/year)

	CO	***VOCs***	***NO_x***	***SO_x***	***PM_{10}***
Scenario 1	0.38	0.11	0.93	0.11	3.45
Scenario 2	6.82	1.94	16.75	1.92	70.26
de minimus threshold	100	100	100	100	70

Environmental Consequences for Specific Actions in ADPs

The above environmental consequences would apply to any facility on Nellis AFB and activity associated with any individual ADP.

4.8.2 Creech AFB

Environmental Consequences Common to All Projects

Creech AFB is located in Clark County but is in an area that meets attainment for criteria air pollutants. The emissions derived for Nellis AFB apply to Creech AFB also. The difference, however, is that the

emissions do not need to meet a *de minimus* standard and therefore no conformity would be required. The Clark County air regulations still apply and fugitive dust permits and authority to construct permits would be required as necessary.

4.8.3 No-Action Alternative

Under this alternative, planning for additional facilities would continue using the 2002 General Plan and would not use the ADPs for specific activities on Nellis and Creech AFBs. Impacts to air quality would require individual analyses on a project-by-project basis under the no-action alternative at Nellis and Creech AFBs.

4.9 HAZARDOUS MATERIALS AND WASTE

The nature and magnitude of potential impacts associated with hazardous and toxic materials and wastes depends on the toxicity, storage, use, transportation, and disposal of these substances. The threshold level of significance for hazardous materials, toxic substances, and hazardous waste is surpassed if the storage, use, handling, or disposal of these substances substantially increases the risk to human health due to direct exposure, substantially increases the risk of environmental contamination, or violates applicable federal, state, DoD, and local regulations.

4.9.1 Nellis AFB

Environmental Consequences Common to All Projects

Construction and maintenance activities associated with the General Plan actions would require the use of hazardous substances, such as petroleum, oil, and lubricants. During construction, use of these substances for fueling and equipment maintenance would have the potential for minor spills and releases. Use of best management practices, such as secondary containment for construction vehicles and storage containers, would ensure that these substances would not be released into the environment.

Asbestos may be encountered as structures are remodeled or demolished to accommodate new support facilities. It is current Air Force practice to remove exposed friable asbestos and manage other asbestos-containing materials in place, depending on the potential threat to human health. Friable asbestos, if encountered would be removed by licensed contractors and disposed of in an appropriate disposal facility.

All materials purchased and used in construction projects on Nellis AFB are tracked through the HAZMART which manages the procurement, handling, storage, and issuing of hazardous materials used on Nellis AFB. The Air Force would continue to manage the 90-day central accumulation site for hazardous waste generators. Basic processes and waste handling and disposal procedures for wastes

generated at Nellis AFB are identified in the Nellis AFB Hazardous Waste Management Plan 12 (Air Force 2002b). These procedures are equipped to handle potential waste increases due to implementing the CIP projects. It is possible, but unlikely, for one of the proposed projects to introduce a new waste stream; however, it would be characterized to determine the correct waste disposition. Nellis AFB would continue to be responsible for ensuring that any hazardous waste generated is disposed of in compliance with all Federal, State, and local regulations.

Standard design and construction techniques would be employed to ensure that no hazardous fumes permeate facilities, such as use of clean fill and vapor barriers. Environmental program managers review project designs and inspect construction activities to ensure that appropriate engineering controls are in place.

Environmental Consequences for Specific Actions in ADPs

Due to the proximity of the ADPs to one another, the above environmental consequences would apply to any facility at Nellis AFB and any activity associated with any individual ADP.

4.9.2 Creech AFB

Environmental Consequences Common to All Projects

Use and generation of hazardous substances during construction and demolition projects would be the same for Creech AFB as for Nellis AFB. Controls, such as HAZMART tracking and Environmental Management Flight reviews and inspections, are the same as described for Nellis AFB.

4.9.3 No-Action Alternative

Under this alternative, installation improvement projects would be implemented in accordance with the 2002 General Plan. Pollution prevention measures are the same for all construction and demolition projects, regardless of the existence or status of a general plan.

4.10 SAFETY

In evaluating safety, the impacts would be considered adverse if human safety would be threatened.

4.10.1 Nellis AFB

Environmental Consequences Common to All Projects

During construction and demolition, all actions would be performed in accordance with AFOSH directives and OSHA regulations. There are no specific aspects of construction or demolition projects that would create any unique or extraordinary safety issues. The handling, processing, storage, and disposal of hazardous by-products from these activities would be accomplished in accordance with all federal, state, and local requirements, as well as applicable Nellis AFB plans. All current day-to-day operations have established safety guidelines and procedures which would continue to be observed. No adverse impact to safety would be anticipated under the proposed action. Long-term beneficial impacts from installation of traffic roundabouts or rerouting vehicles away from high-density pedestrian areas would result in safer consumer areas of the base. Additionally, Perimeter Road would be relocated around the clear zone of the runways to eliminate safety and security hazards.

Environmental Consequences for Specific Actions in ADPs

Due to the proximity of the ADPs to one another, the above environmental consequences would apply to any facility at Nellis AFB and any activity associated with any individual ADP.

4.10.2 Creech AFB

Environmental Consequences Common to All Projects

Effects to human safety related to construction and demolition projects proposed in the General Plan update would be the same for Creech AFB as for Nellis AFB.

4.10.3 No-Action Alternative

Under the no-action alternative, effects to human safety would be the same for construction and demolition projects. However, planned changes to re-route traffic may not occur, resulting in maintaining the status quo rather than a potential increase in public safety.

4.11 NOISE

In terms of aircraft operations, changes in noise levels of 3 dB or greater would constitute a significant change in the noise environment. However, to achieve such changes would require doubling of the number of operations at either base. No part of the proposed action would produce changes in operations. Relative to construction, significant effects from noise would need to exceed occupational health and

safety standards. All construction would operate with appropriate time and duration constraints, thereby adhering to required standards.

4.11.1 Nellis AFB

Environmental Consequences Common to All Projects

The prime generator of noise at Nellis AFB is aircraft operations. For the proposed action, noise primarily would be derived from two sources: construction/demolition activities and vehicle traffic associated with the same construction/demolition activities. Other sources, such as aircraft operations would remain consistent with existing conditions and would not change under the proposed action.

To characterize construction activity noise levels, EPA data (EPA 1971) were used (Figure 4-3). Based on the USEPA criteria, construction noise resulting in an hourly equivalent sound level of 75 dBA at a sensitive receptor would represent a significant impact. Noise from construction activity varies with the types of equipment used and the duration of use. During operation, heavy equipment and other construction activities generate noise levels ranging typically from 70 to 90 dBA at a distance of 50 feet. Commonly, use of heavy equipment occurs sporadically throughout the daytime hours.

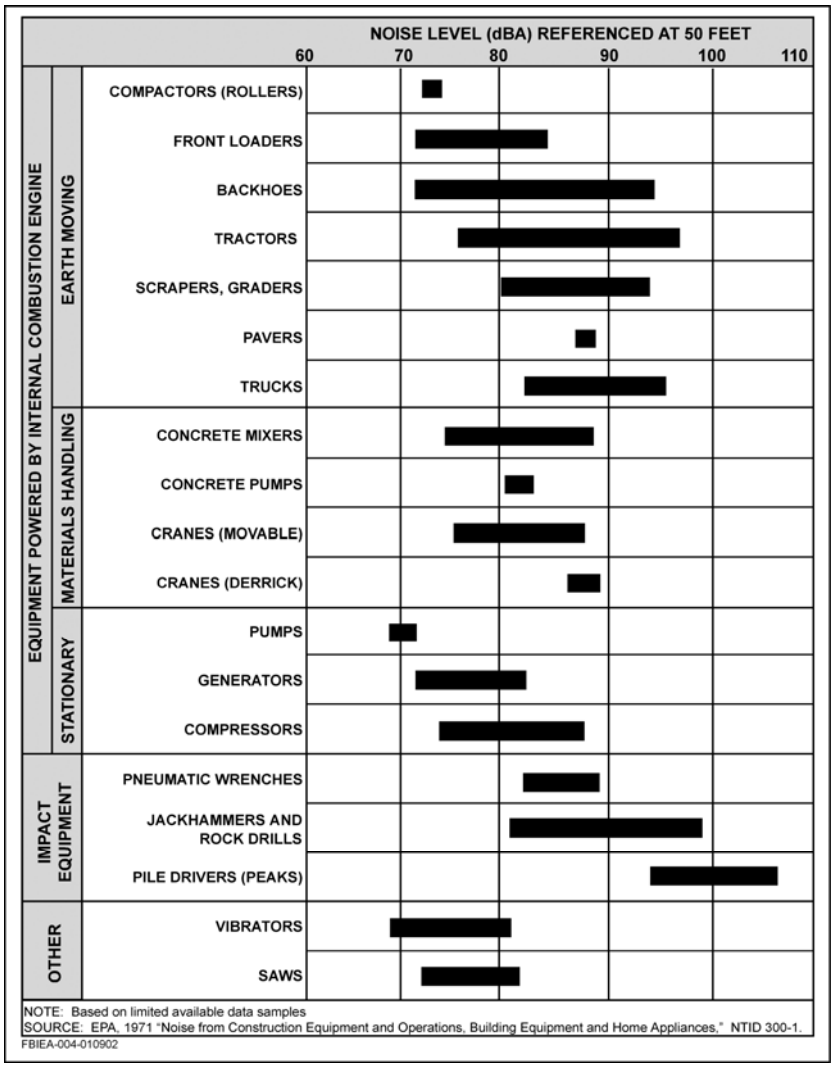


Figure 4-3. Typical Construction Equipment Noise Levels

To evaluate the potential noise that could be generated during construction and demolition activities, the two scenarios that were used in the air quality analysis were adopted. Under Scenario 1, the greatest noise levels would be generated during demolition debris removal and could reach a maximum of 76 dBA 50 feet from the site; at 500 feet noise would decrease to 61 dBA; and at 2,000 feet, noise generated from demolition activities would be 52 dBA. For Scenario 2, construction of the 326,000 square-yard East Side Flightline apron and circulation area (the largest single construction project) would generate a noise level of 79 dBA at 50 feet from the construction site; at 500 feet the noise level would be 64 dBA; and at 2,000 feet construction related activities would generate about 55 dBA.

Nellis AFB has not determined the exact projects to be undertaken, when they would occur, or in what order they would occur. These are variables based on funding availability, mission needs, and other unforeseen circumstances for which project priorities are determined. Regardless of these unknown

factors, construction/demolition activities at Nellis AFB would occur over a multi-year timeframe, and minimal to negligible impacts from construction noise would result for the following reasons:

- Heavy equipment that would generate the highest noise levels would not be used consistently enough to exceed the hourly equivalent noise level of 75 dBA for more than 1 hour and would be within the boundaries of Nellis AFB.
- A majority of construction and demolition projects occur within the vicinity of the flightline and for Nellis AFB, this area currently receives noise levels consistent with or greater than those that would be emanating from construction/demolition activities.
- Construction/demolition activities would be expected to occur between 7:30 a.m. and 4:30 p.m.
- Temporary increases in truck (e.g., dump trucks, fill transports) traffic within and near the construction corridor would produce localized noise for brief periods, but would not create any adverse noise impacts to human health, the neighboring communities, or within the base.

In general, construction and demolition noise at Nellis AFB would be intermittent and short-term in duration, and no long-term (recurring) noise impacts would result from implementation of the proposed action. Noise contours would remain unchanged from existing conditions.

Environmental Consequences for Specific Actions in ADPs

Due to the proximity of the ADPs to one another, the above environmental consequences would apply to any facility at Nellis AFB and any activity associated with any individual ADP.

4.11.2 Creech AFB

Environmental Consequences Common to All Projects

The UAS mission at Creech AFB is expected to expand greatly in the coming years. To that end, numerous construction projects are planned to meet operational requirements at Creech AFB. However, no specific information on the number or size of facilities, nor a timeframe for any construction has yet been determined. These are variables based on funding availability, mission needs, and other unforeseen circumstances for which project priorities are establish. Regardless of these unknown factors, construction/demolition activities at Creech AFB would occur over a multi-year timeframe, and minimal to negligible impacts from construction noise would result for the following reasons:

- Heavy equipment that would generate the highest noise levels would not be used consistently enough to exceed the hourly equivalent noise level of 75 dBA for more than 1 hour and be within the boundaries of Creech AFB.
- At Creech AFB, noise levels from infrastructural improvements would be contained within the installation but would be short-term in nature.
- Construction/demolition activities would be expected to occur between 7:30 a.m. and 4:30 p.m.

4.11.3 No-Action Alternative

Since construction and demolition would continue to occur at both Nellis AFB and Creech AFB regardless of the existence of a specific plan, impacts would be the same.

CHAPTER 5

CUMULATIVE EFFECTS, IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

CEQ regulations stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). CEQ guidance in *Considering Cumulative Effects* affirms this requirement, stating that the first steps in assessing cumulative effects involve defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action and other actions. Cumulative effects analysis must also evaluate the nature of interactions among these actions.

Cumulative effects are most likely to arise when a relationship or synergism exists between a proposed action and other actions expected to occur concurrently or in a similar location. Actions overlapping with or in close proximity to the proposed action would be expected to have more potential for a relationship than those more geographically separated. Actions that coincide, even partially, in time would tend to offer a higher potential for cumulative effects.

To identify cumulative effects the analysis needs to address three fundamental questions:

1. Does a relationship exist such that elements of the proposed action might interact with elements of past, present, or reasonably foreseeable actions?
2. If one or more of the elements of the proposed action and another action could be expected to interact, would the proposed action affect or be affected by impacts of the other action?
3. If such a relationship exists, then does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?

5.1.1 Scope of Cumulative Effects Analysis

The scope of the cumulative effects analysis involves both the geographic extent of the effects and the time frame in which the effects could be expected to occur. For this EA, the affected area defines the geographic extent of the cumulative effects analysis. This area includes Nellis and Creech AFBs and their vicinities, including Las Vegas Valley and Indian Springs. Examination of other actions not occurring within or adjacent to this affected area reveals that they lack the necessary interactions to result in cumulative effects.

Past actions within the two affected areas relate predominantly to activities on and use of Nellis and Creech AFBs. Under the no-action alternative, the current environmental conditions of the affected area underwent analysis in this EA. Since those conditions represent the result of long-term use occurring at Nellis and Creech AFBs, analysis of the no-action alternative has considered those past and present effects engendered by the operation and use of the base. Previous analyses addressing the affected area include *BRAC Environmental Assessment for Realignment of Nellis AFB* (Air Force 2007), *WINDO EA* (Air Force 2006a) and *F-22 FDE and WS Beddown at Nellis AFB, Nevada Environmental Impact Statement (EIS)* (Air Force 1999a).

Another factor influencing the scope of cumulative effects analysis involves identification and consideration of other actions. Beyond determining that the geographic scope and time frame for the actions interrelate with the proposed action, the analysis employs the measure of "reasonably foreseeable" to include or exclude other actions. For the purposes of this analysis, public documents prepared by federal, state, and local government agencies form the primary sources of information regarding reasonably foreseeable actions. Documents used to define other actions included notices of intent for EISs and EAs, management plans, land use plans, other NEPA studies, and economic and demographic projections.

5.1.2 Cumulative Effects of Reasonably Foreseeable Actions

Actions potentially relating to the cumulative effects for implementing the General Plan update for Nellis and Creech AFBs could include those of the DoD, Department of Energy, Department of the Interior, and local counties. The following outlines these actions and assesses their relationship to the proposed action and alternative.

DoD Actions

Nellis and Creech AFBs are active military installations that undergo continuous change in mission and in training requirements. This process of change is consistent with the United States defense policy that the Air Force must be ready to respond to threats to American interests throughout the world. Mission and training requirements have resulted in facility construction and upgrades on Nellis and Creech AFBs.

By far the largest reasonably foreseeable action is the proposed beddown of the F-35 aircraft for Nellis AFB. This action would include 36 new aircraft and construction of numerous facilities. An EIS is underway for this action and a Draft EIS should be available for public review in 2008. Where available and applicable to the proposed action of this document, cumulative impacts are presented here. The F-35 action is clearly larger than this proposal and environmental impacts resulting from that action would dominate all other actions relative to Nellis AFB.

Two other projects contributing to current and planned construction activities are the BRAC Realignment at Nellis AFB and the Predator Force Structure Changes at Creech AFB. These proposals are currently underway and construction activities for these actions receive priority because of the emerging mission needs. Many of the BRAC and Predator projects are currently funded.

Similar to this proposed action, the WINDO projects at Nellis AFB, Creech AFB, and Tonopah Test Range included repair, maintenance, installation, renovation, construction, and demolition. The Air Force has determined the WINDO projects are necessary for Nellis AFB to achieve its myriad test, training, and evaluation missions, both now and in the future. Nellis AFB would ensure that these goals are not only achieved, but also maximized.

Most (554) of the WINDO projects consist of minor improvements, repairs, and maintenance projects that represent routine activities as classified under 32 CFR Part 989, Air Force EIAP, and result in negligible effects to the environment. However, 77 proposed projects would involve new construction, expansion, or demolition of facilities and infrastructure. Nellis AFB would support most (45) of these projects, ranging from construction of a shoppette to construction of a rappel tower. All of these proposed projects would occur within functionally compatible areas on the base. Given their functional relationships with existing facilities, these projects would be sited on previously used and disturbed ground.

The WINDO EA describes numerous facility and infrastructure repairs and maintenance activities, but also describes some new construction. The proposed action updates the Nellis and Creech AFBs General Plans, and includes the CIP and Area Development Plans. These plans take the WINDO process one step further by updating the WINDO list to reflect current mission needs. The WINDO construction projects and the projects under this proposed action would be sited on functionally similar areas. The Area Development Plans under these updates include a Main Base Town Center, Unaccompanied Housing, Main Flightline, Eastside Flightline, Freedom Park, Area III Town Center and a Creech AFB Area Development Plan.

Cumulatively, the list of proposed CIP, WINDO, BRAC, Predator, and F-35 projects looks more formidable than what will actually occur because the latter three are based on emerging mission requirements and have funding priority. The projects listed in Table 5-1 may be funded in FY 2008. The list contains over forty projects that carried over from previous years and projects slated for later could be moved forward. Traditionally, only a fraction actually in ensuing years, other projects listed will be based on mission needs and priorities and some will be demolished as they become non-functional. This is a typical growth pattern found in any town.

Table 5-1. FY 2008 Projects Likely to Receive Funding	
Project Number	***Project Title***
RKMF 02-0025	Install HiX System Hangars 292 and 262
RKMF 02-0028	Repair Sewer Pumping Stations
RKMF 02-0030	Repair Roads, WSA
RKMF 03-0093	Repair Gym Locker Rooms, Bldg 432
RKMF 04-0020	Repair Airfield Lighting Circuit Cables 03L/21R
RKMF 04-0184A	Construct Addition Bldg 2345
RKMF 04-0184B	Repair Interior Bldg 2345
RKMF 05-3003	Maintenance Facility (F-15)
RKMF 06-0037	Construct CDC Classroom/Kitchen Youth Center B2999
RKMF 06-0098	Repair Interior, Hangar 220
RKMF 06-3002	Consolidated Security Forces
RKMF 06-3004	Red Flag Facility
RKMF 07-0009	Repair H-Framed Transformers w/Padmounts B10406
RKMF 07-0010	Repair Fenced Transformers w/Padmounts B270
RKMF 07-0012	Construct Comm Switch Facility
RKMF 07-0013	Repair 58 RQS Various Facilities
RKMF 07-0017	BRAC-Construct WRM & Mobility Bag Storage Facility
RKMF 07-0032	Repair Water Distribution System, East Side
RKMF 07-0033	Repair Interior Weapons School Bldg 282
RKMF 07-0038	Repair O'Club
RKMF 07-0044	Maintain Exterior Bldgs 620, 589, 428
RKMF 07-0045	Maintain Exterior Various Facilities
RKMF 07-0046	Repair AFFF Tank F-22A Hangar 285
RKMF 07-0047	Repair Fire Suppression Warrior Inn Bldgs 464-467
RKMF 07-0049	Repair Fire Suppression System Various Facilities
RKMF 07-0066	Repair Corrosion Control Various Water Tanks
RKMF 07-0067	Install Daylighting Various Hangars
RKMF 07-0068	Install Motion Sensors Bldg 625
RKMF 07-0069	Install Power Meters Bldgs 20, 428, 443, 10000, 556, 292
RKMF 07-0072	Repair Grease Trap Bldg 600
RKMF 07-0081	Repair Altitude Valves Facility 10420
RKMF 07-0086	Repair Interior Bldg 625 NOC
RKMF 07-0094	Repair 58 RQS, Bldg 10202
RKMF 07-0095	Construct Communications 58 RQS
RKMF 07-3007	Install Water Efficient Landscaping (IDIQ Portion)
RKMF 07-3007	Install Water Efficient Landscaping (RFP Portion)
RKMF 07-3020	Facility Efficiency Improvements Bldg 20 (Film portion)
RKMF 07-3020	Facility Efficiency Improvements Bldg 20 (paint portion)
RKMF 07-5002	Repair Interior O'Club
RKMF 08-0006	Repair Restrooms, Bldg 589
RKMF 08-0011	Construct LOLA Berm
RKMF 08-0013	Repair Interior, Hangar 290
RKMF 08-0016	Construct Storage Facility, Red Flag
RKMF 08-0017	Construct Admin Facility, Red Flag
RKMF 08-0018	Repair LOLA Pavement (Widen LOLA Legs)
RKMF 08-0019	Repair Interior, NDI Bldg 232
RKMF 08-0020	Repair Water Main, Tyndall Ave
RKMF 08-0023	Construct LOLA Revetments
RKMF 08-0024	Repair Facilities for Green Flag Ops, Bldgs 201, 258
RKMF 08-0025	Repair Interior, Bldg 61663
RKMF 08-0026	Maintain Cable Runs, Airfield Lighting Circuit 03L/21R

Table 5-1. FY 2008 Projects Likely to Receive Funding (con't)	
Project Number	***Project Title***
RKMF 08-0027	Maintain Airfield Pavements
RKMF 08-0028	Repair HiX Foam System, Hangar 283
RKMF 08-0029	Repair HVAC, PMEL Bldg 425
RKMF 08-0030	Construct Addition to Kennel Facility, Bldg 1018
RKMF 08-0031	Install Airfield Signage at Taxiway E and DoE Ramp
RKMF 08-0032	Repair Interior, Bldg 20
RKMF 08-0033	Repair Roof and Basketball Court Floor, Fitness Center
RKMF 08-0034	Construct Helicopter Emergency Training Area
RKMF 08-0035	Repair HVAC, Bldg 201
RKMF 08-0036	Replace Overhead HV Switch with Pad Mounted Unit
RKMF 08-0037	Construct LOLA Apron Lighting
RKMF 08-0044	Construct Child Development Center
RKMF 08-0047	Construct Interim Classroom Facility
RKMF 08-3001	JTAC Virtual Training Facility
RKMF 08-3002	Dormitory (192 PN)
RKMF 08-3001	Physical Fitness Facility
RKMF 09-3002	Child Development Center
RKMF 09-3003	Add/Alter Airfield Fire Rescue Station
RKMF 09-3004	F35A Maintenance Hangar/AMU CCD (Design)
RKMF 09-3005	F-35A Airfield Pavements (Design)
RKMF 09-3009	BRAC- AFR Training Facility
RKMF 09-3016	Aggressor Maintenance Hangar/AMU CCD (Design)
RKMF 09-3017	Aggressor AGE Complex CCD (Design)
RKMF 10-3002	F-35A Test and Operations Facility (Design)
RKMF 10-3003	Communications Network Control Center
Creech Projects	
LKTC 01-1002	Repair Flightline Electrical Distribution 3rd St
LKTC 04-3104	Visiting Quarters
LKTC 06-1008	Construct Highway Deceleration Lane
LKTC 06-1022	Repair BAK-12 Shacks and Deck Sheaves
LKTC 06-1032	Construct East Boundary Road
LKTC 06-1033	Construct UAS Pavements
LKTC 07-1009	Construct Utility Support UK Temporary Modular Facs
LKTC 07-1013	Install Emergency Cutoff Switches Bldgs 707 & 718
LKTC 07-1017	Construct Two MQ9 Parking Spots at LOLA
LKTC 07-1019	Repair HVAC Bldg 718
LKTC 07-1020	Construct 432 OSS Facility
LKTC 07-3106	Regional Kennel Training Center
LKTC 08-1001	Construct Suspect Vehicle Holding Area
LKTC 08-1002	Repair HVAC, Bldg 718
LKTC 08-1003	Construct Comm Switch Facility
LKTC 08-1004	Construct UAS Munitions Delivery Gate
LKTC 08-1006	Construct East Gate Electrical Utilities
LKTC 08-1007	Construct Primary Arterial Road
LKTC 08-1009	Construct Redundant Power to SOC
LKTC 08-1014	Construct East Gate Pavement
LKTC 08-1017	Construct Lighting at 15 RS Compound and Parking Lots
LKTC 08-1020	Construct PEB for Visiting Officer's Quarters
LKTC 08-1021	Install 60kW Generator with Autotransfer, Bldg 85
LKTC 08-1022	Repair Fire Alarm and Install HiX Foam System, Bldgs 791, 792
LKTC 08-1023	Construct Base Storage Facility

Table 5-1. FY 2008 Projects Likely to Receive Funding (con't)	
Project Number	***Project Title***
LKTC 08-1024	Construct Sidewalks
LKTC 08-1025	Construct Concertina Wire Around Base Perimeter
LKTC 08-1026	Repair Roofs, Various Bldgs
LKTC 08-1027	Repair LOLA Taxiway
LKTC 08-1029	Maintain Airfield Vegetation Removal and Grade Surface
LKTC 08-1031	Repair Aircraft Parking Apron and Taxiway ECHO
LKTC 08-1032	Repair Water Tanks Calibration
LKTC 08-1033	Construct Booster Station to Water Distribution System
LKTC 08-1034	Construct Promotions Testing Facility
LKTC 08-1035	Repair Interior Bldgs 118 and 119, FTD
LKTC 08-1036	Repair Airfield Pavement
LKTC 09-1001	Construct UAS Fitness Center

Unlike many towns, Nellis and Creech AFBs boundaries are finite that limits the potential for growth. Large safety and security zones are necessary for military installations, thus further limiting most of the growth for Nellis and Creech AFBs to infill construction. The phenomenal growth experienced by the Las Vegas metropolitan areas is not possible for the bases. As a result of these limitations, careful planning is required and the potential for the cumulative impacts are lessened to some degree because of limiting factors such as the explosive safety arcs associated with the live ordnance loading areas and live ordnance departure areas (LOLA/LODA).

Local Actions

While not involving specific actions, planning and anticipated growth in local cities as well as Clark, Nye, and Lincoln counties in Nevada represent factors worthy of consideration for cumulative effects when combined with the proposed action. Nellis and Creech AFBs, and the city of Las Vegas and the town of Indian Springs lie within Clark County. Census data and other information indicate that Clark County exhibited the greatest growth in population within the United States over the last 15 years. From 1990 through 2000, the population increased approximately 86 percent. Estimates for 2005 place the county population at 1.69 million people representing a 128 percent increase since 1990. This amount exceeds that anticipated in the Regional Transportation Plan for Clark County (Regional Transportation Commission 1994), which anticipated that Clark County's population would increase to approximately 1.2 to 1.4 million persons by 2005. The growth and economic development in Clark County far overshadows the influence of Nellis and Creech AFBs. As such, the minimal effects on local socioeconomic conditions from the General Plan update actions would not be perceptible given the context.

5.1.3 Assessment of Cumulative Effects by Resource Area

Analysis of the proposed action resulted in a finding of no direct or indirect effects on socioeconomics and infrastructure; cultural resources; and hazardous materials and waste. Therefore, these resources will not be discussed further in this section. This analysis of the proposed action indicated that cumulative effects of other actions could interact with potential direct or indirect effect on noise, air quality, water and soil resources, and biological resources. The following analyzes these resources further.

Conservation Measures

Energy and water conservation, recycling, and habitat conservation considerations have been incorporated into many, if not all of the proposed CIP projects. Some are specifically designed to improve the environment, such as installing water efficient landscaping, while others would utilize environmentally friendly systems such as, higher efficiency HVAC systems and water conserving faucets. Similarly, many facilities in the community are also moving towards this trend of "green" construction. Cumulatively, the impacts to the rapid growth of the Las Vegas Valley and Nellis and Creech AFBs are somewhat abated through better planning and engineering to reduce the use of consumptive resources. Naturally, the impacts would be least if the no growth occurred, but utilizing "green" construction techniques result in less impact than construction that doesn't attempt to conserve resources.

Noise

No change in noise would result from the proposed action. As such, it could not combine with any other action to produce cumulative effects. Construction noise from proposed projects would be temporary and short-term in nature. No location would experience a permanent increase in noise. Proposed basing of the F-35 would generate the most noise impact, more than any of the rest combined. Since the CIP and ADPs do not involve any new aircraft, the noise impact associated with flying operations would be unchanged. Since the General Plan updates would not produce a perceptible change in noise levels, it would not be additive to the noise from other actions at Nellis and Creech AFBs and, therefore, no cumulative impacts would be anticipated.

Air Quality

Cumulative impacts from multiple actions occurring simultaneously on the installation include emissions from construction and airfield operations due to overlap of the General Plan update actions, BRAC action and post-BRAC alternative, and the proposed F-35 beddown. The F-35 beddown action is a large multi-year project involving both construction and aircraft-related emissions during the course of the action, beginning in FY09. Specifically, the years FY09 through FY12 constitute the primary overlap period with construction, operations, and commuting. While cumulative emissions would exceed the minimal quantities generated by the proposed action, they would not pose a conformity problem under the CAA.

Conformity regulations apply only to individual projects. The air quality calculations presented in Chapter 4 for the proposed action also apply to these other foreseeable actions.

Tables 5-2 and 5-3 show the projected air pollutants expected from the proposed F-35 beddown at Nellis AFB. Construction for that project would begin in 2009 and the first aircraft would arrive in 2012.

Table 5-2. F-35 Nellis AFB Projected Construction Pollutant Emissions (tons/year)

	CO	***NO_x***	***VOCs***	***PM_{10}***
Nellis AFB Baseline[1]	*942.52*	*346.07*	*345.5*	*63.80*
2009	0.43	1.32	0.11	1.22
2010	5.02	6.11	0.80	3.89
2011	3.29	5.50	0.61	4.25
2012[2]	NA	NA	NA	NA
2013	3.91	7.75	0.92	14.11
2014	2.13	2.07	0.30	1.38
De minimis Threshold	100 tons/year	100 tons/year	100 tons/year	70 tons/year
Regional Significance 10% Threshold	38,785	7,629	5,058	5,329

[1] Total for Nellis AFB.
[2] No construction would occur in 2012.

Table 5-3. Projected Pollutant Emissions (tons/year) from Combined Construction, Commute, and Aircraft Operations Compared to Conformity Thresholds

[1]Regional Baseline	***CO***	***NO_x***	***VOCs***	***PM_{10}***
	387,851	76,295	50,376	53,292
2012				
Aircraft	12.00	28.00	1.00	8.00
AGE	6.08	3.09	0.51	0.16
Commuting Personnel	12.36	0.79	0.98	0.03
Construction Workers Commuting	0.10	0.01	0.01	0
Total	**30.54**	**31.89**	**2.50**	**8.19**
2013				
Aircraft	12.00	28.00	1.00	8.00
AGE	6.08	3.09	0.51	0.16
Commuting Personnel	11.82	0.72	0.91	0.03
Construction	3.91	7.75	0.92	14.11
Total	**33.81**	**39.56**	**3.34**	**22.30**
2014				
Aircraft	12.00	28.00	1.00	8.00
AGE	6.08	3.09	0.51	0.16
Commuting Personnel	11.37	0.67	0.86	0.03
Construction	2.13	2.07	0.30	1.38
Total	**31.58**	**33.83**	**2.67**	**9.57**
2015				
Aircraft	25.00	55.00	2.00	17.00
AGE	12.16	6.18	1.02	0.32
Commuting Personnel	11.37	0.67	0.86	0.03
Total	**48.53**	**61.85**	**3.88**	**17.35**

Table 5-3. Projected Pollutant Emissions (tons/year) from Combined Construction, Commute, and Aircraft Operations Compared to Conformity Thresholds (con't)				
[1]Regional Baseline	***CO***	***NO_x***	***VOCs***	***PM_{10}***
	387,851	76,295	50,376	53,292
2017				
Aircraft	50.00	110.00	4.00	34.00
AGE	24.32	12.36	2.04	0.64
Commuting Personnel	19.82	1.17	1.50	0.05
Total	**94.14**	**123.53**	**7.54**	**34.69**
2022				
Aircraft	75.00	165.00	6.00	50.00
AGE	36.48	18.54	3.06	0.96
Commuting Personnel	21.10	1.25	1.60	0.05
Total	**132.58**	**184.79**	**10.66**	**51.01**
Regional Significance 10% Threshold	38,785	7,629	5,058	5,329
De minimis Threshold (tons/year)	100	100	100	70

[1]Clark County 2001 Emissions (USEPA AirData 2007)

The NO_x emissions due to the F-35 beddown would exceed *de minimus* levels. Clark County Department of Air Quality and Environmental Management (CCDAQEM) has agreed to include these proposed NO_x emissions in their updated SIP (CCDAQEM 2008).

Water and Soil Resources

Construction of new facilities under the General Plan updates, proposed F-35 beddown and the BRAC realignment poses a potential for impact on soils, including soil loss and erosion. However, several factors indicate that erosion and soil loss would be negligible. Precipitation in the Nellis AFB and Creech AFBs areas are low, most construction would occur on previously developed land, and the Air Force and Clark County require employment of standard construction practices. Overall, the proposed action combined with the other planned construction would not result in potential incremental impacts from ongoing activities and no cumulative adverse impacts to soils.

This action would generally use water for construction purposes and long-term water use would typically be for office space restrooms. Additionally, a number of the projects replace heavily irrigated lawns with xeriscape and other projects designed to reduce water use. Personnel using the planned CIP projects would be personnel already located on base the proposed action does not include additional personnel at Nellis or Creech AFBs. Combined construction activities and population growth of Nellis and Creech AFBs are not expected to have appreciable cumulative effects on the water resources at either base. Construction activities would be temporary and water use limited to less than 1 percent of the base's daily allotment. Nellis AFB is currently allotted about 7.1 million gpd of combined surface and groundwater sources, and full implementation of the proposed action and other beddowns (i.e., BRAC and proposed F-35) would result in use of approximately 355,180 gpd to 446,419 gpd, which is well within Nellis AFB's water allocation. Since this water use is well below the allocation, it is unlikely that the cumulative

effects of the proposed action would have significant adverse effect on water resources at Nellis AFB and in the surrounding area. Creech AFB has a requirement for 88,000 gpd and cumulative impacts from proposed projects should not affect water supply at Creech AFB to any significant level as few, if any, additions of personnel are planned. Since there are other proposals contributing to the population of the bases, personnel on Nellis AFB monitor the proposals to assure that water is available for the proposed growth.

Biological Resources

An aspect of the General Plan update, BRAC realignment, and the F-35 beddown proposal common to all actions would be an increase of the ramp on the east side of the Nellis AFB airfield. The BRAC action would increase the size of the east ramp by 375,000 square feet, the proposed F-35 expansion would be similar in size, and the General Plan update has proposed expansions for the eastside flightline ADP as well. The total number of acres would be about 25 acres. They would all connect with one another, extending outward. The eastern corner of the ramp could intersect a portion of an ephemeral wash, and water runoff from the ephemeral wash could potentially intersect with the Range Wash. The Range Wash represents a water of the U.S., therefore, a Section 404 permit in accordance with the CWA may be required. Cumulatively, the potential impacts to this area would be isolated to only the base because Range Wash empties into a large retention basin located at the boundary of the base. Further downstream from the retention basin flows are constrained to man-made concrete and/or soil lined channels. Because the impacts would be confined to the base, there would be no cumulative impacts associated with the additional ramp space on the east side of the base.

Combined impacts to vegetation would be insignificant due to the already disturbed nature found at all locations. Wildlife impacts would be minimal given the already disturbed nature of each proposed infrastructure improvement location. Combined impacts to rare plant species would be insignificant since Las Vegas Bearpoppy and Las Vegas Buckwheat exist in Areas II and III. Areas affected by construction of CIP projects would be in areas not likely to contain these rare plant species. Clark County, the BLM and National Park Service currently provide efforts to conserve populations of these plants; therefore, no adverse cumulative impacts would occur to rare plants. Combined impacts to the desert tortoise known to exist in the vicinity surrounding Creech AFB would be limited to potential loss of desert tortoise habitat and individuals. Due to the low concentrations of the desert tortoise found in these locations and adherence to the measures required by USFWS Biological Opinions (USFWS 2007, 2003), these impacts would be insignificant.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

NEPA requires that environmental analysis include identification of "…any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects this use could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural resource).

