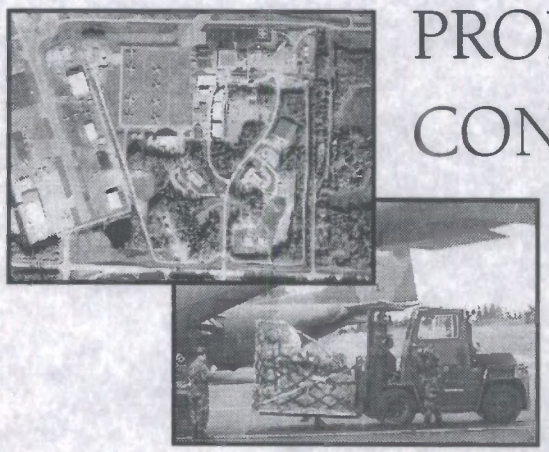
Final

ENVIRONMENTAL ASSESSMENT



PROPOSED SHORT-TERM CONSTRUCTION PROJECTS AT KULIS AIR NATIONAL GUARD BASE

Alaska Air National Guard
Anchorage, Alaska

September 2000

AIR NATIONAL GUARD
ENVIRONMENTAL DIVISION

Acronyms and Abbreviations

144 AS	144th Airlift Squadron
176 WG	176th Wing
210 RQS	210th Rescue Squadron
ACAM	Air Conformity and Applicability Model
ACM	asbestos-containing material
ADT	average daily traffic
AFB	Air Force Base
AFI	Air Force Instruction
AGE	aerospace ground equipment
AGL	above ground level
AIA	Anchorage International Airport
AKANG	Alaska Air National Guard
AMP	Asbestos Management Plan
ANG	Air National Guard
ANGB	Air National Guard Base
AOP	Asbestos Operating Plan
AQCR	Air Quality Control Region
AST	above-ground storage tank
BASH	Bird-Aircraft Strike Hazard
BIA	Bureau of Indian Affairs
BMPs	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DoD	Department of Defense
EA	environmental assessment
EIS	environmental impact statement
EO	Executive Order
ERP	Environmental Restoration Program
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FICON	Federal Interagency Committee on Noise
FOD	foreign object damage
FONSI	Finding of No Significant Impact
GOV	government-owned vehicle
HUD	U.S. Department of Housing and Urban Development
HWAS	Hazardous Waste Accumulation Site
Hz	hertz
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
L_{dn}	day-night average sound level
LOS	level of service
LOX	liquid oxygen
mg/m^3	milligrams per cubic meter
MoA	Municipality of Anchorage
MRSP	Mobility Readiness Spares Package
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
O_3	ozone
OWS	oil-water separator
Pb	lead
PM_{10}	particulate matter < 10 microns in diameter
POL	petroleum, oil and lubricants
POV	privately-owned vehicle
ppm	parts per million
PSD	Prevention of Significant Deterioration
QD	quantity-distance
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
RPZ	Runway Protection Zone
SAP	Satellite Accumulation Point
SEL	sound exposure level
SF	square feet
SIP	State Implementation Plan
SO_2	sulfur dioxide
$\mu g/m^3$	micrograms per cubic meter
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UTA	unit training assembly
VOC	volatile organic compound

FINDING OF NO SIGNIFICANT IMPACT
PROPOSED SHORT-TERM CONSTRUCTION PROJECTS
KULIS AIR NATIONAL GUARD BASE
ANCHORAGE, ALASKA

1.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action

This environmental assessment (EA) evaluates potential environmental impacts associated with proposed short-term construction projects at Kulis Air National Guard Base (ANGB). The purpose of the proposed action is to implement eleven short-term construction projects that are critical for maintaining efficient base operations and enhancing the orderly development of Kulis ANGB. These projects are needed to consolidate common or compatible organizational and facility uses to maximize land use compatibility and facility efficiency. Implementation of the proposed action would help accomplish this by providing enhanced development, thereby reducing existing facility utilization inefficiencies and circulation problems at Kulis ANGB.

The primary goal of the proposed short-term construction projects at Kulis ANGB is to improve the unit's mission capabilities and readiness in order to support airlift, rescue, and training requirements. In order to meet these requirements, eleven construction projects, including the expansion of the existing apron/taxiway and the demolition of four facilities would be implemented and completed within the next 5 years. Proposed demolition is necessary in order to replace outdated facilities or to facilitate new construction. New facilities would be located in areas more compatible from a land-use efficiency perspective. Basic facility components of the proposed action are listed in order of priority in Table 1.

Table 1 Proposed Short-Term Construction Projects at Kulis ANGB

Facility	Description
Composite Support Complex	Construct Composite Support Facility Building, convert Building 22 to Dining Facility use only, and demolish Buildings 1003 and 1004 and parking sheds 10 and 11.
Mobility Storage Warehouse	Construct 7,200-square foot (SF) addition to Building 23 for storage of Mobility Readiness Spares Packages (MRSPs).
Aircraft Corrosion Control Facility	Construct 33,900-SF Corrosion Control Facility to include hangar and shop areas. New construction would require relocation of Engine Test Stand to the northeast corner of the base.
Apron/Taxiway Addition	Asphalt concrete paving addition (approximately 252,000 SF) on north and west sides of existing parking apron.
Pararescue Training Complex	Construct 25,900-SF complex for storing pararescue vehicles, clothing, and equipment.
Hazardous Materials Pharmacy	Construct 1,700-SF facility as central distribution point for hazardous materials.
Relocate Main Gate/Guard House	Relocate Gate/Guard House 300 feet north of its current location into Kulis ANGB.
Squadron Operations Facility	Construct 18,200-SF facility. The facility would be constructed to be consistent with the existing Squadron Operations Facility.
Survival Equipment Addition	Construct 5,000-SF addition to Building 21.
Flightline Maintenance Facility	Replace the existing facility with the construction of a new 12,000 SF facility.
Engine Shop Addition	Construct a 1,300-SF addition to the existing Engine Shop (Building 1).

Alternatives

Engine Test Stand Siting Alternative

Under the Engine Test Stand Siting Alternative, the construction of the Aircraft Corrosion Control Facility would still occur; however, the existing Engine Test Stand would be relocated approximately 300 feet south of its current location. All other proposed activities as described for the proposed action would be the same under this alternative.

No-Action Alternative

Under the No-Action Alternative, proposed facility construction and facility demolition or modifications would not be implemented. If no new construction or facilities modification projects are implemented at Kulis ANGB, current operational inefficiencies would remain, and the unit's ability to accomplish its mission in an effective manner would be limited. Nonetheless, Council of Environmental Quality (CEQ) regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that may occur if the proposed action is not implemented.

2.0 ANTICIPATED ENVIRONMENTAL EFFECTS

Air Quality

Implementation of the proposed action would result in minor and temporary increases in criteria pollutant emissions associated with proposed construction activities. However, no long-term increase in criteria pollutant emissions would occur. Fugitive dust emissions (particulate matter less than 10 microns in diameter [PM_{10}]) would be reduced by employing dust minimization practices. Emissions from construction vehicles would be temporary and minor, as the majority of vehicles would be kept at the project site for the duration of construction activities. The proposed action would not lead to a violation of the National Ambient Air Quality Standards (NAAQS) and would not violate the *de minimis* threshold for carbon monoxide (CO) emissions. Therefore, no significant impacts to air quality would occur.

Noise

Proposed construction activities would result in temporary and minor increases to the noise environment at Kulis ANGB. The use of heavy equipment during construction would generate noise levels above typical ambient levels at the proposed construction sites. However, the noise generated would be typical of construction activities, would be short-term, and would be restricted to normal working hours. In addition, the noise environment at Kulis ANGB would continue to be dominated by aircraft operations associated with the base and Anchorage International Airport (AIA). Under the proposed action, the existing Engine Test Stand would be relocated to the northeast corner of Kulis ANGB, an overall louder noise environment. In addition, the Engine Test Stand would be oriented to minimize noise impacts and noise-reducing berms and walls would be constructed to further reduce off-base noise impacts. The construction of the Engine Test Stand at either the proposed or alternative sites would only occur if acoustic protection is designed and subsequently incorporated into the facility. Therefore, no significant impacts to noise would occur.

Land Use

Implementation of the proposed action at Kulis ANGB would result in beneficial impacts to land use. Specifically, implementation of the proposed action would consolidate similar land uses and improve 176th Wing (176 WG) efficiency. Proposed facility construction and modifications would be similar to existing infrastructure at Kulis ANGB. Currently, there are no known AIA facility improvements or construction projects proposed that would disrupt the proposed action. AIA is currently in the process of updating their Master Plan, which will include future facility and circulation improvements. One of the proposed projects in the Master Plan Update may include the development of an east-west taxiway. If AIA were to approve and initiate this project, implementation of the apron/taxiway addition associated with the proposed action at Kulis ANGB may require modification to be compatible with AIA improvements. All other proposed construction projects would be contained within the boundaries of Kulis ANGB. Therefore, no significant impacts to land use would occur.

Geological Resources

Implementation of the proposed action at Kulis ANGB would result in temporary and minor impacts to geological resources from ground-disturbing activities. Specifically, demolition and construction activities would disturb surface and sub-surface soils. However, most construction projects would occur on previously disturbed land. In addition, implementation of Best Management Practices (BMPs) during construction activities would minimize impacts to geological resources. Erosion control measures would also be initiated to further reduce potential impacts. Therefore, no significant impacts to geological resources would occur as a result of implementation of the proposed action.

Water Resources

Implementation of the proposed action at Kulis ANGB would result in localized and minor effects to surface and sub-surface water resources. However, BMPs would be employed to minimize erosion, runoff, and sedimentation. Upon completion of construction, long-term impacts to water resources at Kulis ANGB would be negligible. Kulis ANGB is not located within an identified 100-year floodplain zone; implementation of the proposed action would not result in an increased risk of flooding potential. Therefore, no significant impacts to water resources would occur.

Biological Resources

Implementation of the proposed action at Kulis ANGB would result in the removal of some native vegetation. However, due to the lack of threatened, endangered, or sensitive species or critical habitat at Kulis ANGB, proposed construction activities would not impact threatened and endangered species or their habitat. No wetland areas would be affected by the proposed action. Therefore, no significant impacts to biological resources would occur.

Transportation and Circulation

Implementation of the proposed action at Kulis ANGB would result in a minor increase in average daily traffic volumes within the vicinity of Kulis ANGB during construction activities. However, construction-related traffic would constitute a small percentage of traffic in the region and many vehicles would remain on site for the duration of construction activities. No long-term increase in traffic would occur as a result of implementation of the proposed action. In addition, aircraft and vehicle transportation, circulation, and

parking infrastructure at Kulis ANGB would improve as a result of implementation of the proposed action. Therefore, no significant impacts to transportation and circulation would occur.

Visual Resources

Implementation of the proposed action at Kulis ANGB would result in the construction of facilities that would be consistent with existing structures on the installation. The visual environment of Kulis ANGB is characteristic of a military airfield and visual sensitivity is low; therefore, implementation of the proposed action would not impact the existing visual environment. In addition, the proposed action would not infringe upon any existing viewsheds. Therefore, no significant impacts to visual resources would occur.

Cultural Resources

There are no listed National Register of Historic Places (NRHP) sites on Kulis ANGB or adjoining properties that would be effected by the proposed action. Although no surveys have been performed, current literature research does not indicate that any properties at Kulis ANGB are considered eligible for NRHP listing. While the State Historic Preservation Officer (SHPO) has been provided a listing of the projects and has not responded in writing within the prescribed time period, it is anticipated that no issues will arise that would prevent these actions from going forward. If additional information is required by the SHPO, the unit will provide the necessary information upon written request. The majority of proposed construction associated with the proposed action is located on previously developed areas on Kulis ANGB. While these areas have been previously disturbed and have a low probability of containing buried archaeological resources, evidence of such resources could be uncovered during ground-disturbing activities. In the event such resources were uncovered during the course of the project development, construction would be suspended until the SHPO has been contacted, and until a qualified archaeologist could determine the significance of the encountered resources(s).

Executive Order (EO) 13084, *Consultation and Coordination with Indian Tribal Governments*, mandates that Native American tribal governments be provided meaningful and timely input in regards to the development of regulatory policies on matters that significantly or uniquely affect their communities. EO 13007, *Indian Sacred Sites,* requires all Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites. However, as there have been no resources or issues of interest to Native Americans identified that would be affected by the proposed action at Kulis ANGB, potential traditional or sacred resources of interest to Native Americans would not be affected. Therefore, no significant impacts to cultural resources would occur.

Socioeconomics and Environmental Justice

Implementation of the proposed action at Kulis ANGB would result in minor short-term economic benefits to the local economy associated with construction activities. However, these beneficial impacts would be negligible on a regional scale. No long-term changes or impacts in local or regional economic activity are expected with implementation of the proposed action.

In order to comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, regional demographic characteristics were assessed. However, as the proposed action would be contained within the boundaries of Kulis ANGB and no significant impacts would occur, no

populations (minority, low-income or otherwise), would be disproportionately impacted. In addition, implementation of the proposed action would not result in environmental health risks or safety risks to children, as children would not be affected by the proposed action. Therefore, no significant impacts to socioeconomics resources would occur.

Hazardous Materials and Wastes

Implementation of the proposed action at Kulis ANGB would not result in an increase in the amount of hazardous materials used or the generation of hazardous wastes. Conversely, proposed construction of the Aircraft Corrosion Control Operations and Hazardous Materials Pharmacy facilities would result in an overall improvement in the handling of hazardous materials and wastes and could potentially decrease the total amount of hazardous materials used and hazardous wastes generated. In addition, hazardous materials and wastes associated with 176 WG operations at Kulis ANGB would continue to be handled in accordance with the Kulis ANGB *Hazardous Waste Management Plan*. Should any asbestos containing materials (ACMs) be discovered during proposed demolition activities, all applicable Air National Guard (ANG), state, and federal regulations concerning removal of ACMs would be adhered to. Therefore, no significant impacts to hazardous materials and wastes would occur.

Safety

Implementation of the proposed action at Kulis ANGB would not result in changes to the frequency, type, and location of aircraft operations performed by the 176 WG. Subsequently, no increase in aircraft mishap rates, or Bird-Aircraft Strike Hazard (BASH) potential would occur. In addition, the construction of the proposed taxiway/apron addition would allow 176 WG aircraft to maneuver in accordance with Federal Aviation Agency (FAA) mandated wing tip clearance regulations.

The Pararescue Training Complex would provide a secure and classified storage for arms, ammunition, flares, and classified military equipment. In addition, the Hazardous Materials Pharmacy would serve as a central distribution point for the collection and distribution of hazardous materials, ensuring that hazardous materials at Kulis ANGB are stored properly, thereby minimizing the risk of explosion or fire. In addition, no incompatible land use activities at the base currently occur or are proposed to be established within the established quantity distance arcs. Therefore, no significant impacts to safety would occur as a result of implementation of the proposed action.

3.0 FINDING OF NO SIGNIFICANT IMPACT (FONSI)

After careful review of the EA prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), CEQ regulations, and Air Force Instruction 32-7061, I have determined that the proposed action would not have significant adverse impacts on the natural and human environment; therefore, an Environmental Impact Statement does not need to be prepared.

VAN P. WILLIAMS JR., Colonel, AKANG
Commander, 176th Wing
EPC Chairman

EXECUTIVE SUMMARY

The Alaska Air National Guard (AKANG) has initiated a planning program at Kulis Air National Guard Base (ANGB) to enhance the efficiency of base operations and modernize facilities in support of 176th Wing (176 WG) mission requirements. To satisfy the requirements of the planning program, several short-term construction projects have been proposed for Kulis ANGB.

This environmental assessment (EA) evaluates the significance of potential environmental and human resource impacts associated with implementation of the proposed action or No-Action Alternative at Kulis ANGB, located at Anchorage International Airport (AIA), near downtown Anchorage, Alaska. This EA describes existing conditions and potential impacts on environmental resources at the base and within its region of influence (ROI).

Implementation of the proposed action would result in enhanced efficiency of 176 WG operations, as well as facilitate the future development of Kulis ANGB. In addition, proposed construction projects at Kulis ANGB would consolidate common organizational and facility uses, thereby reducing existing facility utilization inefficiencies and aircraft and vehicular circulation problems.

Proposed construction projects have been sited to minimize potential environmental and human resource impacts and have also been located in accordance with established land use plans and policies, including those specific to airfield safety. In addition, the majority of proposed construction activities would occur on previously disturbed or developed lands.

Impacts resulting from proposed construction activities would be temporary and minor; no long-term impacts would result from implementation of the proposed action at Kulis ANGB. Direct and indirect impacts associated with the proposed action and No-Action Alternative at Kulis ANGB were determined to not be significant for all resource areas.

[This page intentionally left blank]

FINAL
ENVIRONMENTAL ASSESSMENT FOR PROPOSED SHORT-TERM CONSTRUCTION PROJECTS AT KULIS AIR NATIONAL GUARD BASE

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS ..... INSIDE COVER

EXECUTIVE SUMMARY ES-1

SECTION 1 PURPOSE AND NEED FOR THE PROPOSED ACTION 1-1

1.1 INTRODUCTION 1-1

1.2 PURPOSE AND NEED 1-1

1.3 BACKGROUND 1-1
1.3.1 Location 1-1
1.3.1.1 History 1-4
1.3.2 Current 176 WG Operations 1-4
1.3.2.1 Mission 1-4
1.3.2.2 Personnel 1-4

1.4 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS 1-4
1.4.1 National Environmental Policy Act 1-4
1.4.2 Interagency and Intergovernmental Coordination for Environmental Planning 1-5
1.4.3 Air Conformity Requirements 1-5

SECTION 2 PROPOSED ACTION AND ALTERNATIVES 2-1

2.1 OVERVIEW 2-1
2.1.1 Proposed Action 2-1

2.2 ALTERNATIVES 2-6
2.2.1 Engine Test Stand Siting Alternative 2-7
2.2.2 No-Action Alternative 2-7

SECTION 3 AFFECTED ENVIRONMENT 3-1

3.1 AIR QUALITY 3-1
3.1.1 Definition of Resource 3-1
3.1.1.1 Criteria Pollutants 3-2
3.1.1.2 Clean Air Act Amendments 3-3
3.1.2 Existing Conditions 3-4
3.1.2.1 Climate 3-4
3.1.2.2 Regional Setting 3-4
3.1.2.3 Emissions at Kulis ANGB 3-5

3.2 NOISE 3-6
3.2.1 Definition of Resource 3-6
3.2.2 Existing Conditions 3-9

3.2.2.1 Aircraft Activity 3-9
3.2.2.2 Ground-Based Activity 3-9

3.3 LAND USE 3-14
3.3.1 Definition of Resource 3-14
3.3.2 Existing Conditions 3-14
3.3.2.1 Regional Land Use 3-14
3.3.2.2 Kulis ANGB 3-14

3.4 GEOLOGICAL RESOURCES 3-18
3.4.1 Definition of Resource 3-18
3.4.2 Existing Conditions 3-18
3.4.2.1 Regional Setting 3-18
3.4.2.2 Kulis ANGB 3-19

3.5 WATER RESOURCES 3-20
3.5.1 Definition of Resource 3-20
3.5.2 Existing Conditions 3-20
3.5.2.1 Regional Conditions 3-20
3.5.2.2 Kulis ANGB 3-21

3.6 BIOLOGICAL RESOURCES 3-23
3.6.1 Definition of Resource 3-23
3.6.2 Existing Conditions 3-23
3.6.2.1 Regional Conditions 3-23
3.6.2.2 Kulis ANGB 3-24

3.7 TRANSPORTATION AND CIRCULATION 3-27
3.7.1 Definition of Resource 3-27
3.7.2 Existing Conditions 3-27
3.7.2.1 Regional and Local Circulation 3-27
3.7.2.2 Kulis ANGB 3-27

3.8 VISUAL RESOURCES 3-30
3.8.1 Definition of Resource 3-30
3.8.2 Existing Conditions 3-30
3.8.2.1 Regional Visual Character 3-30
3.8.2.2 Kulis ANGB 3-30

3.9 CULTURAL RESOURCES 3-31
3.9.1 Definition of Resource 3-31
3.9.2 Historical Context 3-32
3.9.3 Existing Conditions 3-33
3.9.3.1 Regional History 3-33
3.9.3.2 Kulis ANGB 3-33

3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE 3-35
3.10.1 Definition of Resource 3-35
3.10.2 Existing Conditions 3-35
3.10.2.1 Population 3-35
3.10.2.2 Job Growth and Unemployment 3-36

3.10.3 Environmental Justice 3-38
3.10.3.1 Race, Ethnicity, and Poverty Status 3-39
3.10.4 Protection of Children 3-40

3.11 HAZARDOUS MATERIALS AND WASTES 3-41
3.11.1 Definition of Resource 3-41
3.11.2 Existing Conditions 3-41
3.11.2.1 Hazardous Materials and Wastes Storage 3-41
3.11.2.2 Environmental Restoration Program 3-42
3.11.2.3 Asbestos 3-44

3.12 SAFETY 3-45
3.12.1 Definition of Resource 3-45
3.12.2 Existing Conditions 3-45
3.12.2.1 Bird-Aircraft Strike Hazard 3-45
3.12.2.2 Explosives Safety 3-45

SECTION 4 ENVIRONMENTAL CONSEQUENCES 4-1

4.1 AIR QUALITY 4-1
4.1.1 Approach to Analysis 4-1
4.1.2 Impacts 4-1
4.1.2.1 Proposed Action 4-1
4.1.2.2 Engine Test Stand Siting Alternative 4-3
4.1.2.3 No-Action Alternative 4-3

4.2 NOISE 4-4
4.2.1 Approach to Analysis 4-4
4.2.2 Impacts 4-4
4.2.2.1 Proposed Action 4-4
4.2.2.2 Engine Test Stand Siting Alternative 4-8
4.2.2.3 No-Action Alternative 4-9