For the General Plan proposed actions, most resource commitments are neither irreversible nor irretrievable. Most impacts are short-term and temporary, or longer lasting but negligible. Those limited resources that may involve a possible irreversible or irretrievable commitment under the proposed action are discussed below.

Facilities construction and maintenance for support activities would require consumption of limited quantities of aggregate, steel, concrete, petroleum, oil, and lubricants. Construction would occur on previously disturbed areas or in areas lacking significant habitat or concentrations of wildlife, so no irreversible loss of habitat and wildlife would result. No eligible or National Register properties are in the Area of Potential effect. Similarly, construction on both bases would avoid significant cultural resources. Any discoveries of cultural resources during construction or infrastructure upgrades would evoke an investigation and evaluation according to procedures in 36 CFR Part 60 and the Nellis AFB Integrated Cultural Resources Management Plan to ensure preservation of the resources. While construction of new facilities on the bases would incur some soil disturbance and loss, measures to localize and minimize soil loss would be implemented. The Air Force would continue to comply with all requirements of the USFWS Biological Opinions and subsequent modifications to minimize desert tortoise mortality, harassment, or habitat destruction on Nellis and Creech AFBs (USFWS 2007, 2003).

Personal vehicle use by the staff proposed to support the General Plan activities would consume fuel, oil, and lubricants. The amount of these materials used would not exceed that currently used by these same individuals and their families. Construction in the region would occur regardless of the specific location and this activity does consume fuel. However, Nellis AFB is installing a Solar Photovoltaic System (PVS), which will offset non-renewable energy consumption, and an additional Solar PVS is planned for Creech AFB. Also, the ECIP projects and improvements will assist in curtailing energy consumption. In the long term, non-renewable energy used for the projects will be offset by these energy saving measures.

CHAPTER 6

REFERENCES CITED

6.0 REFERENCES CITED

Alfred University. 2005. Energy Use, Energy Overview website. http://design.alfred.edu/energyuse.html. November.

Bureau of Transportation Statistics (BTS). 2001. Distribution of Trips by Mode of Transportation. http://www.bts.gov/publications/highlights_of_the_2001_national_household_travel_survey/htm/table_a10.html

Clark County. 2000. Final Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, NV. September.

_____. 1998. Airport Environs Element of the Clark County Comprehensive Plan, Las Vegas, NV.

Clark County Department of Air Quality and Environmental Management (CCDAQEM). 2008. F-35 Beddown at Nellis AFB. 12 Feburary.

Clark County Health Department (CCHD). 2001. PM_{10} State Implementation Plan, Las Vegas, NV. June.

_____. 2000. Carbon Monoxide State Implementation Plan, Las Vegas, NV. August.

Hall, L.S., P.R. Krausman, and M.L. Morrison. 1997. The Habitat Concept and a Plea for Standard Terminology. *Wildlife Society Bulletin*, Volume 25: 173-182.

Hazlett, D.L., P.P. Douglas, C.A. Popolizio, and M.L. Arnett. 1997. Floristic Inventory of Nellis Air Force Base, Area II, Clark County, Nevada. Center for Ecological Management of Military Lands, Colorado State University, Fort Collins, CO. January.

Nationmaster. 2005. BP Statistical Review of World Energy 2005. Http://www.nationmaster.com.

Nellis Air Force Base (NAFB). 2007. Integrated Cultural Resources Management Plan

_____. 2006a. Wing Infrastructure and Development Outlook (WINDO) Environmental Assessment. June.

_____. 2006b. Inventory of Nine Structures Associated with BRAC and WINDO Actions. Nellis AFB. Nevada.

_____. 2006c. Economic Impact Analysis FY06. Nellis AFB, NV.

_____. 2005a. Environmental Assessment Military Family Housing Revitalization Project, Nellis AFB, NV.

_____. 2002a. General Plan for Nellis Air Force Base, Nevada. Includes General Plan Summary for Indian Springs Air Force Auxiliary Field (now Creech AFB), Nellis AFB, NV.

_____. 2002b. Drinking Water Quality Report for Indian Spring Air Force Auxiliary Field.

_____. 1998a. Cultural Resources Management Plan. Nellis Air Force Base Plan 126-7. August.

_____. 1998b. Nellis Air Force Range Complex Fiber Optic Line Route from Indian Springs AFAF, Clark County, Nevada to Cedar Pass Facility, NTTR North Range Nye County, Nevada Environmental Assessment. Nellis AFB, NV.

_____. 1997a. Regional Training Area Expansion, United States Air Force 99th Ground Combat Training Flight Environmental Assessment. Nellis AFB, NV.

_____. 1997b. Nellis Air Force Range Wetlands Survey Report. Nellis AFB, NV.

_____. 1997c. Nellis Air Force Base and Range Bat Survey Report. Nellis AFB, NV, Environmental Management Directorate, Natural Resources. April.

_____. 1996. Biological Resources Technical Memorandum – Environmental Assessment Regional Training Area Indian springs Air Force Auxiliary Field, Nellis AFB, NV. May.

Nevada Small Business Development Center (NSBDC). 2006. Nevada County Population Estimates, July 1, 1990 – July 1, 2006. Includes Cities and Towns.

Nevada State Historic Preservation Office (Nevada SHPO). 2004. Consultation Letter. October.

Nevada State Office of Energy (NSOE). 2005. Nevada Energy Status Report.

Regional Transportation Commission. 1994. Regional Transportation Commission of Southern Nevada (RTC) – What's New. http://www.rtcsnv.com/news/whatsnew.htm. Accessed March 2007.

Southern Nevada Water Authority (SNWA). 2004. Annual Report.

United States Air Force (Air Force). 2007. BRAC Environmental Assessment for Realignment of Nellis AFB, NV. March.

_____. 2006a. Headquarters Air Combat Command Infrastructure Assessment. Nellis AFB. March.

_____. 2006b. Headquarters Air Combat Command Infrastructure Assessment. Creech AFB. March.

_____. 2005. Nellis Air Force Base Annual Emission Inventory.

_____. 2004. Management Action Plan, Nellis AFB, Nevada (ACC). December.

_____. 2003a. Predator Force Structure Changes at Indian Springs Air Force Auxiliary Field, NV. Environmental Assessment. July.

_____. 2003b. Nevada Training Initiative Environmental Assessment. July.

_____. 2003c. Air Installation Compatible Use Zone (AICUZ) Study, Nellis AFB, NV. HQ ACC, Langley AFB, VA.

_____. 2003d. Asbestos Management and Operations Plan, Nellis AFB, NV. December.

_____. 2003e. Lead-Based Paint Management Plan, Nellis AFB, NV. December.

_____. 2002a. Facilities Response Plan, Nellis AFB Plan 19-1, Nellis AFB, NV. May.

_____. 2002b. Nellis AFB Plan 12, Hazardous Waste Management Plan, Nellis AFB, NV. 1 October.

_____. 1999a. F-22 Force Development Evaluation and Weapons School Beddown Nellis AFB, NV. Environmental Impact Statement.

_____. 1999b. Integrated Natural Resources Management Plan Nellis AFB, Nellis AFB, NV.

_____. 1999c. Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement. March.

United States Army Corps of Engineers (USACE). 2003. Amendment to Charrette Report – Squad Ops/AMU/Hangar. Indian Springs Air Force Auxiliary Field, Indian Springs, NV. March.

_____. 1987. Wetlands Delineation Manual.

United States Census Bureau (USCB). 2006. 2005 American Community Survey, Selected Economic Characteristics. Website search conducted November 2006 at http://factifinder.census.gov.

United States Department of Agriculture (USDA). 1985. Soil Survey of Las Vegas Valley Area Nevada, Part of Clark County. Soil Conservation Service.

United States Environmental Protection Agency (EPA). 2005. National Emission Inventory (NEI) Database. August.

_____. 1971. Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances. NTID 300-1.

United States Fish and Wildlife Service (USFWS). 2007. Programmatic Biological Opinion for Implementation of Actions Proposed on Nellis Air Force Base and the Small Arms Range, Clark County, Nevada. File No. 1-5-07-F-497, June 15.

_____. 2003. Programmatic Biological Opinion for Activities on the South Range of Nellis Air Force Base, Nevada Test and Training Range, and the Nevada Training Initiative. Clark and Lincoln Counties, Nevada. File Number 1-5-02-F-522, June 17.

University of Nevada, Las Vegas (UNLV). 2006. CBER Clark County Construction Index. The Center for Business and Economic Research, Las Vegas, NV. October.

CHAPTER 7

PERSONS AND AGENCIES CONTACTED

7.0 PERSONS AND AGENCIES CONTACTED

Austin, Jay. ACC/A7ZP. Langley AFB, Virginia. 2006.

Fueller, Stan. 99 CES/CECP. Nellis AFB, Nevada 2007.

Haarklau, Lynn. 99 CES/CEVN (NEPA). Nellis AFB, Nevada. 2008.

Haarklau, DJ. 99 CES/CEVC (Compliance). Nellis AFB, Nevada. 2007.

Kotanchik, Paul. 99 CES/CEVC (Lead Based Paint, Asbestos). Nellis AFB, Nevada. 2007.

Mathew, Shimi. CAA Program Manager. Nellis AFB, Nevada. 2007.

Myhrer, Keith. 99 CES/CEVN (Cultural Resources). Nellis AFB, Nevada. 2007.

Ocampo, Danilo. 99 CES/CECP. Nellis AFB, Nevada. 2007.

Parker, Sheryl. ACC/A7PP. Langley AFB, Virginia. 2006.

Porterfield, Mark. 99 CEV/CEVP (Hazardous Materials and Waste). Nellis AFB, Nevada. 2006.

Price, Michelle. 99 CES/CEOEF. Nellis AFB, Nevada. 2007.

Roe, John. 99 CES/CEVC (Water, Solid Waste). Nellis AFB, Nevada. 2006.

Schmidt, Bernd. 99 CES/CEVR (Environmental Restoration Program). Nellis AFB, Nevada. 2006.

Turner, Bob. 99 CEV/CEVN (Wildlife and Wildlife Habitat). Nellis AFB, Nevada. 2005.

Wertin, Frank. 99 CES/CEC. Nellis AFB, Nevada. 2007.

CHAPTER 8

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8.0 LIST OF PREPARERS AND CONTRIBUTORS

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APPENDIX A

GENERAL PLAN AND UPDATES

APPENDIX A
GENERAL PLAN AND UPDATES

The following appendix includes a chapter by chapter discussion of the information contained in the original General Plan (2003) and the updates to this plan.

Introduction (2003 version) – Chapter 1 of the Nellis and Creech AFBs General Plans provide commanders with an introduction to familiarize them with the General Plan's content and structure. It clearly states the installation vision, the description of the planning process, and the goals and objectives of the Plan. The goals of the 2003 General Plan and the updated General Plan have not changed and are the following:

- Enhance Nellis AFB's viability as a national and international training asset;
- Utilize capacity to accommodate future growth;
- Ensure total execution of resource stewardship responsibilities;
- Preserve land use and airspace compatibility; and
- Improve quality of life and aesthetics.

Updates to Introduction – The introduction section of the updated General Plan is fairly consistent with the original document. The vision statement and goals remain the same. The primary differences between the two documents are some of the objectives to the goals. In preparing the 2003 General Plan, Nellis AFB faced challenges which required immediate attention and some of the objectives described specific projects to meet the challenges. Three of the objectives were to acquire the Live Ordnance Departure Area (LODA), construct the Type II hydrant system for refueling aircraft, and provide additional facilities for the combat search and rescue function. All of these projects have been completed and no longer would be included in the General Plan update.

The rest of the General Plan update objectives fall into two categories: those that are general in nature and present a more philosophical, programmatic tone or those that describe general construction requirements. Examples of the former are to a) Evaluate facility requirements of potential missions; b) Design facility plans to accommodate potential new users; and c) Comply with federal, state, and local environmental laws, regulations and policies. Examples of the latter are to increase aircraft parking ramp space to accommodate requirements during Red Flag and other exercises; and improve the intra-base and up-range secure communications interconnectivity through infrastructure improvements. The objectives of the 2003 General Plan still hold true and as such have not change the construction requirement Because these are objectives and do not describe projects, the updates to Chapter 1 of the General Plan need not be further analyzed in this EA.

Plan Observations and Recommendations – (2003 version) - During planning, significant base development issues and recommendations were identified and presented to the commanders. This section, Chapter 2 of the General Plan, compiles all of these issues from the remainder of the document and provides a concise table stating what was identified and the recommendations to address each issue.

Updates to Plan Observations and Recommendations – This section describes the observations and recommendations for the General Plan as a whole, and reiterates the findings of the existing conditions and proposed projects that will be analyzed in this General Plan update EA. As such, it is rather lengthy and the observations and recommendations are described in detail throughout this EA and are not repeated here. Table A-1 provides the list of updated General Plan observations and recommendations for Nellis and Creech AFBs.

Table A-1. Nellis AFB General Plan Observations and Recommendations

Section	***Observation***	***Recommendation***
Constraints and Opportunities		
Threatened and Endangered Species	The Desert Tortoise, a threatened species found in Area II (low densities), is a minor development constraint.	Accomplish USFWS Service Section 7, Endangered Species Act consultation to determine how proposed Area II development actions are likely to affect this species.
	The Las Vegas bearpoppy, a USFWS-designated species of concern and State of Nevada sensitive species has been identified in Areas II and III.	Consult with the base biologist prior to any development or action that would disturb colonies of these plants.
Wetlands and Floodplains	The 100-year floodplain, adjacent to the southeastern part of the golf course and the Clark County Stormwater Retention Basin, may pose minor site-specific development constraints.	Coordinate proposed development with 99 CES/CEV to ensure environmental compliance and determine appropriate actions.
Hazardous Materials	On-base hazardous waste generators are required to obtain authorization to accumulate waste by registering their waste-generating process with 99 CES/CEV.	Monitor collection, management, and disposition of hazardous wastes to ensure continued compliance with EPA standards. Continue to implement new waste reduction practices.
RCRA, ERP, and Toxic Substances	NAFB has 9 active Environmental Restoration Program (ERP) sites.	Remediate and monitor ERP sites.

Table A-1. Nellis AFB General Plan Observations and Recommendations (con't)		
Section	***Observation***	***Recommendation***
Air Emission Sources and Inventory	NAFB is located in an air quality non-attainment area and is considered a major source for Volatile organic compounds (VOC), particulate matter (PM_{10}), and nitrogen oxides (NO_x).	99 CES/CEV continue to evaluate all proposed development and construction activity to determine short- and long-term air emission impacts.
Wastewater Point Source Discharges	Clark County wastewater permits may have to be modified when future development occurs.	Continue to monitor new construction to ensure compliance with County permitting requirements.
Stormwater Non-Point Source Discharges	Nevada stormwater permits may have to be modified when future development occurs	Continue to monitor new construction to ensure compliance with State permitting requirements.
Airfield Clearances	Unified Facilities Criteria (UFC) 3-260-01, Airfield and Heliport Planning and Design, limits locations and heights of objects around the airfield to minimize hazards to airfield operations.	Ensure new construction and/or other development activity complies with current airfield clearance directives. Consult 99 CES Community Planners for airfield criteria.
Explosive Safety Zones	Explosive safety zones provide safety buffers between potentially hazardous areas and populated areas.	Coordinate all proposed construction and development with USAFWC/SE to ensure compliance with current safety directives.
Noise	Almost all of Area I, including the Nellis Terrace Housing Area, the elementary school, and airman dormitories is within DNL 70 dB and higher noise contours.	Incorporate engineered noise level reduction (NLR) measures into the designs for future renovation and construction of Area I and II facilities within noise contours that exceed DNL 65 dB.
Antiterrorism/Force Protection	Force protection measures are required to reduce the threat vulnerability of personnel and facilities.	Coordinate proposed development with 99 SFG to ensure that force protection measures are considered when evaluating siting alternatives and in facility designs.
Off-Installation Constraints	Off-base residential and commercial developmental that is rapidly moving closer to the NAFB airfield and explosives safety clear zones could severely restrict and eventually shut down weapons training missions.	Continue to work with the local community governments to prevent further encroachment which could hinder and/or curtail certain aspects of NAFB's combat training missions.

Table A-1. Nellis AFB General Plan Observations and Recommendations (con't)		
Section	***Observation***	***Recommendation***
Infrastructure		
Water System	Wells do not have emergency back-up power. The base has installed quick-disconnect plugs so generators can be used. Areas I and III non-functioning cast iron gate valves prevent isolation of distribution lines without shutting down large portions of the base. Corrosion has severely reduced the Manch Manor elevated tank's steel thickness; the tank has been tested: NAFB is awaiting the final report.	Fund and execute remaining portions of the various existing base projects to repair and/or replace deteriorated and deficient portions of the water system. Implement the corrective actions recommended by the 2006 HQ ACC Infrastructure Assessment to the extent determined by the NAFB Facilities board to be feasible.
Sanitary Sewer System	Several manholes have major structural defects. Only one of the base's pump stations can transmit overflow alarms to the monitoring station. A number of pump stations do not meet ACC standards for hard piping, quick disconnect capability, and system alarms.	Fund and execute various existing base projects to repair and/or replace deteriorated and deficient portions of the sanitary sewer system. Implement the corrective actions recommended by the 2006 HQ ACC Infrastructure Assessment to the extent that is determined to be feasible.
Roofing	The roofing system was evaluated and resulted in a rating of degraded. The rating is based on the Pinnacle Roofing Database and was validated with a visual inspection of 23 roofs as part of this visit.	Implement infrastructure improvements to roofing recommended by the 2006 HQ ACC Infrastructure Assessment to the extent that is determined feasible.
Communications Systems	Detailed existing condition descriptions, assessments, and planned improvements are available in the Communications Blueprint for Nellis AFB.	Contact 99 CS/CC/SCX for further information.

Table A-1. Nellis AFB General Plan Observations and Recommendations (con't)		
Section	***Observation***	***Recommendation***
Fire Protection	• Base Fire Reporting System. About 90 percent of the buildings are connected by telephone line to the alarm reporting system. This results in no automatic alarm reporting to the Fire Department during frequent telephone line outages. • Fire Suppression Systems. Several aircraft hangars and some other facilities have partial alarm/suppression systems, or none at all. • Fire Station 1. The Main Fire Station does not comply with quality of life (QOL) and functional requirements of the Air Force Fire Station Design Guide (AFFSDG).	Convert to an all-radio system. Make the building-specific 2006 HQ ACC Infrastructure Assessment-recommended fire alarm and/or suppression system improvements. Fund and execute the existing MILCON project to build a Station 4 Replacement (Station 1 repair and expansion is part of that project).
Land Use and Transportation		
Airfield	Airfield facilities and ramp space are strained due to training and exercises.	Base Realignment and Closure and the Joint Strike Fighter beddown will begin the expansion of airfield facilities and ramp space on the east side of the airfield. See the Main Flightline ADP and the East Side Flightline ADP .
Aircraft Operations and Maintenance	Aircraft Operations facilities are strained due to training and exercises.	Consider sites on the eastern side of the airfield for possible future expansion of Aircraft Operations & Maintenance facilities. See the Main Flightline ADP and the East Side Flightline ADP.
Industrial	Logistics Group munitions storage facilities are inadequate; supply, vehicle maintenance, and transportation functions should be consolidated. Also, with the arrival of the F-22 and later the F-35, more munitions storage will be required to accommodate the increased aircraft present at Nellis AFB.	Convert land in Area III from Open Space to Industrial for additional Logistics Group facilities, and pursue consolidation of Logistics Group functions in Area I.

Table A-1. Nellis AFB General Plan Observations and Recommendations (con't)		
Section	***Observation***	***Recommendation***
Administrative	Facilities are widely dispersed and occupy several old buildings.	Consolidate Security Forces and all 99 CS Communications functions. The Main Base Town Center ADP describes the relocation of the Communications functions and how the move would affect current land use.
Community (Commercial)	Efforts to consolidate facilities around the new BX will create a central core for Community (Commercial) land uses.	Convert Outdoor Recreation land to Community (Commercial) to accommodate BX expansion. Consider additional pedestrian-friendly improvements.
Community (Services)	The existing library facility does not adequately meet customer needs.	Identify a site for future construction of a new library facility.
Medical	The Emergency Room has recently been renovated in order to meet the growing needs of the eligible population. Expansion is also a possibility for the Administrative building adjacent to the hospital.	Identify potential sites on Open Space land for possible future expansion of medical uses in Area III.
Housing (Accompanied)	The housing privatization initiative will demolish 329 old Nellis Terrace units and construction replacement MFH in Manch Manor; demolish and replace the six Dunning Circle and 590 Manch Manor I-III; and make sound attenuation renovations to 350 Nellis Terrace units.	Proceed with the housing privatization initiative.
Housing (Unaccompanied)	A total of 1,210 rooms are currently available. There is a 483 permanent party room deficit based on FY 05 manpower projections (1,693 rooms required - 1,210 rooms available).	Construct additional permanent party dormitories. See the Unaccompanied Housing ADP, for details pertaining to land use in that area.
Outdoor Recreation	Several projects will impact outdoor land use space.	Relocate the running track and athletic fields to the old Nellis Terrace area. See the Freedom Park ADP, for details pertaining to new construction and demolition that will take place.

Table A-1. Nellis AFB General Plan Observations and Recommendations (con't)		
Section	***Observation***	***Recommendation***
Open Space	Encroachment pressures have caused acquisition of nearly 2,500 acres of land previously outside base boundaries.	Continue monitoring growth pressures, and acquire land necessary to protect the base mission.
Water	Existing flood control system improvements provide adequate protection against flooding.	No additional water or flood control facilities are currently recommended.
Long-Term Future Land Use Studies	Certain long-term land use issues and opportunities have not been explored as part of this EGP assessment.	A Future Land Use and Facility Siting Guide was completed September, 2006. The Study incorporates current Area Development Plans (ADP's) and how they coincide with future land use of the base while addressing new facilities that are and will be needed.
Off-Installation Land Use	Growth, resulting encroachment on NAFB by development, is the predominant issue impacting NAFB.	99 CES community planner continues to work closely with Clark County and the City of North Las Vegas planners to identify concerns and work to avoid land use conflicts in future development decisions.
Capital Improvements/Area Development Plans/Study Areas		
Facility Development	Most of Nellis AFB's primary existing facilities and supporting infrastructure are maintained to the extent possible, but buildings and infrastructure systems are deteriorating with age. Security Forces and the Communications Squadron are in dire need off consolidated facilities.	Refer to the Future Land Use and Facility Siting Guide for guidance when siting new facilities so they correspond with their correct Land Use category. The Future Land Use and Facility Siting Guide addresses consolidation of facilities throughout the base.
Quality of Life	NAFB provides a multitude of amenities that enhance the Quality of Life (QOL) of its military personnel (active, retired, and reserve components), civilian employees, and family members.	Continue to implement QOL amenities that further enhance the services Nellis AFB provides to its personnel.

Installation and Vicinity Profiles – (2003 version) - Chapter 3 of the General Plan provides a descriptive overview of Nellis and Creech AFBs, their history and characteristics, and the regional surroundings of Las Vegas, Indian Springs, and Clark County.

Updates to Installation and Vicinity Profiles - This section changed slightly from the previous version. Nellis AFB and its surroundings have had some build-up; the LODA acquisition added acreage to the base and there have been some internal changes; however, none of the changes to this section warrant environmental impact analyses. Creech AFB has also undergone some changes, but like Nellis AFB, none of the changes to the Installation and Vicinity Profiles section for the base warrant analysis.

Component Plans (2003 version) are the heart of the General Plan. They contain key information about elements that impact future development of the installations. Component Plans provide information about Nellis and Creech AFB's interaction with the surrounding area, the ability to accommodate additional development, and the future plans for development.

There are four main sections that compose Component Plans: *Composite Constraints and Opportunities*; *Infrastructure*; *Land Use and Transportation*; and *Capital Improvements Program*. The Infrastructure and Capital Improvements Program comprise the bulk of the actions requiring detailed environmental impact analysis. Land Use and Transportation could be affected by future development plans and as such require environmental analysis. Changes to the Composite Constraints and Opportunities component plan generally deal with existing conditions and are addressed in Chapter 3 of this document.

Updates to the Component Plans - The component plans make up the majority of the changes to the General Plan and all of the proposed projects which would warrant detailed analyses. One of the key updates to the Capital Improvements Program component plan is a section for Sustainability. This section implements the *Air force Sustainable Development Policy (2001)* and requires the projects should be evaluated for Leadership in Energy and Environmental Design (LEED). The goal of the sustainability policy is to:

- Conserve energy, water and raw materials;
- Prevent environmental degradation caused by construction, operations, and disposal of facilities; and
- Create built environments which are livable, healthy, maintainable, and productive.

Plan Maintenance, Revision and Implementation – (2003 version) - Chapter 5 outlines the procedure, roles and responsibilities for maintaining, revising, and implementing the General Plan. The plan is a "living document" and it is expected that changes would occur and the plan would need updating such as the update as described in this EA.

Updates to Plan Maintenance, Revision, and Implementation - None of the plan maintenance, revisions, and implementation procedures changed such that they warrant NEPA analysis.

Appendices to the General Plan – New appendices added to the Nellis and Creech AFBs General Plan are the *Future Land Use and Facility Siting Guide* and an Area Development Plan (ADP) for Creech

AFB. The *Future Land Use and Facility Siting Guide* outlines six ADPs for Nellis AFB. The ADPs are subsets of the Capital Improvements Program previously described and comprise the bulk of that component plan. For this reason, this EA will devote a large portion of the analyses to the ADPs.

General Planning - One of the primary purposes for having a General Plan is to be able to site facilities within certain guidelines, opportunities, and constraints. For the purposes on this EA, these are called future facilities and include all facilities that are not already included in the General Plan. When base planners receive a request from a proponent, they can look at the user requirements and check current and projected mission requirements to determine whether the new function could utilize existing space. If not, the potential location and facility size is considered.

APPENDIX B

CAPITAL IMPROVEMENTS PROJECTS

APPENDIX B
CAPITAL IMPROVEMENTS PROGRAM PROJECTS LIST

The following tables list all of the CIP projects currently on the Automated Civil Engineering System (ACES) for Nellis and Creech AFBs. The project number is broken down by base, year and project identifier number. RKMF denotes Nellis and LKTC is Creech AFB, the first two numbers are the program year, and the last four are the identifier number. For example, project number RKMF060083, Replace Well #2 Nellis AFB, RKMF is on Nellis AFB and programmed for FY 2006 with the unique identifier 0083.

CONSTRUCTION PROJECTS		
Project Number	***Project Title***	***Infrastructure Type***
RKMF060083	Replace Well #2 Nellis AFB	Utility
RKMF990046	Construct Addn EOR/Paint	Airfield/maintenance
RKMF950021	Construct Airfield Crash Yard	Airfield
RKMF030055	Construct Golf Pad Extension	Airfield
RKMF074002	Construct Apron Shoulders 66 RQS	Airfield
RKMF070018	Construct Trim Pad	Airfield
RKMF060021	Groove Runway 03R/21L 99 CES	Airfield
LKTC071018A	Construct Addition 11RS FTU, Bldg 707	Facility
RKMF070026	Construct Addition Age Facility	Facility
RKMF070037	Construct Addition Age Sub-Pool	Facility
RKMF040184A	Construct Addition Bldg 2345	Facility
RKMF060151A	Construct Addition Washrack, Facility 271	Facility addition
LKTC051024	Construct Bldg 3922 Maintenance Fac Addition	Facility addition
RKMF050044B	Construct Readiness Classroom Addition Bldg 10146	Facility addition
RKMF960063	Construct Mun Storage Admin Fac	Facility
RKMF040205	Construct Admin Facility Fuel Bulk Storage Area	Facility
RKMF040204	Construct Admin Facility Fuels Storage	Facility
LKTC071010	Construct Security Enhancement GCS Pad	Security
RKMF060029	Construct Visitor Center Range Road	Security
RKMF050060	Construct WSA External Patrol Route	Security
LKTC071002	Construct Fixed GCS Operations Facility	Facility
LKTC071002B	Construct Fixed GCS Operations Facility Unfunded Communications	Utility
RKMF	Construct Golf Course Clubhouse Support Utilities	Utility
	Creech Solar Photovoltaic Array	Energy
RKMF093020	HVAC Thermal Storage Ice Plant	Energy
LKTC061025	Construct 11th RS Sqd FTU Facility	Facility
LKTC071003	Construct 15 RS Sq Ops Facility	Facility
LKTC061024	Construct 19th AS Sqd Ops Facility	Facility
LKTC071020	Construct 432 OSS Facility	Facility
LKTC071006	Construct 432 WG HQ Facility	Facility
LKTC071007	Construct 432 WG MSG Facility	Facility
LKTC071015	Construct Allied Support 42AS Trailers	Facility modular

CONSTRUCTION PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
LKTC071009	Construct Allied Support UK Temp Modular Facs	Facility modular
RKMF060150	Construct External Wing Tank Maint Facs	Facility
RKMF050037	Construct Holding Pad Bldg 11143 & 11144 57 EMS	Facility holding pad
LKTC061043	Construct Interim Facilities Predator Ops Center	Facility
LKTC051020	Construct MSA Munitions Holding Pad	Facility holding pad
LKTC051018	Construct Loading Ramps MSA	Facility holding pad
RKMF060011	Construct Mobility And Training Facility	Facility
LKTC071004	Construct MQ9 POS/MRSP Facility	Facility
LKTC061007	Construct Multipurpose Facility Creech AFB	Facility
LKTC051021	Construct Munitions Storage Facility ISAFAF MSA	Facility
LKTC051022	Construct Munitions Storage Facility ISAFAF MSA	Facility
RKMF070017	Construct RSP Facility	Facility
RKMF050042	Construct Storage Pads Bldg 11133 57 EMS	Facility holding pad
RKMF083001	JTAC Virtual Training Facility	Facility
RKMF063004	Red Flag Facility	Facility
RKMF910154	Alt Interior/Electric DRMO	Facility remodel
RKMF940065	Alt MRSP/AGS	Facility remodel
RKMF050115	Alter Entrances And Install Security Barriers Multi Fac	Facility remodel
LKTC981030	Construct Armory Addn Bldg 92	Facility addition
RKMF002005	Construct Cage HVAC Bldg 242	Facility internal
RKMF010113	Construct Support Facilities B625	Facility internal
RKMF970063	Construct Wall Viper Storage Area	Facility internal
RKMF070014	SOF Alter Nellis UAS Poc, Bldg 215	Facility internal
RKMF050119	Construct Dumpster Enclosure Various Facilities	Utility
RKMF 06-0037	Construct School Age Child Development Center	Facility
	Flight Medicine Clinic, Creech AFB	Facility
RKMF950055	Construct Pkg Lot Bldg 439	Road/parking lot
RKMF970070	Construct Road LOLA Area	Road/parking lot
LKTC061033	Construct Access Roads	Road
RKMF050038	Construct Additional Parking Bldg 10300 57 EMS	Road/parking lot
LKTC061044B	Construct Allied Support GCS Paving	Road/parking lot
RKMF050079	Construct Convoy Route Safe Haven 99 SSS	Road/parking lot
LKTC061032	Construct East Boundary Road	Road
LKTC051019	Construct Gov Parking Lot ISAFAF MSA	Road/parking lot
LKTC061008	Construct Highway Deceleration Lane	Road
RKMF050028	Construct Parking Lot Addition Bldg 2345	Road/parking lot
RKMF050103	Construct Parking Lot Bldg 10210	Road/parking lot
RKMF060031	Construct Parking Lot Bldg 588	Road/parking lot
RKMF050016	Construct Pavements TTF B-470	Road/parking lot
RKMF000061	Construct Covered Patios B-61663 & 201	Recreation
RKMF010058	Construct Pavilion Bldg 623	Recreation
RKMF050047	Construct Recreation Facility Dorms 794, 786, 782 & 792	Recreation
RKMF060094	Construct A10 Static Display	Recreation
RKMF060107	Construct North Gate Sunshade	recreation
RKMF 06-0050	Construct Patio Enclosure Bldg 330	Recreation
RKMF050026	Construct Recreational Facility Bldg 2349 57 EMS	Recreation

CONSTRUCTION PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
RKMF050047	Construct Rubberized Surface Fitness Trail	Recreation
RKMF060023	Construct Sunshade Main Gate Bldg 698 99 SFS	Recreation
RKMF060108	Construct Tyndall Gate Sunshade	Recreation
RKMF055002	Golf Course Clubhouse	Recreation
RKMF980016	Construct Press Box/Storage Fac	Recreation
RKMF060070	Construct ABM/UBM Storage Facility	Facility storage
RKMF050063	Construct Barrier Storage Facility	Facility storage
LKTC061016	Construct Base Storage Facility	Facility storage
LKTC071005	Construct Utilities Var Facilities	Utility
LKTC061044	Construct Allied Support Ground Control Stations Infrastructure	Utility
RKMF070013B	Construct Comm Bank 58 RQS	Utility
RKMF070012	Construct Comm Switch Facility	Utility
RKMF 07-0095	Construct Communications 58 RQS	Utility
RKMF 07-5001	Construct Golf Course Club House Support Utilities	Utility
RKMF972009	Construct Block Wall LOLA Parking	Fencing
RKMF020001	Construct CATM Range Fencing	Fencing
LKTC061044C	Construct Allied Support GCS Fencing	Fencing
RKMF 06-0146	Construct Entry Facility WSA	Security
LKTC 06-1040	Construct Fence Comm Facilities 64, 222, & 235	Fencing
RKMF 04-0194	Construct Security Fence Transceiver Site	Fencing
RKMF980137	Construct Mobility Staging Pad	Facility holding pad
RKMF000094	Construct Support For Fire Trng	Facility
RKMF050045	Construct 14 Bay Multicube Storage Facility 57 EMS	Facility

REPAIR PROJECTS		
Project Number	***Project Title***	***Infrastructure Type***
RKMF050053	Repair Well #4	Utility
LKTC071018B	Repair 11RS FTU Bldg 707	Facility
RKMF050023	Repair 57 MXG Conference Room Bldg 328	Facility
RKMF070094	Repair 58 RQS, Bldg 10202	Facility
RKMF070013	Repair 58 RQS, Various Facilities	Facility
RKMF070013A	Repair 58 RQS, Various Facilities	Facility
RKMF070046	Repair AFFF Tank F-22a Hangar 285	Utility
RKMF070081	Repair Altitude Valves Facility 10420	Utility
LKTC061022	Repair BAK 12 Shacks And Deck Sheaves	Airfield
RKMF060097	Repair Bathroom B201	Facility
RKMF060104	Repair Bathrooms Bldg 10301	Facility
RKMF060092	Repair Bathrooms Bldgs 282, 102, And 66	Facility
RKMF060090	Repair Bathrooms Bldgs 286 And 122	Facility
RKMF040184B	Repair Bldg 2345	Facility
RKMF060047	Repair Conf Room Bldg 94	Facility
RKMF060036	Repair Conference Room O'Club Bldg 554	Facility
RKMF070066	Repair Corrosion Control Various Water Tanks	Utility
RKMF050076	Repair Doors Bldg 10323 & 10416	Facility
RKMF050055	Repair Dormitory 725	Facility

REPAIR PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
RKMF060028	Repair Drainage Facilities Area 3	Utility
RKMF050085	Repair Drainage WSA 896 MUNS	Utility
LKTC068004	Repair Electrical Distribution Point Bravo	Utility
RKMF000043B	Repair Electrical Feed Bldg 620 AWFC	Utility
	Repair Entire Water System Including Telemetry	Utility
RKMF070029	Repair EOC, Bldg 620	Utility
RKMF070036	Repair F-22 Amu Bldg 285	Facility
RKMF070010	Repair Fenced Transformers With Padmounts	Utility
RKMF070030	Repair Fencing And Pavement Range Road Gate	Fencing
RKMF070021	Repair Fire Damage, TLF	Facility
RKMF060091	Repair Fire Protection Hangar 256	Utility
RKMF070049	Repair Fire Suppression System Various Facilities	Utility
RKMF070047	Repair Fire Suppression Warrior Inn Bldgs 464-467	Utility
RKMF060106	Repair Floor Covering Dorms 727 & 729	Facility
RKMF070072	Repair Grease Trap Bldg 600	Utility
RKMF050110	Repair Hangar 237 Vault B1	Facility
RKMF070009	Repair H-Frame Transformers With Padmounts	Utility
LKTC071019	Repair HVAC Bldg 718	Energy
RKMF050070	Repair HVAC Controls Bldg 451 507 CTS	Energy
RKMF070006	Repair HVAC Network Control Center	Energy
RKMF060033	Repair HVAC Various Facilities	Energy
RKMF061012	Repair HVAC Various Facilities	Energy
RKMF050084	Repair Interior Bldg 336	Facility
RKMF040203	Repair Interior Airman Ctr Bldg 775	Facility
RKMF060101	Repair Interior B256	Facility
RKMF050029	Repair Interior Bldg 217 505 OS	Facility
RKMF020150	Repair Interior Bldg 264	Facility
RKMF050019	Repair Interior Bldg 270 Phase Hangar	Facility
RKMF040190	Repair Interior Bldg 620 AWFC	Facility
RKMF070086	Repair Interior Bldg 625 NOC	Facility
LKTC071011	Repair Interior For WOC, Bldg 1000	Facility
RKMF060098	Repair Interior Hangar 220	Facility
RKMF040187	Repair Interior Hangar 61664 763rd MXS	Facility
RKMF070040	Repair Interior Joint Tactics Squadron, Bldg 1114	Facility
RKMF060138	Repair Interior Nellis Federal Hospital	Facility
RKMF075002	Repair Interior O'Club	Facility
RKMF060067	Repair Interior VQ, Bldg 545 (Phases 2-4)	Facility
RKMF070033	Repair Interior Weapons School Bldg 282	Facility
RKMF050074	Repair Interior/Exterior Bldg 2102 57 MOS	Facility
RKMF060139	Repair Life Skills Support Center, Bldg 340	Facility
RKMF050031	Repair Marshalling Yard 99 LRS	Facility
RKMF070022	Repair Medical Dental Clinic	Facility
RKMF060140	Repair Medical Logistics Warehouse, Bldg 1301	Facility
RKMF070035	Repair MOC Bldg 328	Facility
RKMF070038	Repair Officers Club	Facility
RKMF060065	Repair OSI Parking Lot	Facility

REPAIR PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
RKMF060059	Repair Paint Walls Bldg 1300	Facility
RKMF050150	Repair Parking Lot Bldg 340	Roads/parking lots
RKMF040197	Repair Pavements Munitions Haul Route	Roads/parking lots
LKTC051016	Repair Pavements Taxiway E	Airfield
RKMF040123	Repair Perimeter Security Fence Manch Manor	Fencing
RKMF050044A	Repair Readiness Bldg 10146	Facility
RKMF060045	Repair Restrooms / HVAC Bldg 232	Facility
RKMF050022	Repair Restroom Bldg 462 DV Ops	Facility
RKMF050021	Repair Restroom Bldg 837 99 LRS	Facility
RKMF040208	Repair Restrooms 57 MXG B328	Facility
RKMF050039	Repair Roll-Up Door Opening Bldg 10306 57 EMS	Facility
RKMF050040	Repair Roof Bldg 10414 57 EMS	Facility
RKMF050099	Repair Roof WSA Bldg 10304	Facility
RKMF070008	Repair Roof, Bldg 102	Facility
RKMF070028	Repair Roof, Bldg 350	Facility
RKMF050043	Repair Scada System	Facility
RKMF060064	Repair Sewer Lines Area II	Utility
RKMF020028	Repair Sewer Pumping Stations	Utility
RKMF050089	Repair Shoulders RW 03R/21L	Airfield
RKMF060043	Repair Taxiway F	Airfield
LKTC061034	Repair Various Roads	Roads/parking lots
RKMF060151B	Repair Washrack Facility 271	Facility
RKMF070032	Repair Water Distribution East Side	Utility
RKMF070016	Repair Weapons Load Trainer Hangar 283	Facility
RKMF060093	Repair Weapons Vault Bldg 811	Facility
LKTC061036	Repair Well 2	Utility
RKMF070034	Repair Wheel/Tire/AR Bldg 270	Facility
RKMF060155	Repair Youth Center Bldg 2999	Facility
LKTC011015	Repair Water Lines	Utility
LKTC991010	Repair Airfield/Infield	Airfield
RKMF940066	Repair AME Storage	Facility
RKMF970032	Repair Area II Water System	Utility
RKMF010022	Repair Arresting Barrier Pits	Airfield
RKMF020024	Repair B-52 LOLA Faulting	Airfield
RKMF980108	Repair Ballfield Lighting Youth Ctr	Recreation
RKMF020019	Repair BX Parking Lot Bldg 425	Roads/parking lots
RKMF960025	Repair CHPO Bldg 20	Facility
LKTC981004	Repair CE Complex	Facility
RKMF060013	Repair Community Center	Facility
RKMF940042	Repair Doors Base Library	Facility
RKMF940039	Repair Drainage Bldg 209	Utility
RKMF940037	Repair Drainage Comm Bldg 589	Utility
RKMF940036	Repair Drainage Hangars 222/224	Utility
LKTC011010	Repair Elect Dist Predator Support	Utility
RKMF950045	Repair Electrical Poles Area II	Utility
RKMF000116	Repair Exhaust Vent Bldg 270	Utility

REPAIR PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
RKMF980126	Repair Exterior Area II Gym	Facility
RKMF940041	Repair Exterior Viper AMU B-880	Facility
RKMF000038	Repair Generator Ser Sta Bldg 890	Utility
RKMF030142	Repair Grounding System Control Tower	Facility
RKMF980053	Repair HVAC Bldg 20	Energy
RKMF970067	Repair HVAC Gen Purpose Shop	Energy
RKMF010036	Repair HVAC R/H Dining Hall 10206	Energy
LKTC981003	Repair Int/Ext Bldg 92	Facility
RKMF980023	Repair Interior Bldg 295	Facility
RKMF940043	Repair Latrine Hangar 220	Facility
RKMF940044	Repair Latrine Hangar 222	Facility
RKMF010060	Repair Mack Drive	Roads/parking lots
RKMF020022	Repair March Blvd	Roads/parking lots
LKTC951002	Repair MWR Center	Facility
RKMF000103	Repair Pad Mounted Switch Dorm	Utility
RKMF000037	Repair Paint Booth Exhaust Sys	Facility
RKMF970044	Repair Paint Spray Booths	Facility
RKMF020018	Repair Parking Lot Bldg 282	Roads/parking lots
LKTC021004	Repair Parking Lot Bldg 71	Roads/parking lots
RKMF020020	Repair Parking Lot WSA Bldg 120	Roads/parking lots
RKMF020040	Repair Parking Lot WSA Bldg 120	Roads/parking lots
RKMF980154	Repair Pavements Bldg 258	Roads/parking lots
RKMF980020	Repair Plumb/Sewer Sys Bldg 20	Utility
RKMF000035	Repair Restrooms Bldg 809	Facility
LKTC001019	Repair Roof Bldg 2014	Facility
RKMF980008A	Repair Roof Bldg 224	Facility
LKTC981024	Repair Roof Bldg 261	Facility
LKTC981025	Repair Roof Bldg 262	Facility
LKTC981026	Repair Roof Bldg 263	Facility
LKTC981007	Repair Roof/Interior Vehicle Mtn	Facility
RKMF020029	Repair Sewer Manholes	Utility
LKTC021003	Repair Sound Sys Control Booth SFA	Facility
RKMF060082	Repair SVS Admin Bldg 336	Facility
RKMF000108	Repair Switch Circuit 1	Utility
RKMF972023	Repair Tile Walkway Bldg 805	Facility
RKMF020031	Repair VH Shop 2 Bldg 10116	Facility
RKMF990026	Repair Well 8	Utility
RKMF980015	Repair Windows Bldg 265	Facility

INSTALLATION PROJECTS		
Project Number	***Project Title***	***Infrastructure Type***
RKMF000098	Inst A/F T/W Signs	Airfield
RKMF010049	Inst Athletic Field Lighting	Recreation
RKMF910059	Inst Backup Generator B-809	Utility
RKMF980160	Inst Computer Flooring B-217	Facility
LKTC011014	Inst Drain Tank	Utility
RKMF980018	Inst Drainage Ditch Bldg 10108	Utility
RKMF010086	Inst Electrical Outlets B-20	Utility
RKMF000036	Inst Emergency Generator Bldg 1050	Utility
RKMF000039	Inst Emergency Exits Lights	Utility
LKTC892019	Inst Fire Alarm ISAFAF Various Facs	Utility
LKTC001014	Inst Fire Sup Sys Bldg 79	Utility
RKMF020026	Inst Foam Underwing Sys B-245	Utility
RKMF970024	Inst Generator Bldg 200	Utility
RKMF910030	Inst Generator S End Fill Stnd	Utility
RKMF982026	Inst High Pressure Air Comp	Utility
RKMF930211	Inst Insulation DRMO 1042	Energy
RKMF930132	Inst Lighting Basketball Ct	Recreation
RKMF960080	Inst Natural Gas Line Area III	Utility
RKMF910136	Inst Playground Equipment	Recreation
RKMF070069	Inst Power Meters Bldgs 20, 428, 443, 10000, 556, 292	Utility
LKTC021006	Inst Radio Transmitters	Utility
RKMF000055	Inst Scat Tanks Flightline	Environmental
LKTC981013	Inst Sec Sup Fuels Area ISAFAF (Creech)	Environmental
RKMF000076	Inst Wire Fence Area II	Fencing
LKTC061009	Install Additional Apron Lighting	Airfield
RKMF050036	Install Area Lighting Bldg 2349 57 EMS	Utility
	Install Compact Fluorescent Bulbs In Dorms And Lodging	Energy
	Install Daylighting And Upgrade Controls In 4 Hangars	Energy
RKMF070067	Install Daylighting Various Hangars	Energy
RKMF050061	Install Dedicated Power WSA Integrated Base Defense	Utility
RKMF060110	Install Electrical Service B63664	Utility
LKTC071013	Install Emergency Cutoff Switches Bldgs 707 & 718	Utility
RKMF060018	Install Fence Extension Area 2 99 SFS	Security
RKMF060019	Install Fence Vehicle Reinforcement Area 3 99 SFS	Security
RKMF050033	Install Fire Suppression System Bldg 10136	Utility
RKMF020025	Install HIX System Hanger 292 And 262	Utility
RKMF050051	Install Landscaping Bldg 202 CAOC-N	Facility
RKMF050018	Install Landscaping TTF B-470	Facility
RKMF060120	Install Motion Activated Light Switches	Energy
RKMF070068	Install Motion Sensors Bldg 625	Energy
RKMF050062	Install Outlets/Conduit Bldg 10450 99 SSS	Utility
RKMF050113	Install Playground Surfacing	Recreation
RKMF070007	Install Pressure Regulating Valve, Area II	Utility
	Install Programmable Thermostats For HVAC	Energy
RKMF050080	Install Security Barriers Bldg 6	Security
RKMF050072	Install Security Barriers Bldg 620 & USAF Warfare Center	Security

INSTALLATION PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
LKTC041035	Install Security Upgrades Final Barrier Main Gate	Security
LKTC041033	Install Security Upgrades Gate House Main Gate Bldg 1901	Security
LKTC041034	Install Security Upgrades Vehicle Inspection Main Gate	Security
RKMF050058	Install Tension Wire WSA Perimeter Fence	Security
RKMF050143	Install Test Cell Pad	Facility
RKMF050111	Install Two Mezzanines With Hydraulic Lifts Bldg 61686	Facility
RKMF060032	Install Warning Signal	Security
RKMF073007	Install Water Efficient Landscaping (ECIP)	Energy
	Install/Repair Meters - 6 Facilities	Utility
RKMF073020	Building Envelope Improvements (ECIP)	Energy

MAINTENANCE PROJECTS		
Project Number	***Project Title***	***Infrastructure Type***
RKMF070005	Maintain Airfield Pavements	Airfield
RKMF060030	Maintain Clear Terrain East Side	Security
RKMF050032	Maintain CRU Flooring Bldg 61637 & 61633	Facility
RKMF040195	Maintain CRU Flooring Bldg 840	Facility
RKMF070	Maintain Exterior Bldgs 620,	Facility
RKMF070044	Maintain Exterior Bldgs 620, 589, 428	Facility
RKMF050027	Maintain Exterior Fighter Revetments 61900 & 61925	Facility
RKMF070045	Maintain Exterior Various Facilities	Facility
RKMF050041	Maintain Fuel Storage Tanks Bldg 10513 57 EMS	Facility
RKMF086902	Maintain Hydrant & UST Leak Detection	Environmental
RKMF096952	Maintain Hydrant & UST Leak Detection	Environmental
RKMF106913	Maintain Hydrant & UST Leak Detection	Environmental
RKMF116913	Maintain Hydrant & UST Leak Detection	Environmental
RKMF077903	Maintain Hydrant & UST Leak Detection, Base & Range	Environmental
RKMF060061	Maintain Landscaping Bldg 1300	Facility
RKMF050138	Maintain Landscaping Range Road Gate	Facility
RKMF050139	Maintain Landscaping RANW HQ Bldg 200	Facility
LKTC031043	Maintain Landscaping Various Facilities	Facility
LKTC086801	Maintain Operating Storage Flexible Membrane Liner, Creech	Environmental
RKMF980075	Maintain Soil Stabilization WSA	Facility
RKMF070	Maintain Warning Signs Airfield	Airfield
RKMF050120	Maintain Exterior Walls	Facility
RKMF050129	Maintain Landscaping Var Facilities	Facility
RKMF 07-3020	Facility Efficiency Improvements Bldg 20	Energy

DEMOLITION PROJECTS		
Project Number	***Project Title***	***Infrastructure Type***
RKMF990147	Contaminated Soil Disposal	Environmental
RKMF040158	Demo Bldg 10111 Area II Guard Shack	Facility
RKMF050024	Demo Bldg 2210 Hollywood Guard House	Facility
LKTC051014	Demo Bldg 67 Admin Facility	Facility
RKMF050025	Demo Bldg 841 Base Cold Storage	Facility
RKMF010033	Demo Commissary Annex	Facility
RKMF020040	Demo Fire Training Facility Bldg 2185 99 CES	Facility
RKMF950064	Demo Intr Steam Plant B-10207	Facility

ENVIRONMENTAL PROJECTS		
Project Number	***Project Title***	***Infrastructure Type***
RKMF086901	Annual Regulated UST Inspection & Calibration	Environmental
RKMF096951	Annual Regulated UST Inspection & Calibration	Environmental
RKMF106912	Annual Regulated UST Inspection & Calibration	Environmental
RKMF116912	Annual Regulated UST Inspection & Calibration	Environmental
RKMF077905	Annual Regulated UST Inspection & Calibration, Base & Range	Environmental
RKMF077904	Annual Regulated UST Permit Fees	Environmental
RKMF086900	Annual Regulated UST Permit Fees	Environmental
RKMF096950	Annual Regulated UST Permit Fees	Environmental
RKMF106911	Annual Regulated UST Permit Fees	Environmental
RKMF116911	Annual Regulated UST Permit Fees	Environmental
RKMF086906	API 510 Filter Separator Inspections	Environmental
LKTC086910	API 653 Out-Of-Service Inspection, Tank 4 (70K, JP-8), Creech	Environmental
LKTC086104	AST Steel Tank Institute Inspection, Creech	Environmental
RKMF097028	Cathodic Protection Testing	Environmental
LKTC096901	External Visual API 653 Inspection, Tanks 1 and 3, Creech	Environmental
RKMF096101	Facility Response Plan 5-year Update	Environmental
RKMF076903	Inspect Regulated UST, Facility 935	Environmental
RKMF117032	Range SPCC Plans 5-Year Update	Environmental
RKMF097028	Regulated UST Clark County Permit Fees	Environmental
RKMF107028	Regulated UST Clark County Permit Fees	Environmental
RKMF117028	Regulated UST Clark County Permit Fees	Environmental
RKMF097011	Regulated UST Leak Detection System Inspections	Environmental
RKMF107011	Regulated UST Leak Detection System Inspections	Environmental
RKMF117029	Regulated UST Leak Detection System Inspections	Environmental
RKMF097004	Spill Response Supplies	Environmental
RKMF107009	Spill Response Supplies	Environmental
RKMF117009	Spill Response Supplies	Environmental
RKMF097032	TTR & TPECR SPCC Plan Gap Analysis Review	Environmental
RKMF077902	Update Nellis Facility Response Plan and Range SPCC Plans	Environmental
RKMF086903	Update Nellis Facility Response Plan and Range SPCC Plans	Environmental
RKMF096953	Update Nellis Facility Response Plan and Range SPCC Plans	Environmental
RKMF106914	Update Nellis Facility Response Plan and Range SPCC Plans	Environmental
RKMF116914	Update Nellis Facility Response Plan and Range SPCC Plans	Environmental
RKMF990069	Conduct API out-of-service Inspections on Eastside Revetments	Environmental

ENVIRONMENTAL PROJECTS (con't)		
Project Number	***Project Title***	***Infrastructure Type***
RKMF086802	Construct Secondary Containment, Facility 854 and Station 80	Environmental
RKMF086907	Construct Type III System, Facility 62126	Environmental
RKMF056919	Environ. Char. of JP-8 Pipeline Leaks, Facilities 198, 60906	Environmental
RKMF076104	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF076150	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF086106	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF096100	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF116101	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF066117	Former UST Leak Remedial Actions, Facility 267	Environmental
RKMF076190	Remove 8K Regulated UST @ 235 and Replace w/AST	Environmental
RKMF076151	Replace 2K Regulated UST, Facility 2814	Environmental
RKMF076902	Replace existing Military Gas Station, Facility 890	Environmental
RKMF077901	Revetment JP-8 Pipeline Remedial Actions	Environmental
RKMF086904	Revetment JP-8 Pipeline Remedial Actions	Environmental
RKMF096954	Revetment JP-8 Pipeline Remedial Actions	Environmental
RKMF076906	Repair Concrete Cracks, Corrosion, 30 Eastside Pipeline Lateral Pits	Environmental
RKMF086102	Repair Facility 61647, POL Recycling Facility	Environmental
RKMF066934	Repair Ground Fuels Product Storage, Facilities 891, 893, 895	Environmental
RKMF066933	Repair Int.Coating, Bulk Storage Tanks, Fac 1051, 1052, 1054, 1055	Environmental
RKMF046180	Repair Issue & Receipt Filter Sep Relief System, Fac 1050	Environmental
LKTC086913	Repair Storage Capacity, Military Gas Station, Facility 661	Environmental
RKMF030019	Install Emergency Generator Connection, Bulk Storage, Facility 1050	Environmental
LKTC086914	Install 2 alternative fuel Storage Tanks, Facility 661, Creech	Environmental

PROJECTS ON ACES LIST UNDERWAY OR AFF 813 ALREADY PROCESSED	
LKTC051012A	ADD TO WASTEWATER TREATMENT PLANT
LKTC051027A	CONSTRUCT ADDITION COMM FACILITY BLDG 64
RKMF050140	CONSTRUCT ADDTION CDC BLDG 600
RKMF000041	CONSTRUCT REVETMENT LOLA SUPPORT FAC
LKTC061029	CONSTRUCT 17 RS PARKING LOT
RKXF938002A	CONSTRUCT ADDITION FABRICATION SHOP POINT BRAVO
LKTC061018A	CONSTRUCT ADDITION MQ1/MQ9 OT&E BLDG 718
RKMF040211	CONSTRUCT AIRBORNE RED HORSE STORAGE FACILITY
RKMF060027	Construct BAK 12 Barrier Runway 03R/21L North
RKXF058026	CONSTRUCT CATM TRAINING FACILITY, BLDG 2385
LKTC061030	CONSTRUCT COMM ADMIN FACILITY, BLDG 69
LKTC061027	CONSTRUCT COMM DUCTBANK
RKMF060127	CONSTRUCT COMM DUCTBANK ACADEMIC OPS CAMPUS
RKXF058040	CONSTRUCT DOMESTIC WATER STORAGE SYSTEM
RKMF050088	CONSTRUCT ELLSWORTH AVE REALIGNMENT
RKMF060088	CONSTRUCT F-16 PARTS STORE
RKXF068007	CONSTRUCT FIRE PROTECTION WATER DISTRIBUTION SYSTEM
LKTC061015	CONSTRUCT FITNESS SUPPORT FACILITY, BLDG 1203

PROJECTS ON ACES LIST UNDERWAY OR AFF 813 ALREADY PROCESSED (con't)	
RKMF040127	CONSTRUCT JASTC ADDITION BLDG 1114
RKMF060126	CONSTRUCT PRIMARY ELECTRICAL DISTR ACADEMIC OPS CAMPUS
RKMF040210	CONSTRUCT READINESS / HOMELAND DEFENSE STORAGE FACILITY
LKTC061026	CONSTRUCT UTILITIES VARIOUS FACILITIES
RKMF060111	DEMOLISH FUEL YARD FACILITIES
RKMF060073	MAINTAIN PAVEMENTS AND MARKINGS VAR INTERSECTIONS
RKMF060105	MAINTAIN INTERIOR & EXTERIOR WALLS DORMS 727 & 729
RKMF060041	REPAIR AGE YARD PAVEMENTS
LKTC061017	REPAIR AIRFIELD LIGHT CONTROL SYSTEM
RKMF060132	REPAIR BATHROOMS ATC/OSS BLDG 94
LKTC051027B	REPAIR COMM FACILITY BLDG 64
RKXF068004	REPAIR ELECTRICAL DISTRIBUTION POINT BRAVO
RKMF060095	REPAIR ELECTRICAL SERVICE BLDG 878
RKXF938002B	REPAIR FABRICATION SHOP POINT BRAVO
LKTC061011	REPAIR FIRE SUPPRESSION SYSTEM BLDG 3922
RKMF060060	REPAIR FIRST FL BLDG 10210
RKMF060121	REPAIR GENERALS BATHROOM BLDG 620
RKMF060115	REPAIR INTERIOR BLDG 332
RKMF050071	REPAIR INTERIOR DORM 745
RKMF060112	REPAIR INTERIOR USAFWC BLDG 620
LKTC061018B	REPAIR MQ1 MQ9 OT&E FACILITY BLDG 718
RKMF060084	REPAIR ROOF BLDG 10310
RKMF050122	REPAIR SECURITY SYSTEMS VAR DORMS
RKMF040130	REPAIR SEWER LINES AREA II
RKMF060078	REPAIR VARIOUS ROOFS VARIOUS FACILITIES 820RH
LKTC021007	REPAIR WASTEWATER COLLECTION SYSTEM
LKTC051012B	REPAIR WASTEWATER TREATMENT PLANT
LKTC061035	REPAIR WELL 1 CREECH AFB
RKMF040022	RPR CIRCUIT 2 TYNDALL AVE
LKTC001009	RPR ELECTRICAL DISTRIBUTION SYSTEM
RKMF010083	RPR FIRE PROTECTION, WEAPONS MAINTENANCE FACILITIES
RKMF060035	RPR HYDRANTS AND VALVES
RKMF990002	RPR TAXIWAY F
RKXF058032	RPR WATER/SEWER SYSTEMS 63A
LKTC031030	RPR WELLS CREECH AFB
RKMF060009	CONSTRUCT AIRBORNE RH STORAGE FACILITY
RKMF990105	CONSTRUCT E-85 STORAGE
RKXF 07-3107	EXPEDITIONARY READINESS TRAINING SHOWER SHAVE FAC
LKTC073106	REGIONAL KENNEL TRAINING CENTER

UAS PROJECTS COVERED UNDER THE PREDATOR EA	
ACC051003	UAV PREDATOR SQUADRON MQ-9 HANGAR, GP MX SHOP, AGE MX, GCS FACILITY
LKTC063102	UAV PREDATOR OPERATIONS FACILITIES
LKTC063103	UAV PREDATOR MAINT & LOGISTICS FACILITIES
LKTC063103 R2	PREDATOR VARIOUS FACILITIES
LKTC063104	UAV PREDATOR MUNITIONS COMPLEX
LKTC063104R2	PREDATOR VARIOUS FACILITIES
LKTC063105	UAV PREDATOR TRAINING FACILITIES
LKTC093101	ADD/ALTER PREDATOR OPERATIONS FACILITY
LKTC093103	PREDATOR DINING FACILITY
LKTC093106	PREDATOR FLIGHT SIMULATOR AND ACADEMICS FACILITY
LKTC071001	CONSTRUCT 15 RS ADMIN SUPPORT FACILITY
LKTC071001B	CONSTRUCT 15 RS ADMIN SUPPORT FACILITY UNFUNDED COMMUNICATIONS

BRAC AND F-35 PROJECTS ON ACES LIST COVERED UNDER SEPARATE NEPA DOCS	
RKMF070017	BRAC-CONSTRUCT WRM & MOBILITY BAG STORAGE FACILITY
RKMF073010	BRAC- AIRCRAFT OPERATIONS FACILITIES
RKMF073012	BRAC - FLIGHT SIMULATOR FACILITY
RKMF073013	BRAC - AIRCRAFT MAINTENANCE SHOP FACILITIES
RKMF073014	BRAC - AIRCRAFT MAINTENANCE COMPLEX
RKMF093009	BRAC- AFR TRAINING FACILITY
RKMF093004	F35A MAINTENANCE HANGAR/AMU CCD
RKMF093005	F-35A AIRFIELD PAVEMENTS
RKMF093016	AGGRESSOR MAINTENANCE HANGAR/AMU CCD
RKMF093017	AGGRESSOR AGE COMPLEX CCD
RKMF103002	F-35A TEST AND OPERATIONS FACILITY

PROJECTS ANALYZED IN WINDO EA	
LKTC006100	REPLACE PAINT BOOTH, ISAFAF
LKTC011002	RPR F/L ELECT DIST U/G ISAFAF
LKTC026950	API 653 REPAIRS, TANKS 1 & 3, FAC 653, BULK STORAGE, ISAFAF, NEL L 04-1
LKTC031001	RPR OVERLAY R/W 08-26
LKTC031012	INST FIRE SUPPRESSION SYS B-39
LKTC031014A	CNST ADDITION FIRE STATION, BLDG 85
LKTC031014B	RPR FIRE STATION, BLDG 85
LKTC031015	AIRFIELD LIGHTING SYSTEM
LKTC031016	INST FIRE SUPPRESSION SYSTEM
LKTC031017	RPR BAK 12 ARRESTING BARRIERS
LKTC031024	CNST AGE FACILITY AND YARD
LKTC031026	CNST MUNITIONS MAINTENANCE ADMIN FACILITY
LKTC031032	CNST GCTS ADMIN/HQ FACILITY
LKTC031035	INSTALL TAXIWAY B & C EDGE LIGHTS
LKTC033804	RELOCATE HOLDING PAD

PROJECTS ANALYZED IN WINDO EA (con't)	
LKTC036900	REPAIR HYDRANT SYSTEM, FAC 653, ISAFAF (PANTOGRAPHS TO CODE, EXTEND PIPELINES TO ACCOMMODATE LARGE PLANES), NEL 03-14
LKTC036902	REPAIR RETURN TO BULK FUEL PIPING, FAC 653, ISAFAF, NEL 03-11
LKTC036903	REPAIR EMERGENCY SHUTOFFS, FAC 653 & 660, ISAFAF (TIE ALL SHUTOFFS TO ONE POWER SOURCE), NEL 03-9
LKTC036904	REPAIR GROUND PRODUCTS PIPING, FAC 660, ISAFAF, NEL 03-13
LKTC036905	INSTALL PRODUCT RECOVERY SYSTEM, ISAFAF (500K TANK ON SIDE OF DIKE TO COLLECT PRODUCT), NEL 03-10
LKTC041005A	CNST ADDITION UAV SQUADRON BLDG 718
LKTC041005B	RPR UAV SQUADRON BLDG 718
LKTC041006	REPAIR TAXIWAYS
LKTC041008	CONST ADD FIRE STA, BLDG 85 (1) 01-DS-COP-BLDG 151 (2) 01-DS-FOC-BLDG 151 (3) 01-DAT-LAN-BLDG 151
LKTC041010	REPAIR RANGE 65 ROAD
LKTC041013	INSTALL SECURITY UPGRADES, MAIN GATE BLDG 1901
LKTC041014	CONSTRUCT TECH PAD
LKTC041017	CONSTRUCT SWITCHGEAR/UNDERGROUND UTILITIES
LKTC041018	REPAIR BATTLELAB HQ FACILITY BLDG 271
LKTC041020	REPAIR VISITING QUARTERS BLDG 4 & 5
LKTC041021	REPAIR PREDATOR SUPPORT CENTER BLDG 273
LKTC041023	CONSTRUCT GCTS HEADQUARTERS FACILITY
LKTC041024	CONSTRUCT MSA UTILITIES VARIOUS FACILITIES
LKTC041025	REPAIR BLDG 65
LKTC041026	INSTALL CURBS & GUTTERS VARIOUS STREETS ISAFAF
LKTC041027	CONSTRUCT EQUIPMENT REPAIR PADS, BLDG 227
LKTC041028	CONSTRUCT FENCING FIRE TRAINING AREA & GCTS
LKTC043104	SWIM POOL CONSOL, BLDG 10
LKTC046001	REMOVE 2 HEATING OIL USTS & REPLACE WITH ASTS, FAC 24 & 225, ISAFAF
LKTC046910	INSTALL PANTOGRAPHS, BULK STORAGE, ISAFAF, NEL 04-15
LKTC046911	CORRECT PIPING DEFICIENCIES, FAC 653, BULK STORAGE, ISAFAF, NEL 04-16
LKTC046912	CONSTRUCT LOADING/OFFLOADING CONTAINMENT, FAC 648, ISAFAF
LKTC046913	POL TRUCK PARKING CONTAINMENT, FAC 653, ISAFAF, NEL 04-2
LKTC051004	REPAIR UAV SQUADRON BLDG 707
LKTC051011	INSTALL EDGE LIGHTS RPV LOLA
LKTC051012	REPAIR SEWAGE TREATMENT FACILITY
LKTC053907	MAINTAIN VEGETATION
LKTC056104	REPLACE NON-COMPLIANT GASOLINE DISPENSERS
LKTC056931	REMOVE ABANDONED USTS, BULK STORAGE, ISAFAF
LKTC057001	LTM LF-01, ISAFAF
LKTC061001	RPR ROAD TO TACAN OUTSIDE C2
LKTC971013	RPR RUNWAY 08/26

PROJECTS ANALYZED IN WINDO EA (con't)	
LKTC981009	CNST STORAGE FAC 67
LKTC991009	INST SPRINKLER SYS K-SPAN FAC
RKMF000002	COMM FCLTY, BLDG 839
RKMF000006	CNST PATIO BLDG 805
RKMF000009	MTN EXTERIOR VAR FAC
RKMF000019	CNST PAVED STORAGE AREA II
RKMF000027	RPR ELECT DIST CIRCUIT #3
RKMF000043	RPR HVAC BLDG 620 AWC
RKMF000044	MTN LOLA STRIPING
RKMF000069	MTN AIRFIELD PAVEMENTS
RKMF000081	RESTRIPE RED FLAG PKG LOT
RKMF000084	PAINT TAXI LINES F/L
RKMF005002	GOLF COURSE CLUBHOUSE EXPANSION
RKMF010017	MTN CRU FLOOR BLDG 290
RKMF010021	CNST FAC BULK STORAGE AREA
RKMF010030	CNST CRS PAD (CMS)
RKMF010031	CNST RED HORSE CHECKPOINT
RKMF010042	CNST SHOULDERS RUNWAY 03L/21R
RKMF010044	RPR COMMAND POST
RKMF010045	INST WIRE WAY COMM P6
RKMF010076	CNST ARMORY BLDG 10304
RKMF013801	RELOCATE RUNWAY LIGHTING TRANSFORMERS
RKMF019001	ADD/ALT COMMISSARY BLDG 603
RKMF020013	CNST FIRE STATION AREA II
RKMF020041	RPR PKG LOT UNION PLAZA B-552
RKMF020041	CNST CATM RANGE FENCING
RKMF020043	RPR R/W SHOULDER 03L/21R
RKMF020045	INST FOAM UNDERWING SYS B-292
RKMF020046	INST FOAM UNDERWING SYS B-245
RKMF020046	CNST ENTRY CONTROL POINT RANGE ROAD
RKMF020048	RPR PARKING LOT BLDG 282
RKMF020048	UPGRADE SEWER PUMPING STATIONS
RKMF020049	RPR SEWER MANHOLES
RKMF020054	INSTALL AIR INTAKE PROTECTION, VARIOUS FACILITIES
RKMF020057	ALTER OPEN STORAGE RM 107, BLDG 284
RKMF020058	RPR BATHROOMS, BLDG 809
RKMF020095	CNST AWDS SQ OPS, BLDG 454
RKMF020107	INST CHECK VALVES, OFFLOAD SYSTEM MANIFOLD
RKMF020166	MTN FLOORS VAR FACS B415, 283, 256, 239, 290, 262, 264
RKMF030056	CNST TAXIWAY G EXTENSION-GOLF PAD
RKMF030071	CONSTRUCT ILS SUPPORT FACILITY
RKMF030073	CNST ADDITION BLDG 856
RKMF030089	MTN CRU FLOORS BCE SHOPS, BLDG 807
RKMF030094	RPR SECURITY CONTROL CENTER, BLDG 10309
RKMF030100P2	REPAIR COMMUNITY SUPPORT CENTER BLDG 340, PHASE 2
RKMF030100P3	REPAIR COMMUNITY SUPPORT CENTER, PHASE III
RKMF030121	CONSTRUCT ADDITION WARRIOR PREP CENTER BLDG 451

PROJECTS ANALYZED IN WINDO EA (con't)	
RKMF030126A	REPAIR HVAC SYSTEM BLDG 47, 547 INTEL SQ
RKMF030135	CONSTRUCT LODA FENCE
RKMF030143	RPR INTERIOR VQ BLDG 545
RKMF030144	REPAIR ROOFS VARIOUS FAC BLDGS 265, 245, 290, 451, 589, 270
RKMF030152	MTN LANDSCAPING BLDG 878
RKMF030155	POC-N EXPANSION BLDG 215
RKMF030165	MAINTAIN LANDSCAPING AND REPAIR PARKING LOT B340
RKMF030165B	RPR PARKING LOT BLDG 340
RKMF030169	REPAIR ALS, BLDG 625
RKMF030170	CONSTRUCT ALS AUDITORIUM
RKMF030171	CONSTRUCT SF WAREHOUSE, AREA III
RKMF030173	RPR RESTROOMS BLDG 1100
RKMF030179	REPAIR BATHROOMS BLDG 250
RKMF030181	RPR SEWER LINES BLDG 470
RKMF030184	RPR BATHROOMS BLDG 264
RKMF030191	RPR KITCHEN & TILE BLDG 601
RKMF030194	CNST JEFX PARKING LOT
RKMF030200	MAINTAIN EXTERIOR BLDG 1028
RKMF030203	RPR HVAC RED FLAG, BLDG 201
RKMF036903	REPAIR GROUND FUELS STORAGE, FAC 891-893
RKMF036906	REPAIR GROUND FUELS SYSTEM, FAC 891, 893 & 895
RKMF040005	ADD TO AND ALTER SQUAD OPS, BLDG 118
RKMF040005A	CONSTRUCT ADDITION WS ADVERSARY SUPPORT FAC/BLDG 118
RKMF040005B	RPR WS ADVERSARY SUPPORT FACILITY BLDG 118
RKMF040007	REPAIR BOUNDARY FENCE AREA 1
RKMF040012	GROOVE RUNWAY 21R/03L
RKMF040021	RPR CIRCUIT 1 NEUTRAL
RKMF040029	REPAIR JDICE FACILITY BLDG 584
RKMF040030	CONSTRUCT SCIF ADDITION BLDG 584
RKMF040037	RPR SECURITY FORCES FACILITY BLDG 2
RKMF040042	MAINTAIN LANDSCAPING, ROLLERBLADE TRAIL
RKMF040043	REPAIR RESTROOMS BLDG 20
RKMF040045	REPAIR INTERIOR BLDG 775
RKMF040047	REPAIR INTERIOR, BLDG 215
RKMF040048	REPAIR VARIOUS GREASE TRAPS, BLDG 567, 601
RKMF040053B	INSTALL SPRINKLER SYSTEM BLDG 200
RKMF040056	CONSTRUCT ELECTRICAL FOR CAOC-N COMPOUND
RKMF040057	CONSTRUCT ENGINE SHOP WAREHOUSE
RKMF040058	REPAIR HVAC BLDG 252
RKMF040059	REPAIR INTERIOR BLDG 585
RKMF040061	CONSTRUCT SCIF BLDG 61663*
RKMF040063	CONSTRUCT 555TH RED HORSE CANTONMENTS FACILITY
RKMF040064	CONSTRUCT FLIGHTLINE RUNNING TRACK
RKMF040065	CONSTRUCT ADDITION BLDG 825 BIO ENVIRONMENTAL
RKMF040066	RENOVATE BOWLING CENTER, BLDG 300
RKMF040066A	REPAIR BOWLING CENTER BLDG 300 ASBESTOS REMOVAL
RKMF040068	REPAIR HVAC MXMT FACILITY BLDG 270