4.3 LAND USE 4-10
4.3.1 Approach to Analysis 4-10
4.3.2 Impacts 4-10
4.3.2.1 Proposed Action 4-10
4.3.2.2 Engine Test Stand Siting Alternative 4-11
4.3.2.3 No-Action Alternative 4-11

4.4 GEOLOGICAL RESOURCES 4-12
4.4.1 Approach to Analysis 4-12
4.4.2 Impacts 4-12
4.4.2.1 Proposed Action 4-12
4.4.2.2 Engine Test Stand Siting Alternative 4-12
4.4.2.3 No-Action Alternative 4-13

4.5 WATER RESOURCES 4-14
4.5.1 Approach to Analysis 4-14
4.5.2 Impacts 4-14
4.5.2.1 Proposed Action 4-14

4.5.2.2 Engine Test Stand Siting Alternative 4-14
4.5.2.3 No-Action Alternative 4-15

4.6 BIOLOGICAL RESOURCES 4-16
4.6.1 Approach to Analysis 4-16
4.6.2 Impacts 4-16
4.6.2.1 Proposed Action 4-16
4.6.2.2 Engine Test Stand Siting Alternative 4-17
4.6.2.3 No-Action Alternative 4-17

4.7 TRANSPORTATION AND CIRCULATION 4-18
4.7.1 Approach to Analysis 4-18
4.7.2 Impacts 4-18
4.7.2.1 Proposed Action 4-18
4.7.2.2 Engine Test Stand Siting Alternative 4-19
4.7.2.3 No-Action Alternative 4-19

4.8 VISUAL RESOURCES 4-20
4.8.1 Approach to Analysis 4-20
4.8.2 Impacts 4-20
4.8.2.1 Proposed Action 4-20
4.8.2.2 Engine Test Stand Siting Alternative 4-20
4.8.2.3 No-Action Alternative 4-20

4.9 CULTURAL RESOURCES 4-21
4.9.1 Approach to Analysis 4-21
4.9.2 Impacts 4-21
4.9.2.1 Proposed Action 4-21
4.9.2.2 Engine Test Stand Siting Alternative 4-22
4.9.2.3 No-Action Alternative 4-22

4.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE 4-23
4.10.1 Approach to Analysis 4-23
4.10.2 Impacts 4-23
4.10.2.1 Proposed Action 4-23
4.10.2.2 Engine Test Stand Siting Alternative 4-24
4.10.2.3 No-Action Alternative 4-24

4.11 HAZARDOUS MATERIALS AND WASTES 4-25
4.11.1 Approach to Analysis 4-25
4.11.2 Impacts 4-25
4.11.2.1 Proposed Action 4-25
4.11.2.2 Engine Test Stand Siting Alternative 4-26
4.11.2.3 No-Action Alternative 4-26

4.12 SAFETY 4-27
4.12.1 Approach to Analysis 4-27
4.12.2 Impacts 4-27
4.12.2.1 Proposed Action 4-27
4.12.2.2 Engine Test Stand Siting Alternative 4-28

4.12.2.3 No-Action Alternative 4-28

SECTION 5 CUMULATIVE IMPACTS 5-1

SECTION 6 SUMMARY OF FINDINGS 6-1

SECTION 7 SPECIAL PROCEDURES 7-1

SECTION 8 REFERENCES 8-1

SECTION 9 AGENCIES AND REPRESENTATIVES CONTACTED 9-1

SECTION 10 LIST OF PREPARERS 10-1

Appendix

A AGENCY CORRESPONDENCE A-1

List of Figures

Figure **Page**

Figure 1-1 Regional Location Map....1-2
Figure 1-2 Kulis ANGB Installation Map....1-3
Figure 2-1 Proposed Action at Kulis ANGB....2-3
Figure 3-1 National Ambient Air Quality Standards....3-2
Figure 3-2 Examples of Typical Sound Levels in the Environment....3-7
Figure 3-3 Recommended Land Use for L_{dn}-Based Noise Values....3-8
Figure 3-4 Aircraft- and Engine Test Stand-Generated Noise Contours for an Average Annual Day at Kulis ANGB....3-10
Figure 3-5 Engine Test Stand-Generated Noise Contours for Testing Days at Kulis ANGB....3-12
Figure 3-6 Existing Land Use at Kulis ANGB and Immediate Vicinity....3-15
Figure 3-7 Stormwater Drainage Basins at Kulis ANGB....3-22
Figure 3-8 Vegetation and Wetland Types at Kulis ANGB....3-25
Figure 3-9 Existing Circulation and Parking at Kulis ANGB....3-28
Figure 3-10 Distribution of Employment by Industrial Sector in Anchorage, 1996....3-37
Figure 3-11 Unemployment Trends: United States, State of Alaska, and Anchorage, 1950-1996....3-38
Figure 3-12 Population Distribution: United States, State of Alaska, and Anchorage, 1995....3-39
Figure 3-13 Poverty Status: United States, State of Alaska, and Anchorage, 1996....3-39
Figure 3-14 ASTs, OWSs, HWASs, and SAPs at Kulis ANGB....3-43
Figure 4-1 Proposed and Alternative Engine Test Stand-Generated Noise Contours without Acoustic Protection for an Average Annual Day at Kulis ANGB....4-6
Figure 4-2 Proposed and Alternative Engine Test Stand-Generated Noise Contours without Acoustic Protection for Testing Days at Kulis ANGB....4-7

List of Tables

Table **Page**

Table 2-1 Proposed Short-Term Construction Projects at Kulis ANGB....2-2
Table 3-1 1995 Daily Wintertime CO Emissions for Anchorage, Alaska....3-5
Table 3-2 1996 Stationary Source Emissions at Kulis ANGB (tons/year)....3-5
Table 3-3 Maximum A-Weighted Noise Levels (dBA) at Varying Distances and Angles During Engine Test Stand Operations at Kulis ANGB....3-11
Table 3-4 Kulis ANGB Land Use Inventory....3-16
Table 3-5 Federally Threatened and Endangered Species Occurring in Alaska....3-26
Table 3-6 National Register of Historic Places Properties Located near Kulis ANGB....3-33
Table 3-7 Existing Facilites at Kulis ANGB....3-34
Table 3-8 Population of the United States, State of Alaska, and Anchorage, 1950-1996....3-36
Table 4-1 Estimated Average Annual Emissions Resulting from Proposed Construction Activities at Kulis ANGB....4-2
Table 4-2 Estimated Annual Criteria Pollutant Concentrations from Total Emissions at Kulis ANGB under the Proposed Action....4-2

SECTION 1
PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The Alaska Air National Guard (AKANG) has initiated a planning program at Kulis Air National Guard Base (ANGB) in Anchorage for the purposes of enhancing the efficiency of base operations and modernizing facilities in support of the 176th Wing (176 WG) airlift, rescue, and training requirements over the next decade. The planning program will facilitate the development of Kulis ANGB through the following measures: 1) examination of the physical composition of Kulis ANGB; 2) determination of existing and anticipated requirements related to current and future 176 WG missions; and 3) analysis of developmental constraints as they relate to these requirements.

Eleven short-term construction projects have been proposed to meet the requirements identified by the planning program at Kulis ANGB. This environmental assessment (EA) presents an analysis of potential impacts that would result from implementation of these proposed short-term construction projects. This EA identifies and analyzes potential effects on the natural and human environment in sufficient detail to determine the significance of impacts on the affected environment.

1.2 PURPOSE AND NEED

The purpose of the proposed action is to implement 11 short-term construction projects that are critical for maintaining efficient base operations and enhancing the orderly development of Kulis ANGB. These projects are needed to consolidate common or compatible organizational and facility uses to maximize land use compatibility and facility efficiency. Implementation of the proposed action would help accomplish this by providing enhanced development, thereby reducing existing facility utilization inefficiencies and circulation problems at Kulis ANGB.

1.3 BACKGROUND

1.3.1 Location

Kulis ANGB is located at Anchorage International Airport (AIA), approximately 3 miles southwest of downtown Anchorage, Alaska (Figure 1-1). Anchorage is situated at the base of the Chugach Mountains, along the coast of south central Alaska in what is referred to as the Anchorage Bowl. Kulis ANGB leases approximately 130 acres of land from AIA in the southeast corner of the airport near runway 24L/06R (Figure 1-2). Residential and commercial areas border Kulis ANGB to the east, west, and south.

Comprising approximately 4,680 acres, AIA property is owned by the State of Alaska and is administered and operated by the State Department of Transportation and Public Facilities. The airport maintains two parallel east-west runways and one north-south runway. AIA serves as the major air gateway to Alaska, and is an important international air-cargo hub.

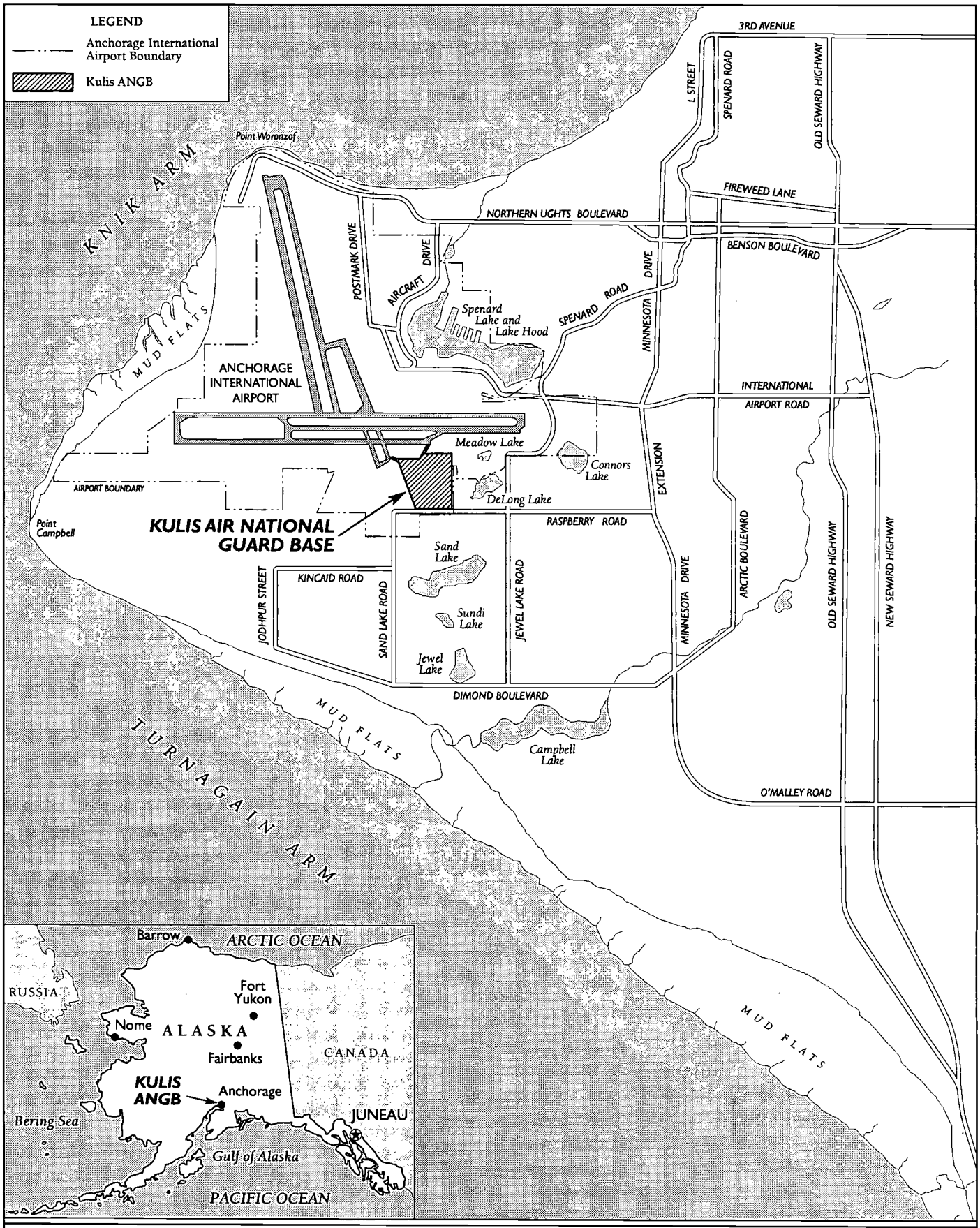


Figure 1-1
Regional Location Map

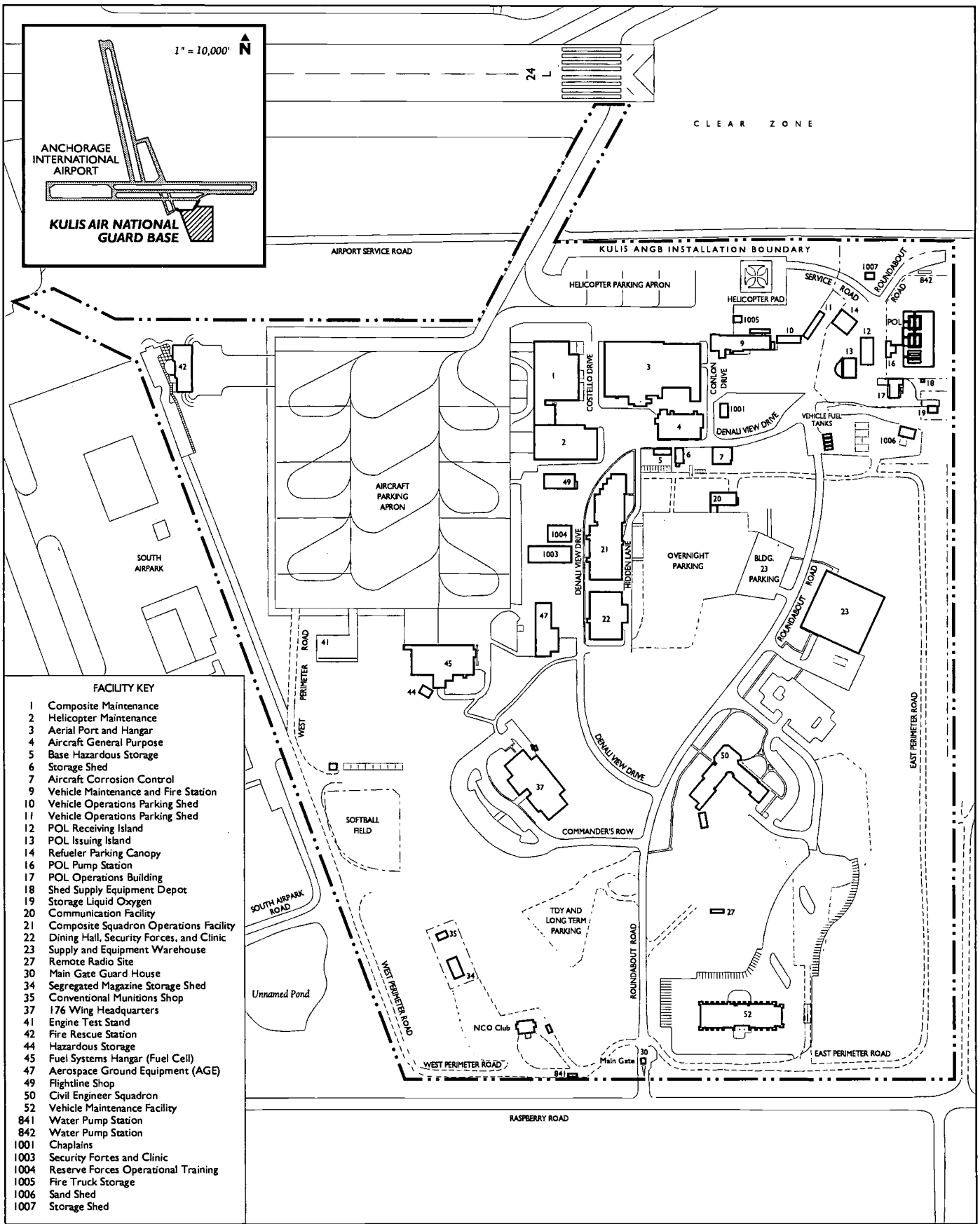


Figure 1-2
Kulis ANGB Installation Map

1.3.1.1 History

The AKANG was organized in 1952 as the 8144th Air Base Squadron at Elmendorf Air Force Base. In 1955, the unit leased acreage from AIA and established Kulis ANGB. Kulis ANGB is named after Lt. Albert Kulis, an AKANG pilot who was killed in the crash of his F-80 Shooting Star jet fighter while on a training flight in 1954. While the original mission of the AKANG was as a fighter-bombing unit, over the years Kulis ANGB aircraft and missions have evolved into an airlift and search and rescue mission. Thirty years after its origination, the AKANG has expanded its organization to include 20 units and more than 2,000 members statewide.

1.3.2 Current 176 WG Operations

1.3.2.1 Mission

The 176 WG is composed of two flying squadrons of C-130 aircraft and HH-60 helicopters, the 144th Airlift Squadron (144 AS) and the 210th Rescue Squadron (210 RQS), and various support units which are tasked with both a federal and state mission. The federal mission is to provide trained aircrews and support personnel for airlifts and airdrops during all contingencies in Alaska and worldwide. The state mission is to provide this same capability during emergencies and humanitarian support when called on by the Governor of Alaska. The mission of the 210 RQS is to man, equip, and train a combat-ready rescue squadron. The squadron maintains a 24-hours a day, 365-days a year alert. This rescue squadron is also ready to assist in the event of a natural or civil disaster.

1.3.2.2 Personnel

The AKANG work force at Kulis ANGB includes approximately 450 full-time personnel (not including contract labor) during regular weekday shifts. In addition, 30 State of Alaska civilian personnel and 12 civilian fire fighters are employed full time. Together, the full-time force carries out the day-to-day operations of Kulis ANGB in support of 860 part-time "traditional" Air National Guard (ANG) personnel. Traditional guardsmen are "part-time" employees who generally hold jobs outside the ANG. A total of 1,340 people work at Kulis ANGB.

1.4 SUMMARY OF ENVIRONMENTAL STUDY REQUIREMENTS

1.4.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, or enhance the environment through well-informed federal decisions. The Council on Environmental Quality (CEQ) has been established under NEPA to implement and oversee federal processes. The CEQ has issued the *Regulations for Implementing Procedural Provisions of the National Environmental Policy Act* (40 Code of Federal Regulations [CFR] Parts 1500-1508). These regulations specify that an EA be prepared to:

- briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a Finding of No Significant Impact (FONSI),
- aid in an agency's compliance with NEPA when no EIS is necessary, and
- facilitate the preparation of an EIS when one is necessary.

To comply with NEPA and other pertinent environmental requirements (e.g., Endangered Species Act, National Historic Preservation Act, etc.) and to assess impacts on the environment, the decision-making process for the proposed action includes the development of this EA addressing environmental issues associated with the proposed short-term construction projects at Kulis ANGB.

1.4.2 Interagency and Intergovernmental Coordination for Environmental Planning

NEPA and CEQ regulations require intergovernmental notifications prior to making any detailed statement of potential environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), the ANG notifies relevant federal, state, and local agencies and allows them sufficient time to evaluate the potential environmental impacts associated with the proposed action. Comments from these agencies are addressed and incorporated into the environmental impact analysis process.

1.4.3 Air Conformity Requirements

In addition to these requirements, federal agencies are required to determine the conformity of proposed actions with respect to State Implementation Plans (SIPs) for attainment of air quality goals. Under the Clean Air Act (CAA) Amendments of 1990, the U.S. Environmental Protection Agency (USEPA) has promulgated regulations such as 40 CFR 51, Subpart W, which require the proponent of a proposed action to perform an analysis to determine if the proposed action conforms with the SIP. To comply with this requirement and to determine conformity, the decision-making process includes an analysis of air emissions associated with the proposed action.

[This page intentionally left blank]

SECTION 2
PROPOSED ACTION AND ALTERNATIVES

2.1 OVERVIEW

The primary goal of the proposed short-term construction projects at Kulis Air National Guard Base (ANGB) is to improve the unit's mission capabilities and readiness in order to support airlift, rescue, and training requirements. In order to meet these requirements, the following construction, facility modification, and demolition projects would be implemented and completed within the next 5 years.

2.1.1 Proposed Action

The proposed action comprises 11 construction projects, including the expansion of the existing apron/taxiway and the demolition of four facilities. Proposed demolition is necessary in order to replace outdated facilities or to facilitate new construction. New facilities would be located in areas more compatible from a land-use efficiency perspective. Basic facility components of the proposed action are discussed below and listed in order of priority in Table 2-1. Figure 2-1 shows the locations of the proposed short-term construction/expansion projects and facilities to be demolished.

A - Composite Support Complex

Under the proposed action, a new Composite Support Complex would be developed, including the construction of a new Support Facility (24,100 square feet [SF]) to accommodate medical, communications, and security forces training areas (Figure 2-1). As part of the proposed complex, roadway access, sidewalks, and parking areas would be constructed. In addition, the existing multiple-use Dining Hall (Building 22) would be converted and used only as a dining facility. Development of the Composite Support Complex would require the demolition of Building 1003 (Security Forces and Clinic), Building 1004 (Reserve Forces Operational Training), the Class A Vault located in Building 22, and two parking sheds (10 and 11).

The increase in manpower associated with the unit becoming a composite wing has created the need for additional space to accommodate security forces, medical training, and communications functions. The development of the Composite Support Complex would provide sufficient space on base for the security police squadron and other functions that are currently occupying space off base. In addition, construction of this complex would provide additional area for medical staff and separate the medical support function from the existing dining facility where they currently share space.

Table 2-1 Proposed Short-Term Construction Projects at Kulis ANGB

Key[1]	Facility	Description
A	Composite Support Complex	Construct Composite Support Facility Building, convert Building 22 to Dining Facility use only, and demolish Buildings 1003 and 1004 and parking sheds 10 and 11.
B	Mobility Storage Warehouse	Construct 7,200-SF addition to Building 23 for storage of Mobility Readiness Spares Packages (MRSPs).
C	Aircraft Corrosion Control Facility	Construct 33,900-SF Corrosion Control Facility to include hangar and shop areas. New construction would require relocation of the Engine Test Stand.
D	Apron/Taxiway Addition	Asphalt concrete paving addition (approximately 252,000 SF) on north and west sides of existing parking apron.
E	Pararescue Training Complex	Construct 25,900-SF complex for storing pararescue vehicles, clothing, and equipment.
F	Hazardous Materials Pharmacy	Construct 1,700-SF facility as central distribution point for hazardous materials.
G	Relocate Main Gate/Guard House	Relocate Gate/Guard House 300 feet north of its current location.
H	Squadron Operations Facility	Construct 18,200-SF facility. The facility would be constructed to be consistent with the existing Squadron Operations Facility.
I	Survival Equipment Addition	Construct 5,000-SF addition to Building 21.
J	Flightline Maintenance Facility	Replace the existing facility with the construction of a new 12,000 SF facility.
K	Engine Shop Addition	Construct a 1,300-SF addition to the existing Engine Shop (Building 1).

Note: [1] Letters refer to project locations shown on Figure 2-1.
Source: 176th Civil Engineering Squadron 1999.

B - Mobility Storage Warehouse Addition

The Mobility Storage Warehouse would consist of a 7,200-SF addition to Building 23 (see Figure 2-1). Construction of the addition would match the visual character of the existing building. Currently, there is insufficient storage available for storing Mobility Readiness Spares Packages (MRSPs). MRSPs are associated with the unit's deployable mission and must be ready-to-go and maintained in a secure and dry place. MRSPs require storage in an above freezing, protected environment. Therefore, construction of the warehouse addition would ensure safe storage of the MRSP by providing an area that would be heated, secured, and protected from the arctic environment.

C - Aircraft Corrosion Control Facility

The Aircraft Corrosion Control Facility would be located off West Perimeter Road (see Figure 2-1). Construction of the facility would consist of a 33,900-SF building that would include a hangar with sufficient space to accommodate one HH-60 helicopter and one C-130 aircraft, as well as a corrosion control shop, structural maintenance shop, and plastic media stripping areas.

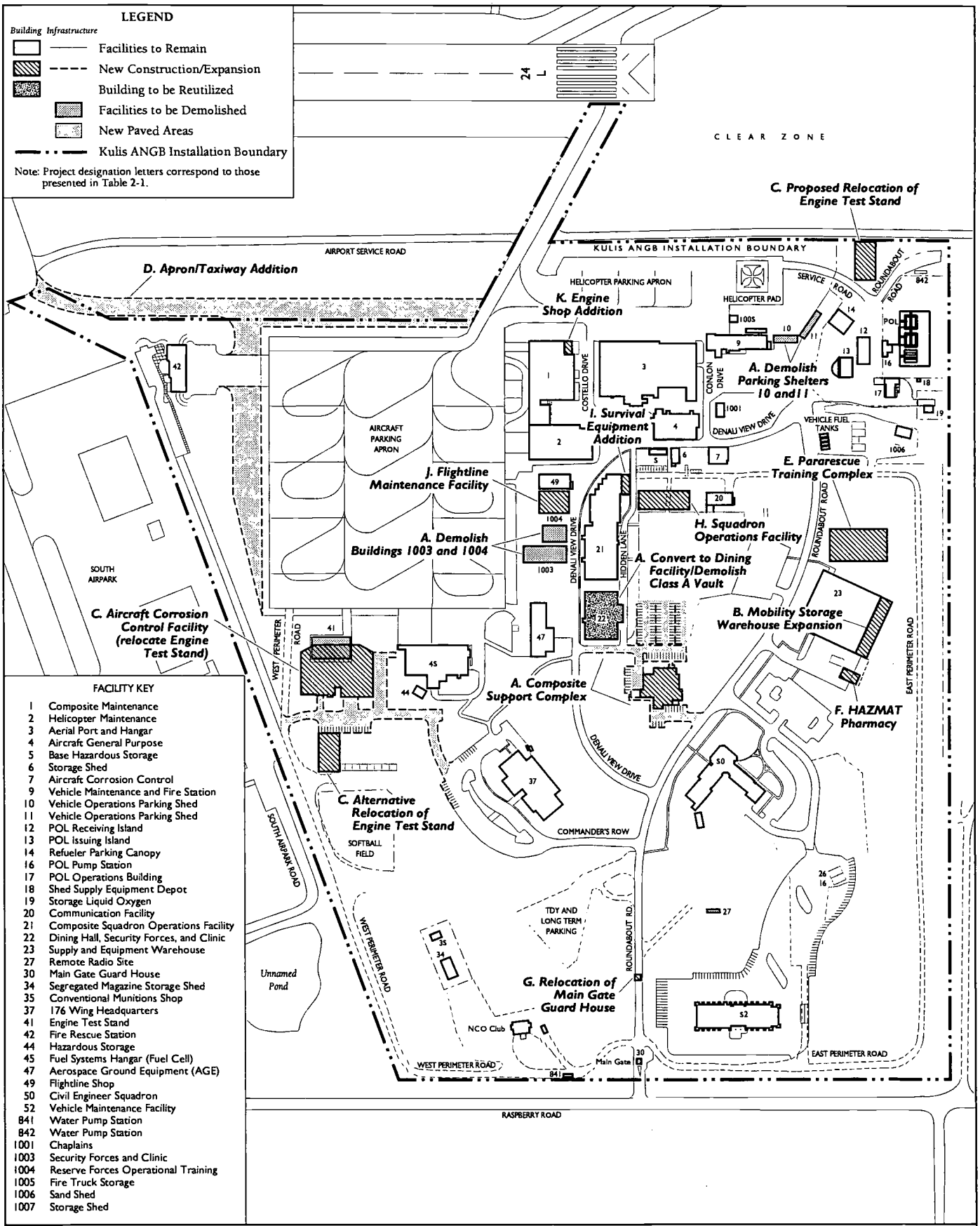


Figure 2-1
Proposed Action at Kulis ANGB

Kulis ANGB does not currently have space dedicated specifically to perform environmentally safe aircraft corrosion control operations and training on their assigned aircraft. The existing maintenance hangar or fuel cell hangar is used for corrosion control operations; however, if these areas are not available when corrosion control functions are needed, these operations must be delayed or be performed outside. In Alaska, the ability to work outside is limited due to weather and lack of daylight during the winter months. Therefore, Kulis ANGB requires an adequately sized, properly configured, and environmentally correct aircraft corrosion control facility. The proposed Aircraft Corrosion Control Facility would meet these requirements.

Development of the Aircraft Corrosion Control Facility would necessitate the relocation of the existing Engine Test Stand (Building 41). Under the proposed action, this facility would be relocated to the northeast corner of Kulis ANGB, near Building 1007 (see Figure 2-1). Relocation of the Engine Test Stand would require (at a minimum) the construction of a concrete pad at the proposed location. However, as the proposed location of the facility would be sited near the helicopter takeoff/landing pad, the potential would exist for foreign object damage to engines on the stand, should helicopter operations occur concurrently with Engine Test Stand operations (helicopter prop wash could kick up rocks and other debris which could be ingested into an engine on the stand). Therefore, an alternate location for the Engine Test Stand has been selected (see Section 2.2.1, Engine Test Stand Siting Alternative). The alternative site for the Engine Test Stand would be located north of the softball field and south of the proposed Aircraft Corrosion Control Facility (see Figure 2-1).

D - Apron/Taxiway Addition

Under the proposed action, the apron/taxiway would be expanded by approximately 252,000 SF on the north and west sides of the existing parking apron (see Figure 2-1). The expansion project would include relocating apron lights, installing taxiway lights, and painting aircraft parking spaces and taxiway lines.

The existing aircraft parking apron is insufficient to support airlift and rescue operations at Kulis ANGB; an adequately sized and properly configured aircraft parking apron is required. The alert/rescue mission requires a parking apron configured to allow C-130, HC-130, and HH-60 aircraft to taxi under their own power into and out of assigned parking spaces. A taxiway connecting the Air National Guard (ANG) parking apron with Anchorage International Airport (AIA) would alleviate traffic congestion and aircraft parking deficiencies. Currently, aircraft are not parking in accordance with the approved base Master Plan. Federal Aviation Administration (FAA) mandated wingtip clearances for taxiing aircraft cannot be maintained when all aircraft are parked on the apron. Alert rescue aircraft are often prevented from taxiing to a departure runway because they must wait on the apron until they receive clearance to taxi across two active runways. This is due to the existing ANG taxiway that exits directly onto one of the parallel runways. In addition, the existing asphalt taxiway is rapidly deteriorating and past its planned lifecycle.

Due to the limited size of the West Apron area, the rescue helicopters must be parked on the old North Apron and are separated from the helicopter maintenance hangar located on the West Apron. Currently, aircraft that are parked on the North Apron penetrate the FAA Transitional Surface.

E - Pararescue Training Complex

Construction of the proposed Pararescue Training Complex would provide an adequately sized facility (25,900 SF) to support Kulis ANGB's pararescue mission, which involves administrative, training, storage, maintenance, and preflight operations (see Figure 2-1). In addition, this facility would provide the necessary storage for vehicles, clothing, and equipment to protect them from the severe winter environment. Equipment currently stored at the Jewel Lake Armory (located approximately 0.5 mile northeast of AIA) would be transferred to Kulis ANGB for storage at the new facility. The facility would provide secure and classified storage that is required for arms and ammunition, classified equipment, and expensive gear such as parachutes, climbing gear, and scuba diving equipment.

Pararescue training and operations are currently conducted at the Jewel Lake Armory facility; however, the armory facility is too small for efficient pararescue training operations and proper equipment storage. As such, all oversized equipment is stored outside, which adversely affects mission readiness during winter months.

F - Hazardous Materials Pharmacy

The proposed Hazardous Materials Pharmacy would be located south of Building 23 and would consist of a 1,700-SF pre-fabricated building with a metal frame roof and walls (see Figure 2-1). The new facility would serve as a central distribution point for hazardous materials and would provide critical hazardous materials inventory management for Kulis ANGB operations.

G - Relocate Main Gate/Guard House

The Main Gate/Guard House (Building 30) would be relocated approximately 300 feet north of its current location (at the intersection of Raspberry and Roundabout Roads [see Figure 2-1]), and a second exit lane for outbound vehicles would be added. This project would enhance overall security and anti-terrorism capability at Kulis ANGB by providing more room to stack vehicles, improving reaction time for security police to respond to a threat, providing physical space capacity for the establishment of barricades, and improving vehicle control and traffic management at Kulis ANGB, particularly during weekend training exercises.

H - Squadron Operations Facility

Under the proposed action, development of the Squadron Operations Facility would consist of the construction of an 18,200-SF facility located adjacent to Building 20 (see Figure 2-1). Construction of this facility is necessary to support the increased operations and training needs of the 144th Airlift Squadron (144 AS) and the 210th Rescue Squadron (210 RQS). The facility

would be constructed to match the existing Squadron Operations Facility in function and appearance.

Growth within the Alaska ANG (AKANG) and an increase in operations tempo have resulted in congestion and decreased mission readiness. Other buildings on base either are at capacity or scheduled for demolition. Mission readiness and long-term deployments require specialized planning and training unique to Kulis ANGB flight operations. Development of the new Squadron Operations Facility would help meet these training needs.

I - Survival Equipment Addition

The Survival Equipment Shop would consist of a 5,000-SF addition to the existing Composite Squadron Operations Facility (Building 21) (see Figure 2-1). The flying missions of the AKANG have exceeded capacity of the current Survival Equipment Shop.

Aircrews and aircraft require unique equipment designed to maintain safety and to ensure survival in a contingency environment. The equipment provided to aircrews requires routine preventative maintenance and repair. Because the Survival Equipment Shop currently occupies 5,200 SF of the Composite Operations Facility, an addition to Building 21 would be the most effective and efficient solution to provide the needed space and maintain mission readiness.

J - Flightline Maintenance Facility

Implementation of the proposed Flightline Maintenance Facility would consist of replacing the existing facility (Building 49) with a new 12,000-SF facility (see Figure 2-1). This facility is required to support C-130, HC-130, and HH-60 aircraft for the airlift and rescue missions at Kulis ANGB.

Due to extreme climatic conditions, the proposed Flightline Maintenance Facility is critical to flight operation mission readiness. Adequate space under a controlled climate for both aircraft, maintenance equipment, and personnel is required to properly maintain and service aircraft. This facility would be capable of supporting the latest technology available for the current aircraft in use at Kulis ANGB.

K - Engine Shop Addition

Under the proposed action, a 1,300 SF addition to the existing Engine Shop (Building 1) would be constructed (see Figure 2-1). The existing building is currently overcrowded due to the workload associated with maintaining engines for eight C-130, three HC-130, and five HH-60 aircraft that are assigned to the flying missions of the AKANG. Additional engine space is required in order to maintain mission readiness.

2.2 ALTERNATIVES

As described in Section 2.1.1, the proposed action includes demolition, construction, and modifications of facilities at Kulis ANGB. Since proposed short-term construction projects at

Kulis ANGB are necessary in order to eliminate existing deficiencies and the selection of construction alternatives would not result in different overall environmental impacts to Kulis ANGB, the only alternatives analyzed in this environmental assessment (EA) are the Engine Test Stand Siting Alternative and the No-Action Alternative.

2.2.1 Engine Test Stand Siting Alternative

Under the Engine Test Stand Siting Alternative, the construction of the Aircraft Corrosion Control Facility would still occur; however, the existing Engine Test Stand would be relocated approximately 300 feet south of its current location (see Figure 2-1). All other proposed activities as described for the proposed action would be the same under this alternative.

2.2.2 No-Action Alternative

Under the No-Action Alternative, proposed facility construction and facility demolition or modifications would not be implemented. If no new construction or facilities modification projects are implemented at Kulis ANGB, current operational inefficiencies would remain, and the unit's ability to accomplish its mission in an effective manner would be limited. Nonetheless, Council of Environmental Quality (CEQ) regulations stipulate that the No-Action Alternative be analyzed to assess any environmental consequences that may occur if the proposed action is not implemented. Therefore, this alternative will be carried forward for analysis in this EA.

[This page intentionally left blank]

SECTION 3
AFFECTED ENVIRONMENT

This section describes existing environmental conditions for the resources potentially affected by the proposed action, the Engine Test Stand Siting Alternative, and the No-Action Alternative as described in Section 2. In analyzing the affected environment, a framework for understanding the potential direct, indirect, and cumulative effects of the proposed action and No-Action Alternative can be provided.

In compliance with guidelines contained in the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations, and Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*, this description of the affected environment focuses only on those resource areas potentially subject to impacts. Resources with no potential to be affected are not analyzed. Therefore, this environmental assessment (EA) analyzes potential environmental effects for the following resource areas: air quality, noise, land use, geological resources, water resources, biological resources, transportation and circulation, visual resources, cultural resources, socioeconomics and environmental justice, hazardous materials and wastes, and safety. The following subsections contain definitions of each resource, a description of the associated region of influence (ROI), and existing conditions within the associated ROI.

3.1 AIR QUALITY

3.1.1 Definition of Resource

Air quality is defined as the ambient air concentrations of specific criteria pollutants determined by the U.S. Environmental Protection Agency (USEPA) to be of concern to the health and welfare of the general public. These criteria pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide ($N0_2$), sulfur dioxide ($S0_2$), particulate matter less than 10 microns in diameter (PM_{10}), and lead (Pb). To establish limits on pollutant concentrations, the USEPA has created National Ambient Air Quality Standards (NAAQS) to identify the maximum allowable concentrations of criteria pollutants that are considered safe, with an additional adequate margin of safety, to protect human health and welfare (Figure 3-1). Depending on the type of pollutant, these maximum concentrations may not be exceeded at any time, or may not be exceeded more than once per year (USEPA 1999a).

Criteria pollutants affecting air quality in a given region can be characterized as being either stationary or mobile sources. Stationary sources of emissions, also known as point sources, are typified by emissions from smokestacks. Mobile sources of emissions, also termed non-point sources, would include emissions from cars and airplanes. Air quality within in a region is a function of the type and amount of pollutants emitted, size and topography of the air basin, and prevailing meteorological conditions.

POLLUTANT	AVERAGING TIME	NAAQS	
		Primary	Secondary
Ozone (O_3)[1]	8 Hour	0.08 ppm (157 µg/m^3)	Same as Primary Standards
	1 Hour	0.12 ppm (235 µg/m^3)	
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	Same as Primary Standards
	1 Hour	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm (100 µg/m^3)	Same as Primary Standards
Sulfur Dioxide (SO_2)	Annual Average	0.03 ppm (80 µg/m^3)	—
	24 Hour	0.14 ppm (365 µg/m^3)	—
	3 Hour	—	0.50 ppm (1,300 µg/m^3)
Suspended Particulate Matter (PM_{10})	Annual Arithmetic Mean	50 µg/m^3	Same as Primary Standards
	24 Hour	150 µg/m^3	
Lead (Pb)	Calendar Quarter	1.5 µg/m^3	Same as Primary Standards

ppm – parts per million
µg/m^3 – micrograms per cubic meter
mg/m^3 – milligrams per cubic meter
Source: USEPA 1999a.

(1) USEPA has recently revised the ozone standard. Attainment status will be determined in 2000.

Figure 3-1 National Ambient Air Quality Standards

3.1.1.1 Criteria Pollutants

Ozone (O_3)

The majority of ground-level O_3 (smog) is formed as a result of complex photochemical reactions in the atmosphere between volatile organic compounds (VOCs), nitrogen oxides (NO_x), and oxygen. VOCs and NO_x are considered to be precursors to the formation of O_3, which is a highly reactive gas that can damage lung tissue and affect respiratory function. While O_3 in the lower atmosphere is considered to be a damaging air pollutant, O_3 in the upper atmosphere is beneficial, as it protects the earth from harmful ultraviolet radiation. However, atmospheric processes preclude ground-level O_3 from reaching the upper atmosphere (USEPA 1999b).

Carbon Monoxide (CO)

CO is a colorless, odorless, poisonous gas produced by the incomplete combustion of fossil fuels. Elevated levels of CO can result in harmful health effects, especially for the young and elderly, and can also contribute to global warming (USEPA 1999b).

Nitrogen Dioxide (NO_2)

NO_2 is a brownish, highly reactive gas produced primarily as a result of the burning of fossil fuels. NO_2 can also lead to the formation of O_3 in the lower atmosphere. NO_2 can cause respiratory ailments, especially in the young and elderly, and can lead to degradations in the health of aquatic and terrestrial ecosystems (USEPA 1999b).

Sulfur Dioxide (SO_2)

SO_2 is produced primarily from the combustion of coal and oil by steel mills, pulp and paper mills, and from non-ferrous smelters. High concentrations of SO_2 can aggravate existing respiratory and cardiovascular diseases in asthmatics and others that suffer from emphysema or bronchitis. SO_2 also contributes to acid rain, which can in turn lead to the acidification of lakes and streams (USEPA 1999b).

Particulate Matter (PM_{10})

PM_{10} is typically composed of dust, ash, soot, smoke, or liquid droplets emitted into the air. Fires, use of unpaved roads, construction activities, and natural sources (wind and volcanic eruptions) can contribute to increased PM_{10} concentrations. PM_{10} particles can be inhaled into the respiratory system, leading to the possible aggravation of existing lung diseases (USEPA 1999b).

Lead (Pb)

Sources of lead include pipes, fuel, and paint, though the use of lead in these materials has declined dramatically in recent years. Lead can be inhaled directly or ingested indirectly by consuming lead-contaminated food, water, or dust. Fetuses and children are most susceptible to lead poisoning, which can result in heart disease and nervous system damage (USEPA 1999b).

3.1.1.2 Clean Air Act Amendments

Through the Clean Air Act (CAA) Amendments of 1990, the USEPA has required each state to prepare a State Implementation Plan (SIP), which describes how each state will achieve compliance with the NAAQS. The SIP is a compilation of goals, strategies, schedules, and enforcement actions that will help lead a state into compliance with the NAAQS. Areas not in compliance with the NAAQS can be declared nonattainment areas by the USEPA, or the appropriate state or local agency. Areas in compliance with the NAAQS are defined as being in attainment. Where insufficient air quality monitoring data exist to determine attainment status for an area, the region is designated as unclassified.

The criteria for nonattainment status varies by pollutant: 1) an area is in nonattainment for O_3 if the NAAQS have been exceeded more than three discontinuous times in 3 years; and 2) an area is in nonattainment for any other pollutant if the NAAQS have been exceeded more than once per year.

3.1.2 Existing Conditions

3.1.2.1 Climate

Anchorage is characterized as having a maritime climate and is located in south-central Alaska in a broad valley known as the Anchorage Bowl on the shores of Cook Inlet. Anchorage is situated between the Chugach Mountains to the southeast and the Alaska Range to the north. The Chugach Mountains act as a barrier to the influx of warm, moist air from the Gulf of Alaska, resulting in annual precipitation amounts of only 10-15 percent of areas located on the Gulf side. During the winter, the Alaska Range serves as an effective barrier to the influx of very cold air from the Alaskan interior, thereby keeping the Anchorage bowl relatively warmer than the interior of the state.

Summers in Anchorage typically last from June through early September and are generally cool. High temperatures during the summer average approximately 60 degrees Fahrenheit (°F) with average low temperatures of approximately 50 °F. Winters in the region are long and cold, with subfreezing temperatures typically present from mid-October to mid-April. Temperatures are coldest in January with highs only reaching 20 °F and lows 5 °F. Anchorage averages about 16 inches of rain a year, with the majority of rain falling in the late summer and early fall months. Snowfall averages about 70 inches a year (Municipality of Anchorage [MoA] 1999a).