PROJECTS ANALYZED IN WINDO EA (con't)	
RKMF040070	REPAIR INTERIOR BLDG 226 (414 CTS)
RKMF040071	REPAIR INTERIOR BLDG 264
RKMF040077	MTN AIRFIELD PAVEMENTS
RKMF040078	MTN AIRFIELD PAVEMENTS
RKMF040081	UPGRADE ELECTRICAL SYSTEM, BLDG 432
RKMF040082	CONSTRUCT ROLLERBLADE TRAIL
RKMF040083	ALTER PARKING LOT, ESSENTIAL FACILITIES
RKMF040086	REPAIR MSA ECP BLDG 10300
RKMF040087	REPAIR MOBILITY PROCESSING CENTER BLDG 811
RKMF040090	INSTALL RUBBERIZED EXT. QTR. MILE TRACK
RKMF040101	REPAIR HANGER DOORS BLDG 292
RKMF040104	CONST RED FLAG FACILITY, CCD
RKMF040105	INSTALL AUTOMATED BOLLARD SYSTEM, WSA
RKMF040107	RENOVATE CC CONFERENCE ROOM BLDG 620
RKMF040108	INSTALL MODULAR OFFICES BLDG 61685
RKMF040112	INSTALL 5 SEC DELAY HANGER 61664
RKMF040113	REPAIR DORMS ASBESTOS ABATEMENT
RKMF040114	INSTALL HVAC UNITS CAOC COMPOUND
RKMF040115	REPAIR ROOF BLDG 10405
RKMF040119	CONSTRUCT BOUNDARY FENCE AREA 3
RKMF040120	MAINTAIN ROAD STRIPING
RKMF040124	REPAIR ROOF BLDG 2064, CONTROL TOWER
RKMF040126	INSTALL SUNSHADES VARIOUS GATES
RKMF040128	REPAIR INTERIOR BLDG 336
RKMF040129	REPAIR RESTROOMS BLDG 10416
RKMF040133	INSTALL OVERHEAD LIGHTING BLDG 194
RKMF040134	INSTALL WALK-IN FREEZER BLDG 601
RKMF040135	REPAIR PIPELINE PLAYGROUND BLDG 600
RKMF040136	REPAIR INTERIOR BLDG 600 & 601
RKMF040137	INST PLAYGROUND SURFACING AND SHADE STRUCTURES B600 & B601
RKMF040138	MAINTAIN AIRFIELD PAVEMENTS
RKMF040139	CONSTRUCT RAPPEL TOWER 58 RQS
RKMF040140	MAINTAIN FLOORING BLDG 423
RKMF040141	REPAIR HANGAR LIGHTING BLDG 283
RKMF040142	REPAIR RESTROOMS BLDG 415 (AGE)
RKMF040148	CONSTRUCT FUELS MAINTENANCE FAC
RKMF040152	REPAIR SCIF AREA BLDG 201 SECOND FLOOR
RKMF040153	REAPIR TDY LIFE SUPPORT AREA BLDG 224
RKMF040154	CONSTRUCT JOINT MARSHALLING YARD 66 RQS
RKMF040159	CONSTRUCT CHAPEL ELEVATOR BLDG 615
RKMF040160	INSTALL NOC BACKUP A/C UNIT BLDG 201
RKMF040162	REPAIR HANGAR DOORS BLDG 292
RKMF040170	INSTALL WATER CHILLER BLDG 270
RKMF040172	INSTALL WINDOWS BLDG 100
RKMF040177	REPAIR WOMEN'S RESTROOM BLDG 100
RKMF040182	MAINTAIN INTERIOR WATER TOWERS

PROJECTS ANALYZED IN WINDO EA (con't)	
RKMF040184	REPAIR INTERIOR BLDG 2345
RKMF040185	CONSTRUCT ADDITION BLDG 2345
RKMF045001	CONVERT BLDG 350, DESERT OASIS PIZZA
RKMF046111	REPLACE REGULATED UST, FAC 10322
RKMF046112	REMOVE NON-REGULATED USTS, NAFB
RKMF050009	INST TRUCK OVERFILL & GROUND PROVING SYS, BULK FILLSTAND
RKMF050010	RPR FILLSTAND PAVEMENTS
RKMF050011	RPL FILTERS, BULK STORAGE FILLSTANDS
RKMF050012	SEAL TANK SADDLES EASTSIDE REVETMENTS
RKMF053005	CONSTRUCT CAOC FACILITY
RKMF056918	REPAIR TRUCK OFFLOADING SECONDARY CONTAINMENT, FAC 606
RKMF057802	PA/SI BORESIGHT PITS 1, 2 AND 3
RKMF065001	CONSTRUCT TEMPORARY LODGING FACS
RKMF095001	CONSTRUCT RV PARK ADDITION
RKMF920182	INST EXTRACTION FANS
RKMF930153	RPR VARIOUS RDS & PARKING
RKMF930179	CNST ADDN HQ GROUP BLDG 780
RKMF940020	RPR WATER SYSTEM HYDRANTS AND VALVES
RKMF940045	INST LIGHTING VEHICLE OPS
RKMF950049	RPR INTERIOR FAC 10412 & 10416
RKMF950110	CNST ADDN LANTIRN FACILITY
RKMF950152	RPR PAVEMENTS BLDG 196
RKMF960041	ALT TYNDALL GATE APPROACH LANE
RKMF960061	RPR PAVEMENTS VARIOUS ROADS
RKMF960062	REPAIR PAVEMENTS VARIOUS ROADS
RKMF960065	CNST CARPORT VEHICLE OPS
RKMF970013	RPR ROOF MAINT HANGAR 245
RKMF970049	RPR VAR PAVEMENTS & PADS MSA
RKMF970058	RPR HVAC BLDG 10309
RKMF970059	INST ROLLUP DOOR BLDG 61634
RKMF970060	CNST CVRD PKG FIRE DEPT B-2093
RKMF970065	RPR ELECTRICAL BLDG 252
RKMF970066	RPR PARKING AREA BLDG 288
RKMF970068	RPR SUPPLY PRKG LOT BLDG 856
RKMF970087	RPR ROOFS BLDGS 436 & 438
RKMF970098	RPR PERIMETER ROAD MSA
RKMF970108	RPR FLOORS DORM 784
RKMF970123	MTN ECT VARIOUS FACILITIES IDIQ
RKMF970126	RPR JOINT SEALS VAR PAVEMENTS
RKMF972004	RPR WELL #3
RKMF975003	INST LIGHTING ATHLETIC CTS
RKMF980040	RPR BLACKJACK HVAC
RKMF980044	RPR INTERIOR DORM 745
RKMF980059	RPR PAVEMENT BLDG 10108
RKMF980066	CNST ENCLOSED GARAGES BLDG 837
RKMF980144	RPR TRANSFORMERS SUBSTATION
RKMF980145	RPR TAP CHANGERS SUBSTATION

PROJECTS ANALYZED IN WINDO EA (con't)	
RKMF986102	UST RPR/INSPECTIONS
RKMF990001	RPR ROOFS VARIOUS FACILITIES
RKMF990054	RPR CRASH RESCUE TNG FAC
RKMF990056	INST FIRE HYDRANT
RKMF990061	REPAIR LAUNDRY ROOM BLDG 727
RKMF990063	MTN EXTERIOR VAR FACILITIES
RKMF990065	CNST CHAPEL MEETING FAC
RKMF990079	RPR HOSPITAL PHARMACY
RKMF999001	REPAIR CONTAINMENT AST WALL, NAFB EASTSIDE STORAGE, NEL 99-6
	REPAIR LIGHTING MAIN APRON
RKMF040011	REPAIR O'BANNION ROAD

APPENDIX C

NELLIS/CREECH AREA DEVELOPMENT PLANS

APPENDIX C
AREA DEVELOPMENT PLANS

ADPs are detailed plans that suggest specific sitings, building sizes, parking arrangements, and other important amenities in the future built and landscaped environment. All of the ADPs are appropriately placed within the context of the future land use plan and provide the installation with specific, approved courses of action for key areas of the base. These ADPs serve as the foundation for the base CIP. Following is a discussion of the ADPs for Nellis and Creech AFBs.

Nellis AFB

The location of the six ADPs on Nellis AFB is provided in Figure 1.

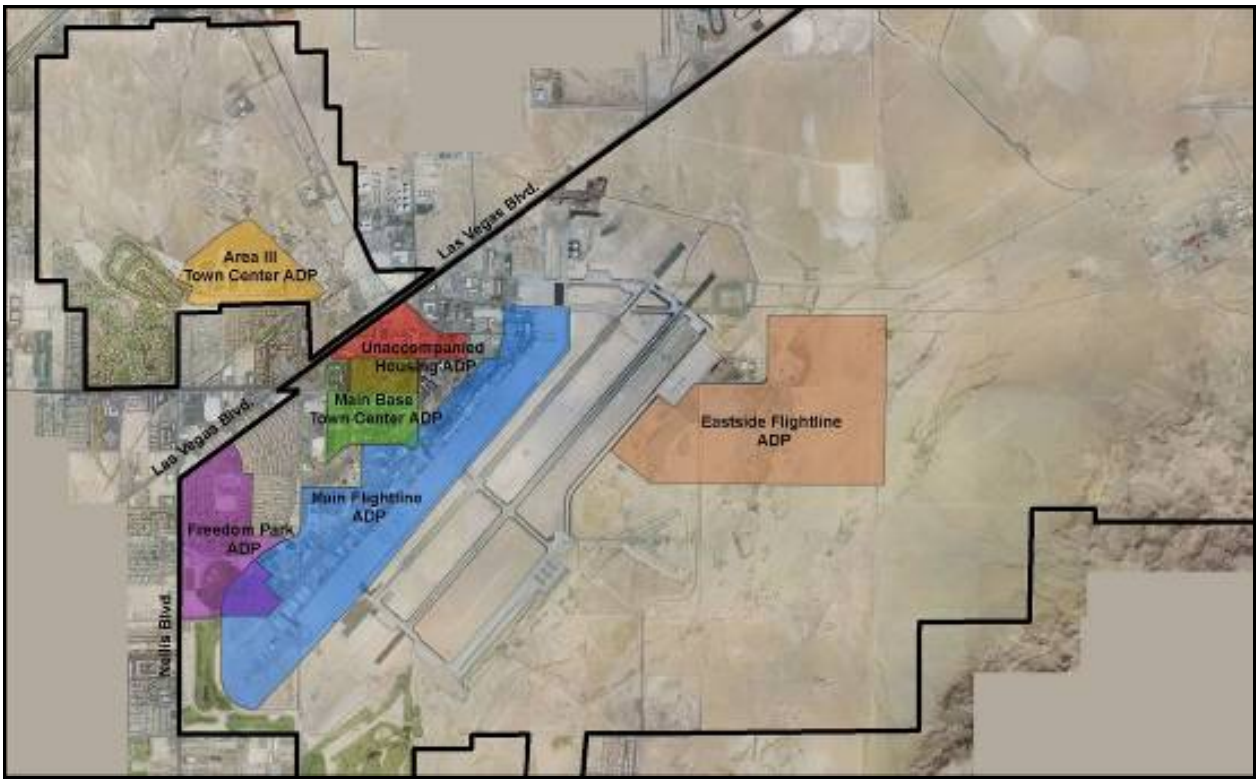

Figure 1. Nellis AFB ADP Locations

Main Base Town Center ADP

The Main Base Town Center is the epicenter of commercial and service activities at Nellis AFB for base personnel, visitors, and residents (Figure 2). This area contains a mix of amenities (service-related shops, restaurants, churches, etc.) centrally located near the vicinity users for easy access and supports the myriad missions of Nellis AFB. To enhance both safety and visual aspects of the Main Base Town Center ADP, road reconfiguration would create a campus feel and encourage pedestrian and bicycle

circulation. A pedestrian/bicycle corridor would link the campus together and would support facilities that lend themselves to the campus concept of informal gathering areas and outdoor rooms. To support this environment, several facilities would be constructed in this ADP. Table 1 provides those facilities, the square footage or capacity of the building, and number of out years before implementation.

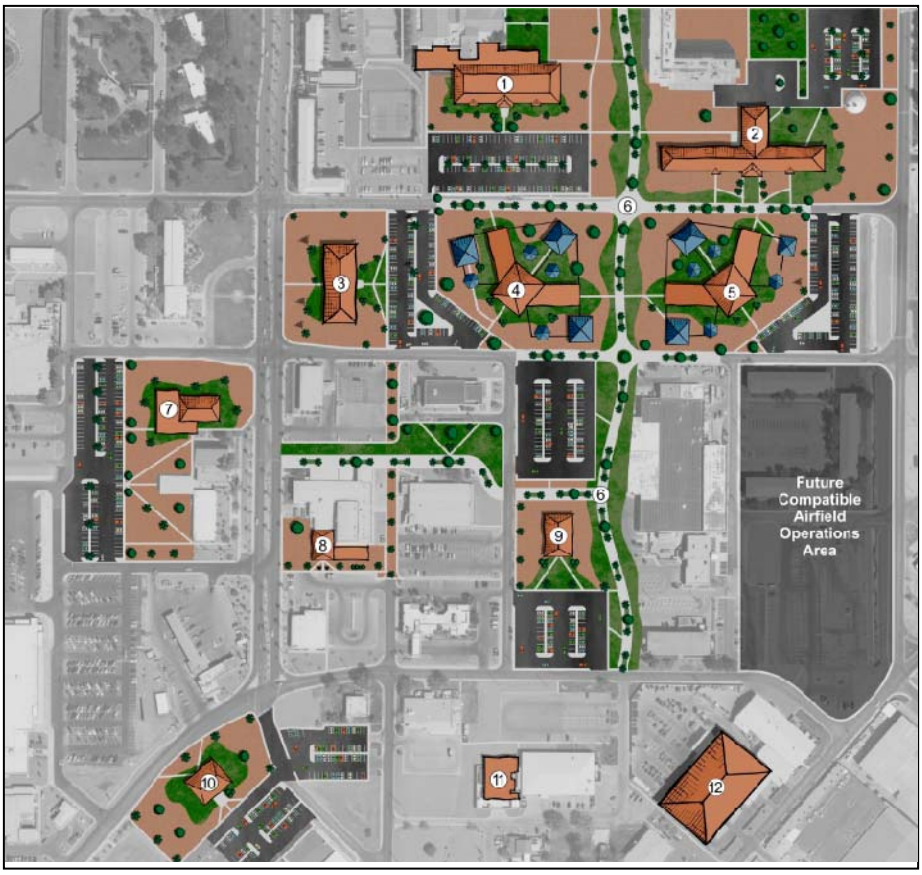

Figure 2. Main Base Town Center ADP

Table 1. Main Base Town Center ADP Facilities List			
	Facility	***Square Footage***	***Phasing***
1	Officers' Club Addition for NCO Club	TBD	0-5 years
2	Lodging Facility	245 rooms	6-10 years
3	Contracting	Bldg 589	0-5 years
4	Child Development Center #1	200 child capacity	6-10 years
5	Child Development Center #2	200 child capacity	11-20 years
6	Pedestrian Path	NA	0-5 years
7	Family Support Facility	15,000	11-20 years
8	Education Center	15,000	11-20 years
9	Arts and Crafts	TBD	6-10 years
10	Existing Burger King/Popeye's	TBD	TBD
11	EMS Addition (main flightline ADP)	TBD	TBD
12	Parts Warehouse (main flightline ADP)	TBD	TBD
	Dining Facility Expansion not shown, bldg 790	16,000	0-5 years

Area III Town Center ADP

The Area III Town Center ADP is designed to improve quality of life, preserve land use compatibility, and support environmental stewardship responsibilities for the benefit of housing area residents and off-base dependents (Figure 3). With a lack of existing constraints or conflicts, this area development is able to capitalize on logical and compatible land uses. Like the Main Base Town Center ADP, the Area III Town Center ADP is centrally located near the users, in this case, the housing area, FamCamp and the recreational vehicle park. The Area III Town Center ADP is separated from the rest of the base by Las Vegas Boulevard and the hospital. Because of this separation from the main base, the Area III Town Center ADP would create some of the same amenities found in the Main Base Town Center, as well as a similar campus environment to encourage outdoor and pedestrian pursuits. A pedestrian trail would connect the Area III Town Center ADP with that of the main base, allowing an alternative method of transportation for personnel living in family housing. The trail would also provide opportunities for diverse outdoor activities and recreation, and mesh with the activities provided by the child development centers and the youth center. Facilities proposed for construction in the Area III Town Center ADP are listed in Table 2.

Figure 3. Nellis AFB Area III Town Center ADP

Table 2. Area III Town Center ADP Facilities List

	Facility	***Square Footage***	***Phasing***
1	Family Support Center/Chapel (Annexes)	TBD	11-20 years
2	Child Development Center #1	200 child capacity	6-10 years
3	Child Development Center #2	200 child capacity	6-10 years
4	Fitness Center Annex	TBD	11-20 years
5	Housing Privatization	NA	Ongoing
6	Youth Center Expansion	200 additional children	0-5 years
7	Shoppette	TBD	Ongoing

Unaccompanied Housing ADP

The Unaccompanied Housing ADP is an area of base concentrating on the needs of those residents who reside either in dormitories or visitor's quarters (Figure 4). It provides a consolidated dormitory campus and visitor's quarters with amenities and access to services needed to sustain a good quality of life desired by pedestrians. The Unaccompanied Housing ADP is situated along Las Vegas Boulevard and near the Main Base Town Center ADP. The proximity to the Main Base Town Center ADP gives residents and visitors in the Unaccompanied Housing ADP convenient access to the amenities found within the base's main shopping area, yet allows separation from the activity and congestion also found there. The Unaccompanied Housing ADP would continue the concept of the campus environment with controlled parking, gathering spaces, and pedestrian/bicycle circulation enhancing a sense of community within the area. The development of the Unaccompanied Housing ADP would be created by demolition of outdated, smaller dormitories and lodging facilities and construction of new facilities as listed in Table 3. Phasing for the demolition and construction would be dependent on base priorities and consideration given for minimizing disruption to the total number of rooms available at any one time.

Figure 4. Nellis AFB Unaccompanied Housing ADP

Table 3. Unaccompanied Housing ADP Facilities List			
Facility		***Square Footage***	***Phasing***
1	Dormitory #1	192 rooms	TBD
2	Dormitory #2	192 rooms	TBD
3	Dormitory #3	192 rooms	TBD
4	Dormitory #4	192 rooms	TBD
5	Gathering space/Bus stop/Pavilion	TBD	Funding Availability
6	Airman Lounge	TBD	TBD
7	Dining Facility Expansion	TBD	TBD
8	NCO Club	TBD	TBD
9	New Lodging Facility	245 rooms	TBD
10	Pedestrian Corridor	TBD	TBD
11	Car Wash	TBD	TBD

Freedom Park ADP

The Freedom Park ADP is designed to enhance training assets, preserve land use compatibility, and improve quality of life (Figure 5). It would expand Red Flag, flightline training and administration into the Freedom Park area, creating a logical land use progression from the flightline to lodging and recreational facilities. Freedom Park ADP facilities are designed to create an academic and test campus area that enhances training assets and improves the overall installation aesthetics. The Freedom Park ADP would radically transform the current area from the existing landmarks which include: Freedom Park Monument, Runner's World, Nellis Terrace Housing, Lomie G. Heard Elementary School, and the Recreational Ball Fields.

Figure 5. Nellis AFB Freedom Park ADP

Some semblance of the area would remain to be the central point for large outdoor gatherings such as the 4th of July celebrations and access to the Thunderbird Heritage Center; the elementary school would also likely remain for the next 10 to 15 years. However, the existing housing would be relocated during privatization of Area III, and operational requirements would displace Runner's World and the ball fields. In place of these elements, the new Freedom Park ADP would update the setting to a theme of a campus environment for academic and administrative land uses. Academic and Test functions that are currently located on the flightline would be central to the ADP to allow for the synergistic benefits associated with consolidation. Operational functions that fit within the vision for the campus atmosphere of the ADP include most of the prominent purposes of Nellis AFB: 57 Adversary Tactics Group (ATG) Complex; Flight and Tactical Air Control Simulators; 53rd Wing Facility; Consolidated Weapons School; and Consolidated Red Flag Complex.

An important goal of the Freedom Park ADP, in addition to the academic center, is an orderly transition zone from the industrial, mission-focused land uses of the flightline, to the community and recreational portions of the base, and acts as buffer between the incompatible land uses. To accommodate this academic and test campus environment, numerous facilities need to be constructed within the ADP and the transformation would not occur quickly. Table 4 lists the facilities for the Freedom Park ADP.

Table 4. Freedom Park ADP Facilities List

	Facility	***Square Footage***	***Phasing***
1	Thunderbird Heritage Center	TBD	TBD – Private funding
2	Relocated Runners World	TBD	TBD
3	Fitness Center	75,000 – 105,000	11-20 years
4	AMMOS	TBD	TBD
5	Future Admin Facility	TBD	TBD
6	Future Simulators (4)	16,000	TBD
7	BRAC Simulator	16,000	0-5 years
8	Weapons School Campus	TBD	TBD
9	Academic / Test Campus	TBD	TBD
10	Red Flag Facility	TBD	0-5 years
11	Future Admin Facility	TBD	TBD
12	Flight Kitchen	6,500	TBD
13	Shoppette	TBD	TBD
14	FTD Det. 13	TBD	TBD
15	Future Hangars	TBD	TBD
16	Fuel Cell Hangar	40,000	TBD
17	AGE Complex	45,000	TBD
18	Future Admin Facility	TBD	TBD
19	57 ATG Complex, Phase I	16,000	0-5 years

Main Flightline ADP

With two parallel, 10,000 foot runways, the main flightline of Nellis AFB is a vast and congested area. At this time, however, many functions located on the flightline would be better suited to locations further off the flightline and include mostly operational and administrative tasks. Relocation of these administrative tasks to locations just behind the flightline would be more compatible within the noise environment, as well as free space directly on the flightline for necessary operational and maintenance duties. Facilities located on the flightline must be compatible with high noise levels and should be directly related to airfield and aircraft operations, such as Red Flag or Thunderbird operations. Any new construction in the flightline area is restricted by Standard Airfield Criteria and can limit placement and height of new facilities, and must include noise abatement construction measures.

The Main Flightline ADP (Figure 6) would enhance the training value of Nellis AFB facilities, preserve the installation viability, and enable future growth. It would relocate inappropriate flightline activities further from the parking ramp and replace them with facilities related to aircraft maintenance that meet antiterrorism and force protection standards. The new facilities would eliminate current airfield waivers, where possible, and construct facilities in a manner not requiring new waivers. The goal of the Main Flightline ADP is to maximize use of the flightline for mission critical and related functions. A portion of the Freedom Park ADP and the Main Flightline ADP overlap in the southwest corner. The facilities list for the Main Flightline ADP (Table 5) does not include facilities already described in the Freedom Park ADP.

Figure 6. Nellis AFB Main Flightline ADP

Table 5. Main Flightline ADP Facilities List			
	Facility	***Square Footage***	***Phasing***
1	FTD/Det 13 (Freedom Park, see Table 2-6)	TBD	TBD
2	Future Hangars (Freedom Park, see Table 2-6)	TBD	TBD
3	AGE Complex (Freedom Park, see Table 2-6)	TBD	TBD
4	Fuel Cell Hangar (Freedom Park, see Table 2-6)	TBD	TBD
5	53rd Wing Ops Facility	TBD	TBD
6	NDI /AR	TBD	TBD
7	NDI Admin	TBD	TBD
8	Viper AMU	TBD	TBD
9	JSF L/O Composite	TBD	6-10 years
10	LO/Metals Tech F-22	TBD	TBD
11	4-Bay Hangar JSF / Tomahawk AMU	31,000	6-10 years
12	Thunder AMU	9,200	6-10 years
13	6-Bay Hangar JSF	43,000	6-10 years
14	A/R Wheel and Tire	TBD	TBD
15	Washrack Addition	1 Bay	6-10 years
16	Fire Station Addition	TBD	TBD
17	Multipurpose Maintenance Complex	TBD	TBD
18	6-Bay Hangar/AMU	39,000	0-5 years
19	4-Bay BRAC Hangar	TBD	0-5 years
20	Combined Maintenance Hangar	TBD	TBD
21	Base Ops	TBD	TBD
22	Hush House	TBD	TBD
23	Recycling Facility	TBD	TBD
24	Engine Shop Addition JSF	15,500	6-10 years
25	AGE Sub Pool	TBD	TBD
26	Parts Warehouse	40,000	6-10 years
27	Weapons Release	27,000	6-10 years
28	EMS Expansion	TBD	TBD
29	TTF Expansion	TBD	TBD
30	4-Bay Hangar/Aggressor Ops and AMU	4,000	6-10 years

East Side Flightline ADP

Like the Main Flightline ADP, the goal of the East Side Flightline ADP is to develop the east side of the flightline such that future development maximizes the use of the flightline for mission critical and related functions (Figure 7). Similarly, it would enhance the training value of Nellis AFB facilities, preserve installation viability, and enable future growth. Currently, the northeast side of the Nellis AFB runways is relatively undeveloped, with few functional areas located across from the main flightline. With increasing missions and aircraft beddowns, ramp space and maintenance areas are needed directly on the flightline and existing space on the west side is severely limited. Expanding the East Side flightline would solve existing flightline space issues and provide a long-term plan for optimum use of future eastside development. Like the Main Flightline ADP, any construction on the East Side flightline would be constrained by airfield criteria requirements for height and placement. Proposed new East Side Flightline ADP facilities are provided in Table 6.

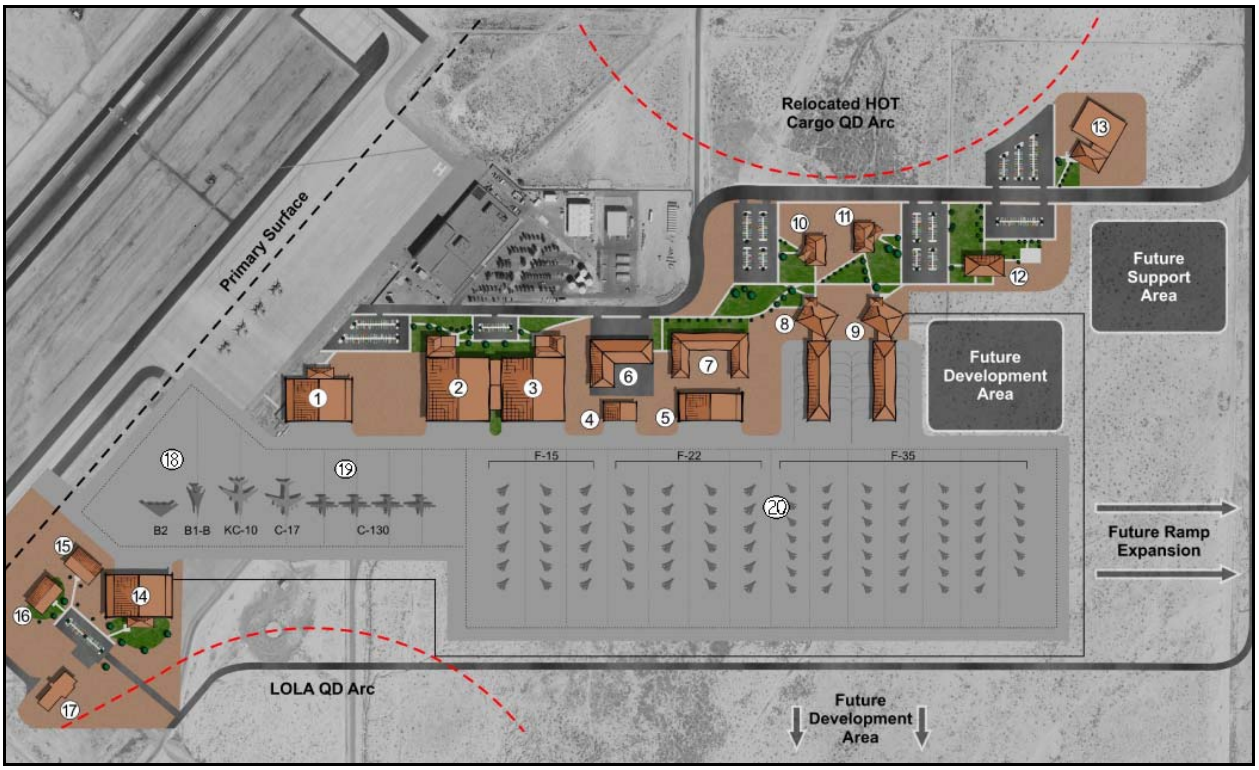

Figure 7. Nellis AFB East Side Flightline ADP

Table 6. East Side Flightline ADP Facilities List			
Facility		***Area***	***Phasing***
1	B-2 Hangar (Option A)	66,000	11-20 years
2	Large Body Aircraft Hangar/AMU	124,000 SF	11-20 years
3	Large Body Aircraft Hangar/AMU	124,000 SF	11-20 years
4	2-Bay Wash Rack	TBD	11-20 years
5	2-Bay Fuel Cell Hangar	40,000 SF	11-20 years
6	Parts Store/Warehouse/MRSP	46,000 SF	11-20 years
7	General Purpose Maintenance Shop	50,000 SF	11-20 years
8	6-Bay Fighter Hangar/AMU	80,000 SF	11-20 years
9	6-Bay Fighter Hangar/AMU	80,000 SF	11-20 years
10	Dual Squadron Operations Facility	28,000 SF	11-20 years
11	Dual Squadron Operations Facility	28,000 SF	11-20 years
12	Flightline Kitchen	20,000 SF	11-20 years
13	Physical Fitness Annex	48,000 SF	11-20 years
14	B-2 Hangar (Option B)	66,000	11-20 years
15	JSF Deployed Operations Facility	16,000 Square Feet (SF)	6-10 years
16	Red Flag Deployed Operations Facility	16,000 Square Feet (SF)	6-10 years
17	New Fire Station	15,000	TBD
18	BRAC Ramp	TBD	TBD
19	F-35 Ramp	TBD	TBD
20	Future Ramp	TBD	TBD

Creech AFB ADP

The Creech AFB ADP encompasses an entire base and is predicated on a vision of what current and/or future missions the base would support (Figure 8). With several possibilities, spanning a broad spectrum of facility expansion, the ADP strives to capture the most likely scenario, but also remains flexible and open to other alternatives. The best development option is to continue the base growth adjacent to the Predator Beddown area. This offers the advantages of utilizing recent infrastructure upgrades in the area, consolidating new development with recent development, and using the on-base undeveloped areas for new growth before requiring the acquisition of new land. This scenario gives flexibility for phased development and can adjust to the lack of base boundary expansion due to the failure to acquire additional land; short-term development can still be accommodated.

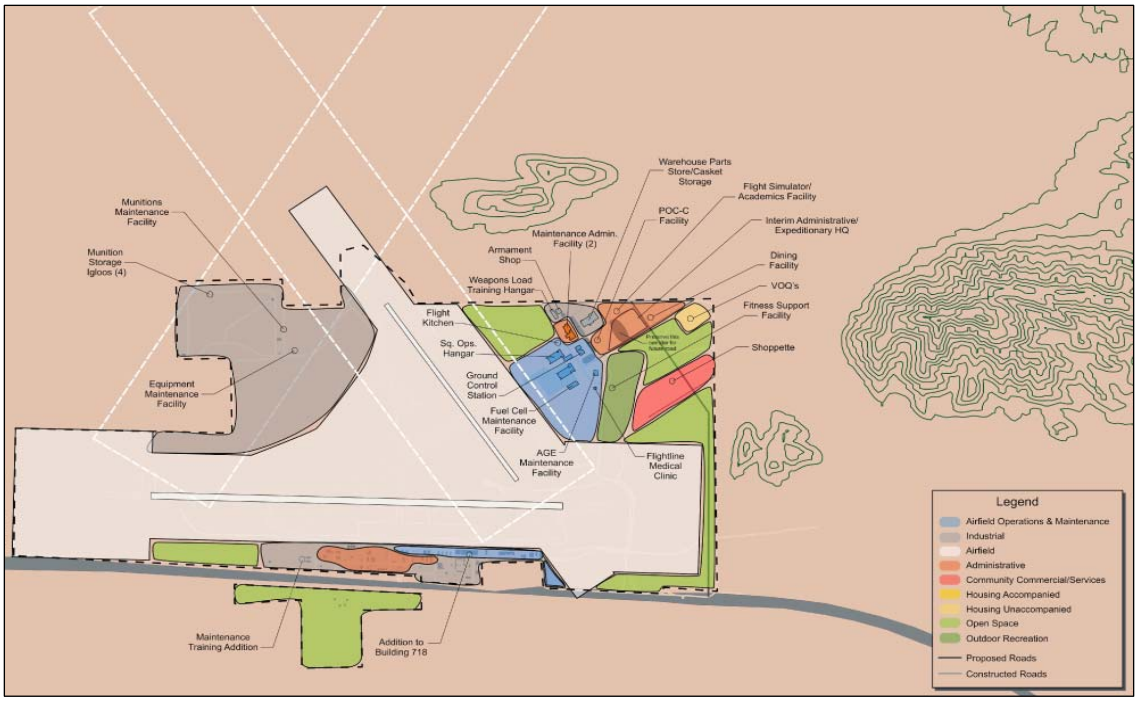

Figure 8. Creech AFB ADP

Creech AFB started as an auxiliary airfield and has recently been designated an Air Force Base after gaining the Remotely Piloted Aircraft (RPA) mission. This mission is likely to expand, and base build-out depends upon this growing mission and other possible missions. Development and facilities expansion need to accommodate likely changes, as well as anticipate unforeseen changes. Likely changes include the establishment of a headquarters area and some community support facilities. A small base scenario would involve limited boundary expansion, with most to the expansion being infill and consolidation in addition to redeveloping existing facilities. The estimated population support level of a small base is 2,000 people.

There is ultimately little difference between development patterns of a small base scenario and a large base scenario. Land use areas might be smaller in the case of the small base scenario, but adjacency and

functional relationships would still apply, and land uses would be similar. Land uses exclusive to a large base scenario (e.g., family housing) would be located on the periphery of the base and would not interfere with the location of other land uses if they were dropped. It makes sense to plan development on a small base scenario because of the similarity with a large base scenario and the flexibility it provides for such possible growth.

The tables below list facilities planned for the short-term development (next 5 years) of Creech AFB. Facilities that have started design/construction are listed in Table 7, and additional facilities that would be required for short-term development are listed in Table 8.

Table 7. Creech AFB ADP Near-Term Facilities List

Facility	*Square Footage*	*Evaluated in Previous EIAP Document*	*Phasing*
Hangar Addition to Building 718	20,000	Predator EA	Started design/construction
Armament Shop	12,000		Started design/construction
Equipment Maintenance Facility	5,000		Started design/construction
Fixed Ground Control Station Facility	24,000	Predator EA	Started design/construction
General Purpose Maintenance Facility	24,000	Predator EA	Started design/construction
Munitions Maintenance Facility	6,000		Started design/construction
Warehouse Parts Store/Casket Storage	71,000	Predator EA	Started design/construction
AGE Maintenance Facility	14,000	Predator EA	Started design/construction
Fuel Cell Maintenance Hangar	24,000	Predator EA	Started design/construction
Maintenance Training Addition	8,000		Started design/construction
Squadron Operations Hangar	69,000	Predator EA	Started design/construction
Munitions Storage Igloo (4)	9,600		Started design/construction

Note: Projects are listed in order of Fiscal Year

Table 8. Creech AFB ADP Short-Term Facilities List

Facility	*Square Footage*	*Evaluated in Previous EIAP Document*	*Phasing*
Fitness Support Facility	TBD		0-5 years
Flight Kitchen	1,800	Predator EA	0-5 years
Flightline Medical Clinic	3,162		0-5 years
POC-C (Point of Control Compound –Creech)	TBD	Predator EA	0-5 years
Interim Admin. Facility (Expeditionary)	7,500		0-5 years
Interim Admin. Facility (Expeditionary)	7,500		0-5 years
Interim Admin. Facility (Expeditionary)	7,500		0-5 years
Dining Facility	25,000	Predator EA	0-5 years
FTU Building 707 Addition	24,000		0-5 years
Weapons Load Training Hangar	18,000	Predator EA	0-5 years
Flight Simulator/Academic Facility	24,000		0-5 years
Communications Hub	N/A		0-5 years
Predator Visiting Officers Quarters	12,000	Predator EA	0-5 years
Shoppette	TBD		0-5 years

Note: Projects are listed in order of Fiscal Year

The purpose of the mid-term siting guide is to develop the installations Headquarters and the Center of Excellence facilities while moving core functions from the main base area to the northeastern sector of the base. Some assumptions were made to forecast facility needs (Table 9) for the mid-term development of Creech AFB including acquisition of the necessary land and arrival of additional operational squadrons.

Table 9. Creech AFB ADP Mid-Term Facilities List

Facility	***Square Footage***	***Phasing***
Rescue Squadron Area	TBD	6-10 years
Airmen Services Area	TBD	6-10 years
Consolidated Base Support Facility	TBD	6-10 year
Co-located Club	TBD	6-10 years
Fitness Center	30,000	6-10 years
*Joint RPA Center of Excellence	TBD	6-10 years
Addition to Munitions Admin. Facility	8,000	6-10 years
Medical Clinic	5,000	6-10 years
*Wing Headquarters	16,000	6-10 years
Main Base Gate	TBD	6-10 years
*Mission Support Squadron	40,000	6-10 years
POL Area	TBD	6-10 years
*Squadron Headquarters	28,000	6-10 years
Phase Maintenance Hangar	26,000	6-10 years

*Will be built in the Wing HQ/COE Area

The purpose of the long-term siting guide is to implement a fully functional independent installation that can support a base population of 3,000 or more with housing, dorms, and full services available to base personnel. Facilities for long-term development are associated with quality of life and community services that would be necessary to make the installation an independent base and are listed in Table 10. Infrastructure in the eastern portion of the base will have to be expanded for facilities in this planning stage to be sited.