Prevailing winds in the Anchorage area are generally light. However, strong northerly winds up to 90 miles per hour (mph) occasionally affect the entire Anchorage area. In addition, very strong southeast winds affect the eastern side of Anchorage, where winds of over 100 mph have been recorded (Alaska State Climate Center 1999). Daylight varies from approximately 19 hours in late June to approximately 6 hours in late December.

3.1.2.2 Regional Setting

Kulis Air National Guard Base (ANGB) is located within Air Quality Control Region (AQCR) 10, which encompasses the City of Anchorage. The Anchorage area is in attainment of the NAAQS for all six criteria air pollutants except for CO, for which it is in "serious" non-attainment. Eagle River, located approximately 10 miles north of downtown Anchorage, is currently in nonattainment of the NAAQS for PM_{10} (USEPA 1999c).

In most areas of the United States, the average inversion height is approximately 3,000 feet above ground level (AGL) (USEPA 1972). However, during winter the height of the inversion layer in the Anchorage airshed can be significantly lower as a result of regional atmospheric and meteorological conditions. During the winter months, due to the reduced number of daylight hours available and a corresponding low sun angle, inversions can often persist through the day. Additionally, when winds are light, there is little vertical or horizontal dispersion of pollutants. In the Anchorage region, poor winter atmospheric mixing rates, low pollutant dispersion rates, and high cold-start vehicle pollutant emissions effectively create the opportunity for elevated CO concentrations (MoA 1999c).

Carbon Monoxide (CO)

Emissions from motor vehicles represent the primary source (84 percent) of CO emissions in the Anchorage area (Table 3-1), as the cold sub-arctic climate results in vehicles emitting 3 to 10 times more CO than in warmer climates. However, CO emissions have declined drastically in the last decade, and the number of days exceeding the NAAQS for CO has dropped from a high of 52 days in 1983 to only 1 day in 1998 (MoA 1999c). The MoA has prepared and adopted an air quality control plan to reduce CO emissions in the Anchorage area. After more than 20 years of nonattainment status, Anchorage is now close to attainment for CO (MoA 1999b).

Table 3-1 1995 Daily Wintertime CO Emissions for Anchorage, Alaska

Source Category	CO Emissions (tons/day)
Motor Vehicles	113.2
Aircraft	11.7
Area Sources	1.8
Point Sources	4.1
Other Sources	4.3
Total All Sources	**135.1**

Source: MoA 1999c.

Particulate Matter

While Anchorage is currently in attainment of the NAAQS for PM_{10}, emissions are occasionally exceeded. However, the USEPA has classified these exceedances as "exceptional events" and they are not considered to be violations of the NAAQS. High PM_{10} concentrations in the Anchorage area are believed to be a result of the large percentage of unpaved roads in the area and the eruption of the Mt. Spurr Volcano in 1992 (MoA 1999c).

In response to elevated PM_{10} emissions, the MoA and State of Alaska have developed various methods for reducing PM_{10} emissions: a large number of unpaved roads have been paved; the use of a coarser, cleaner traction sand has been instituted; and use of a chemical deicer in lieu of road sanding has been initiated in some areas. After peaking in 1992, PM_{10} concentrations have declined significantly (MoA 1999c).

3.1.2.3 Emissions at Kulis ANGB

The 1996 *Stationary Source Air Emission Inventory* categorizes emissions from all stationary sources at Kulis ANGB (Table 3-2). Primary stationary sources include heating units and generators (ANG 1997). Annual emissions from mobile sources have not been estimated for operations at Kulis ANGB (Kulis ANGB 1999a).

Table 3-2 1996 Stationary Source Emissions at Kulis ANGB (tons/year)

CO	NO_x	SO_2	VOCs	PM_{10}	HAPS
1.0	2.0	< 0.1	3.0	0.9	2.0

Note: HAPs = hazardous air pollutants.
Source: ANG 1997.

3.2 NOISE

3.2.1 Definition of Resource

Noise can be defined as any sound that interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Human response to noise varies according to the type and characteristics of the noise source, distance between the noise source and the receptor, sensitivity of the receptor, and time of day.

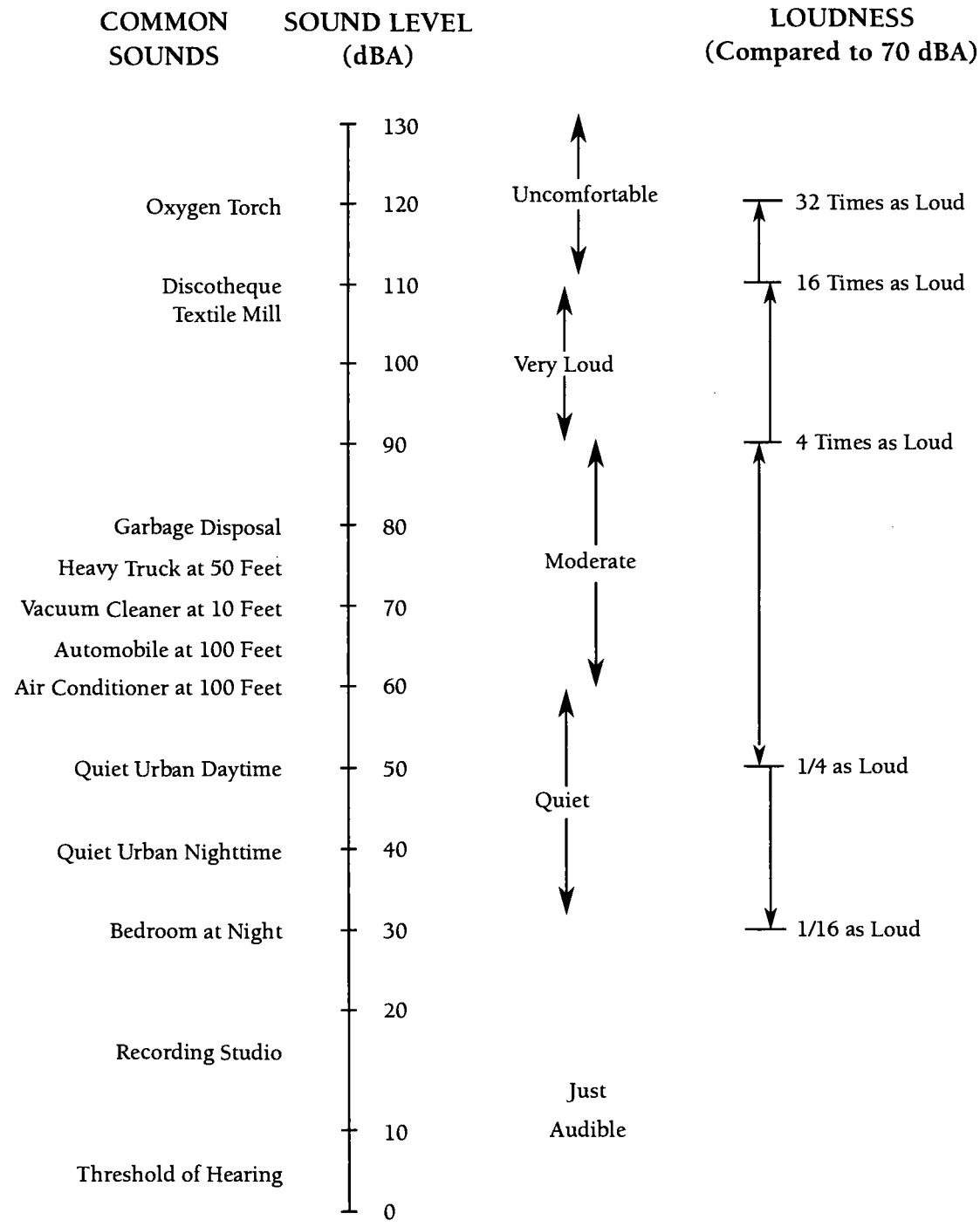
The physical characteristics of sound include its level, frequency, and duration. Sound is commonly measured with instruments that record instantaneous sound levels in decibels (dB), which are based on a logarithmic scale (e.g., a 10 dB increase corresponds to a 100 percent increase in perceived sound). Under most conditions, a change of 5 dB is required for humans to perceive a change in the noise environment (USEPA 1973).

Sound measurements are often weighted to approximate the response of the human ear. While the range of frequencies across which humans hear extends from 20 to 20,000 Hertz (Hz), the human ear is most sensitive to sounds in range of 1,000 and 8,000 Hz, with sensitivity diminishing at lower and higher frequencies. As seen in Figure 3-2, human hearing ranges from approximately 20 dBA (the threshold of hearing) to 120 dBA (the threshold of pain).

The sound exposure level (SEL) is a measure of the physical energy associated with a noise event that incorporates both the intensity and duration of the event. For example, the SEL associated with an aircraft overflight would comprise noise levels for the period of time when the aircraft is approaching (noise levels are increasing), the instant when the aircraft is directly overhead (noise levels are at a maximum), and the period of time when the aircraft is departing (noise levels are decreasing). As the SEL also considers the duration of a noise event, SEL values are typically higher than the maximum noise level measured for most noise events.

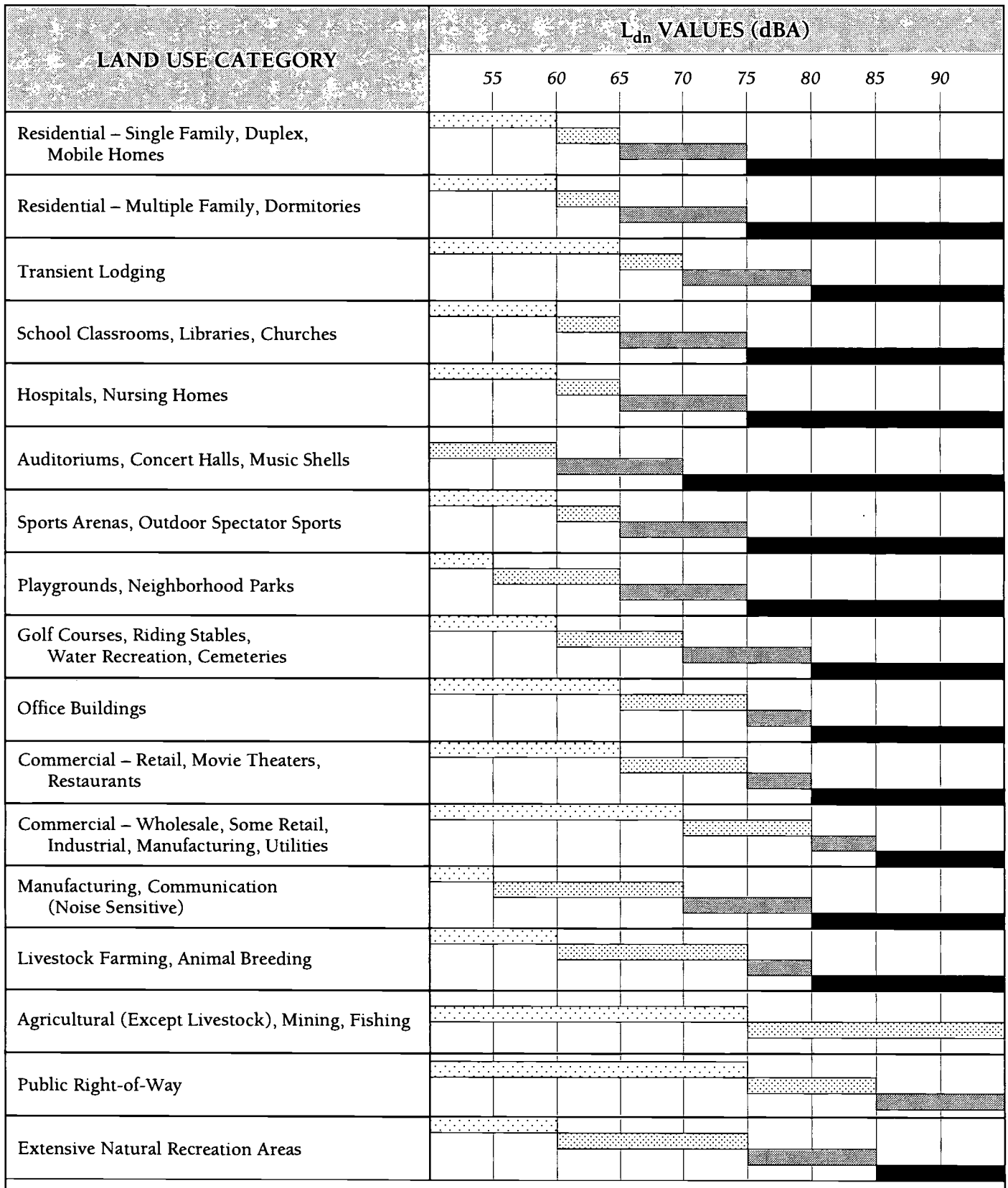
The day-night average sound level (L_{dn}) is the energy-averaged sound level of all SEL values within a 24-hour period, with a 10 dBA penalty assigned to noise events occurring between 10:00 P.M. and 7:00 A.M. to compensate for the increased annoyance associated with the occurrence of nighttime noise events. The L_{dn} is the preferred noise metric of the U.S. Department of Housing and Urban Development (HUD), U.S. Department of Transportation, Federal Aviation Administration (FAA), USEPA, and the Department of Defense (DoD).

Most people are exposed to sound levels of 50-55 dBA (L_{dn}) or higher on a daily basis. Studies conducted to determine noise impacts on various human activities have revealed that approximately 87 percent of the population is not significantly bothered by sound levels below 65 dBA (L_{dn}) (FICON 1992). Figure 3-3 provides the guidelines established by FICON that are commonly used to determine acceptable levels of noise exposure for various types of land use.



Source: Harris 1979.

Figure 3-2
Examples of Typical Sound Levels
in the Environment



Source: FICON 1992.

Figure 3-3
Recommended Land Use for
L_{dn}-Based Noise Values

3.2.2 Existing Conditions

3.2.2.1 Aircraft Activity

Kulis ANGB is situated on approximately 130 acres on the southern periphery of Anchorage International Airport (AIA). AIA is located southwest of downtown Anchorage, on a broad peninsula near the shores of Cook Inlet. AIA, which is owned and operated by the State of Alaska (Department of Transportation), is a major international air-cargo hub, providing facilities for domestic, international, and military aircraft operations.

In 1999, AIA completed a Noise Compatibility Program, which was developed as part of AIA's Federal Aviation Regulation (FAR) Part 150 Noise Study Update (AIA 1999). Using 1995 aircraft operations data, the Noise Study Update developed noise exposure maps describing the noise environment in and around AIA, including Kulis ANGB. In 1995, approximately 217,240 aircraft and helicopter operations were conducted at AIA. Of this number, approximately 1.5 percent (3,200 operations) were conducted by aircraft and helicopters stationed at Kulis ANGB. Aircraft operations at AIA represent the largest overall source of noise at Kulis ANGB, effectively overriding all other sources (AIA 1998).

Noise levels associated with aircraft operations at AIA are in excess of 65 dBA (L_{dn}) throughout the majority of Kulis ANGB (Figure 3-4). Noise levels are lowest in the southern portion of the base, and increase to the north, reaching noise levels in excess of 75 dBA (L_{dn}). At AIA, noise from aircraft operations typically occurs beneath the main approach and departure corridors, beneath air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft take off and gain altitude, their contribution to the surface noise environment decreases. Depending upon the aircraft type and meteorological conditions, the altitude at which aircraft noise becomes indistinguishable from surface ambient noise levels can vary (AIA 1999).

On an annual basis, AIA receives approximately 250 noise complaints, the majority of which are attributed to aircraft overflights. In recent years, the number of noise complaints associated with engine runups has increased. However, due to the large number of aircraft operations conducted at AIA, it is difficult to attribute noise complaints to any particular activity or aircraft. Engine runups typically occur on the apron or taxiway prior to the scheduled flight time and usually occur following minor engine maintenance to ensure that the engines are operating properly prior to takeoff (AIA 2000).

3.2.2.2 Ground-Based Activity

In addition to aircraft operations, other noise sources at Kulis ANGB include noise generated from on- and off-base vehicle operations, engine maintenance activities conducted at the Engine Test Stand, and on-going construction activities at the base. These activities in and around Kulis ANGB are not considered a major source of noise, as aircraft-generated noise effectively masks the noise from these sources.

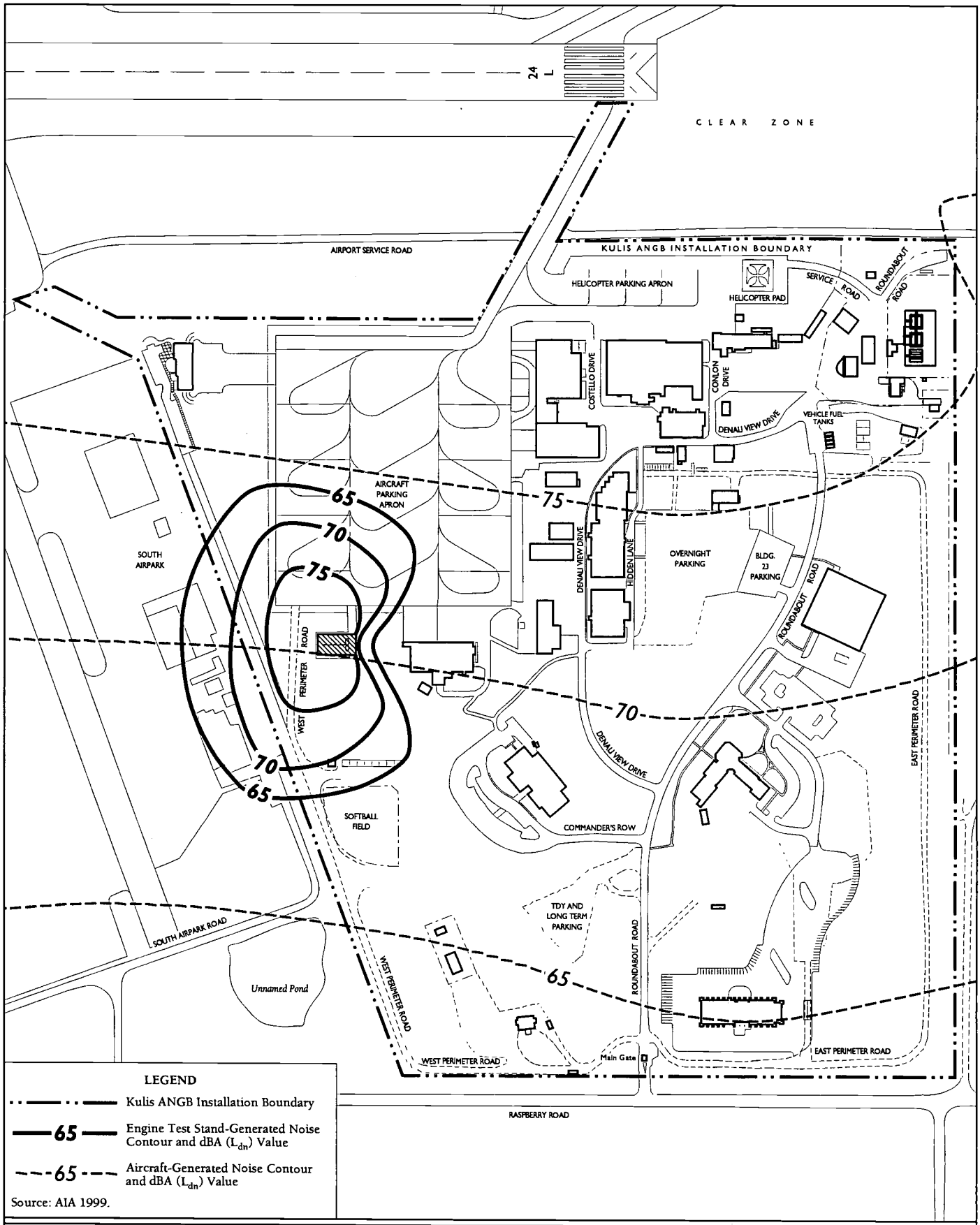


Figure 3-4
Aircraft- and Engine Test Stand-Generated Noise Contours
for an Average Annual Day at Kulis ANGB

Engine Test Stand Operations

The Engine Test Stand is used to overhaul and maintain T-56 engines used on C-130 aircraft based at Kulis ANGB. Typically, a single engine is removed from the aircraft, taken to the stand, worked on, tested to ensure that the engine is operating correctly, and then remounted on the aircraft. On a yearly basis, approximately 36 engine tests are conducted at the Engine Test Stand, consisting of four, one-hour runs per day (a total of 144 hours per year). During each one-hour run, an engine is tested at maximum power for approximately 15 minutes, low idle for approximately 42 minutes, and reverse power for approximately 3 minutes. Engine Test Stand operations only occur between the hours of 8 A.M. and 5 P.M.; no evening or night operations are conducted (Kulis ANGB 2000a).

Figure 3-4 presents existing noise contours in 5 dBA (L_{dn}) increments for an average annual day at Kulis ANGB as a result of current aircraft and Engine Test Stand operations. Contours and maximum noise levels (dBA) have been generated using Omega 11.3, a noise model developed for the U.S. Air Force, and have been verified with existing noise data measured during Engine Test Stand operations (University of Dayton Research Institute 1999; Kulis ANGB 2000b).

Figure 3-5 presents Engine Test Stand noise contours in 5 dBA (L_{dn}) increments for *only* those days in which engine tests occur at Kulis ANGB. While Figure 3-4 presents the average annual day noise contours (i.e., what the average noise environment would be like on any given day), Figure 3-5 represents the noise environment for one of the 36-days per year that engine tests occur. As shown in Figure 3-5, maximum noise levels occur approximately 60 degrees off the front of the engine. Noise levels are the lowest at approximately 180 degrees from the front of the engine.

Table 3-3 presents noise levels (dBA) at varying distances and angles during Engine Test Stand operations at Kulis ANGB. While noise levels resulting from Engine Test Stand operations are greater than noise levels generated by aircraft operations in areas immediately surrounding the Engine Test Stand, aircraft operations conducted at AIA still dominate the overall noise environment in and around AIA.

Table 3-3 Maximum A-Weighted Noise Levels (dBA) at Varying Distances and Angles During Engine Test Stand Operations at Kulis ANGB[1]

	Distance in Feet From Engine Test Stand							
Angle[2]	*200*	*400*	*500*	*1000*	*1250*	*1600*	*2000*	*2500*
0	98	90	87	78	74	71	68	66
60	100	93	90	80	77	74	71	69
120	95	86	83	74	71	69	66	63
180	79	67	64	55	53	51	48	45

Notes: [1] Maximum overall value (of all power settings).
[2] Angle in degrees from the front of the engine.

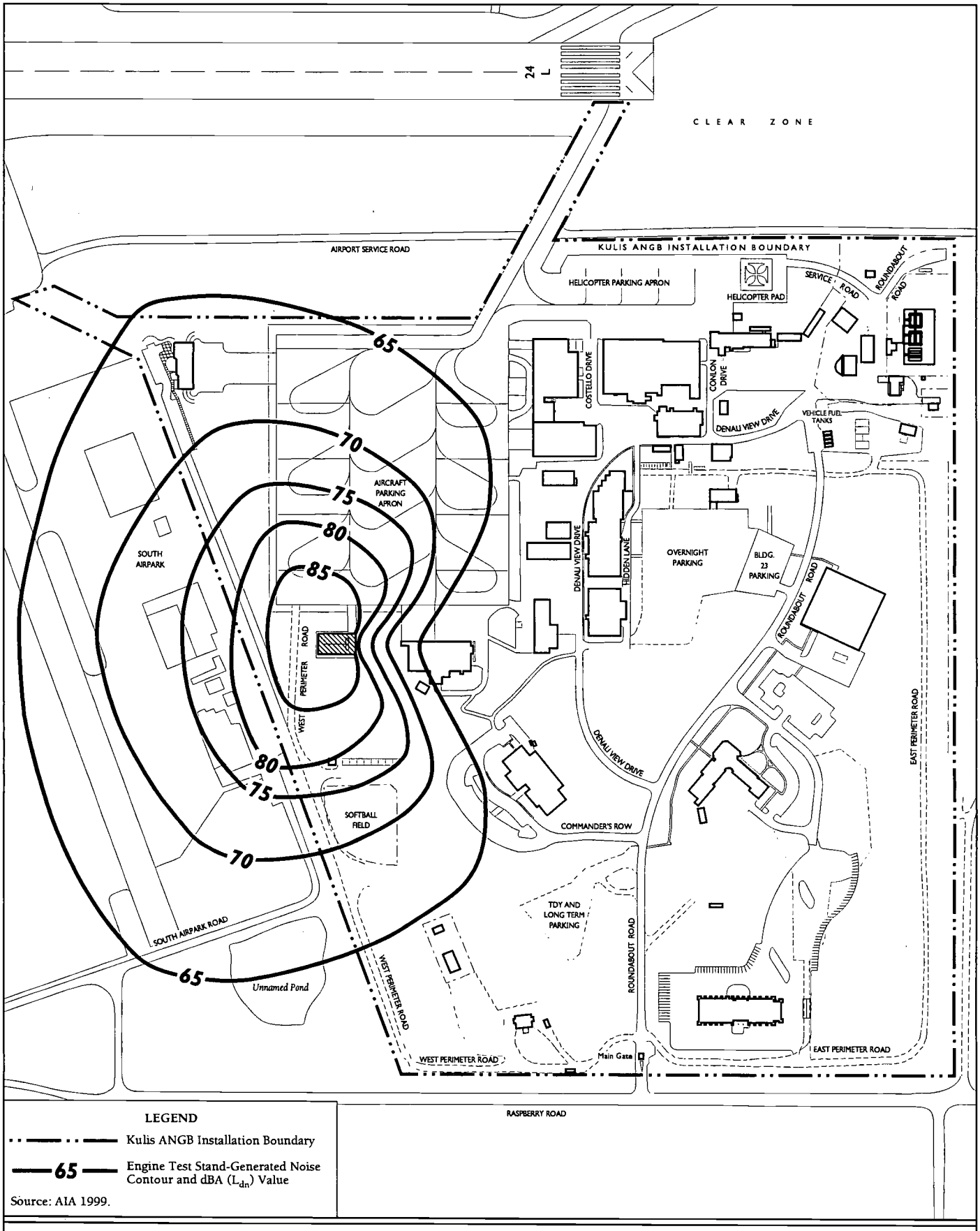


Figure 3-5
Engine Test Stand-Generated Noise Contours
for Testing Days at Kulis ANGB

The Engine Test Stand at Kulis ANGB was originally designed to support limited field-level testing of engines and not the overhaul type of testing that currently occurs. For this reason, the stand does not have any acoustic protection or noise abatement devices. The revetment enclosure surrounding three sides of the stand, which was designed to retain earth, may actually act as an acoustic reflector, potentially increasing noise levels. During especially cold weather, low frequency noise generated from the propeller blade tips can propagate in the direction the propeller blade tips are facing (Kulis ANGB 2000b).

3.3 LAND USE

3.3.1 Definition of Resource

Land use comprises the natural conditions and/or human-modified activities occurring at a particular location. Human-modified land use categories include residential, commercial, industrial, transportation, communications and utilities, agricultural, institutional, recreational, and other developed use areas. Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and are often intended to protect specially designated or environmentally sensitive areas.

Several siting criteria have been established specific to land development and use at commercial and military airfields. For example, Runway Protection Zones (RPZs), which address height restrictions, development density, and land use in and around civilian airports, are enforced to reduce the potential for aircraft-related hazards. Future development at Kulis ANGB is constrained by design and height restrictions including: an object-free zone above and adjacent to each runway and the inner approach to the runway; an RPZ; an existing clear zone around the runways; height restrictions and airspace required for aircraft operations; and a building restriction line.

3.3.2 Existing Conditions

3.3.2.1 Regional Land Use

Kulis ANGB is located within the MoA and shares air support facilities (runways and air traffic control tower) with AIA. Kulis ANGB comprises about 130 acres of land leased from AIA. There are several municipal and state land management plans that regulate zoning and land use in the vicinity of the airport and Kulis ANGB. These include the MoA Zoning Ordinance, MoA Subdivision Ordinance, and FAA requirements for land use within and adjacent to AIA.

Land use directly to the north and west of the base is designated as transportation associated with the airport (Figure 3-6). Along the west boundary of the base is commercial and industrial land related to airport use. Immediately south and east of Kulis ANGB, land uses is primarily residential with parks and open space. Other types of land use in the immediate area include cemeteries, natural resource extraction, mobile homes, and commercial (FAA 1995).

3.3.2.2 Kulis ANGB

The 1995 Master Plan outlines the historical and proposed land use development at Kulis ANGB and establishes goals, policies, and criteria that drive decisions regarding timing, placement, and priority of identified development needs. Existing land use in the northern portion of Kulis ANGB comprises a mixture of land use categories, including airfield pavement areas and aircraft maintenance and operations (Figure 3-6). With the exception of some miscellaneous storage and parking areas, the southern one-third of Kulis ANGB is largely undeveloped and wooded (Alaska Air National Guard [AKANG] 1995).

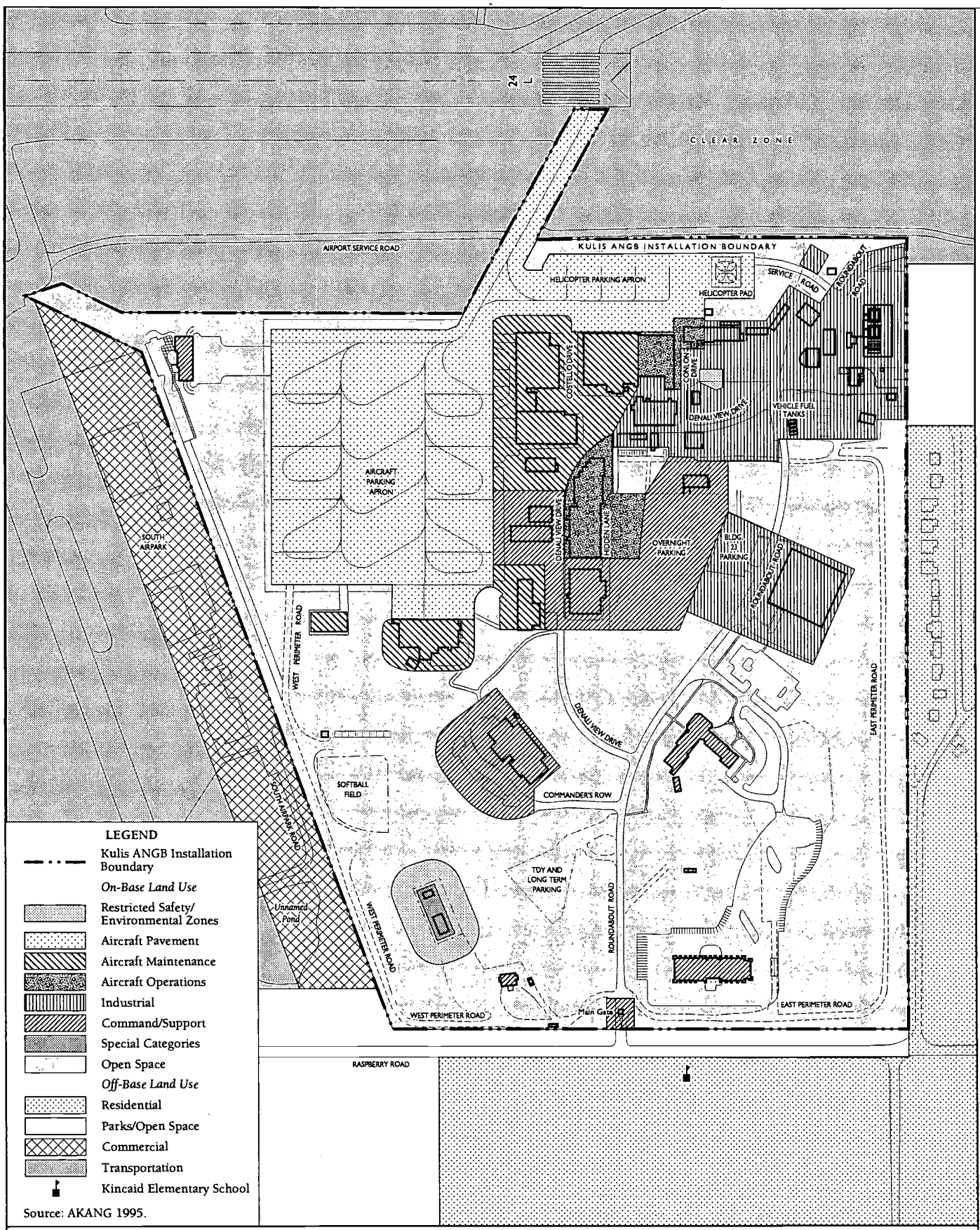


Figure 3-6
Existing Land Use at Kulis ANGB and Immediate Vicinity

To the north of the base, Runway 24L has a clear zone extending from the end of the runway and has a building restriction line extending 800 feet from the edge of the runway which restricts the development of buildings in these areas (see Figure 3-6). Additionally, all taxiways require a 232-foot object free area, measured from the taxiway center and no fixed objects or construction are allowed within 125 feet of the apron edge. In addition, aircraft are not currently being parked in accordance with the approved base Master Plan. FAA mandated wingtip clearances for taxiing aircraft cannot be maintained when all aircraft are parked on the apron. Alert rescue aircraft are often prevented from taxiing to a departure runway because they must wait on the apron until they receive clearance to taxi across two active runways.

Land Use Inventory

Kulis ANGB facilities have been developed on land leased from the AIA, which is owned and operated by the State of Alaska. Land use at Kulis ANGB is divided into eight categories that have been defined by the U.S. Air Force to apply to all ANG installations: restricted zones (safety and environmental), aircraft pavements, aircraft maintenance, aircraft operations, industrial activities, command and support facilities, special categories (munitions storage, hazardous waste accumulation points), and open space (Table 3-4 and Figure 3-6). Parking areas are generally classified as the same land use as the primary facility they serve (AKANG 1995).

Table 3-4 Kulis ANGB Land Use Inventory

Land Use Category	Total Acres	Percent of Total Acres
Restricted Zones	11.3	8.7
Aircraft Pavements	20.0	15.5
Aircraft Maintenance	7.5	5.8
Aircraft Operations	2.9	2.2
Industrial Activities	9.8	7.6
Command and Support Facilities	7.1	5.5
Special Categories	0.3	0.1
Open Space	70.6	54.6
Total	**129.5**	**100**

Source: AKANG 1995, 176th Civil Engineering Squadron 1999.

Land Use and the Noise Environment

Land use planning guidelines established by FICON are used by HUD to determine acceptable noise exposure levels for various land use categories (see Figure 3-3). Land use activities most sensitive to noise typically include residential and commercial areas, public services, and areas associated with cultural and recreational uses.

When analyzing airport noise, 65 dBA (L_{dn}) noise contours are typically used to determine compatibility of aircraft operations with local land use. Certain types of land use (e.g., residential areas) within the aircraft-generated 65 dBA (L_{dn}) noise contour (or greater) would be considered incompatible with aircraft operations. Although aircraft operations at AIA represent the greatest contribution to the overall noise environment within the region, 176th Wing (176 WG) operations represent only a small percentage of total operations at AIA and are considered to be a relatively minor contributor to the overall noise environment. In addition, other sources

of noise (e.g., existing Engine Test Stand operations, roadway traffic and aircraft maintenance activities) also affect the noise environment at Kulis ANGB (see Section 3.2, Noise).

3.4 GEOLOGICAL RESOURCES

3.4.1 Definition of Resource

Geological resources are defined as the geology, soils, and topography of a given area. The geology of an area includes bedrock materials, mineral deposits, and fossil remains. The principal geologic factors influencing stability of structures are soil stability 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. Long-term geological, erosional, and depositional processes typically influence topographic relief of an area. Topography incorporates the physiographic, or surface features of an area and is usually described with respect to elevation, slope, aspect, and landforms.

3.4.2 Existing Conditions

3.4.2.1 Regional Setting

Kulis ANGB is located within the Anchorage Bowl in south-central Alaska, within the Cook Inlet. Geological features in this area range from sea level to more than 1,200 feet above sea level. The regional geology of the Anchorage Bowl is dominated by its tectonic setting and Quaternary glaciation cycles. Bedrock in the Anchorage area consists of a complex mixture of marine sedimentary rocks and igneous rocks (which have been altered by high temperature and pressure during the Chugach Mountain building processes and earlier tectonic activity). These rocks are overlain by Tertiary sedimentary rocks (i.e., sandstones, conglomerates, and shales) representative of continental and shallow marine environments. Interspersing these sedimentary rocks are unconsolidated sediments that have been (and are continuing to be) deposited by glacial and fluvial erosion (U.S. Department of Agriculture [USDA] 1979).

Geological material in the Cook Inlet Basin consists of consolidated rock and unconsolidated deposits ranging from the Paleozoic (600 million years) to Holocene (the last 10,000 years). The consolidated rock, which include sedimentary and metasedimentary rocks, are visible in the mountain ranges that surround the basin. During the Pleistocene epoch, glacial drift in the basin deposited low moraines, which are interspersed with numerous lakes, bogs, and broad outwash plains (U.S. Geological Survey [USGS] 1999).

Anchorage and Kulis ANGB are located at the end of a long narrow basin between the Kenai, Chugach, and Talkeetna Mountains to the east and the Aleutian and Alaska Ranges to the west. This large, narrow basin or bowl consists of unconsolidated glacial deposits (i.e., a mixture of unstratified gravel, sand, silt, and clay) from the Ice Age (Pleistocene epoch). These deposits include a thin layer of windlaid silt (or loess) over lowlands, alluvium along streams, clay and silt deposited in lakes and tidal zones, and organic material (or peat) in wetlands (USGS 1999).

The Anchorage Bowl lies within the tectonically active region of south-central Alaska, an area traversed by several fault systems associated with the subduction zone currently active in the Alaska Trench. The Border Ranges fault system is a major lineament that passes through east Anchorage. Recent seismic activity is generally related to the Eagle River Fault Zone, which extends from Mount Susitna (northwest Anchorage) to northeast of Fort Richardson. Active portions of the fault lie within the Susitna Valley, about 25 miles northwest of Anchorage. In 1984, a magnitude 5.7 earthquake occurred to the northeast of Anchorage, near Sutton (USGS 1999).

3.4.2.2 Kulis ANGB

Topography

Topography in and around Kulis ANGB consists of rolling hills. Kulis ANGB generally slopes south to north towards AIA and Runway 24L. The highest point on the base is approximately 170 feet above sea level and the lowest point is near the parking apron and Runway 24L, approximately 90 feet above sea level.

Soils

Soils underlying the base are typical of the adjacent areas in western Anchorage and consist of alluvium and glacial deposits. Eolian (wind blow sands) and beach deposits are found on the peninsula where the base and AIA are located. A mantle of loess, or loess and volcanic ash covers most of these deposits. Soils underlying the northern half of Kulis ANGB are identified as urban land. The urban land mapping unit is an area where more than 80 percent of the ground surface is covered by impervious surfaces (U.S. Army Corps of Engineers [USACE] 1979). Soils underlying the southern section of the base are composed of six non-hydric soils: Caswell silt loam, 3 to 7 percent slopes; Tuomi silt loam, 3 to 7 percent slopes; Tuomi silt loam, 12 to 20 percent complex slopes; Tuomi silt loam, 7 to 12 percent complex slopes; Cryorthents, gravelly, fill; and Cryorthents, gravelly, smoothed. In addition, Kulis ANGB soils include one hydric soil: Slikok mucky silt loam with 3 to 7 percent slopes (USDA 1991).

3.5 WATER RESOURCES

3.5.1 Definition of Resource

Issues addressed in this section include water quality, availability of surface water and groundwater, and potential for flooding. Surface water resources comprise lakes, rivers, and streams, and are important for a variety of reasons including economic, ecological, recreational, and human health. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential resource in many areas. Groundwater is often 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.

Other issues relevant to water resources include areas affected by existing and potential runoff and hazards associated with 100-year floodplains (areas generally subject to major flooding once every 100 years). Inundation dangers associated with floodplains have prompted federal, state, and local legislation that limits development within identified flood-prone zones. Specifically, development of areas within the identified 100-year floodplain zone is typically limited to recreation and preservation activities.

3.5.2 Existing Conditions

3.5.2.1 Regional Conditions

Surface Water

Kulis ANGB is located within the Anchorage Watershed, which encompasses the Anchorage Bowl region. Runoff, principally generated from precipitation in the Chugach Mountains, flows in a westerly direction towards Cook Inlet along the Ship, Chester, South Fork Campbell, Campbell, Little Campbell, and Rabbit Creeks. Runoff typically peaks twice a year in the Anchorage region: during May-June, when "breakup" or snowmelt occurs, and again during September-October, due to rainfall. Low stream-flow levels are typically prevalent during the remainder of the year (USGS 1999). Major lakes in the region include Campbell Lake, Lake Hood, Lake Spenard, and Sand Lake. In addition, numerous smaller lakes and ponds exist within the western periphery of the Anchorage region, primarily near AIA.

Groundwater

The Anchorage Bowl region is underlain by two aquifers (a shallow unconfined aquifer, and a deep, confined aquifer). These aquifers flow west from the Chugach Mountains to the Cook Inlet and are sustained by groundwater recharge precipitation in the mountains and subsurface flow originating from perennial surface streams. The aquifers exist in different geologic strata, separated by a 60- to 200-foot thick layer of impermeable Bootlegger Cove Clay which is believed to serve as an effective barrier to groundwater flow between the two aquifers (USGS 1999).

Below the Bootlegger Cove Formation is a confined aquifer consisting of poorly sorted glacial deposits. The aquifer ranges between 100 and 300 feet below the surface, and historically has been the principal source of water for the MoA. Production of water from the aquifer peaked in 1985 at approximately 4,000 million gallons. The quality of water produced from the confined aquifer is generally regarded as excellent. While groundwater flow can vary from location to location within the region, groundwater flow generally trends west (USGS 1999).

3.5.2.2 Kulis ANGB

Surface Water

Kulis ANGB is divided up into five distinct stormwater drainage basins (Figure 3-7). Stormwater from each of the drainage basins eventually discharges into either the AIA storm drainage system (Basins 1 and 2), Meadow Lake (Basin 3), DeLong Lake (Basin 4), or to an unnamed pond located outside of the southwestern corner of Kulis ANGB (Basin 5) (AKANG 1996a). Generally, stormwater runoff from airports is of poor water quality due to contamination by products used for fueling, lubrication, and maintenance of aircraft. The majority of stormwater runoff from AIA flows into Lake Hood and Spenard Lake (AIA 1996).

Stormwater discharge from industrial activity at Kulis ANGB is covered under a National Pollutant Discharge Elimination System (NPDES) General Permit (#AKR00A619) issued by the USEPA. As part of permit compliance, the USEPA requires that a Notice of Intent be filed before beginning any construction activity that disturbs 5 or more acres (AKANG 1996a).