Table 10. Creech AFB ADP Long-Term Facilities List

Facility	***Square Footage***	***Phasing***
Driving Range	TBD	10-20 years
Dorms	TBD	10-20 years
Family Housing	TBD	10-20 years
Child Development Centers	TBD	10-20 years
Commissary/Base Exchange	TBD	10-20 years
Consolidated Community Center	TBD	10-20 years

APPENDIX D

PRELIMINARY ADP ALTERNATIVES

Chapters 4-9 describe the details of the ADP "preferred alternatives". However, in addition to understanding the consensus path forward for each ADP, it is extraordinarily valuable to have an understanding of the paths that were considered but discarded for one reason or another. An understanding of these "non-preferred" alternatives can help installation planners avoid making unwise decisions as the development of each area proceeds. The following sections describe the future development alternatives that were developed during the ADP process and discarded or refined. Graphics and textual discussion, including a short discussion of why each non-preferred alternative was discarded, are included here to provide context for the preferred alternative described in the ADP chapter itself.

A.1 Main Base Town Center ADP

The preferred alternative for this ADP is described in **Chapter 4**.

The following Preliminary ADPs were developed and given to base personnel prior to the charrette visit. Alternative 1 was focused on providing the required facilities at low impact to current facilities and operations. Essentially, Alternative 1 was a short-term, least-impact path. Alternative 2 represented efforts to solve some of the underlying planning problems in the area while planning for the efficient long-term use of the space at a potentially higher short-term cost.

A.1.1 Preliminary ADP Alternative 1

Alternative 1 provides for immediate planning needs; however, does not take the area as a whole toward a long-range direction. The option is identified as low impact as relatively few site modifications are necessary to accommodate the proposed recommendations. **Figure A-1** depicts The Main Base Town Center Preliminary Alternative 1.

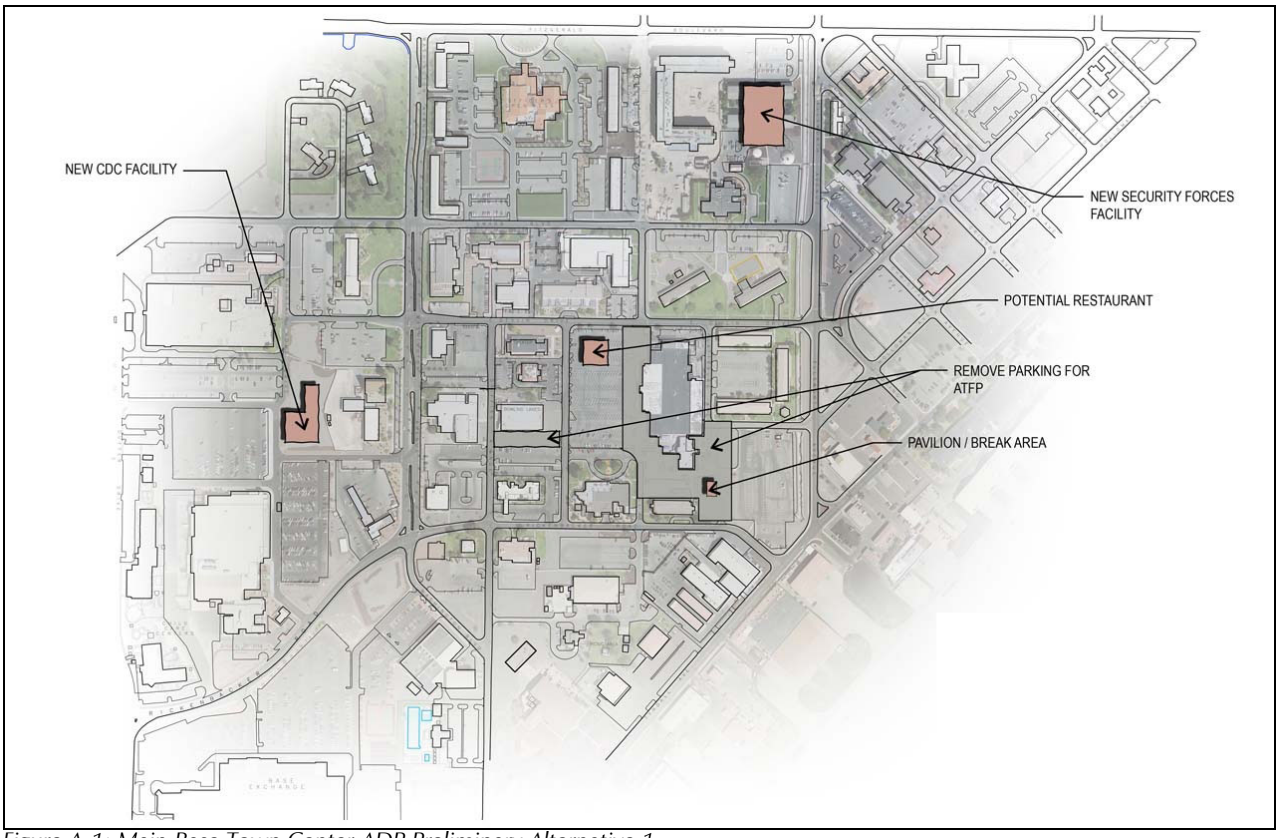

Figure A-1: Main Base Town Center ADP Preliminary Alternative 1

Pros

- Minimum cost
- Least disruption to area functions
- Create a pedestrian friendly central hub reachable from the Dorms and Lodging to include Banks, Bowling Lanes, Clubs and Future Restaurant space
- New CDC will be located within the overall Community Support area to provide better access
- Closing Griffiss Ave creates better ATFP setbacks and a pedestrian friendly environment
- Room for Contracting and the Engine Maintenance functions to expand
- Buildings 300, 328 and 340 better meet ATFP standards
- Ability to create an Outdoor Pavilion area between buildings 328 and 340
- Reduces the sea of pavement around buildings 328 and 340
- Provides a site for the Security Forces facility
- Could be phased

Cons

- Leaves incompatible land uses in the area
- Security Forces facility is sited in an area that should be preserved for future Lodging
- Limits future Lodging and Security Forces growth options
- Increases parking requirements in the Lodging area and reduces the available spaces
- Does not consolidate Services functions
- Limited development- older facilities in the area will become increasingly expensive to maintain

A.1.2 Preliminary ADP Alternative 2

Preliminary Alternative 2 contains proposed construction projects, demolitions, and relocations of functions. This option was categorized as a High Impact alternative as there is a greater potential for disruption graphically portrayed in **Figure A-2**. The recommendations include road closures, relocated/removed parking lots, and new construction projects located where buildings are currently located.

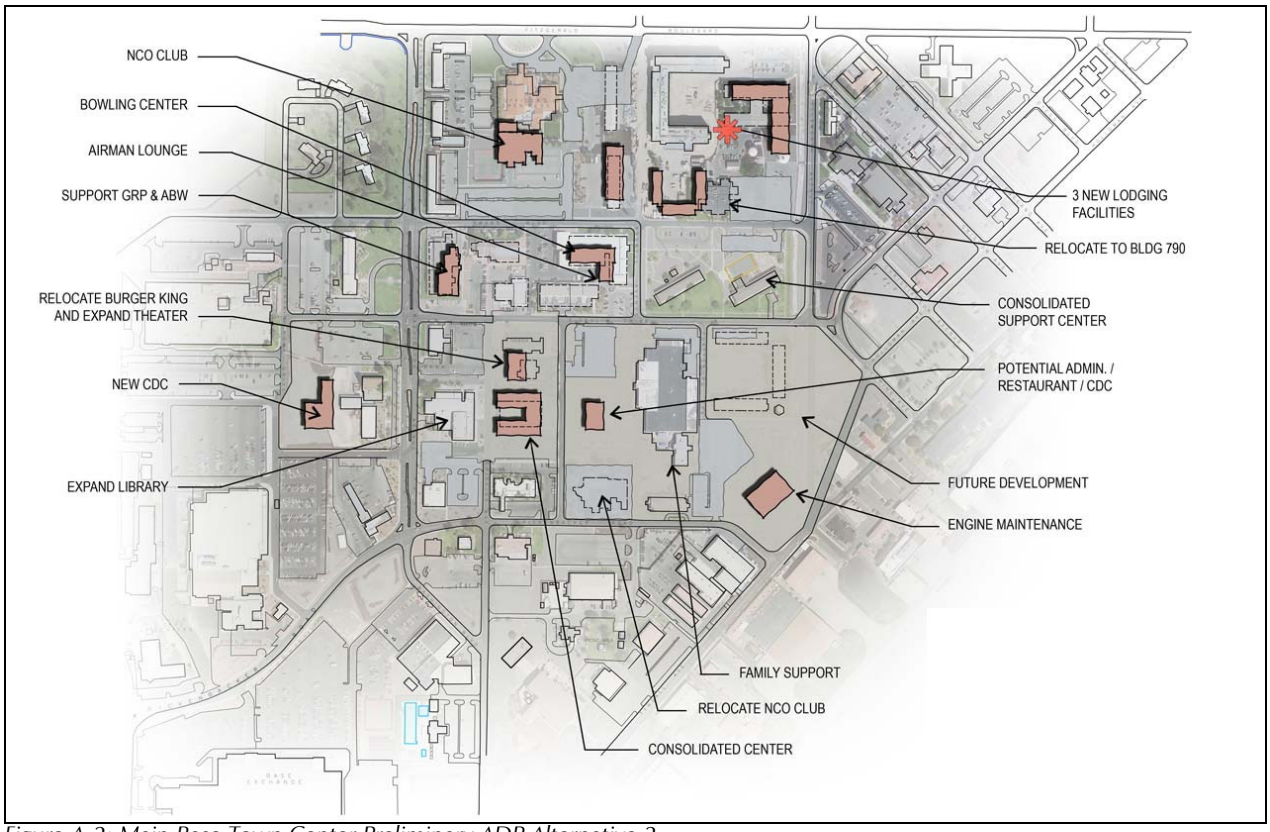

Figure A-2: Main Base Town Center Preliminary ADP Alternative 2

Pros

- New block configuration allows for long-range development of additional Airfield Operations expansion
- Long-range plan allows for systematic improvements
- Strong pedestrian corridor from the Dorm area to the Community Service/Commercial area
- Collocation of the NCO and Officers Club
- Expansion of the Lodging Complex near Clubs and Community Support activities
- Relocate Support Group near Wing HQ for improved communication and interaction
- Relocate Engine Maintenance near the flight line away from Community Support functions
- Large parking lots are replaced by smaller more appropriately sited parking lots
- Smaller parking lots break up visual barriers and increase the campus-like environmental design
- Create a pedestrian friendly central hub near the Dorms, Lodging is adjacent to Bowling Lanes and Airman's Lounge
- Construct additional lodging opportunities
- Expanding the Theater to allow for additional conferencing/meeting areas
- New CDC will be located adjacent to the Chapel for shared parking opportunities
- Collocate a consolidated Education Center with the Library to facilitate better education and research
- Relocating the LG School out of Building 340 will allow the Family Support functions to be collocated with other Support type functions in Bldg. 340
- Realignment of E. Holloman Avenue will support the Flightline ADP
- Closing Griffiss Ave. creates better AT/FP setbacks and a pedestrian friendly environment
- Closing portions of Devlin, Swabb and Ellsworth allows for additional developable land, AT/FP compliance for existing facilities and increases opportunities to maximize pedestrian/bicycle modes of transportation

Cons

- Costs may initially be higher than Option 1
- Disruption to many functions
- Requires long-range commitment and coordination
- Some projects are dependent upon new construction completion

- Possible increased utility provisions as the demand will expand with additional lodging units
- Building 340 is aged and remains long-term

A.1.3 Main Base Town Center Consensus Development

Preliminary Alternative 1 was seen as too short-sighted for the Main Base Town Center. The preferred alternative adopted the principles set forth in Preliminary Alternative 2, with a number of shortened and closed streets and a prominent pedestrian spine. Some of the facility sitings were refined further, based on interviews with users and more detailed AT/FP analysis.

A.2 Area III Town Center ADP

The preferred alternative for this ADP is described in **Chapter 5**.

The following ADP alternatives were produced before the charrette. The charrette discussion focused on refining these alternatives to produce a preferred path forward for the Area III Town Center.

After the charrette, there was still some uncertainty about the future disposition of the sports fields in Area III. Because of this, two post-charrette ADP alternatives were developed to help mold the discussion and allow for flexibility as the preferred option was developed.

All preliminary and post-charrette alternatives are described below.

A.2.1 Preliminary ADP Alternative 1

This ADP Alternative proposes Youth Center expansion, Gym Annex, two CDCs, Shoppette, Chapel Annex (replaces TLF), and housing privatization with future development. **Figure A-3** depicts Preliminary ADP Alternative 1 as submitted before the charrette.

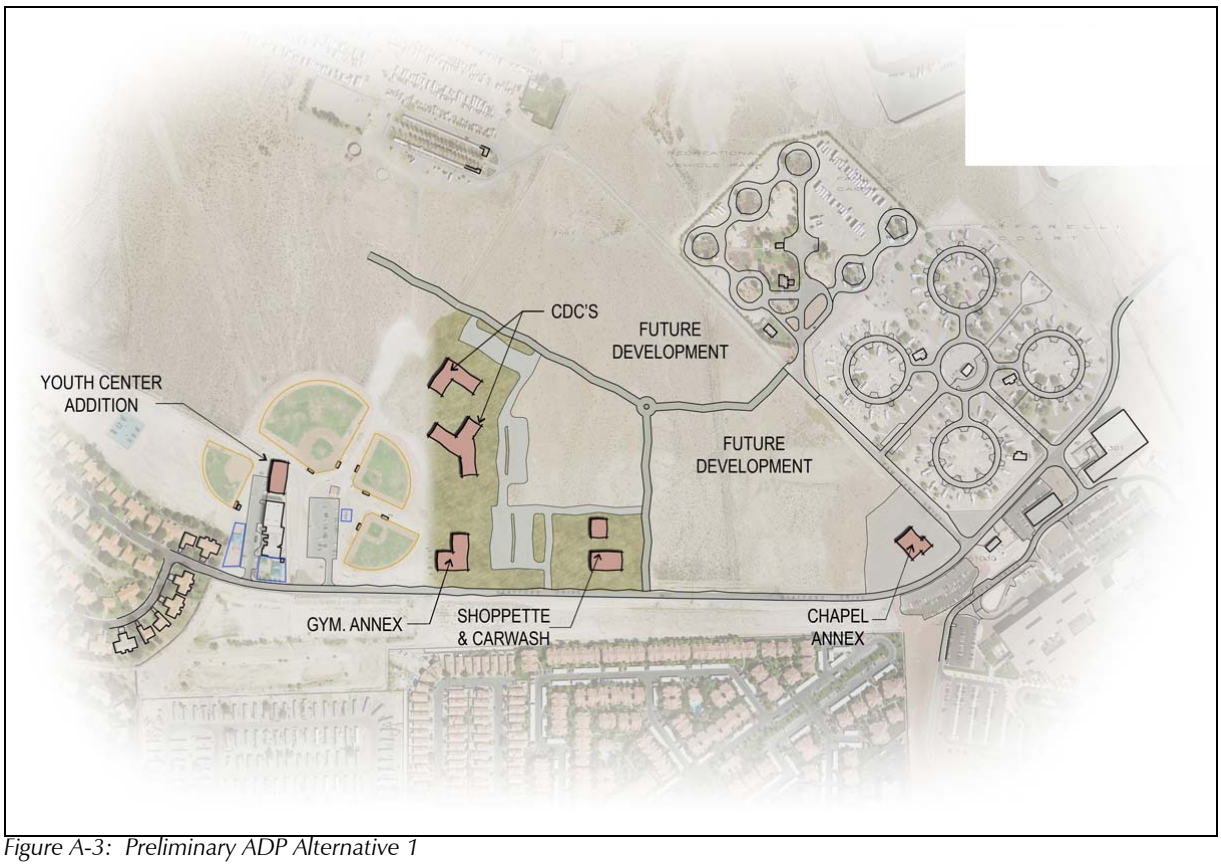

Figure A-3: Preliminary ADP Alternative 1

Pros

- Establishes a "sense of place" for residents in Area III
- Proposed Child Development Centers are located near housing area but off the primary road Stafford Drive.
- Proposed Child Development Centers are proximate for joint use of outdoor play areas and existing Youth Center playing fields
- Access to each CDC is off of a convenient proposed main road from the future housing area
- Locates the Chapel Annex near the Medical facility
- Shoppette is located near the various recreational functions for safety and convenience
- Stafford Drive will receive additional traffic flows as base housing is developed west of the site and the 2 proposed CDCs are located near housing area but off the main road
- Provides space for a Gym Annex and outdoor recreational amenities
- Family Childcare Office is co-located with the CDCs
- Creates maximum parcels available for future development
- Affords internal connection to the site from the privatized housing site
- The Chapel and Family Support Center Annexes can co-use classrooms

- Affords internal connection to the site from the privatized housing site
- Supports a potential walking/jogging trail throughout the entire area
- Trail could be connected to a housing trail system
- Requires no relocation of Base operations

Cons

- Additional playing fields located on-site will be disconnected from current fields
- Developable sites require compatible land uses
- Does not provide adequate play space for CDCs

A.2.2 Preliminary ADP Alternative 2

This ADP Alternative proposes Youth Center Expansion, Gym Annex, CDCs, walking trail, Shoppette, Chapel Annex (relocated TLF site), and housing privatization with future development. **Figure A-4** depicts Preliminary ADP Alternative 2 as submitted before the charrette.

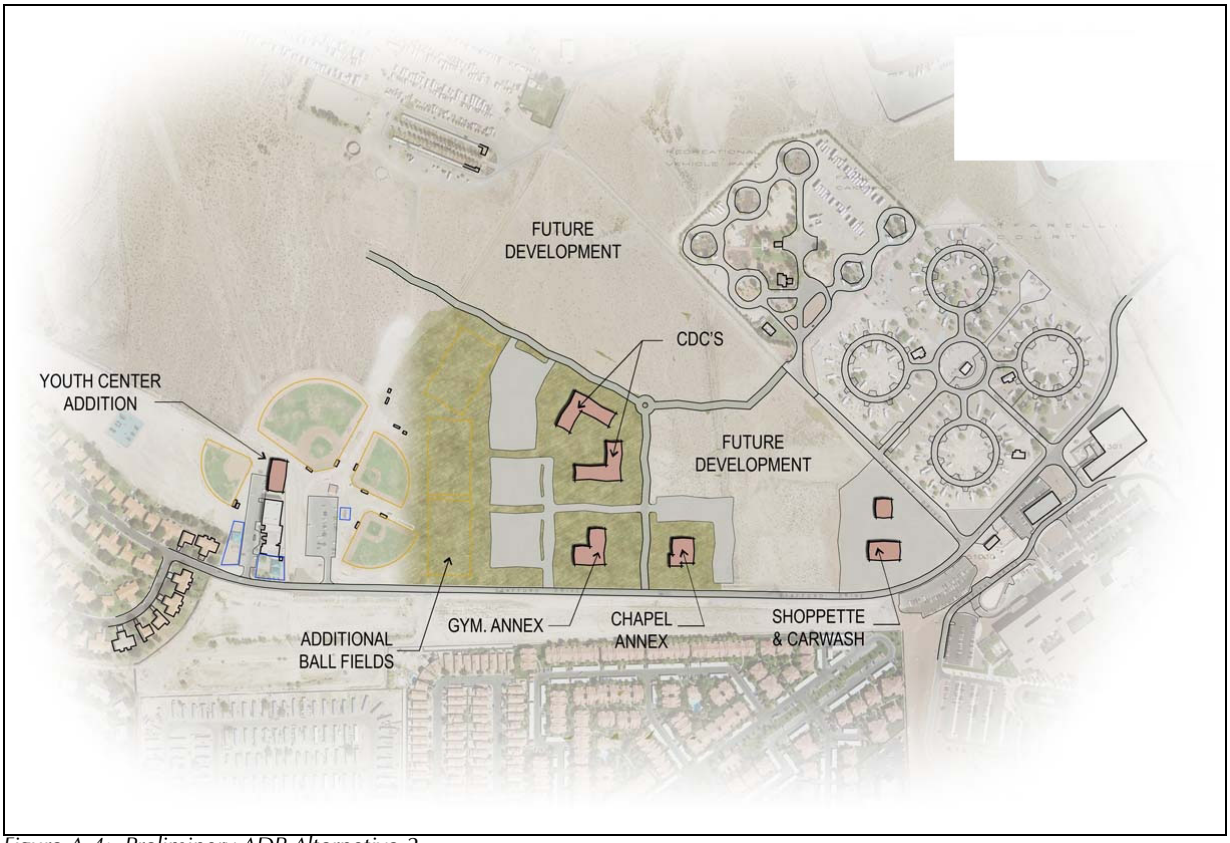

Figure A-4: Preliminary ADP Alternative 2

Pros

- Establishes a "sense of place" for residents in Area III
- Proposed Child Development Centers are located near housing area but off the primary road Stafford Drive.
- Establishes a services and "sense of place" for residents on the north side of the base
- Stafford Drive will receive additional traffic flows as base housing is developed west of the site and the 2 proposed CDCs are located near housing area but off the main road
- Proposed Child Development Centers are near outdoor play areas and existing Youth Center playing fields.
- Both CDCs are near the playing fields and accessed off of a convenient main road from the future housing area
- Family Childcare Office is co-located with the CDCs
- Access to each CDC is off of a convenient proposed main road from the future housing area
- Provides space for a Gym Annex and outdoor recreational amenities
- Creates developable parcels for future development
- Affords internal connection to the site from the privatized housing site
- The Chapel and Family Support Center Annexes can co-use classrooms
- Additional playing fields can be located adjacent to the existing fields
- Shoppette is located at a main corner intersection adjacent to the RV campsite
- Supports a potential walking/jogging trail throughout the entire area
- Trail could be connected to a housing trail system
- Requires no relocation of Base operations

Cons

- Some developable sites are adjacent to the RV storage and require compatible land uses, which are not determined at this time
- Shoppette is located away from the Youth center and will require pedestrian traffic to cross a road to access
- Locates the Chapel Annex further from the Medical facility
- CDCs are separated from the outdoor playing fields and Youth Center by a parking lot
- Did not provide adequate play space for CDCs.

A.2.3 Post-Charrette ADP Alternative 1

This alternative assumes that the northeastern most baseball field can be relocated to another location, and that the multipurpose field can be realigned to an east-west alignment from its current north-south alignment. These field relocations allow the CDCs to be co-located without a roadway separation. **Figure A-5** shows Post-Charrette ADP Alternative 1, as it was developed in meetings after the charrette.

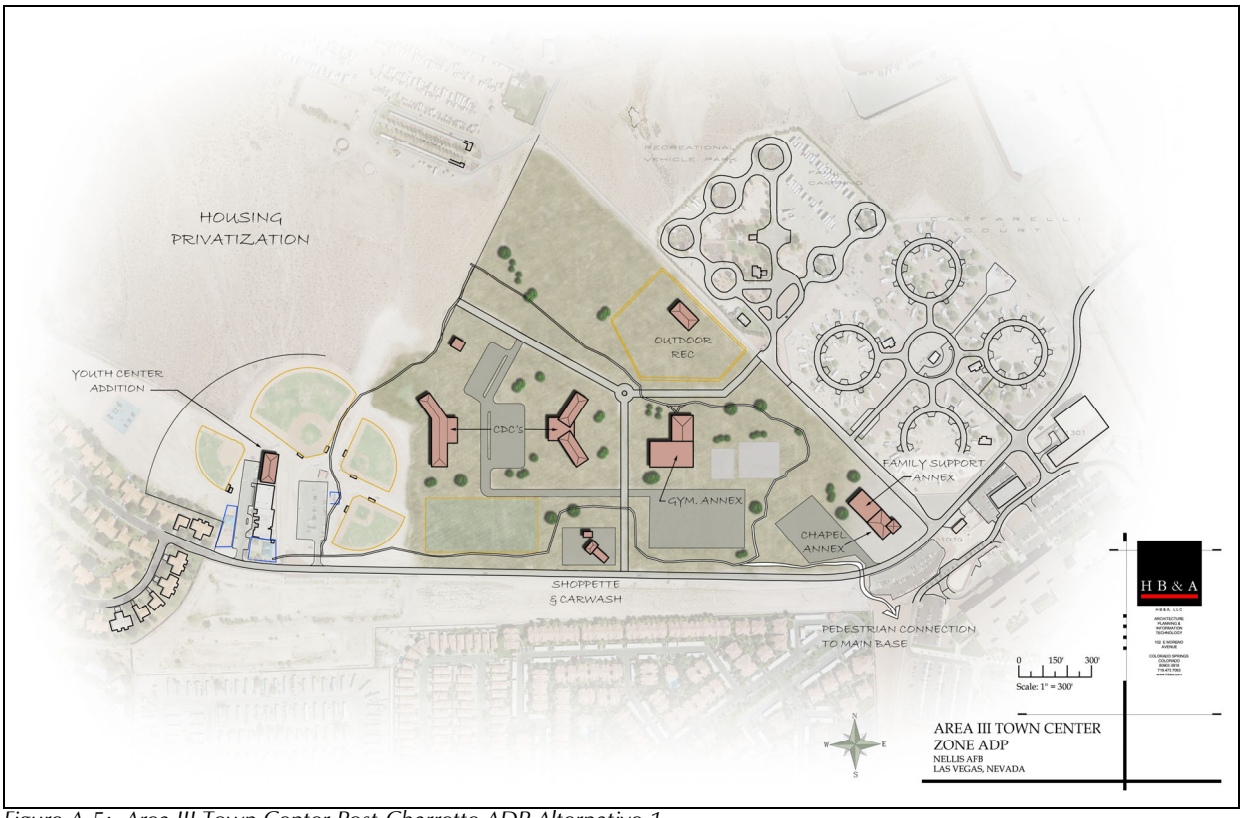

Figure A-5: Area III Town Center Post-Charrette ADP Alternative 1

A.2.4 Post-Charrette ADP Alternative 2

This alternative assumes that all ball field locations are fixed, and that the cost involved with relocating them is prohibitive. In order to make the CDCs fit into the zone in this alternative, one must be located north of the main access road. The roadway will disrupt the operations of the CDCs to a certain extent, as some users may have to cross a main access road to

reach one of the CDCs, but this disruption is likely to be minor. The CDC is also located further away from the Youth Center and the baseball and multipurpose fields, marginally decreasing the efficiency of operations. **Figure A-6** shows this alternative.

Figure A-6: Area III Town Center Post-Charrette ADP Alternative 2

A.2.5 Area III Town Center Consensus Development

After the charrette, new information about the layout of the privatized housing changed the underlying assumptions that went into the preliminary alternatives. Because the future family housing units will extend much further into the study area than was anticipated early in the planning process, the planning team was forced to make some compromises. The preferred alternative, described in detail in **Chapter 5**, contains most of the facilities that were sited in the preliminary alternatives, with the exception of the Outdoor Recreation facility. The

shoppette had to be sited across Stafford Drive because there was not sufficient space for the facility on the north side of the street. Two CDCs, the youth center expansion, a Fitness Center Annex, and a combined Family Support/Chapel Annex were still sited in a way that provides adequate parking and land-use compatibility.

A.3 Unaccompanied Housing ADP

The preferred alternative for this ADP is described in **Chapter 6**.

For the Unaccompanied Housing Area, only one graphic was developed because of the relatively small site and constraints presented. Further options could explore alternate footprints for facilities but would not have substantively changed the plan. **Figure A-7** depicts the preliminary ADP alternative.

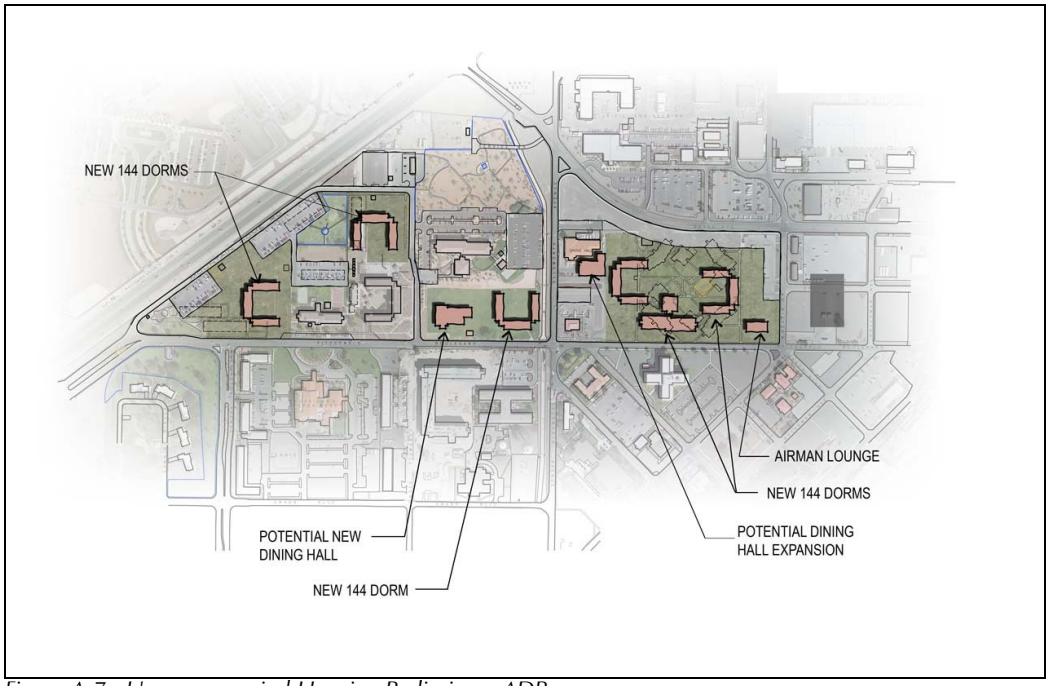

Figure A-7: Unaccompanied Housing Preliminary ADP

Pros

- All facilities are compliant with AT/FP criteria
- A unified campus is developed
- Pedestrian corridors are clear and attractive to interior amenities as well as the Main Base Town Center

- Parking is provided for each facility
- Existing Dining Hall is made AT/FP compliant
- Room for future growth
- There is room for six-144 person dorms
- Accounts for unforeseen growth
- Footprints can be reduced to fit current mission requirements

Cons

- Area is bisected by a major thoroughfare causing pedestrian vehicular conflicts
- The five required dormitories do not fit in the area know as "Dorm Area I" with associated parking and AT/FP compliance

A.3.1 Unaccompanied Housing Consensus Development

During the charrette, installation planners expressed a desire to have all dormitories located west of Ellsworth Blvd within the study area. Based on this information, the planning team determined that there is insufficient space in the required area for the required five 144 person dormitories. However, if the dorms are increased to 4 stories, they can hold approximately 192 people each, and the requirement drops to 4 dormitories. Although 4-story dormitories carry additional construction and maintenance costs because of the requirement for elevators, installation planners approved the concept, and the preferred alternative includes 4 new 4-story dormitories, phased in sequence with the demolition schedule of the old dormitories. In addition, the orientation of the lodging facility was modified to increase the campus-like feel of the area and avoid a single, excessively large facility. This change also enabled associated parking to be sited away from the pedestrian corridor, increasing the aesthetic appeal of that area.

A.4 Freedom Park ADP

The preferred alternative for this ADP is described in **Chapter 7**.

For the Freedom Park ADP, two ADP alternatives were developed before the charrette. The charrette discussion focused on refining these alternatives to produce a preferred path forward for the area.

During the charrette, it became clear that the future disposition of the Elementary School is not yet determined. This is a significant uncertainty, and because the shape of future development in the area could change

drastically depending on whether the school is relocated in the near or long term, two post-charrette ADP alternatives were generated.

All preliminary and post-charrette alternatives are summarized below.

A.4.1 Preliminary ADP Alternative 1

Alternative 1 was focused on providing the required facilities at low impact to current facilities and operations. Essentially, Alternative 1 is a short-term, least-impact path. This alternative is shown in **Figure A-8**.

Pros

- Least cost and effort for the short term
- TLF and Housing compatible transition – use of existing roads
- Staging area has aircraft as a dramatic backdrop
- Outdoor recreational activities are moved to a more suitable location
- Services/Administration, Security Forces, OPS, and Red Flag have room to expand
- Increase in parking and better flow of functions and utilities
- Directs large truck traffic associated with stage events away from entry
- Shoppette - extension of main base town center commercial

Cons

- Large amount of open space remains wedged between housing and the base perimeter
- Future Operations growth not included
- Road realignment is needed for TLF /Housing area

Figure A-8: Freedom Park Preliminary ADP Alternative 1

A.4.2 Preliminary ADP Alternative 2

Figure A-9: Freedom Park Preliminary ADP Alternative 2

Alternative 2 represents efforts to solve some of the underlying planning problems in the area while planning for the efficient long-term use of the space. This alternative is shown in **Figure A-9.**

Pros

- Maximize space for future growth – appropriate operation and administrative facilities
- More room for Bldg 200 compound functions, CAOC, and Red Flag growth
- A natural ATFP standoff is created for TLF/Administration
- Creates campus park like atmosphere in area vacated by Elementary School
- Gateway of Administrative uses at entry
- The gathering of Outdoor Recreation, Future Freedom Park, and TLFs forms a pedestrian corridor

Cons

- Sacrifice current focal point in Freedom Park
- Area may seem disjointed until administrative, operations and town center functions are built
- Moves Freedom Park further away from entry
- Parking lots around Freedom Circle might be visible from Nellis Boulevard without appropriate landscaping.

A.4.3 Post-Charrette ADP Alternative 1

This ADP Alternative, shown in **Figure A-10,** assumes Lomie G. Heard Elementary School will go away in 10 to 15 years, and includes the following: TLFs (located in area vacated by school), Gym (with indoor pool), Football Field, Running Track (1/4-mile), Multi-Use Sports Fields (which would double as a staging area for Air Force functions & special events), 2 ballfields, Runner's World, Thunderbird Heritage Center, Academic/Test Campus, Red Flag Operations, Weapons School, future facilities, AGE Complex (with fuel cell, additional hangars) with ramp connecting to flightline.

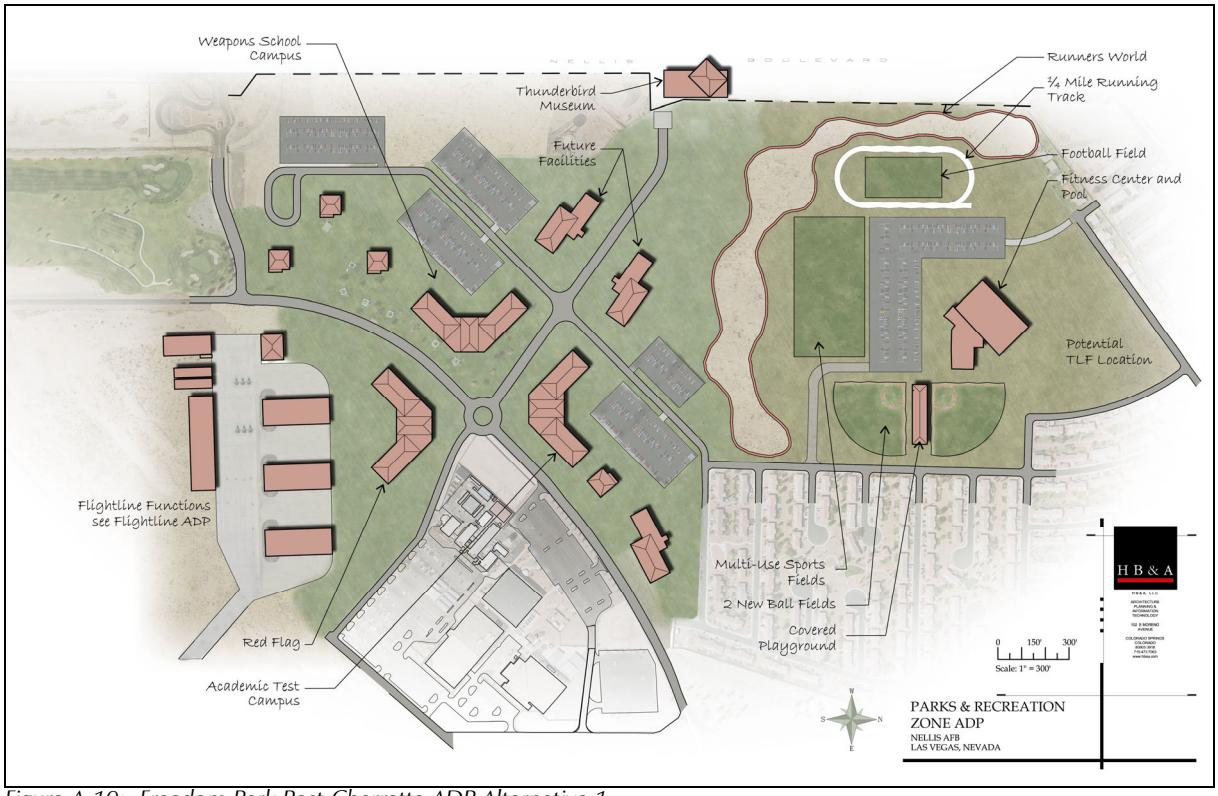

Figure A-10: Freedom Park Post-Charrette ADP Alternative 1

Pros

- Provides the greatest amount of potential admin space
- Provides space for 70 TLFs
- Ball Fields do not limit future administrative space expansion

- Utilizes existing street trees to shade the new Runner's World
- Parking is conveniently located to all athletic areas
- Provides adequate space for future gym expansion
- Runner's World can be relocated if area is required for future administrative facilities
- Runner's World does not impact TLFs
- Outdoor recreational facilities are concentrated further away from the administrative area
- The arrangement of the Parking, Multi-use Sports Field and Runner's World makes it easier to hold large gatherings
- Ball Fields are better arranged in relationship to parking
- TLFs are closer to the Town Center amenities
- Runner's World does not cross any roads
- Runner's World is a more pleasing buffer between the fitness facilities and the administrative facilities
- Requires no relocation of base operations

Cons

- School must be demolished before the Gym can be constructed
- TLFs would be concentrated in a smaller area necessitating 2 story facilities and less amenities
- TLFs are closer to the flight line

A.4.4 Post Charrette ADP Alternative 2

This ADP Alternative, shown in **Figure A-11**, assumes Lomie G. Heard Elementary School will remain, and includes the following: TLFs (located adjacent to Football Field), Gym (with indoor pool), Football Field, Running Track (1/4-mile), Multi-Use Sports Fields (which would double as a staging area for Air Force functions & special events), 2 ballfields, Runner's World, Thunderbird Heritage Center, Academic/Test Campus, Red Flag Operations, Weapons School, future facilities, AGE Complex (with fuel cell, additional hangars) with ramp connecting to flightline.