Groundwater

The Kulis ANGB area is underlain by the same groundwater hydrology as described for the Anchorage Bowl region. However, the unconfined aquifer is shallow beneath Kulis ANGB (approximately 12 to 14 feet). The shallow nature of the aquifer leads to the existence of many small lakes and ponds as a result of the existence of the Bootlegger Clay Formation, which traps runoff at the surface, producing small ponds and wetlands (AIA 1996). Subsequently, depths of the confined aquifer range between 98 to 115 feet below the surface at Kulis ANGB. The groundwater flow in the confined aquifer beneath Kulis ANGB is generally to the southwest. In general, groundwater quality is considered to be adequate and just passes drinking water criteria standards established by the State of Alaska. However, iron concentrations of 0.62 milligrams per liter surpass the maximum allowable concentration of 0.3 milligrams per liter. While Kulis ANGB once utilized two groundwater production wells, these wells have been abandoned since the base is now connected to the MoA water distribution system (Kulis ANGB 1995).

Floodplains

No areas of Kulis ANGB are located within the identified 100-year floodplain zone (Kulis ANGB 1999a).

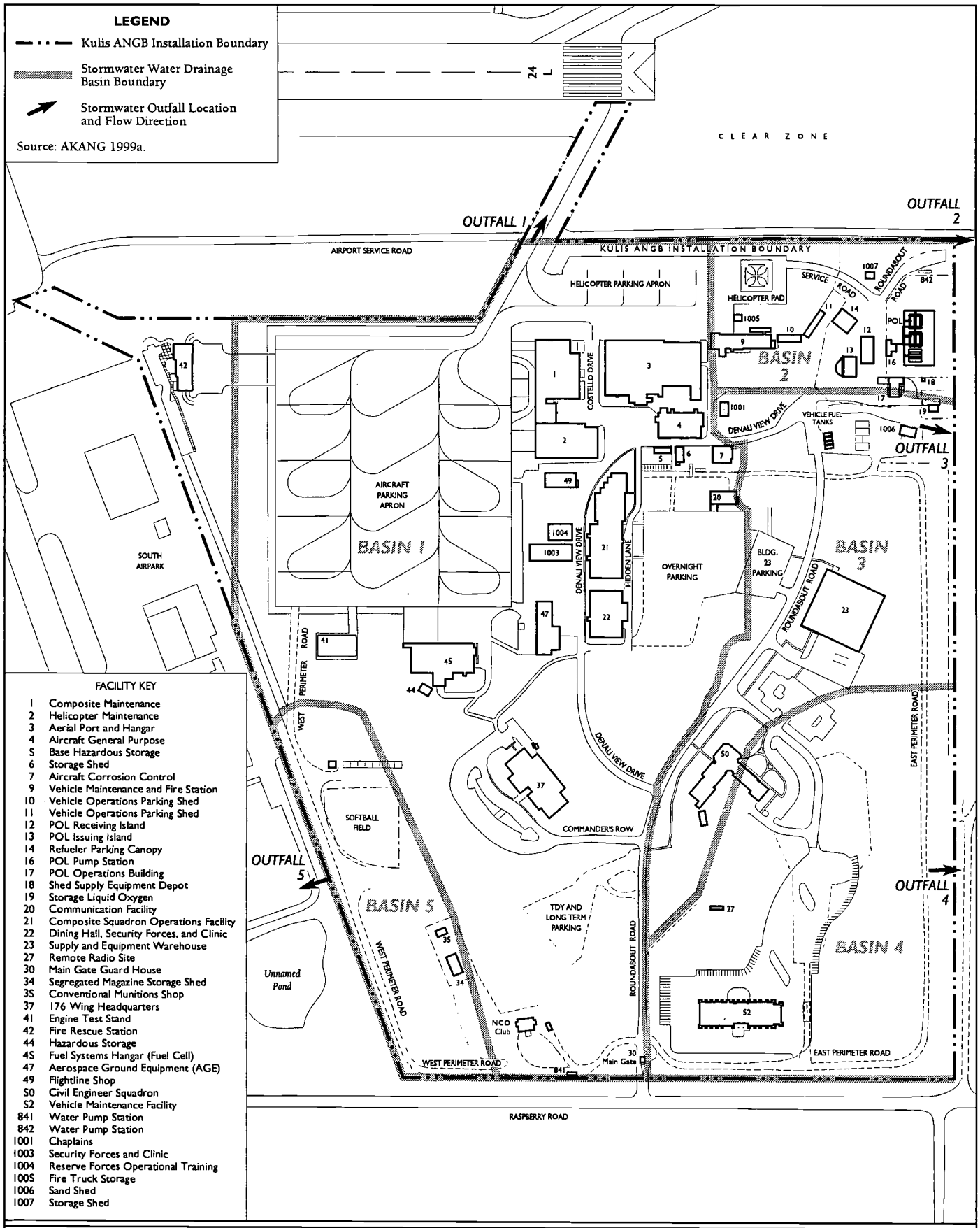


Figure 3-7
Stormwater Drainage Basins at Kulis ANGB

3.6 BIOLOGICAL RESOURCES

3.6.1 Definition of Resource

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are referred to as vegetation and animal species are referred to as wildlife. Habitat can be defined as the resources and conditions present in an area that produces occupancy of a plant or animal (Hall et al. 1997). Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society. This analysis focuses on species or vegetation types that are important to the function of the ecosystem, of special societal importance, or are protected under federal or state law or statute. For purposes of the EA, these resources are divided into four major categories: vegetation; wetlands; wildlife; and threatened, endangered, or sensitive plant and animal species.

Vegetation includes all existing terrestrial plant communities with the exception of wetlands or threatened, endangered, or sensitive plant species. The affected environment for vegetation includes only those areas potentially subject to ground disturbance.

Wetlands are considered sensitive habitats and are subject to federal regulatory authority under Section 404 of the Clean Water Act (CWA) and Executive Order (EO) 11990, *Protection of Wetlands*. Jurisdictional wetlands are defined by the USACE as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (U.S. Department of the Army 1987). Areas meeting the federal wetland definition are under the jurisdiction of the USACE. Wetlands generally include swamps, marshes, bogs, and similar areas. Like vegetation, the affected environment for wetlands includes only those areas potentially subject to ground disturbance.

Wildlife includes all vertebrate animals with the exception of those identified as threatened, endangered, or sensitive. Wildlife includes fish, amphibians, reptiles, birds, and mammals.

Threatened, endangered, or sensitive species are defined as those plant and animal species listed as threatened, endangered, or proposed as such, by the U.S. Fish and Wildlife Service (USFWS). The federal Endangered Species Act protects federally listed threatened and endangered plant and animal species. Federal species of concern, formerly Category 2 candidate species, are not protected by law; however, these species could become listed and, therefore, protected at any time. Their consideration early in the planning process may avoid future conflicts that could otherwise occur.

3.6.2 Existing Conditions

3.6.2.1 Regional Conditions

The Cook Inlet Basin is located in the south-central physiographic region of Alaska. This is a diverse area, encompassing alpine areas in the Alaska Range and coastal marshes along the Cook

Inlet. Vegetation in this area includes a total of 19 forest types, 6 shrub types, and 7 herbaceous types. Forest types include conifer, broadleaf, and mixed forest. Scrub or shrub types are dwarf tree, scrub, tall scrub, low scrub, and dwarf scrub. The herbaceous classification is divided into broad classifications including graminoids (grasses and grass-like), forbs, bryoids (mosses and lichens), and aquatic (nonemergent) (Viereck et al. 1992).

3.6.2.2 Kulis ANGB

The dominant vegetation type near Kulis ANGB and a major portion of area surrounding the greater Anchorage metropolitan area has been identified as Moist Herbaceous/Shrub Tundra (Alaska Geophysical Data Clearinghouse 1998). Other vegetation cover types adjacent to Kulis ANGB are Open and Closed Spruce Forest, Closed Broadleaf Forest, Mixed Forest, and a small amount of Low and Tall Shrub (USGS 1999). These vegetation cover types are typical of lowland coastal communities in southern Alaska.

Vegetation

Most of the native vegetation on Kulis ANGB has been permanently removed or altered. Kulis ANGB is highly developed, including buildings, roadways, parking lots, aircraft parking aprons, and temporary structures (Figure 3-8). The areas surrounding the majority of the buildings have been actively landscaped, altering the native vegetation. Landscaped areas surrounding the buildings at Kulis ANGB include a variety of native and ornamental tree and shrub species, as well as large areas of lawn.

Only small areas of native vegetation remain on Kulis ANGB, with the dominant vegetation cover type being Mixed Forest, which is composed of white spruce (*Picea glauca*), paper birch (*Betula papyrifera*), and black cottonwood (*Populus balsamifera trichocarpa*). Several tall shrubs including American green (*Alnus crispa*), devils club (*Opopanax horridus*), and various species of willow (*Salix* spp.) are also present in the understory. Bluejoint reedgrass (*Calamagrostis canadensis*) is the dominant groundcover in these areas.

Wetlands

The National Wetlands Inventory (NWI) Map identifies one palustrine, unconsolidated bottom, permanent wetland within the boundaries of Kulis ANGB (USFWS 1992) (Figure 3-8). However, the location of the wetland on the NWI Map is in the southwest corner of a gravel parking area for Buildings 21 and 22. A field survey conducted in August 1999 revealed no areas exhibiting any of the three wetland criteria (vegetation, soils, and hydrology) at Kulis ANGB (The Environmental Company, Inc. [TEC] 1999). It is assumed that the area identified on the NWI Map as a wetland is where snow is piled after its removal from the parking lot.

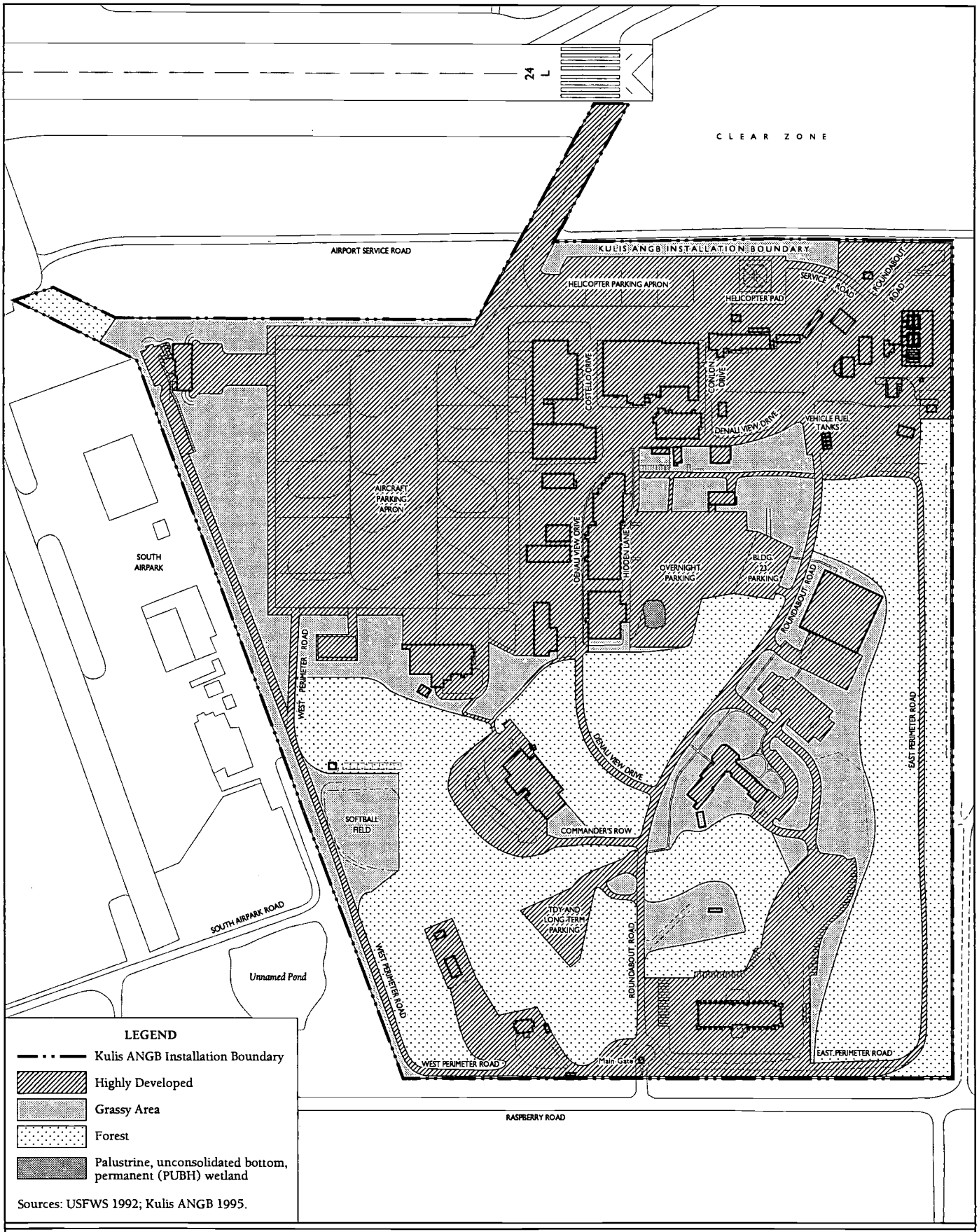


Figure 3-8
Vegetation and Wetland Types at Kulis ANGB

Wildlife

A diversity of wildlife inhabits or migrates through the Cook Inlet Basin. Some of the larger mammals that inhabit the areas in and around Kulis ANGB include coyote (*Canis latrans*), black bear (*Ursus americanus*), and moose (*Alces alces*). Smaller mammals that may occur on or near Kulis ANGB include American beaver (*Castor canadensis*), common muskrat (*Ondatra zibethicus*), snowshoe hare (*Lepus americanus*), and various species of shrews, voles, and squirrels. Over 100 species of passerine birds have been identified in and around the Anchorage area. Waterfowl, especially geese, are common at Kulis ANGB and AIA during spring and fall migration periods. Common birds of prey that frequent the area include bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), hawks, and owls.

Threatened and Endangered Species

Five federally-listed threatened or endangered species are known to occur in Alaska: four birds and one plant (Table 3-5) (USFWS 2000).

Table 3-5 Federally Threatened and Endangered Species Occurring in Alaska

Common Name	Scientific Name	Status[1]	Habitat
BIRDS			
Aleutian Canada goose	*Branta canadensis leucopareia*	FT[2]	Croplands, pastures, lakes, reservoirs, non-forested wetlands, and tundra.
Eskimo curlew	*Numenius borealis*	FE	Tundra, croplands, pastures, bays, estuaries, non-forested wetlands, beaches and other sandy areas.
Spectacled eider	*Somateria fischeri*	FT	Tundra and coastal waters along the northern coasts of Alaska and Siberia.
Steller's eider	*Polysticta stelleri*	FT	Rocky coasts; nest sites found on inland grassy areas or tundra; winter range extends along the southern coast of Alaska and Aleutian Islands south to the northern California coast.
PLANT			
Aleutian shield-fern (= Aleutian holly-fern)	*Polystichum aleuticum*	FE	Exposed, weathered rock outcrops with rooting substrate confined to fissures, crevices, and thinly mantled horizontal ledges.

Notes: [1]FE = Federally endangered; FT = Federally threatened.
[2]The Aleutian Canada goose has recently been proposed for Federal delisting (USFWS 1999a).
Source: USFWS 2000.

According to the USFWS, no federally-listed threatened or endangered species occur on or near Kulis ANGB. None of the above listed species have been observed at Kulis ANGB, nor does Kulis ANGB provide critical habitat for any of these species (USFWS 1999b).

3.7 TRANSPORTATION AND CIRCULATION

3.7.1 Definition of Resource

Transportation refers to the movement of vehicles on roadway networks. Primary roads, such as major interstates, are designed to move traffic and do not necessarily provide access to all adjacent areas. Secondary roads, commonly referred to as surface streets, are used to gain access to residential and commercial areas, hospitals, and schools. In addition, this EA examines the parking and movement of aircraft associated with the AKANG along aprons and taxiways of Kulis ANGB and AIA.

Roadway operating conditions, or the adequacy of the existing and future roadway system to accommodate vehicles, are typically described in terms of average daily traffic (ADT) volumes and level of service (LOS) ratings. LOS ratings range from a LOS rating of A for free-flowing traffic conditions to a LOS rating of F for congested conditions.

3.7.2 Existing Conditions

3.7.2.1 Regional and Local Circulation

Vehicles enter Kulis ANGB at the main gate from Raspberry Road, which is an east-west oriented roadway that connects to the Minnesota Drive Bypass. Raspberry Road is classified as a minor arterial and has an ADT volume of 20,000 vehicles per day. Just past the entrance to Kulis ANGB, Raspberry Road narrows to four lanes and has a LOS rating of A. Minnesota Drive is a controlled four lane, divided roadway with a LOS rating of A and provides access to the Old and New Seward Highways. ADT volumes along Minnesota Drive to the north and south of Raspberry Road are 37,000 and 30,000 vehicles per day, respectively (Alaska Department of Transportation 1999).

3.7.2.2 Kulis ANGB

Access

Vehicular access to Kulis ANGB base is limited to the main gate at Raspberry Road along the southern boundary of the base (Figure 3-9). Guard personnel, heavy equipment, and commercial deliveries use the main gate. The current location of the main gate limits vehicle control and traffic management at Kulis ANGB because it is the only point of entry. Vehicle congestion at the main gate is particularly evident during unit training assembly (UTA) weekends.

Circulation

Roundabout Road and Denali View Drive serve as the principal arteries providing access through Kulis ANGB and between functional areas of the base (Figure 3-9). Secondary roads include Costello Drive, Conlon Drive, and Hidden Lane. Congestion along these roadways is common during UTA weekends. In addition, there are two semi-improved unpaved roads located along the east and west boundaries of the base (East Perimeter Road and West Perimeter Road, respectively).

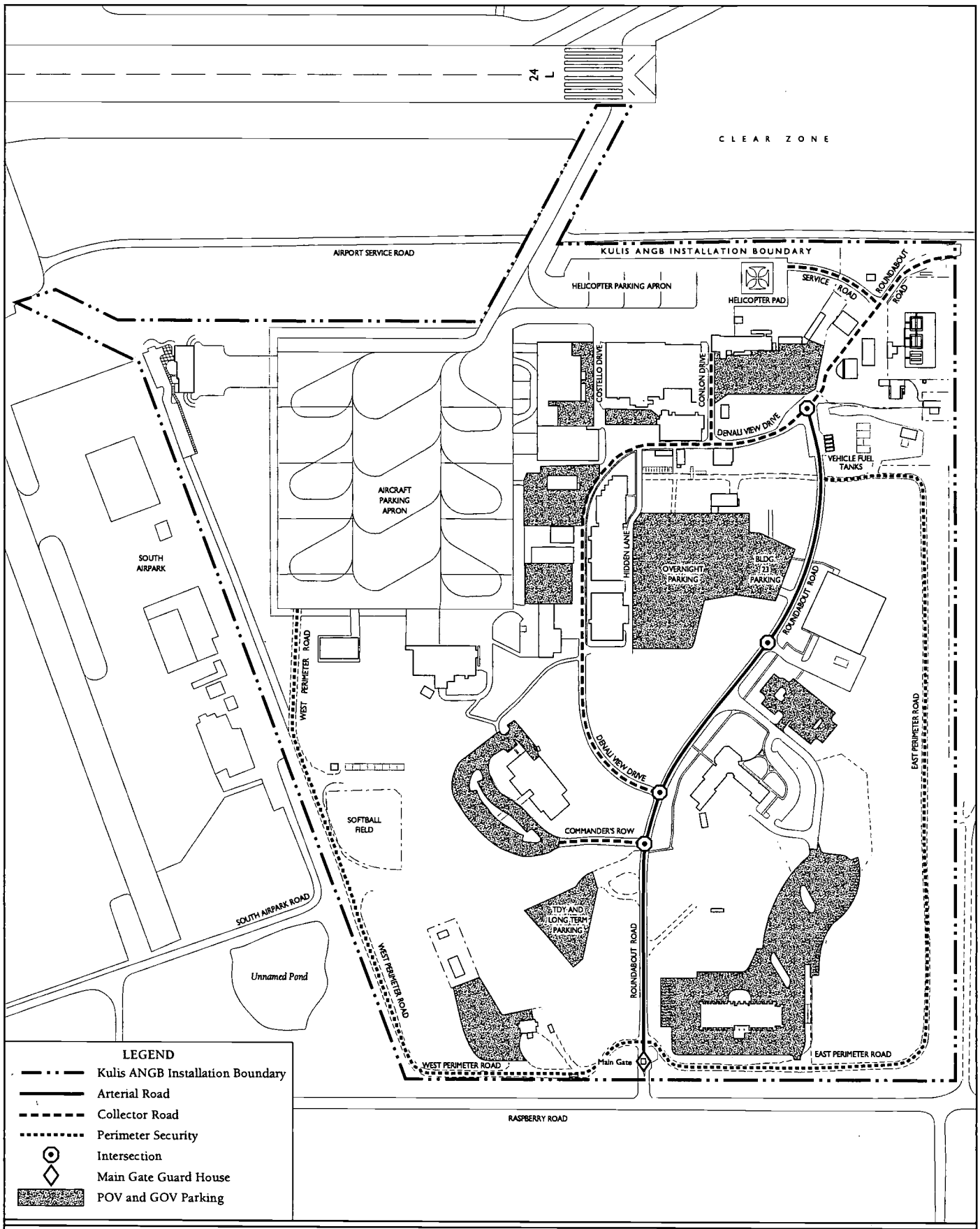


Figure 3-9
Existing Circulation and Parking at Kulis ANGB

Aircraft circulation conflicts exist at the base. Alert rescue aircraft are often delayed when taxiing to a departure runway because they have to wait until they receive clearance to taxi across the two active runways. This is because the taxiway from Kulis ANGB exits directly onto one of the AIA parallel runways (Runway 24L; see Figure 3-9).

On-Base Parking

Currently, there are 550 parking spaces at Kulis ANGB, comprising 175 paved parking spaces and 375 unimproved spaces for privately-owned vehicles (POVs) and government-owned vehicles (GOVs). During UTA weekends, approximately 1,200 personnel are on base for various training activities, and typically there is a shortage of parking. GOV parking is restricted to areas directly associated with the flightline, aircraft apron, vehicle maintenance shop, and Civil Engineering building.

Currently, 10 C-130s are parked on the west apron and 4 HH-60s are parked on the north apron and are not parked in accordance with FAA guidelines. In addition, the necessary wing tip clearances for taxiing aircraft are not maintained when all 176 WG aircraft are parked on the apron. Due to the limited size of the west apron area, rescue helicopters must be parked on the old north apron, thereby separating them from the helicopter maintenance hangar located on the west apron. Helicopters are not allowed to park on the west apron because the apron is located too close to an active runway (Runway 24L).

3.8 VISUAL RESOURCES

3.8.1 Definition of Resource

Visual resources are defined as the natural and manufactured features that comprise the aesthetic qualities of an area. These features form the overall impression that an observer receives of an area or its landscape character. Landforms, water surfaces, vegetation, and manufactured features are considered characteristic of an area if they are inherent to the structure and function of a landscape.

The significance of a change in visual character is influenced by social considerations including public value placed on the resource, public awareness of the area, and general community concern for visual resources in the area. These social considerations are addressed as visual sensitivity and are defined as the degree of public interest in a visual resource and concern over potential adverse changes in the quality of that resource.

3.8.2 Existing Conditions

3.8.2.1 Regional Visual Character

Anchorage is located in south central Alaska on a vast alluvial plain that is situated between the base of the Chugach Mountains and the head of Cook Inlet. This area is commonly referred to as the Anchorage Bowl. The Chugach, Kenai, and Alaska mountain ranges can be seen from Anchorage, as well as Mt. McKinley, approximately 130 miles to the north.

Downtown Anchorage is located approximately 3 miles to the northeast of the AIA. Kulis ANGB is located on property leased from the AIA and is surrounded by development associated with the airport to the north and west. An industrial park (South Airpark) is located adjacent to the west boundary of the base. This area is intensively developed for airport-related business and industrial activities and supports commercial helicopter, air taxi/commuter, and airfreight/cargo operations. Directly to the south and east of Kulis ANGB, across Raspberry Road, are open space and residential areas.

3.8.2.2 Kulis ANGB

The visual environment at Kulis ANGB is characteristic of a military base, as most structures are one- to two-story buildings constructed primarily of earth-tone cement materials and corrugated metal. Much of Kulis ANGB is covered by impermeable surfaces including buildings and pavement or crusted gravel, with forested buffers between the buildings. Buildings include hangars, operations buildings, and warehouses. Minimal landscaping exists around some of the newer buildings to avoid high maintenance efforts. Forested areas are found in the southern and eastern portions of the base.

3.9 CULTURAL RESOURCES

3.9.1 Definition of Resource

Cultural resources consist of landscapes, archaeological sites, structures, artifacts, flora and fauna, and geological features that are considered important to a social, ethnic, cultural or occupational group's shared identity, existence as a community or necessary for continuation of traditional ways of life. The National Register program divides cultural resources into three major categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural properties.

Archaeological resources are locations where human activity measurably altered the earth or left deposits of physical remains (e.g., tools, arrowheads, or bottles). "Prehistoric" refers to resources that predate the advent of written records in a region. These resources can range from a scatter composed of a few artifacts to village sites and petroglyphs. "Historic" refers to resources that postdate the advent of written records in a region. Archaeological resources can include campsites, roads, fences, trails, dumps, battlegrounds, mines, and a variety of other features. *Architectural resources* include standing buildings, dams, canals, bridges, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for protection under existing cultural resource laws. However, more recent structures, such as Cold War era military buildings, may warrant protection if they have the potential to be historically significant structures. Architectural resources must also possess *integrity* (its important historic features must be present and recognizable). *Traditional cultural properties* can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other social, occupational, or ethnic groups consider essential for the continuance of traditional cultures or existence as a community.

Significant cultural resources, known or unknown, warrant consideration with regard to adverse impacts resulting from a proposed action. To be considered significant, archaeological resources, architectural resources, or traditional cultural properties must meet one or more criteria as defined in 36 Code of Federal Regulations (CFR) 60.4 for inclusion in the National Register of Historic Places (NRHP).

Several federal laws and regulations have been established to manage cultural resources, including the National Historic Preservation Act (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resource Protection Act (1979), and the Native American Graves Protection and Repatriation Act (1990).

Coordination with federally recognized Indian Tribes or Alaskan Natives must occur in accordance with EO 13084, *Consultation and Coordination with Indian Tribal Governments*. In addition, EO 13007, *Indian Sacred Sites,* requires all Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites.

On November 21, 1999 the DoD promulgated its American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. The Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly effect protected tribal resources, tribal rights, and Indian lands before decisions are made by the services.

3.9.2 Historical Context

It is hypothesized that the majority of Alaska's native people are descendants from nomadic hunters and gatherers who crossed over into Alaska from Siberia approximately 15,000 years ago. During the Ice Age, the majority of water covering the Earth's surface was in the form of ice and snow. Land masses, which today are submerged under the ocean, were exposed and created a connection from Alaska to Siberia that allowed people to migrate into the northern areas (State of Alaska 1999).

The first Alaskans are divided into three unique groups: Aleuts, Eskimos, and Indians. The Aleuts settled mainly on the Aleutian Islands (which was named after these early settlers), while the Eskimos scattered throughout the northern and western regions. The two dominant Indian groups in Alaska are the Tlingits and Athapaskans. The Tlingits settled in Southeast Alaska while the Athapaskans settled in Central Alaska (State of Alaska 1999).

Alaska remained fairly isolated until the mid-1700s when Russian sailors discovered the Aleutian Islands. The discovery of this vast land soon brought British, Spanish, and American explorers. However, it was the Russians that had the greatest impact on Alaska, establishing the first permanent settlement on the Kodiak Islands in 1784, and extending their claim on Alaska to the state's southeast coast by 1799. During the 1800s, whalers and fur traders from other nations migrated into Alaska. However, the European war impacted Russia's claim on Alaska and when profits from fur trading declined, Russia lost interest in the area. On October 18, 1867, the U.S. purchased Alaska from the Russians. However, the territory of Alaska would not become a state until 1959 (State of Alaska 1999).

As a result of pressures from the local citizens, the City of Anchorage was incorporated on November 23, 1920. Throughout most of the 20th century, Anchorage underwent growth in population and business. The completion of the railroad in 1923 and increased air transportation throughout the 1930s made Anchorage a center for trading and distribution of resources and goods. Additionally, military expansion in Anchorage increased throughout the 1940s, boosting the population and economy of the area. The development of Prudhoe Bay oil fields in northern Alaska and the building of the Alaska pipeline system during the 1970s further benefited the Alaskan economy. In recent decades, Alaska's recreational resources have become increasingly important, with increased tourism and use of recreational facilities throughout the area (MoA 1999d).

3.9.3 Existing Conditions

3.9.3.1 Regional History

The region surrounding Kulis ANGB is an area of historical importance and contains several sites of historic significance. Table 3-6 lists properties located in the Anchorage area that are listed in the NRHP.

Table 3-6 National Register of Historic Places Properties Located near Kulis ANGB

Site Name	Location (Anchorage)	Listed Date
Alaska Engineering Commission Cottage No. 23	618 Christensen Dr.	1990
Alaska Engineering Commission Cottage No. 25	645 W. Third Ave.	1996
Anchorage Cemetery	535 E. 9th Ave.	1993
Anchorage City Hall	524 W. 4th Ave.	1980
Anchorage Depot	411 W. First Ave.	1999
Anchorage Hotel Annex	330 East Street	1999
Oscar Anderson House	4th Ave.	1978
Beluga Point Site	Address Restricted	1978
Campus Center	University Drive	1979
David Leopold House	605 W. Second Ave.	1986
Federal Building-U.S. Courthouse	601 W. 4th Ave.	1978
Fourth Avenue Theatre	630 W. 4th Ave.	1982
KENI Radio Building	1777 Forest Park Dr.	1988
Kimball's Store	500 and 504 W. Fifth Ave.	1986
Loussac – Sogn Building	425 D St.	1998
Pioneer School House	3rd Ave. and Eagle St.	1980
Potter Section House	Off AK 1	1985
Wendler Building	400 D St.	1988

Source: National Registration Information System 1999.

3.9.3.2 Kulis ANGB

AKANG was organized as the 8144th Air Base Squadron in 1952 at Elmendorf Air Force Base (AFB) and was established to defend the territory of Alaska and the United States of America. The original mission of the AKANG was as a fighter-bombing unit; however, over the years Kulis ANGB aircraft and missions have evolved into an airlift and search and rescue mission. When the AKANG was first organized, the unit was comprised of 16 personnel and armed with one training aircraft. The original buildings that housed guard personnel when the AKANG was first established at Kulis ANGB in 1955 included Building 3, an aircraft hangar, and Building 4, which was used as a general purpose aircraft shop. Most of the buildings that exist on the base today were built after 1970 (Table 3-7). There are no pre-military structures located on base property (Kulis ANGB 1999c).

Although no surveys have been performed, current literature research indicates that there are no cultural resources at Kulis ANGB that are known to exist or are listed on the NRHP (National Registration Information System 1999). However, there are six historic aircraft on display at the installation that are on permanent loan from the Wright-Patterson Air Force Museum.

Kulis ANGB is not located in an area of known concern for any of the Alaskan Native Villages or Corporations. In addition, no traditional cultural properties or traditional or scared resources

of interest to Native Americans have been identified on the installation (Bureau of Indian Affairs [BIA] 2000).

Table 3-7 Existing Facilites at Kulis ANGB

Building No.	Building	Year Constructed	Year Modified
1	Composite Maintenance	1977	1994
2	Helicopter Maintenance	1964	1992
3	Aerial Port and Hangar	1955	1963, 1980, 1989
4	Aircraft General Purpose Shop	1955	N/A
5	Base Hazardous Storage	1959	N/A
6	Storage Shed	1980	N/A
7	Aircraft Corrosion Control	1982	N/A
9	Vehicle Maintenance and Fire Station	1963	1993
10	Vehicle Operations Parking Shed	1967	N/A
11	Vehicle Operations Parking Shed	1967	N/A
14	Refueler Parking Canopy	1977	N/A
16	POL Pump Station	1972	N/A
17	POL Operations Building	1977	1977
18	Shed Supply Equipment Depot	1978	N/A
19	Storage Liquid Oxygen	1982	N/A
20	Communication Facility	1989	N/A
21	Composite Squadron Operations Facility	1971	N/A
22	Dining Hall, Security Forces, and Clinic	1975	1982
23	Supply and Equipment Warehouse	1993	N/A
27	Remote Radio Site	1974	N/A
30	Main Gate Guard House	1971	N/A
34	Segregated Magazine Storage Shed	1997	N/A
35	Conventional Munitions Shop	1997	N/A
37	176 Wing Headquarters	1985	N/A
42	Fire Rescue Station	2000	N/A
44	Hazardous Storage	1985	N/A
45	Fuel Systems Hangar (Fuel Cell)	1980	N/A
47	Aerospace Ground Equipment (AGE)	1970	N/A
49	Flightline Shop	1985	N/A
50	Civil Engineer Squadron	1997	N/A
52	Vehicle Maintenance Facility	2000	N/A
841	Water Pump Station	1989	N/A
842	Water Pump Station	1989	N/A
1001	Chaplains	1990	N/A
1003	Security Forces and Clinic	1990	N/A
1004	Reserve Forces Operational Training	1990	N/A

Source: Kulis ANGB 1999c.

3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.10.1 Definition of Resource

Socioeconomics typically comprises the basic attributes of population and economic activity within a particular area or ROI and encompasses population, employment and income, and industrial/commercial growth. Impacts on these fundamental socioeconomic resources can also influence other components such as housing availability and public services provision.

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued to focus attention of federal agencies on human health and environmental conditions in minority and low-income communities. In addition, EO 12898 aims to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed. In particular, this socioeconomics analysis gives particular attention to the distribution of race and poverty status in areas potentially affected by implementation of the proposed action.

Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced in 1997. EO 13045 helps to ensure that federal agencies' policies, programs, activities, and standards address environmental risks and safety risks to children. Specifically, this socioeconomics section identifies the distribution of children and locations where numbers of children may be proportionately high (e.g., schools, childcare center, family housing, etc.) in areas potentially affected by implementation of the proposed action.

Socioeconomic data are presented for the MoA, State of Alaska, and the U.S. to analyze baseline socioeconomic conditions in the context of regional, state, and national trends.

3.10.2 Existing Conditions

3.10.2.1 Population

Aside from the gold rush of 1887, the establishment of Elmendorf AFB and Fort Richardson Army Post during World War II were the primary reasons for Anchorage's first rapid population expansion. It was during this period that Anchorage became the most populated city in Alaska. During the 1950s, the Korean and Cold Wars resulted in additional expansion of defense installations in the Anchorage area, which subsequently resulted in an increase in Anchorage's population. The population of Anchorage continued to increase following Alaska's statehood in 1959 (MoA 2000a).

The discovery of oil in the Kenai Peninsula and the North Slope in 1968 also contributed to population increases. By 1960, Anchorage's population was 82,833, more than double what it had been in 1950. The completion of the Trans-Alaska Pipeline in 1977, in combination with other factors, led to a construction boom and a period of rapid population and economic growth. This trend continued through the late 70s and early 80s, peaking in 1985, with an estimated population of 248,263 (MoA 2000a).

Between 1985 and 1988, the population of Anchorage decreased approximately 10 percent as a result of the recession and a crash in oil prices. This resulted in cutbacks in petroleum-related activities within the Anchorage area. However, the Anchorage economy began to recover in 1989, due in part to cleanup efforts for Exxon Valdez oil spill. In addition, growth in the tourist industry, increasing oil prices, and the increased utilization of AIA as a major cargo hub contributed to a 12-percent increase in population in the 1990s, well above the national average of 4.2 percent (MoA 2000a). Table 3-8 presents population trends for the U.S., State of Alaska, and Anchorage from 1950-1996.

Table 3-8 Population of the United States, State of Alaska, and Anchorage, 1950-1996

Year	United States Population	Alaska Population	Anchorage Population	Percent of State Population
1950	152,271,000	128,643	30,060	23.4
1960	180,671,000	226,167	82,833	36.6
1965	194,303,000	265,192	102,337	38.6
1970	205,052,000	302,361	126,385	41.8
1975	215,973,000	384,100	177,817	46.3
1980	227,726,000	401,851	174,431	43.4
1985	238,466,000	539,600	248,263	46.0
1990	249,949,000	550,043	226,338	41.1
1996	265,453,000	607,800	254,269	41.8

Source: MoA 2000b.

Kulis ANGB

The AKANG work force at Kulis ANGB includes approximately 450 full-time personnel (not including contract labor) during regular weekday shifts. In addition, 30 State of Alaska civilian personnel and 12 civilian fire fighters are employed full time. Together, the full-time force carries out the day-to-day operations of Kulis ANGB in support of 860 part-time "traditional" ANG personnel. Traditional guardsmen are "part-time" employees who generally hold jobs outside the ANG. A total of 1,340 people work at Kulis ANGB.

3.10.2.2 Job Growth and Unemployment

Anchorage is considered to be the center of commerce for Alaska. The majority of Alaska's oil and gas, finance and real estate, transportation, and communications industries and federal and state government agencies are centered in Anchorage. In addition, numerous tourist facilities and services are available. The military is also a major influence on the area, with over 11,000 military personnel stationed at Fort Richardson, Elmendorf AFB, and Kulis ANGB (Alaska Department of Community and Economic Development 2000).

Employment in the Anchorage region rose rapidly through 1985, then decreased as a result of the recession, bottoming out in 1988. Since 1988, employment has rebounded but at a slower rate than in the early 1980s. It was not until 1993 that total employment exceeded that for 1985.

Nevertheless, average annual employment for Anchorage in 1995 was 120,600, an increase of more than 50 percent from 1980 levels (MoA 2000c).

Job Composition

In 1995, civilian employment in Anchorage consisted of 120,600 positions. Approximately 75 percent of employment in Anchorage is concentrated in three types of industry: services (27 percent), trade (25 percent), and government (23 percent) (MoA 2000c).

Figure 3-10 depicts Anchorage employment distribution by industry sector for 1996, the most recent year for which these data are available. Employment in the government sector comprises state and local government, federal military, and federal civilian jobs. The largest employers in Anchorage are the U.S. military, the U.S. government (excluding uniformed military), and the State of Alaska. Large private-sector employers in the municipality include Carr Gottstein Foods, Providence Alaska Medical Center, and Fred Meyer.

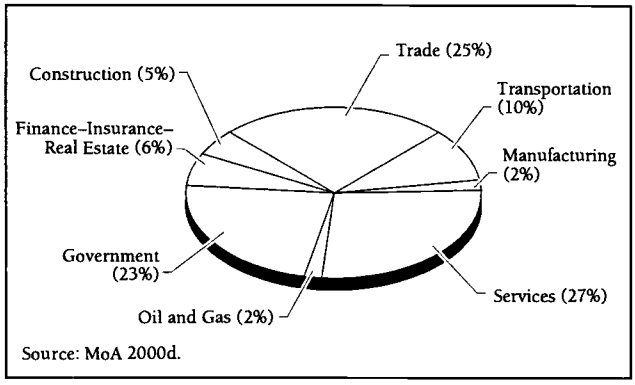


Figure 3-10
Distribution of Employment by Industrial Sector in Anchorage, 1996

Earnings

Per capita personal income in Anchorage has traditionally been higher than that of the U.S. as a whole, but has been subject to greater fluctuations. Local income rose rapidly during construction of the Trans-Alaska Pipeline; however, income fell after construction was completed in 1977. Similarly, high oil prices and accelerated rates of government spending lead to a growth in personal income in the early 1980s, but was followed by a severe recession in the second half of the decade. Per capita personal income for Anchorage in 1993 was $26,619, over $5,000 greater than the national average (MoA 2000e).

In 1995, the Anchorage median household income was $55,700, among the highest for major cities in the U.S. (MoA 2000e). While trade and services together accounted for approximately 49 percent of civilian employment in 1994, these sectors represented only 34 percent of the total wage and salary earnings. In contrast, the petroleum mining industry, while only accounting for 4 percent of civilian employment, represented 9 percent of the payroll. While the average

monthly wage in the service and retail trade sectors in 1994 was $2,146 and $1,503 respectively, it was $7,105 for the petroleum industry (MoA 2000f).

Unemployment

Though Alaska's unemployment rate has traditionally been much higher than that of the rest of the nation, the gap has narrowed in recent years. Since 1980, Anchorage's unemployment rate has been closer to national than state norms, except for the boom period of the early 1980s and the recession of the late 1980s (MoA 2000g).

In 1982, while the nation was in a recession and had an unemployment rate of 9.7 percent, Anchorage was at the peak of an economic boom with an unemployment rate of only 7.3 percent. By 1987, however, Anchorage was in recession and 8.4 percent of employees in its workforce were unemployed, while the national rate had dropped to 6.2 percent. Local unemployment rates then dropped as discouraged job seekers left the area, bottoming out at 5.1 percent in 1989. Since that time, local and national unemployment rates have generally been similar. In 1995, 5.3 percent of Anchorage's workforce was unemployed, versus 6 percent for the nation as a whole (MoA 2000g). Figure 3-11 compares Anchorage's unemployment rate with that of Alaska and the nation.

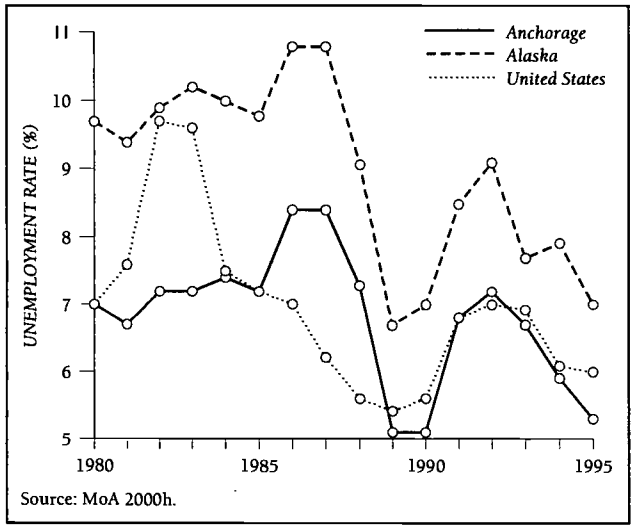


Figure 3-11
Unemployment Trends: United States, State of Alaska, and Anchorage, 1950-1996

3.10.3 Environmental Justice

This section focuses on the distribution of race and poverty status in areas potentially affected by implementation of the proposed action. For purposes of this analysis, minority and low-income populations are defined as:

1) *Minority Populations*: Persons of Hispanic origin of any race, Blacks, American Indians, Eskimos, Aleuts, Asians, or Pacific Islanders.

2) *Low-Income Populations*: Persons living below the poverty level, based on a total annual income of $12,674 for a family of four persons.

3.10.3.1 Race, Ethnicity, and Poverty Status

Population data for the nation, State of Alaska, and Anchorage are summarized and presented in Figure 3-12. Compared to national averages, both the State of Alaska and Anchorage have a higher percentage of Native Americans, Asian, and Pacific Islanders. Conversely, Alaska and Anchorage both have a lower percentage of White and Black populations (MoA 2000i).