Pros:

- Provides adequate space for 70 TLFs, could be single story with all amenities
- Utilizes existing street trees to shade the new Runner's World
- Parking is conveniently located to all athletic areas
- Provides adequate space for future gym expansion
- Ball Fields are better arranged in relationship to parking
- Runner's World does not cross any main roads
- School need not be demolished before the Gym complex can be constructed

- TLFs are further from the flightline
- Requires no relocation of base operations

Cons:

- Provides the least amount of potential admin space
- Ball Fields limit future administrative space expansion
- Runner's World could impact TLFs
- Outdoor Recreational Facilities are concentrated closer to the administrative area
- The arrangement of the Parking, Multi-use Sports Field and Runner's World makes it more difficult to hold large gatherings
- TLFs are further from the Town Center amenities

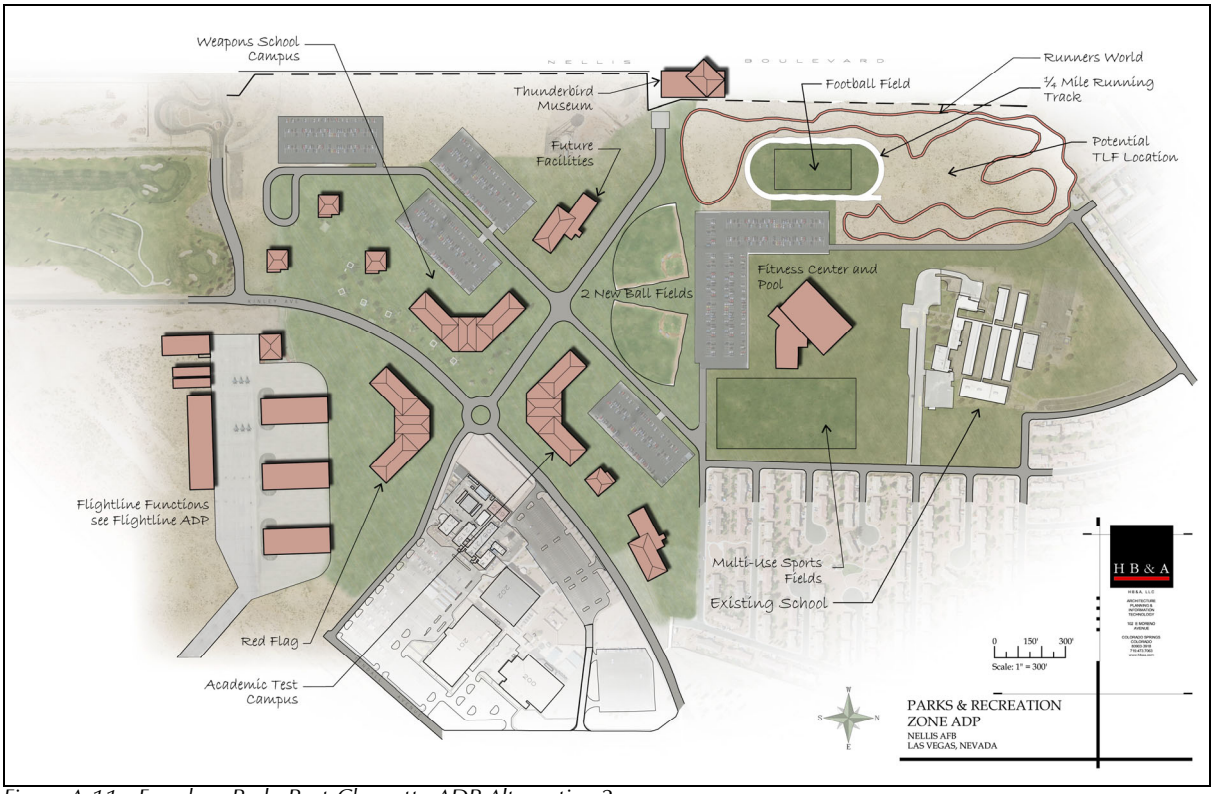

Figure A-11: Freedom Park Post-Charrette ADP Alternative 2

A.4.5 Freedom Park Consensus Development

After the post-charrette alternatives were developed and discussed, the planning team determined that the preferred alternative should assume that the elementary school will stay into the mid-term future (10-15

years), but should also account for a flexible use of the land if it comes available earlier.

In addition, the planning team identified that the administrative space proposed for the Academic/Test Campus area was insufficient for the uses that would be moving into the area. Therefore, the preferred alternative sets aside more land for future administrative development.

A preferred alternative was developed based on Post-Charrette ADP Alternative. With some modifications, this preferred alternative satisfies all requirements

A.5 Main Flightline ADP

The preferred alternative for this ADP is described in **Chapter 8**.

The following alternatives were developed and given to base personnel prior to the charrette visit. Each of these alternatives included the recently completed Joint Strike Fighter Plan as approved by base and command leadership. Sitings proposed by the base for facilities anticipated as a result of current BRAC recommendations, facilities that are current mission requirements and desires were all included. Specifically sited in these alternatives were an F-15 Maintenance Facility, Red Flag Facility, Multi-purpose Maintenance Facility, Maintenance Group Operations Facility, and Distributive Mission Operations Center.

A.5.1 Preliminary ADP Alternative 1

This alternative, shown in **Figures A-12** through **A-14,** sought to incorporate all requirements including the JSF Beddown, BRAC facilities and the inputs from base personnel in the purest form. Few changes where made to suggested or desired sitings with no changes being made to the JSF Beddown facilities. Major points to this plan include that the team recommended changing the siting of the future Red Flag facility. This recommendation was made because the area south and west of Red Flag is now considered available for aircraft operations and support development. The recreational facilities that will be displaced by this development are discussed in the Freedom Park ADP (**Chapter 7**). The pros and cons of this alternative are listed below.

Pros

- Many facility sitings capitalize on available space, which lowers short term investment
- Consolidates organizations which are currently operating in inefficient and disjointed facilities

- New and altered facilities will be AT/FP compliant

Cons

- The use of front load hangars is inefficient and repeats past design and planning mistakes for the next 50 years
- Not an efficient use of land
- Leaves no room for future growth or expansion

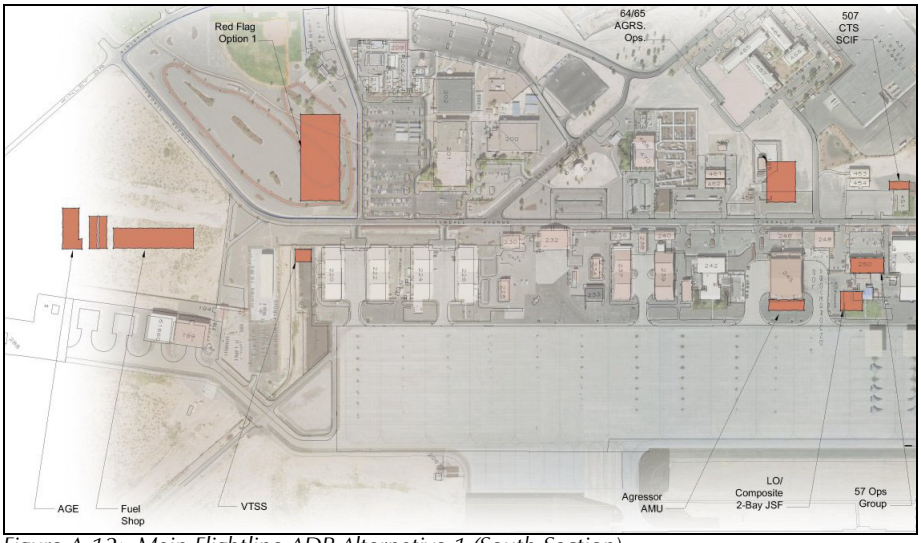

Figure A-12: Main Flightline ADP Alternative 1 (South Section)

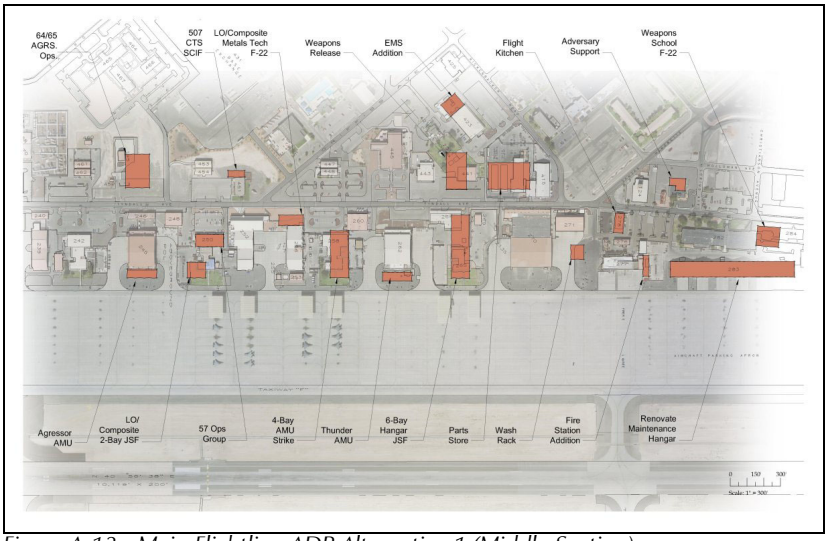

Figure A-13: Main Flightline ADP Alternative 1 (Middle Section)

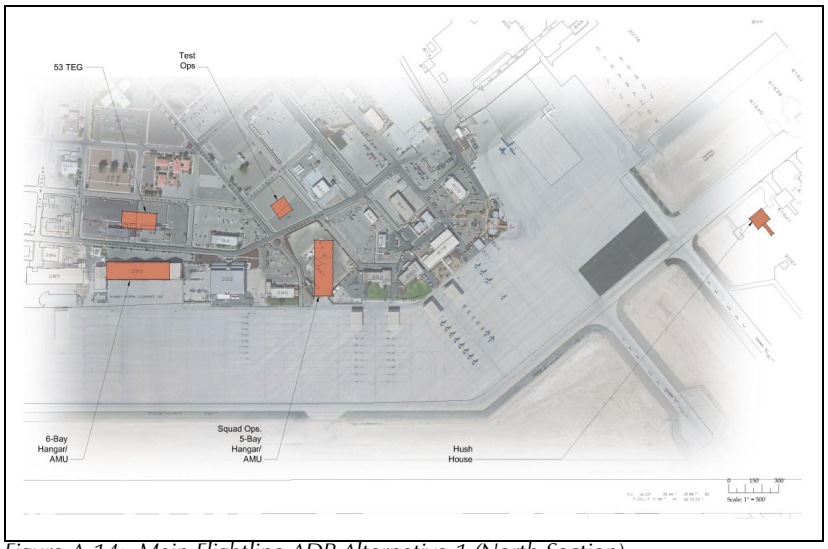

Figure A-14: Main Flightline ADP Alternative 1 (North Section)

A.5.2 Preliminary ADP Alternative 2

Alternative 2, shown in **Figures A-15** through **A-17**, approaches the overall goal for the future of the main flightline from a strictly long-range point of view. Facilities and functions were sited where they should go without being constrained by funding timelines and phasing issues. This alternative yields an ideal environment with very few existing facilities considered anchor points. However, the JSF beddown facility sitings were left in place as recently approved. This alternative sites the future Red Flag facility just behind the existing Base Exchange at the corner of Griffis Avenue and Tyndall which is not ideal but does reflect a siting that was under serious consideration.

Pros

- Consolidates like functions into their own facilities (e.g. Weapons School Squadrons, Test Organizations, Hangar/Operations/AMUs)
- Base Operations and Passenger Terminal are relocated and functions are consolidated
- Room for a future hangar
- Potential Ramp expansion
- The realignment of a portion of Tyndall Avenue
- Provides room for efficient side load hangars
- Corrects past mistakes
- Long-term solution

Cons

- More expensive in the short-term
- May require utility and infrastructure upgrades and moves – ultimately a positive effect

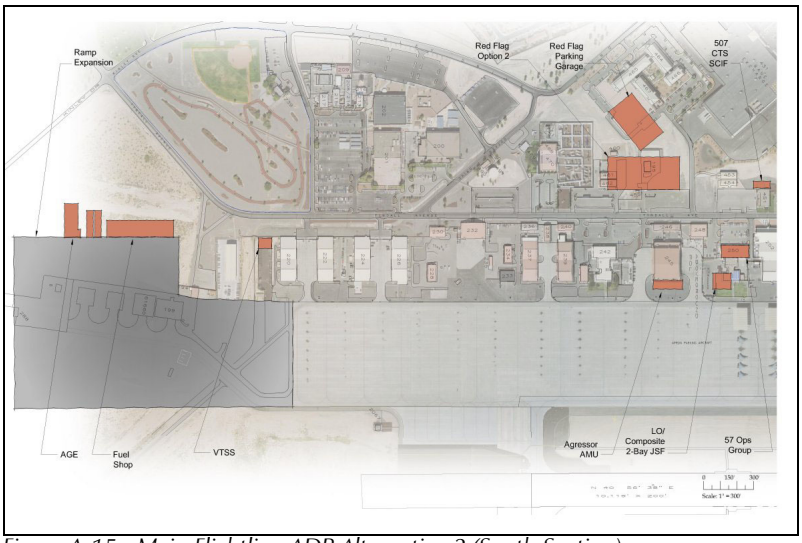

Figure A-15: Main Flightline ADP Alternative 2 (South Section)

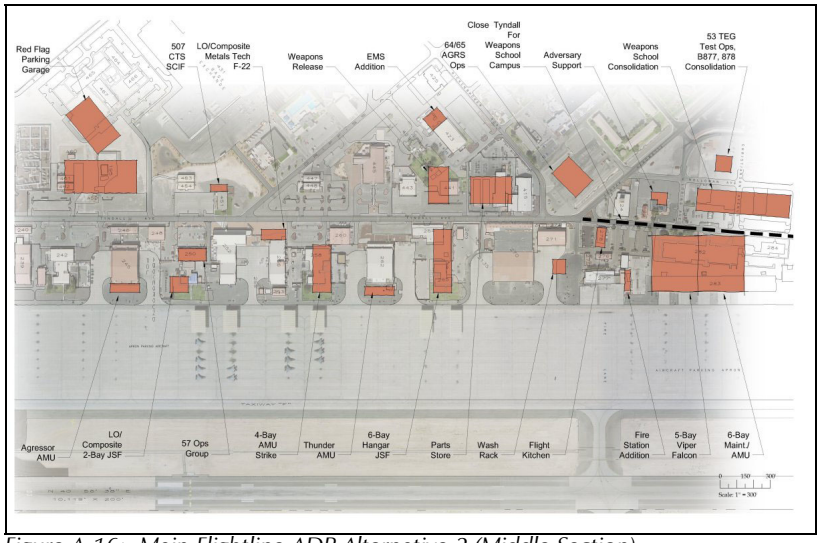

Figure A-16: Main Flightline ADP Alternative 2 (Middle Section)

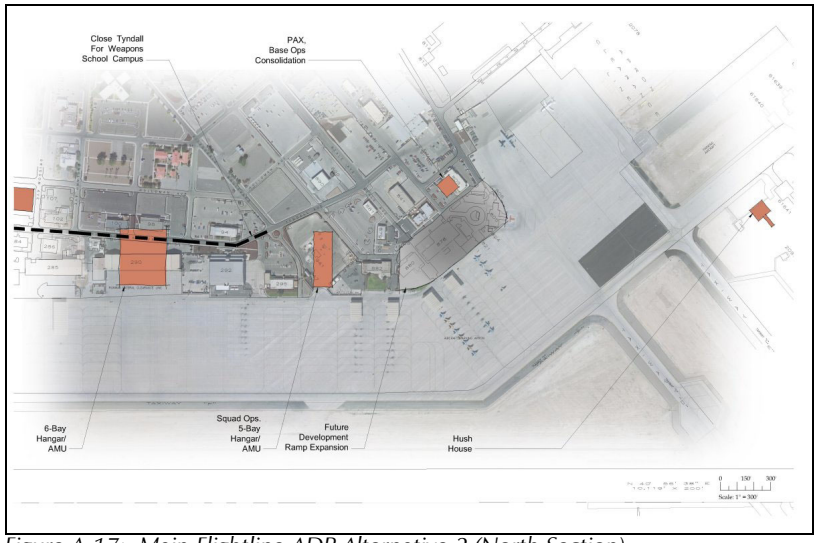

Figure A-17: Main Flightline ADP Alternative 2 (North Section)

A.5.3 Main Flightline Consensus Development

In the case of the Main Flightline ADP, most of the elements of the Preferred Alternative were adopted from Preliminary Alternative 2. This alternative, by proposing the closure of a section of Tyndall Ave., is able to create more usable flightline real estate, and therefore, was determined to represent a more prudent future path forward. One significant change from Alternative 2 is the location of the Red Flag Facility. The Alternative 2 siting for this facility was determined to be too costly and to have a negative impact on land use and developable land in the area. The Preferred Alternative includes a siting similar to the Preliminary Alternative 1 siting of this facility.

A.6 East Side Flightline ADP

The preferred alternative for this ADP is described in **Chapter 9**.

As a starting point for discussion the following three concept options were developed and given to base personnel prior to the charrette visit. During the charrette process, two options were eliminated with a third being chosen as the preferred alternative for future development. The three Preliminary ADP Alternatives are discussed below.

A.6.1 Preliminary ADP Alternative 1

Alternative 1 seeks to provide pavement as efficiently as possible using all available space starting at the edge of the primary surface and continuing to the east. Heavy/Bomber aircraft and facilities are separated from fighter aircraft and facilities. This option leaves a natural expansion area to the southeast as a continuation of the proposed apron. See **Figure A-18**.

Pros

- Separating large wingspan aircraft from fighters allows for more efficient use of pavement on fighter apron. The wingtip clearance criteria for the fighter apron is much smaller than for the heavy/bomber apron
- Minimizes taxi and tow distances for heavy/bomber aircraft

Cons

- Aircraft flow around the aprons is constrained by not being able to use the existing DOE apron
- Facilities will be clustered into a dense area and future expansion of the individual facilities will be limited

- The flow of fighter aircraft around the heavy apron is not the most efficient.

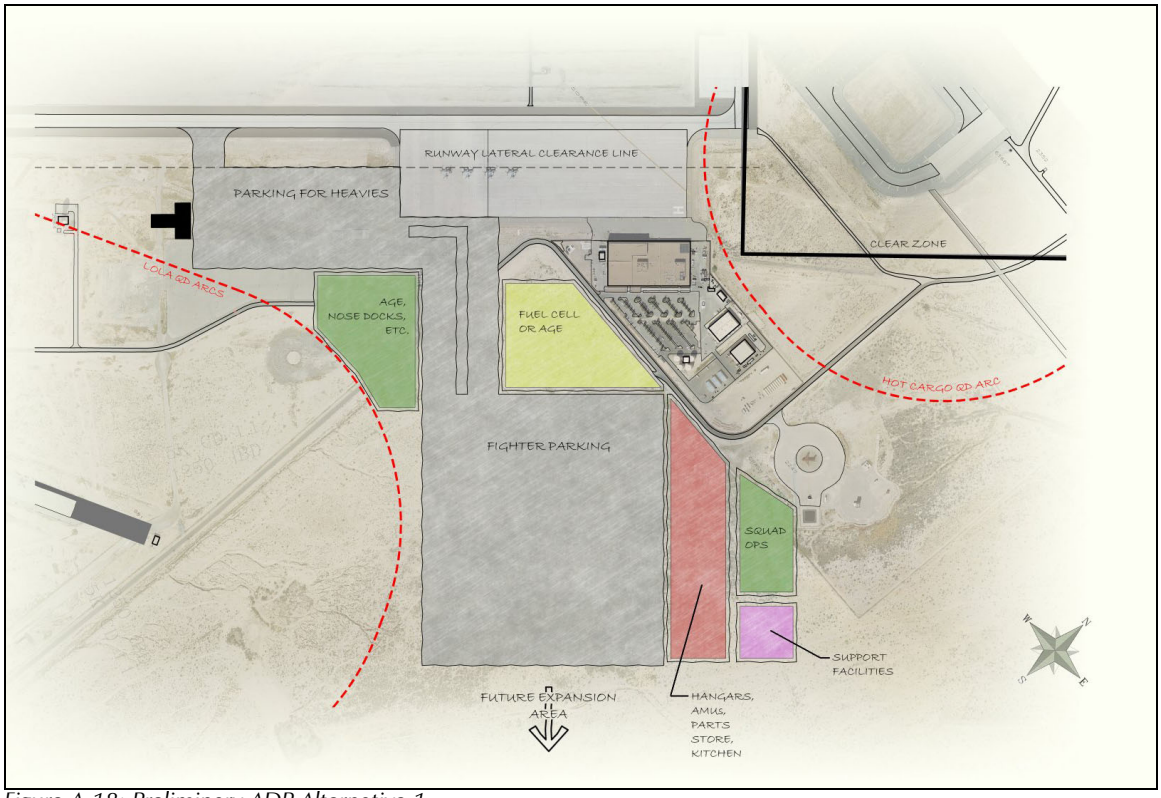

Figure A-18: Preliminary ADP Alternative 1

A.6.2 Preliminary ADP Alternative 2

Alternative 2 provides a straight contiguous apron to provide the most efficient flow of aircraft to their parking and maintenance facilities. This option also leaves a natural expansion area to the southeast as a continuation of the proposed apron. Facilities are shown on both sides of the parking apron to maximize access to the apron by maintenance personnel. See **Figure A-19**.

Pros

- Flow of aircraft is better and more efficient
- Heavy/Bomber aircraft and facilities are separated from fighters because of wingtip clearance criteria during taxi and tow

- Facilities are easily sited along the aircraft apron near the planes they serve

Cons

- Siting facilities on the south of the new parking apron may constrain future expansion of the LOLA
- Must taxi all of the aircraft through the DOE parking apron

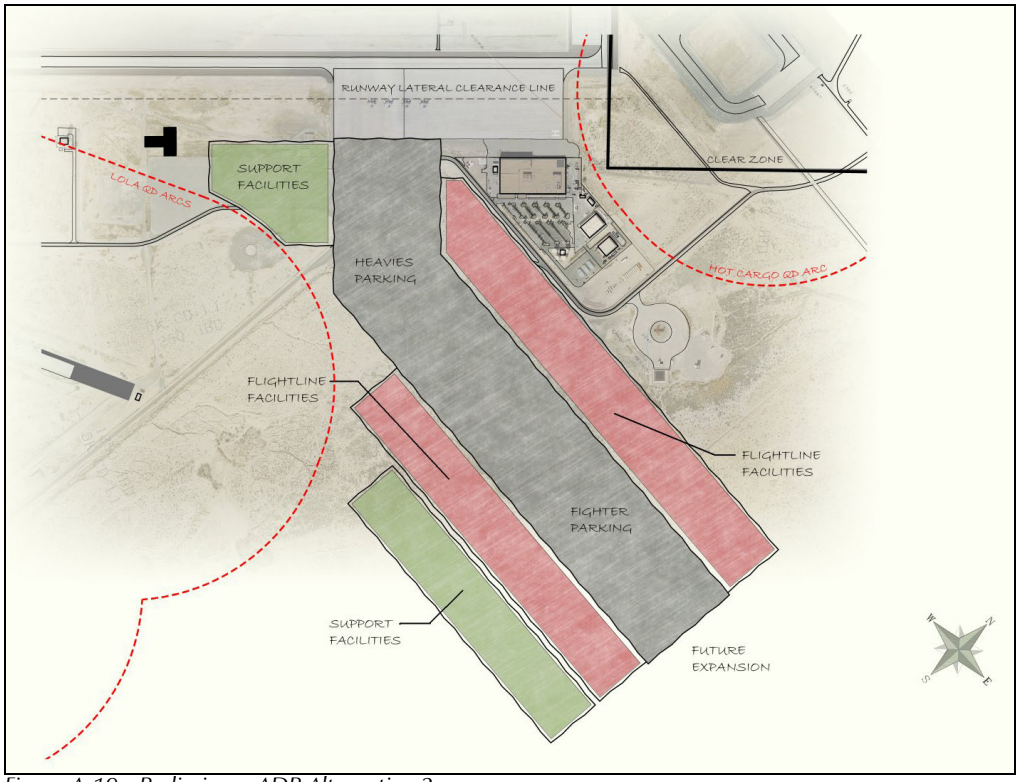

Figure A-19: Preliminary ADP Alternative 2

A.6.3 Preliminary ADP Alternative 3

The third and final concept assumed that the existing DOE facility could be relocated within the ADP area. The relocation of this facility provides the ideal expansion area starting at the primary surface and continuing in a much wider area to the east. See **Figure A-20**.

Pros

- Maximizes flow of aircraft and access to the runways
- Heavy/Bomber aircraft and facilities are separated from fighters because of wingtip clearance criteria during taxi and tow
- Facilities are easily sited along the aircraft apron near the planes they serve

Cons

- Depends on another entity to plan, design and fund their relocation

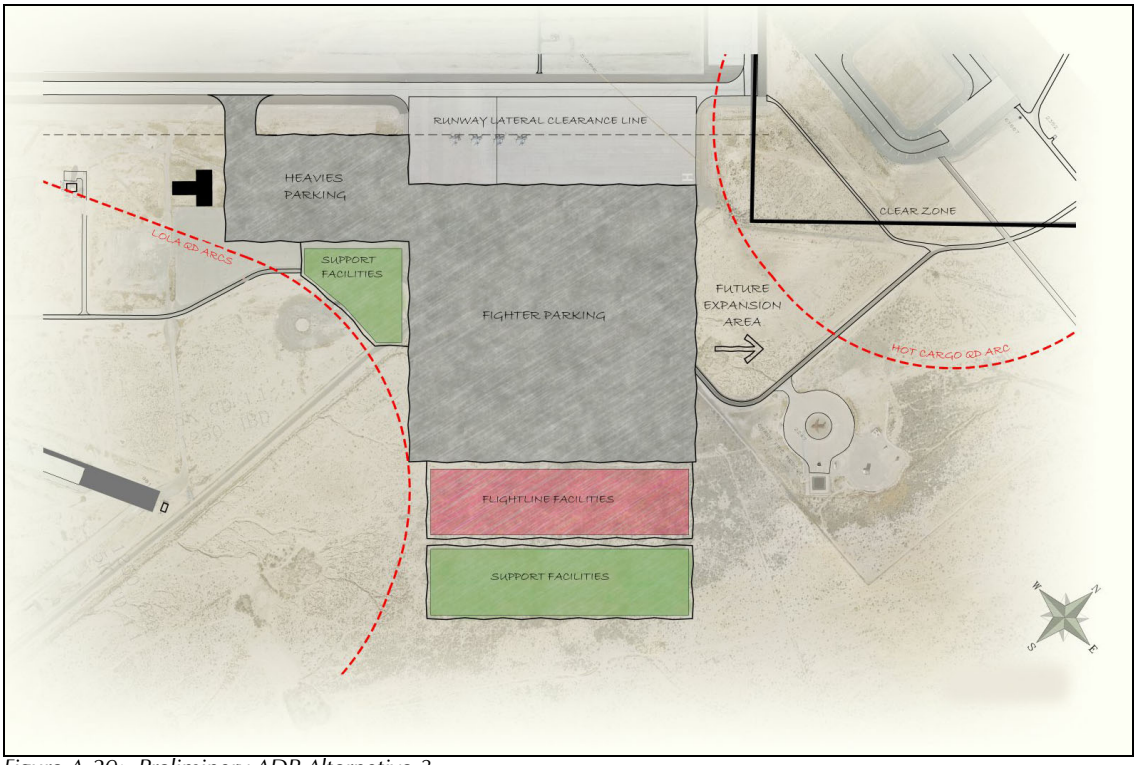

Figure A-20: Preliminary ADP Alternative 3

A.6.4 East Side Flightline Consensus Development

A preferred alternative was developed during the charrette that combined concepts from Alternatives 1 and 2. This allows for the most efficient use of available flightline land for additional parking apron just southwest of the existing apron, and extends the new apron far enough to the east to allow sufficient room for supporting facilities and parking, road access, and potential expansion area in the future.

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APPENDIX E

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING AND PUBLIC NOTIFICATION

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA 89191

FEB 12 2008

Ms. Eloisa V. Hopper
99 CES/CEV
4349 Duffer Dr, Suite 1601
Nellis AFB, NV 89191-7007

Ms. Jennifer Olsen
Southern Nevada Regional Planning Commission
240 Water Street, Mail Stop 115
Henderson, NV 89009

Dear Ms. Olsen,

The United States Air Force (USAF) Air Combat Command (ACC) and Nellis Air Force Base (AFB) are in the process of preparing an Environmental Assessment (EA) for implementation of a Capital Improvements Program for Nellis AFB and Creech AFB. Under the proposed action, Nellis AFB would undertake various infrastructure development, construction, demolition, and repair projects to ensure optimal long-term use of space at Nellis AFB and Creech AFB that is both economical and resource-efficient.

The EA will evaluate potential environmental impacts that could result from implementation of the proposed capital improvements and alternatives, including cumulative impacts when combined with past, present, and reasonably foreseeable proposals in the areas including and surrounding Nellis AFB and Creech AFB. In support of this process, we are requesting input in identifying general or specific issues or areas of concern you feel should be included in the environmental analysis.

Please forward any identified issues or concerns to Ms. Lynn Haarklau at the above address by February 29, 2008. If you have any specific questions relating to the proposal, please do not hesitate to contact Ms. Haarklau at lynn.haarklau@nellis.af.mil .

Sincerely

Eloisa V. Hopper

ELOISA V. HOPPER
Chief, Environmental Management Flight

Global Power For America

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA 89191

FEB 12 2008

Ms. Eloisa V. Hopper
99 CES/CEV
4349 Duffer Dr, Suite 1601
Nellis AFB, NV 89191-7007

Nevada State Clearinghouse
Department of Administration
209 East Musser Street, Room 200
Carson City, NV 89701-4298
clearinghouse@budget.state.nv.us
(electronic coordination)

Mesdames, Sirs,

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Eloisa V. Hopper

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Global Power For America

DEPARTMENT OF THE AIR FORCE
99TH CIVIL ENGINEER SQUADRON (ACC)
NELLIS AIR FORCE BASE, NEVADA 89191

FEB 1 2 2008

Ms. Eloisa V. Hopper
99 CES/CEV
4349 Duffer Dr, Suite 1601
Nellis AFB, NV 89191-7007

Indian Springs Town Advisory Board
P.O. Box 12
Indian Springs, NV 89018

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Sincerely

Eloisa V. Hopper

ELOISA V. HOPPER
Chief, Environmental Management Flight

Global Power For America

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Nevada Ecological Field Office
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Reno, NV 89502

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Clark County Commission
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Las Vegas, NV 89106

Mr. John Mendoza, S. Planner
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Indian Springs, NV 89018

Ms. Jennifer Olsen
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Clark County Clearinghouse
240 Water Street Mail Stop 115
Henderson, NV 89009

APPENDIX F

AIR QUALITY ANALYSIS

APPENDIX F
AIR QUALITY ANALYSIS AND NOISE CALCULATIONS

Air Quality Standards

As described in Section 3.2, Air Quality in a given location is described by the concentration of various pollutants in the atmosphere. The significance of the pollutant concentration is determined by comparing it to the federal and state ambient air quality standards. These standards (Table F-1) represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety. The Nevada Department of Environmental Protection, Bureau of Air Quality has adopted the NAAQS, with the following exceptions and additions: 1) state annual SO_2 standard is more stringent than the national standard; 2) a new 8-hour CO standard specific to elevations greater than 5,000 feet above mean seal level; and 3) new standards for visibility. The state ambient air quality standards are also summarized in Table F-1.

The air quality analysis in this EA examined impacts from air emissions associated with the proposed action. As part of the analysis, emissions generated from construction and demolition activities (including truck and equipment emissions) were examined for carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_x), volatile organic compounds (VOCs), and particulate matter (PM_{10}). Currently, Clark County is in serious nonattainment for CO and PM_{10} ; in addition a portion of Clark County, the Las Vegas Valley in which Nellis AFB is found, is in basic (subpart 1) nonattainment for 8-hour Ozone (precursors of this pollutant include NO_x and VOCs) (DAQEM 2004). This means that at Nellis AFB (the only location found within the nonattainment areas) certain *de minimus* thresholds may not be exceeded in any given year. These thresholds are: CO (100 tons/year), PM_{10} (70 tons/year), and VOCs (100 tons/year). In summary, combined demolition and construction activities, for any new projects at Nellis AFB, in any one year, would need to do an air conformity analysis if these threshold levels were exceeded.

Because Nellis AFB has not determined the exact projects to be undertaken, the order in which they would occur, or when they would occur the exact emissions from any given project, during any year is impossible to calculate. Therefore, a more programmatic approach was developed to identify the amount of land disturbance that could occur at Nellis AFB, during one year, before *de minimus* levels were reached. To determine the amount of construction and demolition activities generating emissions that would meet the *de minimus* thresholds, the following factors were considered: for construction, contributions from engine exhaust emissions (i.e., construction equipment, material handling, and transportation) and fugitive dust emissions (e.g., from digging and grading activities). Demolition emissions evaluated include fugitive dust and transport of demolition debris offsite. Paving emissions include combustive emissions from bulldozers, rollers, and paving equipment, plus emissions from dump

Table F-1 State and National Ambient Air Quality Standards

	Nevada Standards[A]		*National Standards*[B]	
	AVERAGING TIME	CONCENTRATION CENTER	PRIMARY CENTER[C,D]	SECONDARY CENTER[C,E]
Ozone	1 Hour	235 μg/m^3 (0.12 ppm)	235 μg/m^3 (0.12 ppm)	Same as Primary
Ozone	8 Hours		157 μg/m^3 0.08 ppm	Same as Primary
Carbon Monoxide less than 5,000 ft above MSL	8 Hours	10 mg/m^3 (9.0 ppm)	10 mg/m^3 (9.0 ppm)	None
Carbon Monoxide at any elevation	1 Hour	40 mg/m^3 (35 ppm)	40 mg/m^3 (35 ppm)	
Nitrogen Dioxide	Annual Arithmetic Mean	100 μg/m^3 (0.05 ppm)	100 μg/m^3 (0.05 ppm)	Same as Primary
Sulfur Dioxide	Annual Arithmetic Mean	80 μg/m^3 (0.03 ppm)	80 μg/m^3 (0.03 ppm)	None
	24 Hours	365 μg/m^3 (0.14 ppm)	365 μg/m^3 (0.14 ppm)	
	3 Hours	1,300 μg/m^3 (0.5 ppm)	None	1,300 □g/m3 (0.5 ppm)
Particulate Matter as PM_{10}	Annual Arithmetic Mean	50 μg/m^3	50 μg/m^3	Same as Primary
	24 Hours	150 μg/m^3	150 μg/m^3	
Particulate Matter[f] as $PM_{2.5}$	Annual		15 μg/m^3	Same as Primary
	24 Hours		65 μg/m^3	---
Lead (Pb)	Quarterly Arithmetic Mean	1.5 μg/m^3	1.5 μg/m^3	Same as Primary
Visibility	Observation	In sufficient amount to reduce the prevailing visibility to less than 30 miles when humidity is less than 70%	--	--

Notes:(a) 235 μg/m^3" means micrograms per cubic meter. 3, (b) "ppm" means part per million by volume.
Note A: These standards must not be exceeded in areas where the general public has access.
Note B: These standards, other than for ozone and those based on annual averages, must not be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with a maximum hourly average concentration above the standard is equal to or less than one.
Note C: Concentration is expressed first in units in which it was adopted and is based upon a reference temperature of 25° C and a reference pressure of 760 mm of mercury. All measurements of air quality must be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of Hg (1,013.2 millibars); ppm in this table refers to ppm by volume, or micromoles of regulated air pollutant per mole of gas.
Note D: National primary standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health and provide the basis for Clark County's attainment/nonattainment status.
Note E: National secondary standards are the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a regulated air pollutant.
Note F: Final regulatory procedures were announced in 2004, the entire state of Nevada is in attainment for this criteria pollutant. However, all air emissions inventory for 2003 do not include calculation of this criteria pollutant since no ruling had been reached.

trucks hauling pavement materials to the various sites. The following worksheets were developed to estimate emissions from two scenarios:

Scenario 1: demolition of 1 acre of land, this included materials associated with a 2,000 square foot, 2-story concrete building, debris removal, and site preparation; the construction portion of the scenario involved 3 acres that included a 30,000 square-foot concrete, maintenance shop with a 100,000 square-foot parking area;

Scenario 2: combined demolition and construction acreage was increased to 14.5; the construction and demolition equipment, number of equipment, and days undertaking the activity were proportionately increased to accommodate this increased acreage.

The emissions factors and assumptions are provided in the following worksheets. In conclusion, Nellis AFB will use this worksheet to estimate the potential emissions from projects at the base, during a given year in order to remain below *de minimus* levels.

Scenario 1

Nellis/Creech General Plan

	Demolition	Construction	
SCENARIO:	1 acre(s) demolition footprint	1 equals	3 acres construction footprint

Cell E3 has been set up so that 1=3 acres, 2=6 acres, etc.

Task 1: ***Demolition of 2,000 sf footprint concrete building (2 stories)***

Building demolition

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Dozer	2	8	4	90	0.59	0.99	3.49	6.9	0.93	0.722	7.42	26.15	51.70	6.97	5.41
Tier 1	Skid steer loader	2	8	4	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1.13	5.14	12.17	2.02	1.03
Tier 0	Truck crane	1	8	2	275	0.21	0.68	2.7	8.38	0.89	0.402	1.39	5.50	17.07	1.81	0.82
Tier 0	Excavator	1	8	4	169	0.21	0.68	2.7	8.38	0.89	0.402	1.70	6.76	20.98	2.23	1.01
											Subtotal	11.64	43.55	101.92	13.03	8.26

Demo debris removal

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Backhoe/loader	2	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	3.59	12.67	25.04	3.09	2.62
Tier 1	Skid steer loader	2	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1.42	6.43	15.22	2.53	1.29
Tier 0	Dump truck (20 CY)	8	2	5	275	0.21	0.68	2.7	8.38	0.89	0.402	6.93	27.50	85.35	9.07	4.09
											Subtotal	11.94	46.60	125.62	14.68	8.00

Site prep (grading, seeding)

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Dozer	1	8	1	90	0.59	0.99	3.49	6.9	0.93	0.722	0.93	3.27	6.46	0.87	0.68
Tier 0	Grader	1	6	1	150	0.59	0.68	2.7	8.38	0.93	0.402	0.80	3.16	9.81	1.09	0.47
Tier 0	Dump truck (20 CY)	4	1	1	275	0.21	0.68	2.7	8.38	0.89	0.402	0.35	1.38	4.27	0.45	0.20
											Subtotal	2.07	7.80	20.54	2.41	1.35
Tier 0	Small diesel engines	3	8	6	25	0.43	1.7	5	8.5	0.93	0.9	5.80	17.06	29.01	3.17	3.07
											Total	31.45	115.02	277.09	33.30	20.69

Task 2: ***Demolition of 50,000 sf parking area (inc. guttering)*** ***Assume stockpiling of asphalt and base materials for re-use (new parking lot within the 5-acre perimeter)***

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Excavator	1	8	2	169	0.21	0.68	2.7	8.38	0.89	0.402	0.85	3.38	10.49	1.11	0.50
Tier 1	Skid steer loader	2	8	5	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	1.42	6.43	15.22	2.53	1.29
Tier 0	Backhoe/loader	2	8	5	98	0.21	0.99	3.49	6.9	0.85	0.722	3.59	12.67	25.04	3.09	2.62
Tier 0	Small diesel engines	3	8	7	25	0.43	1.7	5	8.5	0.93	0.9	6.77	19.91	33.84	3.70	3.58
Tier 0	Cold planer	1	8	3	275	0.21	0.99	3.49	6.9	0.85	0.722	3.03	10.66	21.08	2.60	2.21
Tier 0	Dump truck (20 CY)	3	8	3	275	0.21	0.68	2.7	8.38	0.89	0.402	6.23	24.75	76.82	8.16	3.69
											Total	21.89	77.80	182.50	21.19	13.88

Task 3: ***Construct 30,000 sf aircraft concrete maintenance shop***

Foundation (slab)

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 1	Skid steer loader	2	2	14	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	0.99	4.50	10.65	1.77	0.90
Tier 0	Concrete truck	4	4	9	250	0.21	0.68	2.7	8.38	0.89	0.402	11.33	45.00	139.67	14.83	6.70
Tier 0	Dump truck	6	6	9	275	0.21	0.68	2.7	8.38	0.89	0.402	28.05	111.38	345.68	36.71	16.58
Tier 0	Delivery truck	1	1	30	180	0.21	0.68	2.7	8.38	0.89	0.402	1.70	6.75	20.95	2.23	1.01
Tier 0	Backhoe/loader	1	8	4	98	0.21	0.99	3.49	6.9	0.85	0.722	1.44	5.07	10.02	1.23	1.05
Tier 1	Small generator	2	2	53	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	1.53	8.27	10.51	1.87	407.85
											Subtotal	45.05	180.96	537.48	58.64	434.09

Structure

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 1	Small generator	2	4	16	10	0.43	0.7628	4.1127	5.2298	0.93	0.4474	0.93	4.99	6.35	1.13	0.54
Tier 0	Delivery truck	1	2	19	180	0.21	0.68	2.7	8.38	0.89	0.402	2.15	8.55	26.54	2.82	1.27
Tier 1	Skid steer loader	2	4	62	67	0.23	0.5213	2.3655	5.5988	0.93	0.473	8.78	39.86	94.34	15.67	7.97
Tier 0	Concrete truck	4	4	6	250	0.21	0.68	2.7	8.38	0.89	0.402	7.56	30.00	93.11	9.89	4.47
Tier 1	Crane	1	8	6	120	0.43	0.3384	0.8667	5.6523	0.93	0.2799	1.85	4.73	30.86	5.08	1.53
											Subtotal	21	88	251	35	16
Tier 0	Small diesel engines	3	6	60	25	0.43	1.7	5	8.5	0.93	0.9	43.51	127.98	217.56	23.80	23.04
											Total	110	397	1006	117	473

Task 4: ***Construct 100,000 sf parking area*** ***(including associated guttering and sidewalks)***

	Equipment	Number	Hr/day	# days	Hp	LF	VOCs g/hp-hr	CO g/hp-hr	NOx g/hp-hr	SOx g/hp-hr	PM10 g/hp-hr	VOCs lb	CO lb	NOx lb	SOx lb	PM10 lb
Tier 0	Grader	1	4	3	150	0.59	0.68	2.7	8.38	0.93	0.402	1.59	6.32	19.62	2.18	0.94
Tier 0	Roller	2	4	3	30	0.59	1.8	5	6.9	1	0.8	1.69	4.68	6.46	0.94	0.75
Tier 0	Paver	1	8	3	107	0.59	0.68	2.7	8.38	0.93	0.402	2.27	9.02	27.99	3.11	1.34
Tier 0	Concrete truck	4	3	15	250	0.21	0.68	2.7	8.38	0.89	0.402	14.17	56.25	174.59	18.54	8.38
Tier 0	Delivery truck	1	2	15	180	0.21	0.68	2.7	8.38	0.89	0.402	1.70	6.75	20.95	2.23	1.01
Tier 0	Small diesel engines	4	6	30	25	0.43	1.7	5	8.5	0.93	0.9	29.01	85.32	145.04	15.87	15.36
											Total	50.42	168.34	394.65	42.86	27.77

	PM10 tons/acre/mo	acres	days of disturbance	controls reduction	Uncontrolled Total	Controlled Total
Fugitive Dust Emissions (TSP)	1.2	3.00	106	75%	12.72	3.18

	VOCs	CO	NOx	SOx	PM10
Grand Total in Pounds per Year	214	758	1860	214	6895
Grand Total in Tons per Year	0.11	0.38	0.93	0.11	3.45
Nonattainment THRESHOLDS	***100 tons/yr***	***100 tons/yr***	***NA***	***NA***	***70 tons/yr***

Assumptions:

For scenario 1, construction occurs including areas demolished
VOCs = total hydrocarbons, assume 1:1 relationship for hydrocarbons and VOCs
Commute traffic excluded as indirect emission, no program control
Emission factor for Total Suspended Particulate (TSP) conservatively used for onsite construction activities and for PM10.
Control activities such as wetting of soils in construction areas and ingress/egress points result in 75% reduction of airborne particulate matter.

References:

Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling—Compression-Ignition , EPA Report No. NR-009c, April 2004.
Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling , EPA Report No. NR-005c, April 2004.
Conversion Factors for Hydrocarbon Emission Components, EPA 420-P-04-001, NR-002b, April 2004.
Nonroad Engine and Vehicle Emission Study--Report , EPA 460/3-91-02, November 1991.
Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Chapter 13, *Miscellaneous Sources,* Section 13.2.3, *Heavy Construction Operations,* January 1995.

Department of Air Quality & Environmental Management

500 S Grand Central Parkway 1st Fl • Box 555210 • Las Vegas NV 89155-5210
(702) 455-5942 • Fax (702) 383-9994

Alan Pinkerton, Deputy Director • Lewis Wallenmeyer, Acting Director

February 12, 2008

Bruce W. MacDonald, P.E.
Department of the Air Force
Headquarters Air Combat Command
Langley AFB VA, 23665

Re: F-35 Beddown at Nellis AFB

Dear Mr. MacDonald:

The Clark County Department of Air Quality and Environmental Management (DAQEM) is in receipt of your letter dated January 16, 2008 with regard to Headquarters Air Combat Command's request that our agency include nitrogen oxide (NO_X) emissions from the planned F-35 Beddown at Nellis AFB in the Ozone State Implementation Plan for Clark County.

Before Air Force staff met with DAQEM regarding this request, DAQEM had already completed the ozone modeling analysis for the nonattainment area in Clark County, which includes the majority of Nellis AFB. Emissions from the proposed F-35 Beddown were therefore not included in that analysis. After reviewing the proposed emissions detailed in the letter of request, DAQEM is confident that the emissions can be incorporated in the SIP.

The ozone modeling was extensive, and at this time DAQEM is not intending to remodel. DAQEM is, however, committed to incorporating discussion of the emissions from the Nellis expansion and explain how such emissions would have little impact on the nonattainment area. DAQEM believes this should be satisfactory to EPA. If EPA requests a formal modeling reanalysis, DAQEM would accommodate that request.

It is important to note, however, that EPA is scheduled to promulgate a new ozone standard in March 2008, and issue reclassifications of the current 8-hour ozone standard in 2009. DAQEM does not know at this time how those actions may impact the County's attainment demonstration. DAQEM staff is meeting with EPA Region 9 later this month to discuss these issues, but it is anticipated that only preliminary information will be obtained.

DAQEM is committed to working with the Air Force as is within the agency's means and within EPA direction. DAQEM will contact and coordinate with your staff if concerns arise.

Please contact me if you have any questions.

Sincerely,

Stephen Deyo

Stephen Deyo
Assistant Planning Manager, DAQEM

cc: Sheryl K. Parker, Langley AFB
Shimi Mathew, Nellis AFB
Dennis Ransel, DAQEM

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APPENDIX G

ENVIRONMENTAL CHECKLIST

ENVIRONMENTAL CHECKLIST

for Nellis Air Force Base Project Managers

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INSTRUCTIONS FOR USE

This environmental checklist is designed to assist project managers at Nellis Air Force Base (AFB) in ensuring compliance with all federal, state, and local environmental permitting and reporting requirements.

1. Complete each section.

The environmental checklist is divided into ten sections. Each section contains a flowchart of questions designed to identify projects or components of projects that may require environmental permits, notifications, or registrations. Answer all questions.

2. Use the terms and acronyms list.

Although this checklist has been designed to minimize the use of "enviro-speak," the user of this manual must have an understanding of certain key regulatory terms, which are defined in the glossary.

3. Talk to the experts.

The flow charts are intended to be used as a preliminary screening tool. If the screening process identifies a permit or regulatory requirement, the project manager should talk to the appropriate Nellis AFB Environmental Program Manager(s) who will assist in obtaining permit(s), implement reporting and/or testing requirements.

4. "I don't know" is not an acceptable answer.

If information is not provided in the AF 813, then the proponent and the environmental program managers need to get together and determine the data requirements necessary to definitively answer any questions.

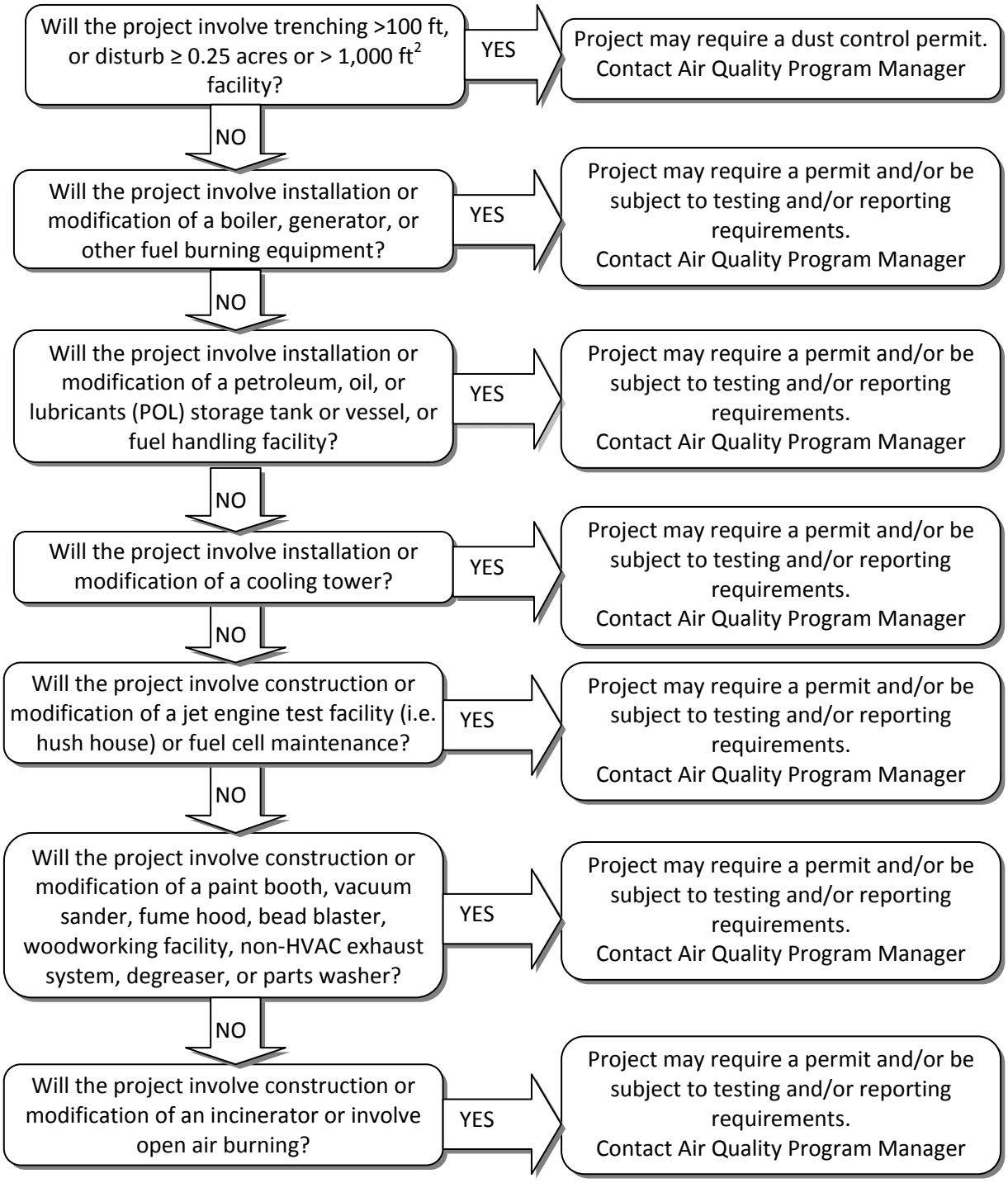
AIR QUALITY

99 CES/CEVC, 652-2548

Air emissions sources may be regulated based on the type of emission source, the type and/or quantity of pollutants being emitted, and the quality of air in the region where the emission source is located. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Air Quality Program Manager at 652-2548.

AIR QUALITY FLOW CHART

99 CES/CEVC, 652-2548



WATER QUALITY
99 CES/CEVC, 652-2072

Any process that discharges to sanitary or industrial wastewater systems, storm drains or involves a discharge that can flow into surface or leech into groundwater affects water quality. Additionally, any modification to the drinking water system could require state approval. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Water Quality Program Manager at 652-2072.

WATER QUALITY FLOW CHART
99 CES/CEVC, 652-2072

Industrial Wastewater Discharges

Will the project result in the discharge of any wastewaters from commercial or industrial processes to ground or surface waters?

YES → Permit CCSD-010 does not limit the amount of effluent that Nellis AFB can discharge. Contact CES/CEVC for more information

NO ↓

Will the project result in the discharge of commercial or industrial process wastewaters to a *treatment works*?

YES → The project may require an approval, a new permit from the *treatment works*, or the modification of an existing permit from the *treatment works*. Contact CES/CEVC or treatment works to determine the requirements

NO ↓

Industrial/commercial wastewater discharge permit/approval from a *treatment works* is <u>not</u> required

Sanitary Wastewater

Will the project result in the discharge of any sanitary wastewaters (e.g., wastewater from sinks, showers, toilets, etc)?

YES → A permit may be required (see below).

a) S*anitary wastewater* discharged to a *treatment works* may require modifying an existing permit or obtaining a new permit from the *treatment works.* Contact 99 CES/CEVC to determine requirements. See NAC 445A.254.
b) *Sanitary wastewater* discharged to a septic system that in turn discharges to surface waters may require a permit. Contact 99 CES/CEVC. See NAC 445A.230 and NAC 445A.266.
c) Sanitary wastewaters discharged directly to surface water may require a permit. Contact 99 CES/CEVC. See NAC 445A.230 and NAC 445A.266.
d) Discharges to a septic system that uses ground absorption may require a permit from the local county. Contact the base environmental office (99 CES/CEVC). See NAC 445A.228

Stormwater Discharges

Does the project involve clearing, grading, or excavation activities on a total land area greater than 1 acre?

YES → A stormwater permit or modification to an existing National Pollution Discharge Elimination System (NPDES) permit may be required. Contact the 99 CES/CEVC to determine requirements. See NAC 445A.230 and NAC 445A.266.

NO ↓

Does the project involve the *construction* or modification of any of the following types of facilities?

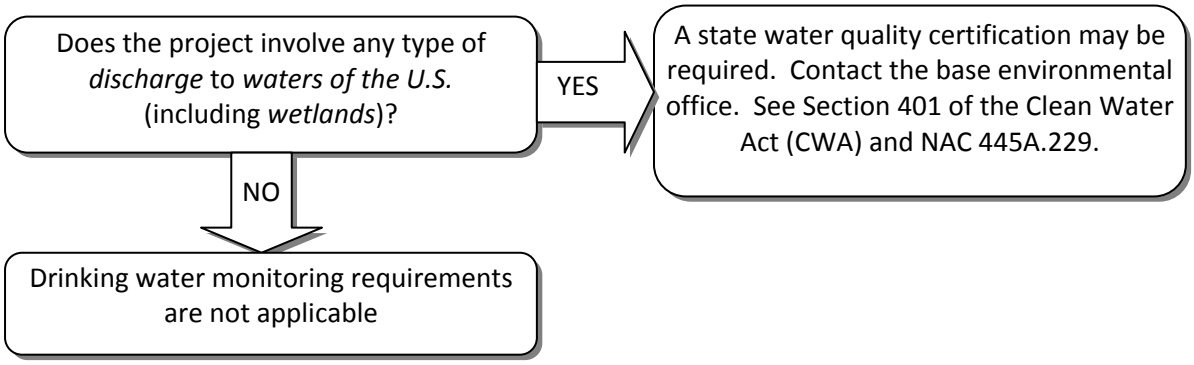
- Transportation facilities which have vehicle maintenance, equipment cleaning or deicing (airfield) operations.
- *Hazardous waste* treatment, storage, or disposal facilities.
- Landfills, land application sites, open dumps.
- Recycling facilities, including metal scrap yards, battery reclaimers, salvage and junk yards (does not include gas stations or repair shops that collect tires or batteries).
- Steam electric power generating facilities, including coal handling sites.
- Electroplating, metal finishing facilities.
- Facilities whose effluent is otherwise subject to NPDES effluent standards.
- General warehousing and storage facilities or activities in which *stormwater* actually contacts materials, products, *material handling equipment or activities* or other associated industrial equipment.

YES ↓

Will the project result in the discharge of *stormwater* through a pipe, culvert or ditch to *surface waters* or to a separate storm sewer system?

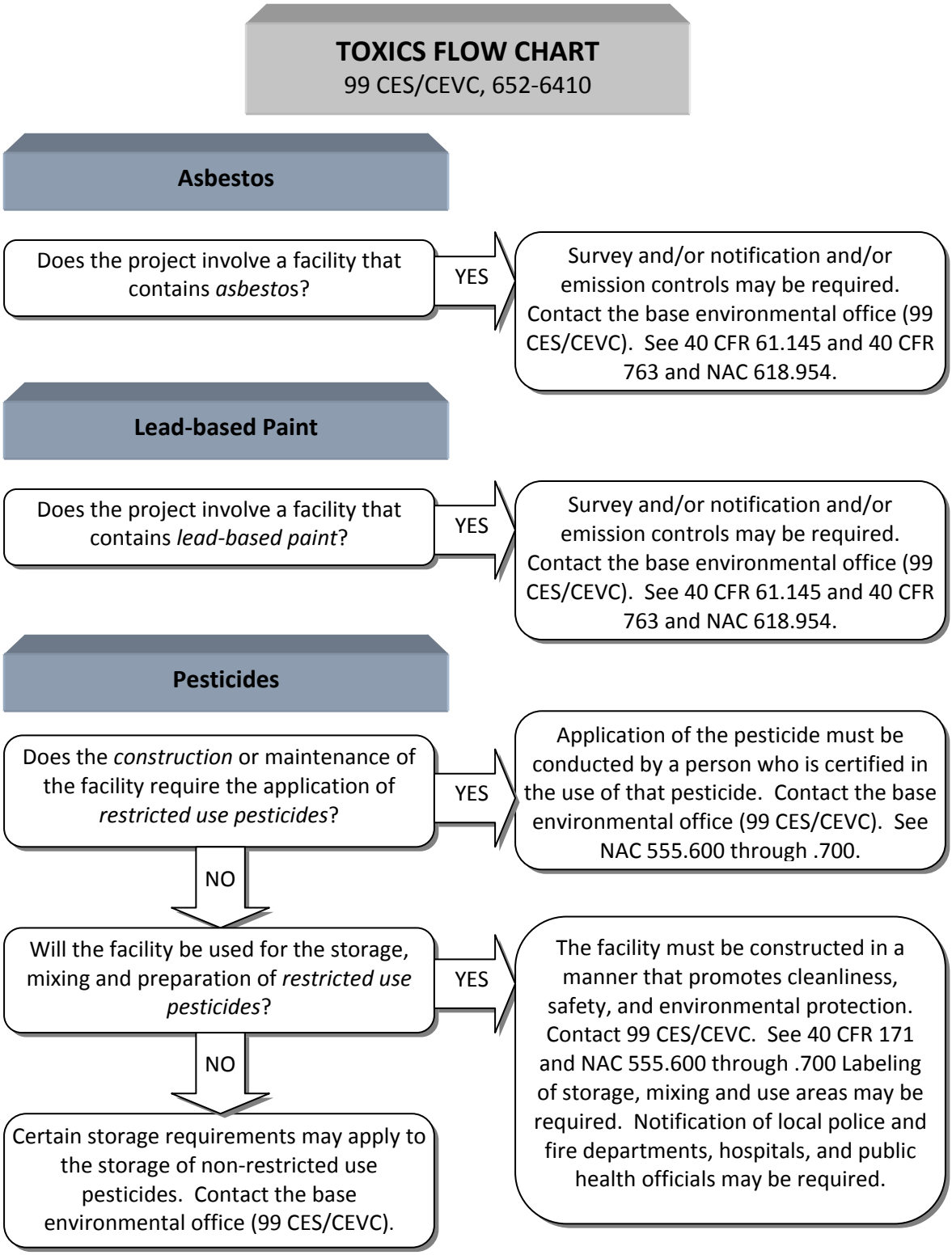
YES → A stormwater permit or modification to an existing NPDES permit may be required. Contact 99 CES/CEVC, the base environmental office. See NAC 445A.230 and NAC 445A.266.

Drinking Water



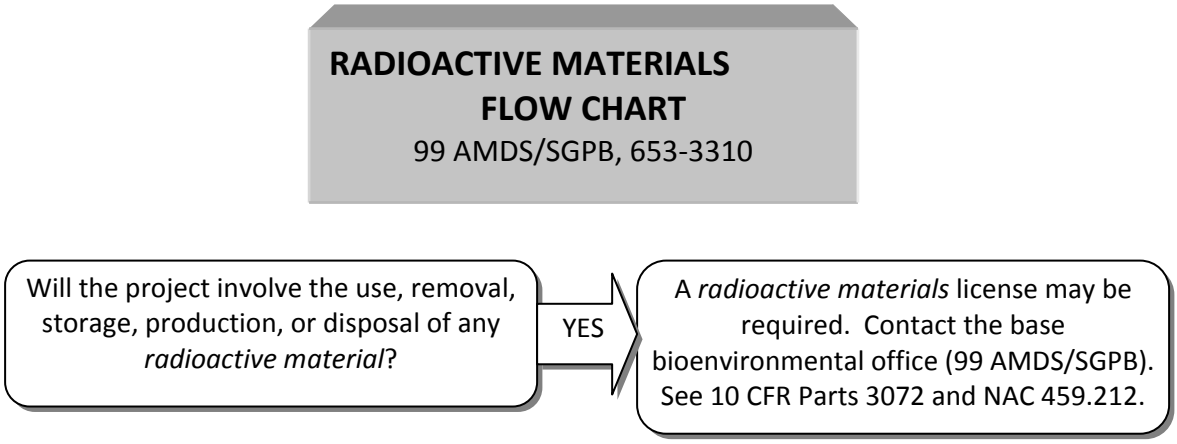
TOXICS
99 CES/CEVC, 652-6410

Activities involving disturbing, use, storage or disposal of asbestos, lead–based paint or pesticides require review by the toxics program manager. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Toxics Program Manager at 652-6410.



RADIOACTIVE MATERIALS/OCCUPATIONAL HEALTH
99 AMDS/SGPB, 653-3310

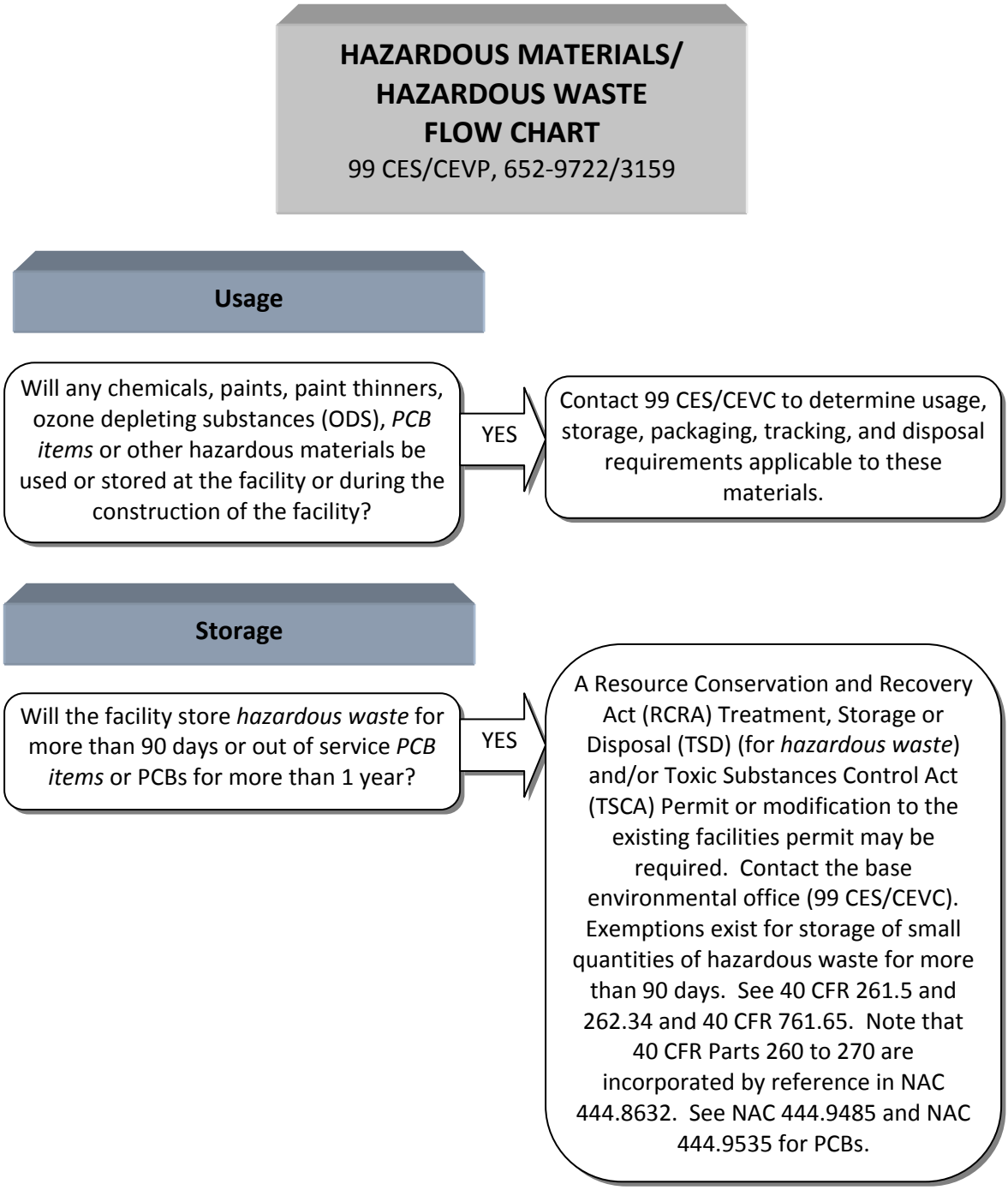
Activities involving disturbing, use, storage or disposal of radioactive materials require review by the Bioenvironmental Flight. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Bio-environmental Flight at 653-3310.



HAZARDOUS MATERIALS/ HAZARDOUS WASTE

99 CES/CEVC, 652-9722/99 CES/CEVP, 652-3159

Storage, use, treatment or disposal of hazardous materials and waste require prior approval. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB HAZMAT Program Manager (ODCs) at 652-9722 or the Nellis AFB RCRA Program Manager at 652-3159.



Treatment

Will the facility treat *hazardous wastes* other than in a *totally enclosed treatment facility* or in an *elementary neutralization unit* or in a unit permitted under the CWA (see Section 1)?

YES → A RCRA TSD, and/or a TSCA permit or a modification to the facility's existing permit may be required. Contact 99 CES/CEVC. See 40 CFR Parts 264 and 761 for design requirements. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 and NAC 444.9535 for PCBs.

Will the facility treat *PCB items*?

YES → A TSCA treatment plant permit may be required. Contact 99 CES/CEVC. See 40 CFR 761.70 and NAC 444.9485 and NAC 444.9535.

Disposal

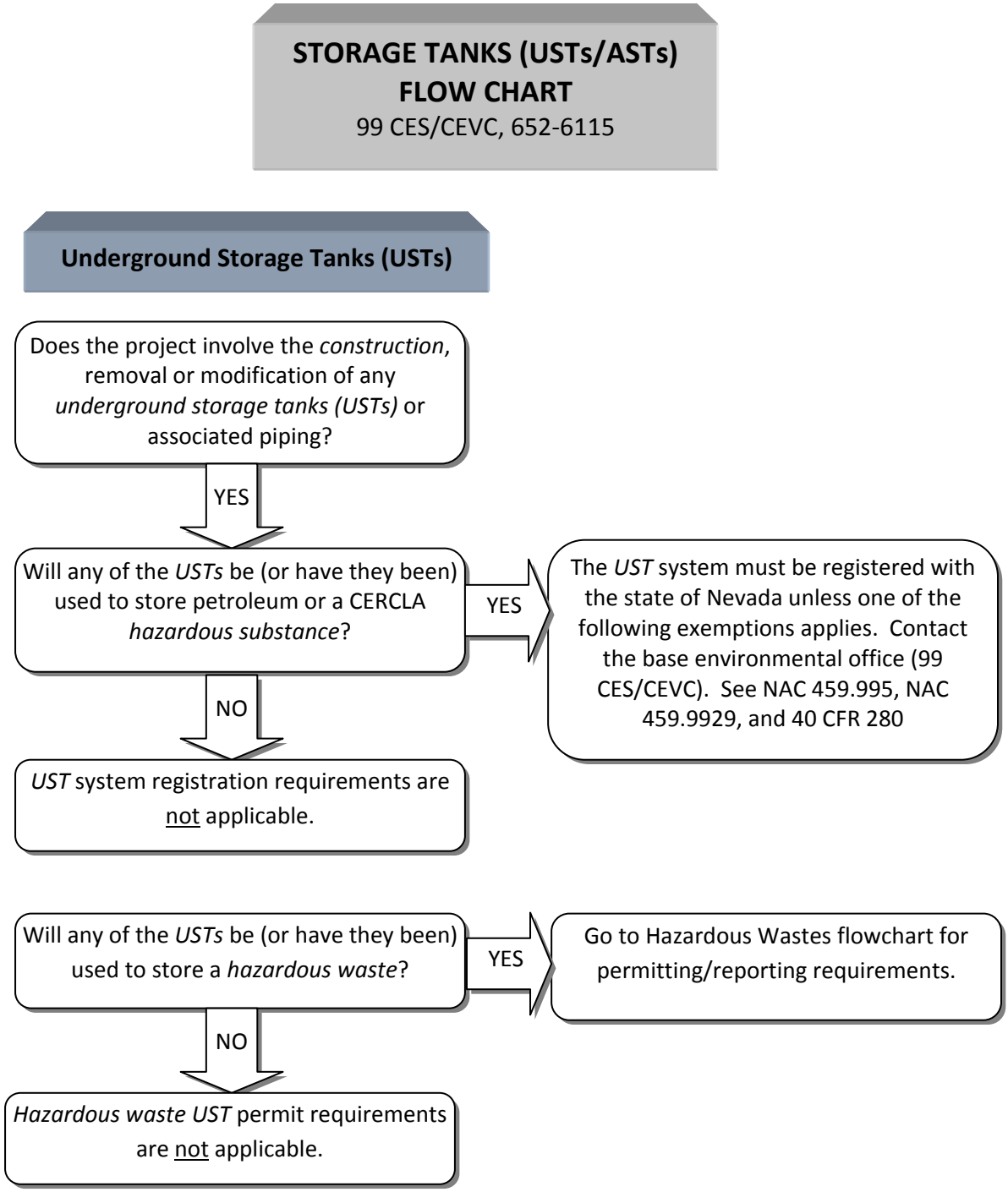
Will the facility be used for the *disposal* of *hazardous wastes* or *PCB items*?

YES → A RCRA TSD permit, or TSCA Permit, or a modification to the facilities existing permit may be required. Contact the base environmental office (99 CES/CEVC). See 40 CFR Parts 264 and 761 for design requirements. Note that 40 CFR Parts 260 to 270 are incorporated by reference in NAC 444.8632. See NAC 444.9485 for PCBs.

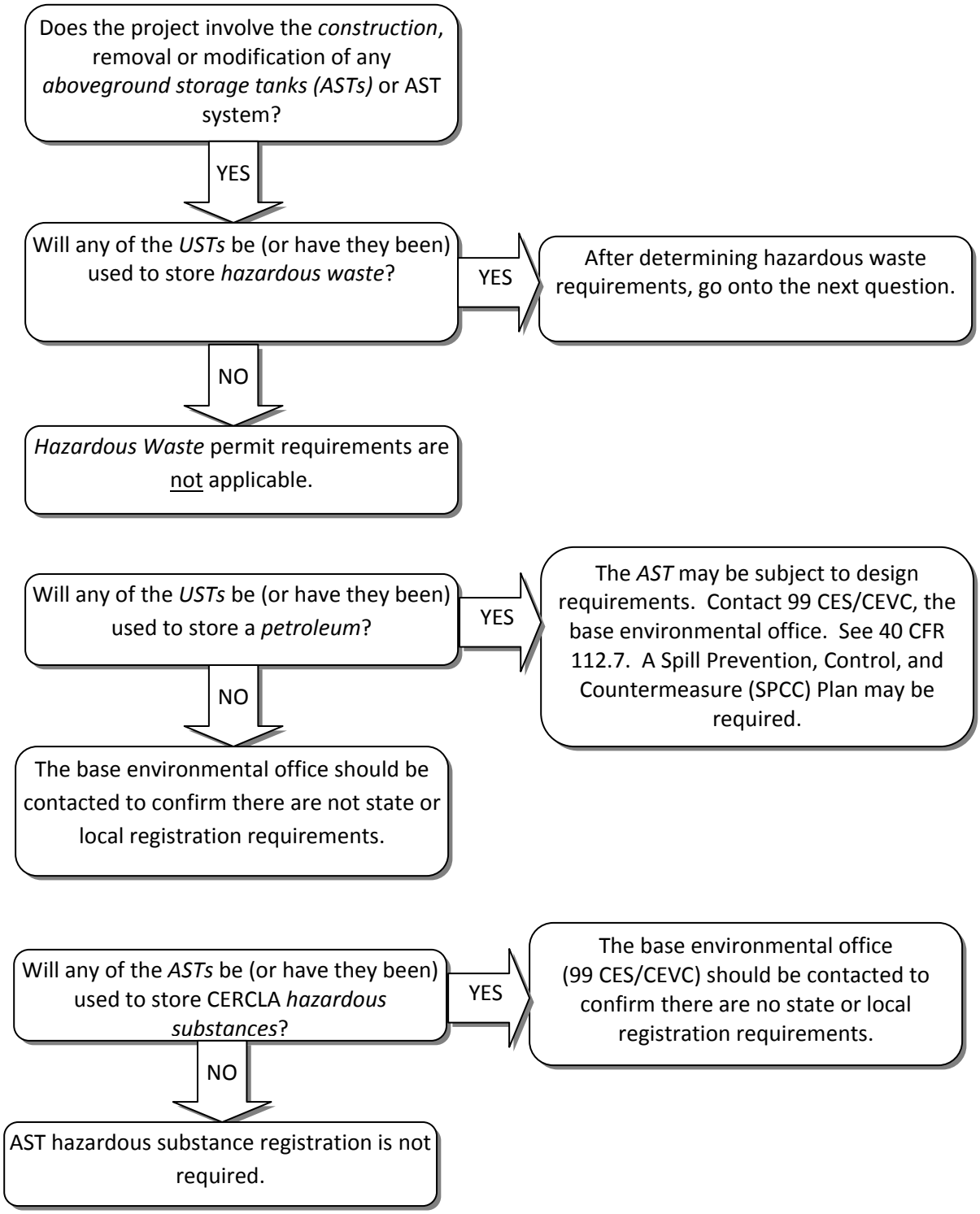
STORAGE TANK (ASTs and USTs)

99 CES/CEVC, 652-6115

Storage tanks used for fuel, heating oil or other fluids are required to meet certain stands and could require permitting. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB POL Program Manager at 652-6115.



Aboveground Storage Tanks (ASTs)



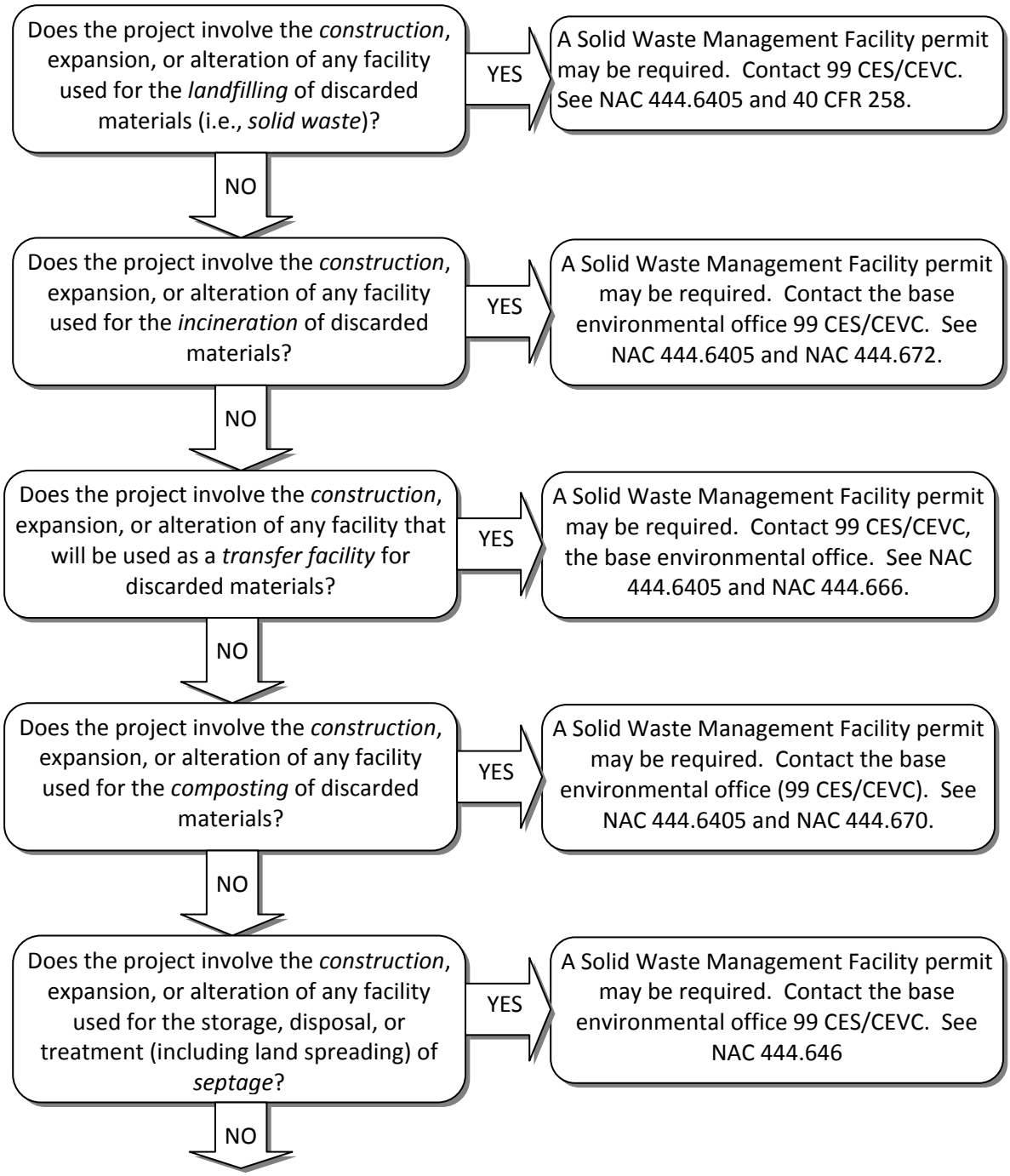
SOLID WASTE

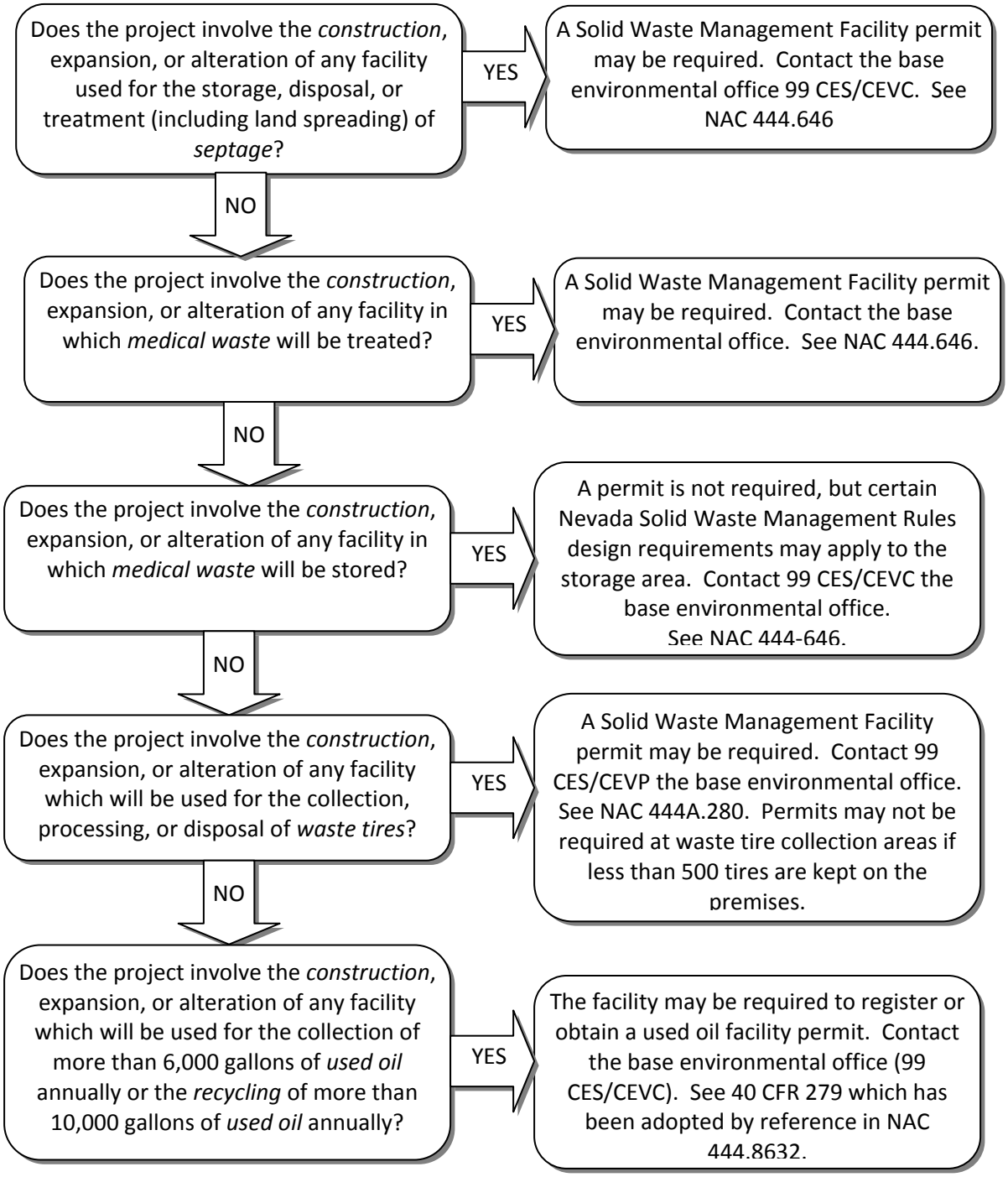
99 CES/CEVP, 652-6097

Waste generated by construction or other activities are required to be disposed of properly depending on the waste involved. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Solid Waste Program Manager at 652-6097.

SOLID WASTE FLOW CHART

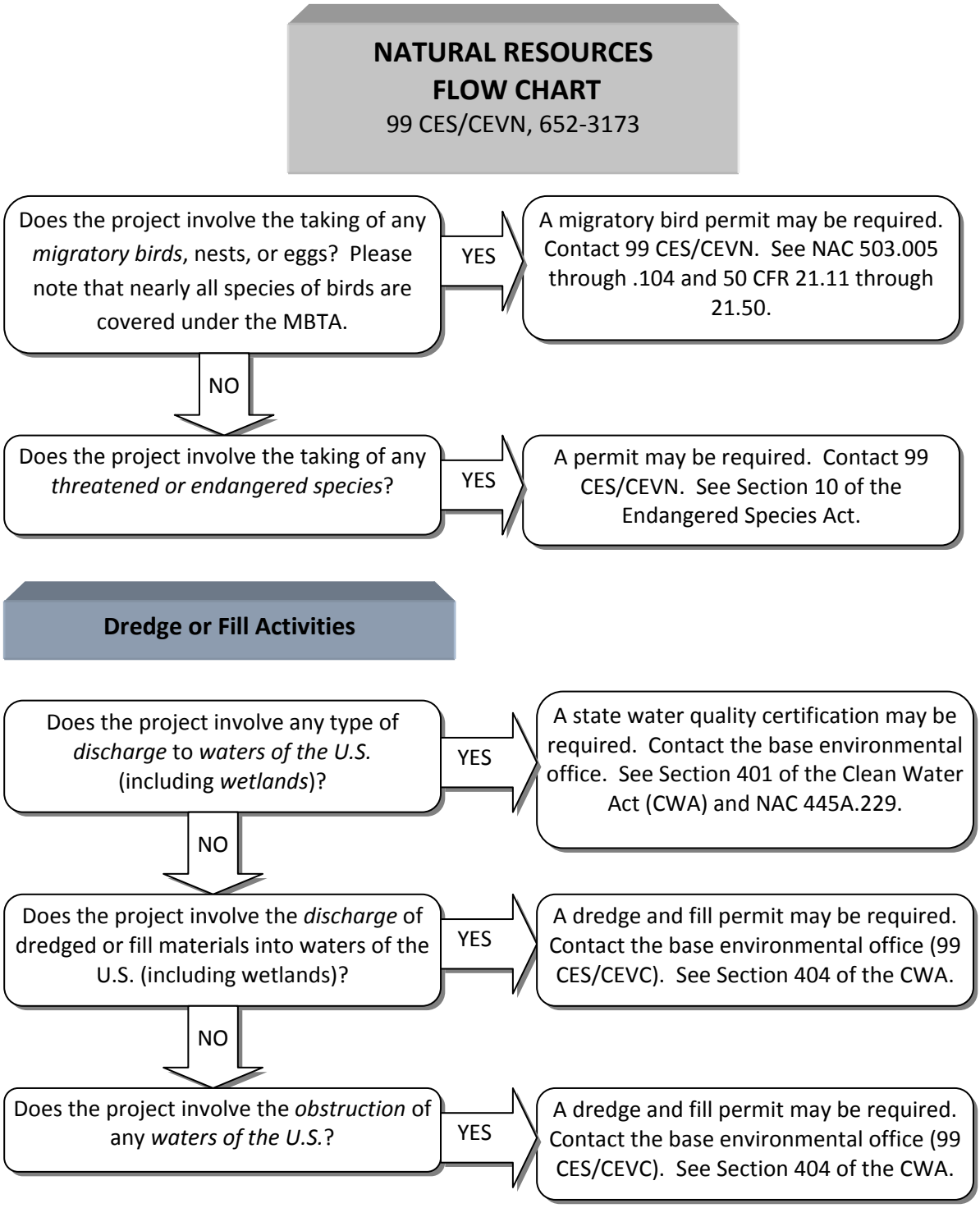
99 CES/CEVP, 652-6097




Does the project involve the *construction*, expansion, or alteration of any facility used for the storage, disposal, or treatment (including land spreading) of *septage*?
YES
A Solid Waste Management Facility permit may be required. Contact the base environmental office 99 CES/CEVC. See NAC 444.646
NO
Does the project involve the *construction*, expansion, or alteration of any facility in which *medical waste* will be treated?
YES
A Solid Waste Management Facility permit may be required. Contact the base environmental office. See NAC 444.646.
NO
Does the project involve the *construction*, expansion, or alteration of any facility in which *medical waste* will be stored?
YES
A permit is not required, but certain Nevada Solid Waste Management Rules design requirements may apply to the storage area. Contact 99 CES/CEVC the base environmental office.
See NAC 444-646.
NO
Does the project involve the *construction*, expansion, or alteration of any facility which will be used for the collection, processing, or disposal of *waste tires*?
YES
A Solid Waste Management Facility permit may be required. Contact 99 CES/CEVP the base environmental office. See NAC 444A.280. Permits may not be required at waste tire collection areas if less than 500 tires are kept on the premises.
NO
Does the project involve the *construction*, expansion, or alteration of any facility which will be used for the collection of more than 6,000 gallons of *used oil* annually or the *recycling* of more than 10,000 gallons of *used oil* annually?
YES
The facility may be required to register or obtain a used oil facility permit. Contact the base environmental office (99 CES/CEVC). See 40 CFR 279 which has been adopted by reference in NAC 444.8632.

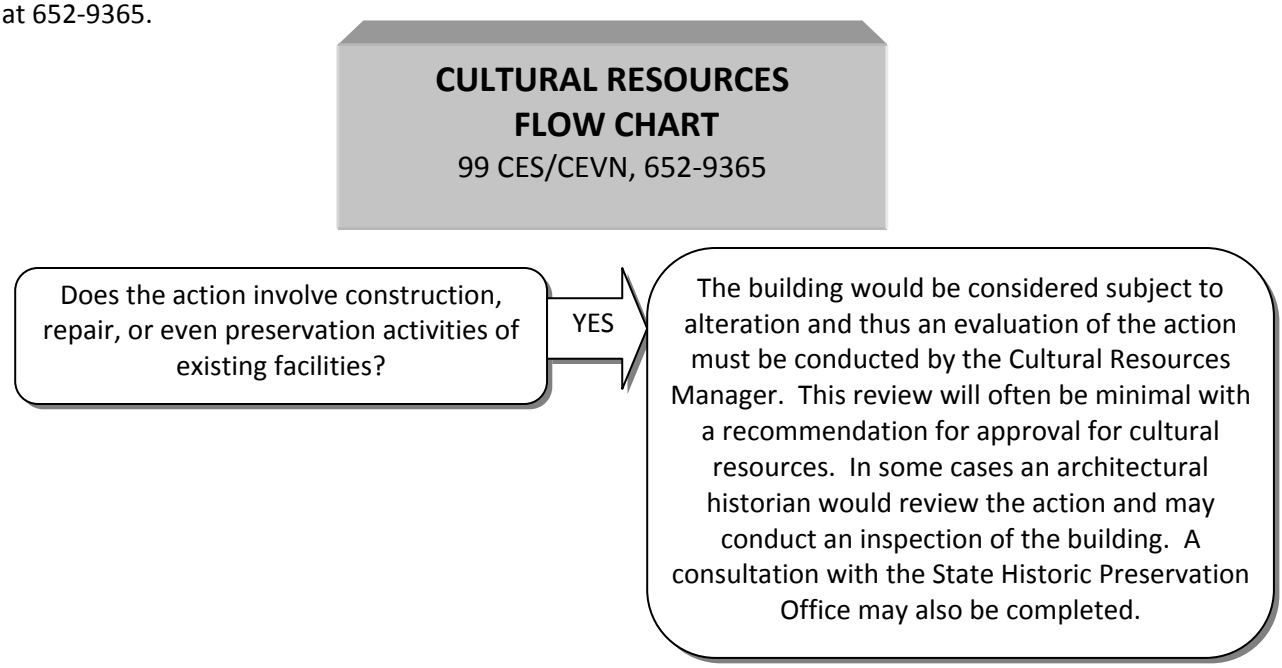
NATURAL RESOURCES
99 CES/CEVN, 652-3173

Any project that has the potential to impact wildlife, habitat, or potential wetlands may require permitting or other management activities. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Natural Resources Program Manager at 652-3173.



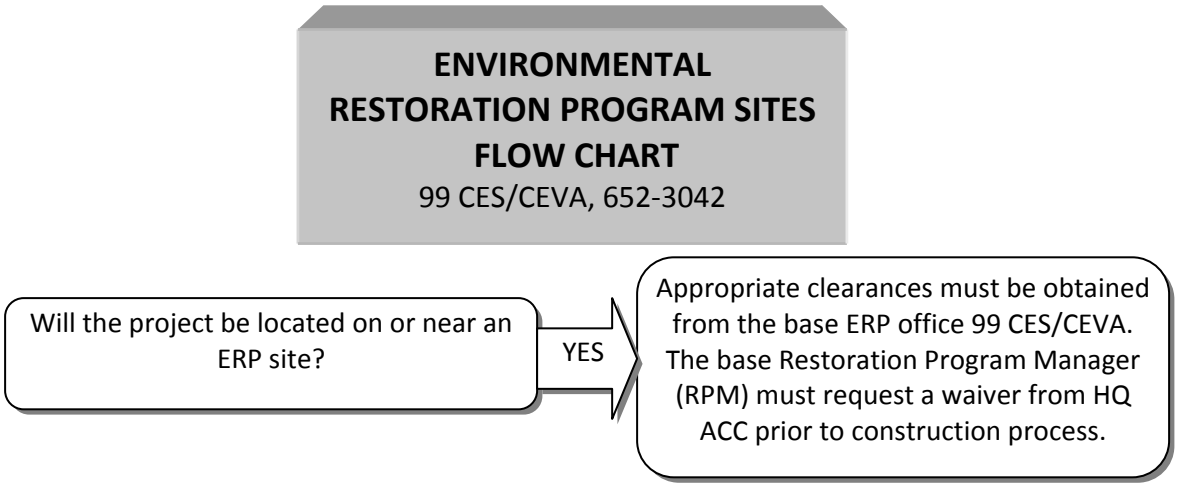
CULTURAL RESOURCES
99 CES/CEVN, 652-9365

Federal laws require the Air Force to take efforts to identify and evaluate significant archaeological and Native American sites, and traditional cultural properties within all Areas of Potential Effect. The surface of Nellis Air Force Base land within Las Vegas Valley has been inventoried for prehistoric and surface historic cultural resources with consultation with the State in 2001. One eligible or significant site is located in Area II. Buildings are dynamic sites that with age their cultural values may be increased. Building inventories for historic and Cold War era significance are conducted on a 5-7 year periodic basis. The last inventory was completed in 2007.The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB Cultural Resources Program Manager at 652-9365.



ENVIRONMENTAL RESTORATION PROGRAM SITES
99 CES/CEVA, 652-3042

Construction activities located on or near Environmental Restoration Sites could require HQ ACC and State approval. The flow chart in this section is designed to identify sources that could potentially require a permit, modification to an existing permit, or be subject to other regulatory requirements. In order to determine actual permitting requirements, contact the Nellis AFB ERP Program Manager at 652-3042.



TERMS AND ACRONYMS

Aboveground storage tank — a tank that is situated in such a way that the entire surface of the tank is above the plane of the ground and the entire surface area of the tank (including the bottom) can be visually inspected.

Air pollutant — an air pollution agent or combination of such agents, including any physical, chemical, biological, radioactive substance, or matter which is emitted into or otherwise enters the ambient air. The following is a list of federally regulated air pollutants:

(1) nitrogen oxides and volatile organic compounds;
(2) any air pollutants for which a national ambient air quality standard has been promulgated including PM-10, sulfur dioxide, carbon monoxide, and lead;
(3) any air pollutant or contaminant that is subject to any standard promulgated pursuant to Section III of the Clean Air Act including new source performance standards (NSPS) in 40 CFR part 60;
(4) any class I or II substance (ozone depleting) subject to a standard promulgated pursuant to Section 601(a) of the Clean Air Act (see Appendix B);
(5) any hazardous air pollutant identified in Section 112 of the Clean Air Act (see Appendix B).

Ambient air — that portion of the atmosphere outside of buildings and other enclosed structures, stacks or ducts, and which surrounds human, animal or plant life, or property.

Asbestos — substance comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14).

Asbestos Containing Materials (ACM) — any material or product which contains more than one percent asbestos.

Category 1 Nonfriable Asbestos Containing Material (ACM) — asbestos containing packing, gaskets, resilient floor coverings, and asphalt roofing products containing more than 1 percent asbestos.

Category 2 Nonfriable Asbestos — any material including Category 1 nonfriable ACM containing more than 1% asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure (40 CFR 61.141).

Characteristic hazardous waste — any waste that exhibits the following characteristics:

- a liquid with a flash point of less than 140° F (40 CFR 261.21).
- a liquid with a pH less than or equal to 2 or greater than or equal to 12.5 (40 CFR 261.22).
- it is normally unstable, reacts violently with water, or is readily capable of detonation (40 CFR 261.23).
- an extract from a representative sample of the waste contains a listed contaminant at levels exceeding a given concentration (40 CFR 261.24).

Composting — the controlled decomposition of organic waste by naturally occurring bacteria.

Construction — change in method of operation or any physical change, including on-site fabrication, erection, installation, replacement, demolition, or modification of a source, that results in a change in emissions or affects the compliance status.

Corrective action — abatement measures associated with a response to a release of a hazardous waste, a hazardous substance or petroleum product.

Demolition — the wrecking or cutting out of any load supporting structural member of a facility (40 CFR 61.141).

Discharge — includes, but is not limited to, spilling, leaking, pumping, pouring, emitting, emptying or dumping.

Discrete conveyance — includes, but is not limited to, any pipe, ditch, channel, conduit, well, discrete fissure, or landfill leachate collection system through which wastewater or stormwater can be collected and discharged.

Disposal — the discharge, deposit, injection, dumping, spilling, leaking or placing of waste into or on any land or water so that it may enter the environment.

Elementary neutralization unit — a tank or container used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic (40 CFR 260.10).

Fill — any materials used to replace an aquatic area with dry land or to change the bottom elevation of a waterway.

Fluid — any material or substance that flows or moves whether in a semi-solid, liquid, sludge, gas, or any other form or state.

Friable Asbestos Material — any material that contains more than 1% asbestos by weight and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141).

Fuel burning equipment — equipment whose primary purpose is the production of energy or power from the combustion of fuel. The equipment is generally used for, but not limited to, heating water, generating or circulating steam, heating air as in warm air furnace, or furnishing process heat by transferring energy by fluids or through process vessel walls.

Groundwater — water below the ground surface in a zone of saturation (40 CFR 144.3; 40 CFR 258.2).

Hazardous substance — any substance designated pursuant to Section 101(14) of CERCLA (including any substance regulated as a hazardous waste).

Hazardous waste — for a material to be classified as a hazardous waste it must be a *solid waste* and either exhibit a hazardous characteristic or be listed in 40 CFR 261.3 (40 CFR 261.10).

Incineration — process of burning solid waste.

Industrial wastewater — wastewater generated in a commercial or industrial process (40 CFR 503.9[n])

Landfilling — placement of waste in or on the ground.

Lead Based Paint (LBP) — lead was used as an ingredient in paint until 1978. It is highly toxic and poses a health threat, especially to children. Workers should avoid breathing dusts of fumes. Workers are covered under OSHA and contractors should comply with all requirements of 29 CFR 1926.62. Food and cosmetics should not be stored or used in work areas.

Marine mammal —any mammal that is morphologically adapted to the marine environment, or primarily inhabits the marine environment, including any part of any such marine mammal.

Material handling equipment or activities — include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product.

Medical waste — waste which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining to or in the production of testing of biologicals.

Migratory bird — any bird, including any part, nest, or egg of any such bird, designated as such in a treaty to which the United States is a party.

Obstruction — may include construction of a wharf, pier, breakwater or any other structure and the excavation, filling or any other alteration of a navigable water.

Open burning — any outdoor fire or outdoor smoke producing process from which air contaminants are emitted directly into the outdoor atmosphere.

Ozone depleting substances (ODS) — compounds that contribute to stratospheric ozone depletion. ODS include CFCs, HCFCs, halons, methyl bromide, carbon tetrachloride, and methyl chloroform. ODS are generally very stable in the troposphere and only degrade under intense ultraviolet light in the stratosphere. When they break down, they release chlorine or bromine atoms, which then deplete ozone.

PCB Item — an article, container, or equipment that deliberately or unintentionally contains or has in part of it any PCB or PCBs (40 CFR 761.3).

Polychlorinated Biphenyl (PCB) — a synthetic, organic chemical once widely used in electrical equipment, specialized hydraulic systems, heat transfer systems, and other industrial products. PCBs are highly toxic and a potent carcinogen. Any hazardous wastes that contain more than 50 parts per million of PCBs are subject to regulation under the Toxic Substances Control Act.

Pesticide — any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest, or intended for use as a plant regulator, defoliant.

Petroleum — petroleum, including crude oil or any fraction thereof that is liquid at standard temperature and pressure conditions.

Pretreatment — the reduction in the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants to a publicly owned treatment works (40 CFR 403.3[q]).

Process wastewater — any water that comes into direct contact with, or results from the production or use of, any raw material, intermediate product, finished product, or waste product during manufacturing or processing (40 CFR 401.44[q]).

Public water system — a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

Radioactive materials — any substance that emits radiation including alpha particles, beta particles, gamma rays, x-rays, neutrons, and other particles capable of producing ions. Radioactive materials that produce ionizing radiation are not covered in this manual (e.g. radio & microwaves).

Recycling — to prepare used oil for re-use as a petroleum product.
Regulated Asbestos Containing Material (RACM) — including friable asbestos material; category I nonfriable ACM that has become friable; Category I nonfriable ACM that has been subject to grinding, casting, cutting or abrading; and Category II nonfriable ACM that has a highly probability of becoming crumbled, crushed or pulverized (40 CFR 61.141).

Renovation — means the altering of a facility or facility component in any way, including the stripping or removal of RACM from a facility component.

Restricted use pesticides — See 40 CFR 171.2 for listing of Restricted Use Pesticides.

Runoff — rainwater, leachate, or other liquid that drains overland on any part of a ground surface and runs off of the ground surface (40 CFR 503.9[v]).

Sanitary wastewater — wastewater generated by toilets, sinks, and non-industrial/domestic activities; domestic sewage.

Scrap tires — tires that are no longer suitable for their original intended purpose because of wear or damage.

Septage — a fluid mixture of untreated and partially treated sewage solids, liquids, and sludge of human or domestic origin which is removed from a wastewater system.

Solid waste — any garbage refuse or sludge or other material that is either discarded or being accumulated, stored, or treated prior to being discarded or has served its original intended use and is generally discarded. Includes industrial and municipal wastes are examples of solid wastes. Solid waste does not include wastewater discharges regulated under the Clean Water Act or domestic sewage and sludges generated in sanitary sewage collection systems designed to discharge effluents to surface waters.

Source — any stationary article, machine, process equipment, or other contrivance, or combination thereof, or any tank-truck, trailer or railroad car from which air pollutants emanate or are emitted, either directly or indirectly.

Store — hold hazardous waste for a temporary period. Accumulation time is calculated from the time hazardous waste is first place in a container.

Stormwater — stormwater runoff, snow melt runoff, and surface runoff and drainage (40 CFR 122.26[b][13]).

Surface water — all water that is open to the atmosphere and subject to surface runoff (40 CFR 141.2).

Threatened or endangered species — any species that is in danger of extinction throughout all or a significant portion of its range (see 50 CFR 81.1).

Totally enclosed treatment facility — facility for treatment of hazardous waste which is directly connected to any industrial production process (40 CFR 260.10).

Transfer station/Transfer facility — permanent structure with mechanical equipment used for the collection or compaction of solid waste prior to transportation for final disposal.

Treatment — any method, technique or process, including neutralization, designed to change the physical, chemical or biological character of a hazardous waste (40 CFR 260.10).

Treatment works — either a federally owned, publicly owned, or privately owned device or system used to treat either sanitary wastewater or a combination of sanitary wastewater and industrial or process wastewater (including recycle and reclaim) (40 CFR 503.9[aa]).

Underground Storage Tank (UST) — any one or combination of tanks (including underground pipes) the volume of which is 10% or more beneath the surface of the ground.

Underground well injection — the subsurface placement of fluids through a bored, drilled, or driven shaft (well), or a dug well, where the depth of the dug well is greater than the largest surface dimension.

Used oil — any oil which has been refined from crude oil or synthetic oil and, as a result of use, storage or handling has become unsuitable for its original purpose but which may be suitable for further use.

Wastewater reservoir — a pond, lagoon, retention basin, or other surface impoundment that is used to receive industrial or process wastewater.

Waters of the U.S. — all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including:

- all waters which are subject to the ebb and flow of the tide;
- all interstate waters, including interstate wetlands (see definition);
- all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters used for recreation, commercial fishing, and industrial purposes; impoundments of waters otherwise defined as waters of the U.S. under this definition;
- tributaries of waters identified above;
- territorial seas; and
- wetlands adjacent to waters other than wetlands identified above (40 CFR 122.2).

Wetlands — those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 122.2).

ENVIRONMENTAL PERMIT SCREENING MODEL CHECKLIST

Base: _____

Project Name: _____

Project Number: _____

Project Location: _____

Date: _____

Name of Preparer: _____

	Potential Permit/Approval Requirements		Comments
	Y	N	
WATER (Section 1)			
Underground injection Well	☐	☐	
Industrial Wastewater	☐	☐	
Sanitary Wastewater	☐	☐	
Stormwater	☐	☐	
Dredge or Fill	☐	☐	
Drinking Water	☐	☐	
HAZARDOUS MATERIAL/HAZARDOUS WASTE/PCBs/ODSs (Section 2)			
Usage	☐	☐	
Tracking	☐	☐	
Storage	☐	☐	
Treatment	☐	☐	
Disposal	☐	☐	
SOLID WASTE (Section 3)			
Landfilling	☐	☐	
Incineration	☐	☐	
Transfer	☐	☐	
Composting	☐	☐	
Landspreading	☐	☐	
Medical Waste	☐	☐	
Scrap Tires	☐	☐	
Used Oil	☐	☐	

ENVIRONMENTAL PERMIT SCREENING MODEL CHECKLIST (con't)			
	Potential Permit/Approval Requirements		Comments
	Y	N	
AIR (Section 4)			
Boilers	☐	☐	
Incinerators	☐	☐	
Fuel Burning Equipment	☐	☐	
Miscellaneous Units	☐	☐	
Petroleum Storage	☐	☐	
Jet Engine Test Facilities	☐	☐	
Transportation Facilities	☐	☐	
STORAGE TANKS (Section 5)			
USTs	☐	☐	
ASTs	☐	☐	
PESTICIDES (Section 6)			
Application	☐	☐	
Use	☐	☐	
ASBESTOS (Section 7)			
Regulated Asbestos Containing Materials	☐	☐	
RADIOACTIVE MATERIALS (Section 8)			
Radioactive Materials	☐	☐	
WILDLIFE AND WILDLIFE HABITAT (Section 9)			
Migratory Birds	☐	☐	
Threatened or Endangered Species	☐	☐	
Marine Mammals	☐	☐	
INSTALLATION RESTORATION PROJECT (Section 10)			
Installation Restoration Project	☐	☐	

FEDERAL REGULATIONS CITED

CITATION	TITLE
10 CFR 30-72	Licensing of Radioactive Materials
29 CFR 1926	Safety and Health Regulations for Construction
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 112	Oil Pollution Prevention
40 CFR 122	National Pollutant Discharge Elimination System
40 CFR 141	National Primary Drinking Water Regulations
40 CFR 144	Underground Injection Control Program
40 CFR 145	State UIC Program Requirements
40 CFR 165	Pesticides
40 CFR 258	Criteria for Municipal Solid Waste Landfills
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Wastes
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities
40 CFR 279	Standards for the Management of Used Oil
40 CFR 280	Technical Standards and Corrective Action Requirements for Owners and Operators of USTs
40 CFR 401	General Provisions
40 CFR 403	General Pretreatment Regulations for Existing and New Sources of Pollution
40 CFR 413	Electroplating Point Source Category
40 CFR 433	Metal Finishing Point Source Category
40 CFR 459	Photographic Point Source Category
40 CFR 460	Hospital Point Source Category
40 CFR 503	Standards for the Use or Disposal of Sewage Sludge
40 CFR 761	PCB Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
40 CFR 763	Asbestos
50 CFR 21	Wildlife and Fisheries
50 CFR 81	Conservation of Endangered and Threatened Species of Fish, Wildlife, and Plants

FEDERAL LAWS CITED

Clean Water Act (CWA)	Section 401	Certification
Clean Water Act (CWA)	Section 404	Permits for Dredge and Fill Material
Rivers and Harbors Act of 1989	Section 10	Obstruction of Excavations and Filling in of Navigable Waters
Clean Air Act (CAA)	Title I	Air Pollution Prevention and Control
Clean Air Act (CAA)	Title VI	Stratospheric Ozone Protection
Endangered Species Act	Section 10	Exceptions
Marine Mammal Protection Act	Section 104	Permits

OTHER REGULATORY REFERENCES

County

Clark County Air Quality Regulations (includes regulations on NESHAP, Asbestos, boilers and steam generators, fuel burning equipment, and testing/monitoring

Construction Activities Dust Control Handbook, Clark County Department of Air Quality and Environmental Management

State

CITATION	TITLE
NAC 444	Sanitation
NAC 444A	Programs for recycling
NAC 445A	Water Controls
NAC 445B	Air Pollution
NAC 459	Hazardous Materials
NAC 555	Control of Insects, Pests, and Noxious Weeds
NAC 590	Petroleum Products and Antifreeze
NAC 503	Hunting, Fishing, and Trapping; Miscellaneous Protective Measures
NAC 618	Occupational Safety and Health