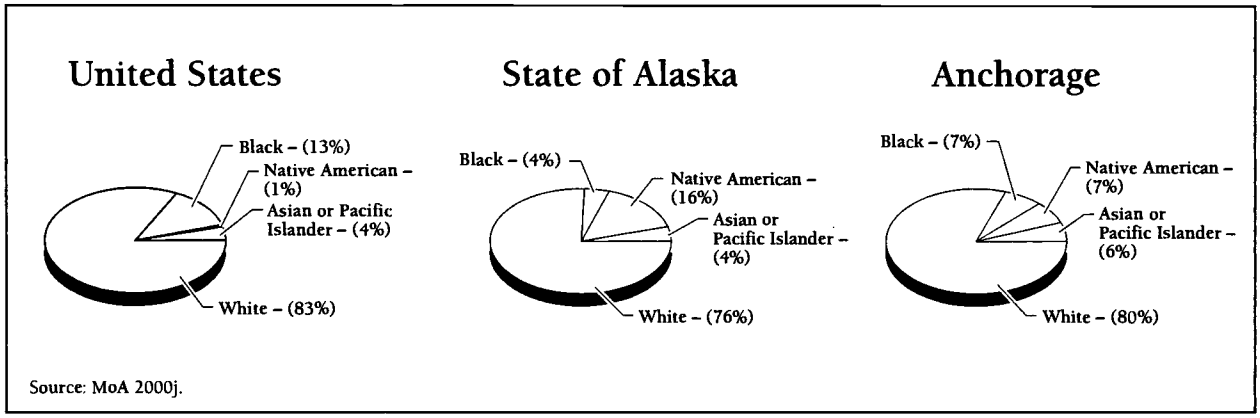


Figure 3-12
Population Distribution: United States, State of Alaska, and Anchorage, 1995

The percentage of individuals at the poverty level for Anchorage (8.7 percent) and Alaska (10.1 percent) were both below the U.S. (13.7 percent) in 1996 (Figure 3-13) (U.S. Census Bureau 2000a, b, c).

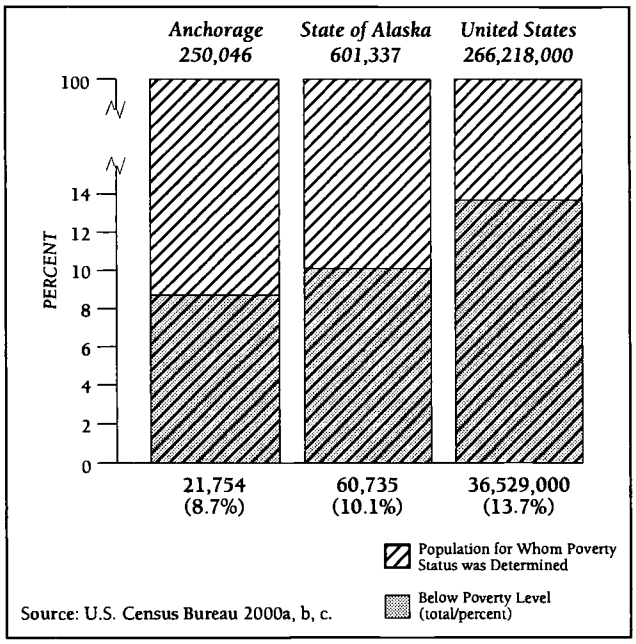


Figure 3-13
Poverty Status: United States, State of Alaska, and Anchorage, 1996

3.10.4 Protection of Children

As required by EO 13045, this analysis includes an assessment of the potential for children to be disproportionately exposed to environmental health risks and safety risks. Other than Kincaid Elementary School, located south of Kulis ANGB on Raspberry Road (Figure 3-6), no schools, parks, or other facilities likely to support populations of children are located within the vicinity of Kulis ANGB.

3.11 HAZARDOUS MATERIALS AND WASTES

3.11.1 Definition of Resource

Hazardous materials include, but are not limited to, hazardous substances, hazardous wastes, or any materials that pose a potential hazard to human health and safety or the environment due to their quantity, concentration, or physical and chemical properties.

Hazardous wastes are products characterized by their ignitability, corrosiveness, reactivity, and toxicity. Hazardous waste includes any waste which, due to its quantity, concentration, or physical/chemical/infectious characteristics, may either, 1) cause or significantly contribute to an increase in mortality, serious irreversible illness, or incapacitating reversible illness, or 2) pose a substantial threat to human health or the environment.

Hazardous materials and wastes are managed in accordance with the following laws: Federal Water Pollution Control Act; CWA; Solid Waste Disposal Act; Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); CAA; and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The ANG is required to comply with these acts and all applicable state regulations under EO 12088, *Federal Compliance with Pollution Control Standards*; DoD Instruction 4150.7; and AFI 32-1053.

3.11.2 Existing Conditions

Operations conducted at Kulis ANGB require the use and storage of hazardous materials. These materials, primarily associated with aircraft operations, include flammable and combustible liquids, acids, aerosols, batteries, corrosives, solvents, paints, and hydraulic fluids. The Kulis ANGB *Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan* describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (AKANG 1999b). The Kulis ANGB *Hazardous Waste Management Plan* (HWMP) provides guidance for facilitating compliance with all federal, state, and local regulations pertaining to hazardous wastes. In addition, the HWMP sets forth procedures to control and manage hazardous wastes from the point where they are generated, until they are ultimately disposed (AKANG 1999a).

Kulis ANGB produces less than 2,205 pounds (1,000 kilograms) of hazardous wastes per month and is therefore regulated as a small quantity generator of hazardous wastes. Primary types of hazardous wastes generated at Kulis ANGB include batteries, used fuel and oil, solvents, fluorescent bulbs, rags, fuel filters, and solvent-contaminated solids. The majority of hazardous wastes are generated as a result of aircraft operations. In addition, the 210th Rescue Squadron (210 RQS) is regulated as a conditionally exempt small quantity generator of hazardous wastes (AKANG 1999a).

3.11.2.1 Hazardous Materials and Wastes Storage

Kulis ANGB stores fuels and oils in both above-ground storage tanks (ASTs) and underground

storage tanks (USTs). A total of 34 ASTs, used for storing aviation, diesel, and unleaded fuel; heating oil and deicing chemicals are located in various buildings throughout Kulis ANGB. All ASTs are constructed of welded steel, coated with rust-prohibiting paint, and are of good integrity (i.e., not leaking). USTs, which are less common at Kulis ANGB, are used for the storage of oil-water separators (OWSs) and aqueous fire fighting foam (Figure 3-14). OWSs are connected to the USTs and are exempt from state and federal UST regulations, as they are part of the wastewater treatment tank system at Kulis ANGB. Kulis ANGB has 12 USTs, 8 of which are OWSs used to store waste oils located throughout the base (Figure 3-14) (AKANG 1999a).

The majority of jet fuel (JP-8) used for aircraft operations is stored in Building 16, the petroleum, oils and lubricants (POL) Pump Station, and transferred through four, 25,000-gallon ASTs located in the northeastern potion of Kulis ANGB. Approximately 3.5 million gallons of JP-8 fuel are transferred through the POL Pump Station on an annual basis. In addition, approximately 60,000 gallons of diesel fuel and 40,000 gallons of unleaded gasoline are transferred through the Vehicle Refueling Tanks on an annual basis (AKANG 1999a).

Hazardous wastes generated at Kulis ANGB are initially collected at 1 of 39 Satellite Accumulation Points (SAPs). Hazardous materials are stored at the SAPs until the volume of the hazardous material exceeds 55 gallons. When this occurs, hazardous wastes are transferred to one of two Hazardous Waste Accumulation Sites (HWASs) located at Kulis ANGB. Hazardous wastes can then be stored at one of the HWASs for up to 270 days, after which they are transferred off-base to a permitted Treatment, Storage, and Disposal facility for final disposal (AKANG 1999a). Figure 3-14 depicts the locations of SAPs and HWASs at Kulis ANGB.

3.11.2.2 Environmental Restoration Program

The DoD created the Environmental Restoration Program (ERP) to investigate past hazardous and toxic materials storage and disposal activities at military installations as required by RCRA. The mission of the ERP is to identify and clean up contamination resulting from past DoD use and disposal practices for the protection of human health and the environment.

The are no solid waste disposal facilities or ERP sites on Kulis ANGB. Solid waste storage areas at Kulis ANGB are used for short-term storage of non-hazardous materials such as construction materials, vehicles, and non-PCB transformers. There are no identified Solid Waste Management Units, Areas of Concern, or other sites where there is evidence of the release of hazardous wastes or hazardous constituents at Kulis ANGB. An ERP site associated with a historical fuel depot located near the new fire station has been recently remediated (AKANG 1999a, Kulis ANGB 1999b).

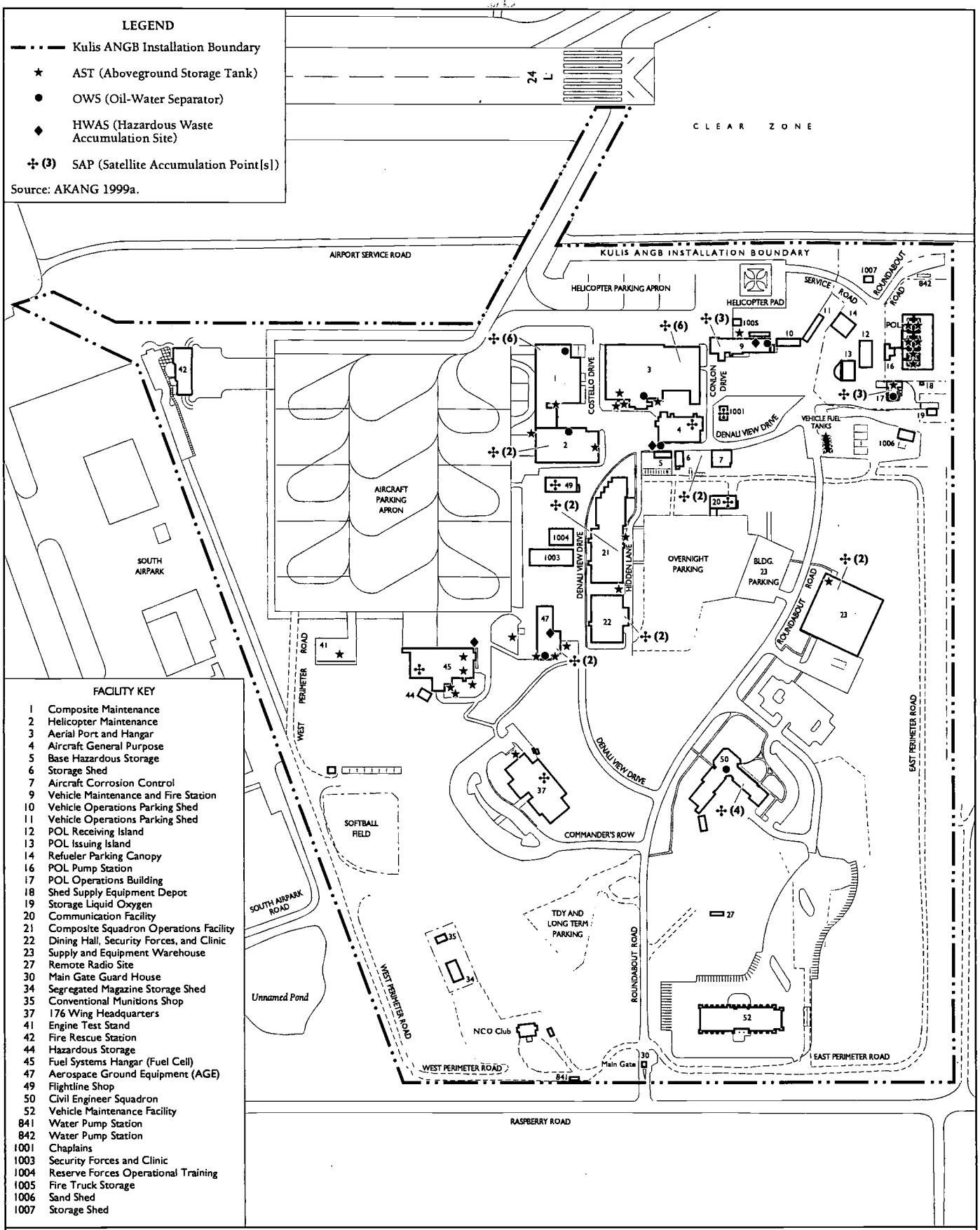


Figure 3-14
ASTs, OWSs, HWASs, and SAPs at Kulis ANGB

3.11.2.3 Asbestos

AFI 32-1052, *Facility Asbestos Management*, establishes procedures and requirements for developing a base asbestos management program. Included within a base asbestos management program is an Asbestos Management Plan (AMP) and an Asbestos Operating Plan (AOP). In June of 1993, an AMP and AOP was completed for Kulis ANGB (ANG 1993). As part of this process, the Asbestos Management Team conducted an asbestos survey of 30 buildings at Kulis ANGB and discovered that 15 of the 30 buildings surveyed contained asbestos-containing materials (ACMs). The majority of ACMs was found in 9" x 9" floor tiles and mastic found under the floor tiles. The second largest source of ACMs on base was found in the mudded thermal insulation on the hot water supply fittings. However, all of the floor tiles and mastic were found to be in good condition and did not appear to pose an immediate threat. The mudded thermal insulation was found to have minimal damage but did not pose a threat. The Asbestos Management Team recommended that this material should be repaired during normal maintenance and that all ACMs should be included in a preventative maintenance program with inspections every 6 months, or as needed. In addition, the Asbestos Management Team suggested additional sampling or removal of ACMs, should any of these areas be included in a future repair or construction project (ANG 1993).

3.12 SAFETY

3.12.1 Definition of Resource

The FAA is responsible for ensuring the safe and efficient use of the nation's airspace by military and civilian aircraft. Activities required to carry out these responsibilities include the application of safety regulations, airspace management, establishment and operation of a common use system for civilian-military airspace, and cooperative activities with DoD. The public's primary safety concern with regard to low-altitude military training flights is aircraft mishaps, such as mid-air collisions with other aircraft or objects, weather difficulties, or bird-aircraft strikes.

Siting requirements for explosive materials storage (e.g., munitions) and handling facilities are based on safety and security criteria. Air Force Manual 91-201, *Explosives Safety Standards,* defines distances to be maintained between explosive storage areas and other types of facilities. These distances, referred to as quantity-distance (QD) arcs, are determined by the type and quantity of explosive materials that are stored. Development within the areas of the QD arcs are prohibited in order to maintain personnel safety and minimize the potential for damage to other facilities in the event of an accident. In addition, explosive materials storage facilities must be located in areas where security can be maintained.

3.12.2 Existing Conditions

3.12.2.1 Bird-Aircraft Strike Hazard

Due to the extent of injuries to personnel and damage to aircraft caused by bird-aircraft strikes, bird activity is a significant safety factor considered by all pilots and airports. At military bases, approximately half of reported bird strikes occur in the airfield environment and one quarter occur during low-altitude training. Generally, as altitude increases, the threat of bird strikes decreases. Waterfowl constitute a substantial Bird-Aircraft Strike Hazard (BASH) potential since they fly in large flocks, have significant body mass, and when migrating (during the months of March and April and from August through November) can be encountered at altitudes up to 20,000 feet above ground level (AGL). Raptors also represent substantial BASH potential because of their large body mass and tendencies to soar at high altitudes.

The airspace surrounding Kulis ANGB has a significant bird hazard throughout the year with peaks during the spring and fall migration. Kulis ANGB has developed a BASH plan to minimize potential bird strikes (ANG 1999). Other wildlife that pose a potential threat to flight operations during landing and takeoff include moose, coyote, and fox.

3.12.2.2 Explosives Safety

Flammable and combustible materials, such as fuel, explosives, flares, and paints are stored at Kulis ANGB. Aviation fuel is stored in ASTs in the northeast corner of Kulis ANGB. Other combustible materials are stored in Building 5, which is enclosed by a fence preventing unauthorized access (AKANG 1999b).

A restricted zone of approximately 3 acres surrounds Buildings 34 (Segregated Magazine Storage Shed) and 35 (Conventional Munitions Shop), located in the southwestern portion of Kulis ANGB. Due to the explosive potential associated with the materials stored in these buildings, a QD arc of 100 feet surrounds Buildings 34 and 35. In addition, a 75 foot QD arc surrounds Building 19, the liquid oxygen (LOX) storage facility, located in the northeast corner of Kulis ANGB (Kulis ANGB 1995).

SECTION 4
ENVIRONMENTAL CONSEQUENCES

This section presents an assessment of the potential impacts of implementing the proposed action or alternatives. To evaluate impacts, the analysis presented in this section overlays the components of the proposed action or alternatives described in Section 2 onto baseline conditions provided in Section 3. Cumulative effects of the proposed action with other past, present, and reasonably foreseeable future actions at Kulis Air National Guard Base (ANGB) and its region of influence (ROI) are presented in Section 5.

4.1 AIR QUALITY

4.1.1 Approach to Analysis

Criteria pollutant emissions resulting from proposed construction activities at Kulis ANGB have been evaluated for the proposed action, the Engine Test Stand Siting Alternative, and the No-Action Alternative. Air quality impacts would be significant if emissions associated with the proposed action or alternatives would: 1) increase ambient air pollution concentrations above the National Ambient Air Quality Standards (NAAQS), 2) contribute to an existing violation of the NAAQS, 3) interfere with, or delay timely attainment of the NAAQS, or 4) impair visibility within federally-mandated Prevention of Significant Deterioration (PSD) Class I areas. Additionally, a conformity analysis would be required before initiating any action that may lead to nonconformance with a State Implementation Plan (SIP), contribute to a violation of the NAAQS, or exceed *de minimis* criteria pollutant thresholds (40 Code of Federal Regulations [CFR] Part 51).

4.1.2 Impacts

4.1.2.1 Proposed Action

Construction activities associated with the proposed action at Kulis ANGB would result in minor, temporary increases in criteria pollutant emissions. Specifically, emissions from construction and construction-related vehicles used during facility construction activities would increase. In addition, fugitive dust (i.e., particulate matter less than 10 microns in diameter [PM_{10}]) emissions would increase as a result of surface disturbances (e.g., grading and vegetation removal) associated with construction activities. However, there would be no long-term increase in mobile or stationary source emissions at Kulis ANGB.

Kulis ANGB is within a severe nonattainment area for carbon monoxide (CO) (refer to Section 3.1.2.2); therefore, total emissions resulting from proposed construction activities have been estimated and compared with CO *de minimis* thresholds and the NAAQS to assess air quality impacts as a result of implementation of the proposed action. The Air Force's Air Conformity and Applicability Model (ACAM) has been used to estimate construction-related vehicle emissions as a result of proposed construction activities at Kulis ANGB. In addition, an emission factor of 1.2 tons/acre/month of activity has been used to estimate total PM_{10} emissions

resulting from area sources (grading and construction) (U.S. Environmental Protection Agency [USEPA] 1999d). Emissions have been estimated based upon the total square footage associated with each project, and by assuming an average completion time of 6 months for each project. However, to reflect the two-dimensionality of the proposed apron/taxiway addition, the square footage has been halved (126,000 square feet [SF]) for this project. Emissions resulting from implementation of the proposed construction, facility modifications, and demolition projects at Kulis ANGB are shown in Table 4-1.

Table 4-1 Estimated Average Annual Emissions Resulting from Proposed Construction Activities at Kulis ANGB

Source	Emissions (tons per year)				
	CO*	VOCs	NO_X	SO_2	PM_{10}
Vehicle Emissions	2.7	0.5	12.3	0.8	0.4
Fugitive Dust Emissions	0.0	0.0	0.0	0.0	8.5
Total Annual Average	**2.7**	**0.5**	**12.3**	**0.8**	**8.9**

* The *de minimis* threshold for CO is 100 tons per year.

To assess potential impacts as a result of implementation of the proposed action with respect to the NAAQS, pollutant concentrations have been calculated assuming a uniform pollutant distribution in a fixed volume of air at Kulis ANGB. As shown in Table 4-2, the proposed action would not result in a violation of the NAAQS.

Table 4-2 Estimated Annual Criteria Pollutant Concentrations from Total Emissions at Kulis ANGB under the Proposed Action

Criteria Pollutant	Averaging Period	NAAQS	Increment	Percentage of the NAAQS
CO	1-hour	35 ppm	< 0.01 ppm	< 0.01
	8-hour	9 ppm	< 0.01 ppm	< 0.01
NO_x	Annual	0.053 ppm	< 0.01 ppm	< 0.01
SO_x	3-hour	0.50 ppm	< 0.01 ppm	< 0.01
	24-hour	0.14 ppm	< 0.01 ppm	< 0.01
	Annual	0.03 ppm	< 0.01 ppm	< 0.01
PM_{10}	24-hour	150 $\mu g/m^3$	< 0.01$\mu g/m^3$	< 0.01
	Annual	50 $\mu g/m^3$	< 0.01$\mu g/m^3$	< 0.01

Construction-related vehicle emissions as a result of implementation of the proposed action would temporarily impact local air quality. However, vehicle emissions generated by proposed construction activities would be temporary and short-term; no long-term increases in vehicle emissions would occur. Emissions associated with construction-related vehicles and equipment would be negligible, as most vehicles would be driven to and kept at the affected site until construction was complete. Furthermore, CO emissions would be below *de minimis* levels (100 tons per year), and criteria pollutant emissions would not exceed the NAAQS. Therefore, no significant impacts to air quality would occur as a result of construction-related vehicle emissions associated with the proposed action.

Fugitive dust emissions resulting from proposed construction activity would temporarily impact local air quality. However, fugitive dust emissions generated by proposed construction activities

would be temporary and short-term; no long-term increases in fugitive dust emissions would occur. Additionally, PM_{10} emissions would be moderated through best management practices (BMPs), including watering-down of exposed soils, soil stockpiling, and soil stabilization, thereby limiting the total quantity of fugitive dust emitted during the construction period. Therefore, no significant impacts to air quality would occur as a result of fugitive dust emissions associated with the proposed action.

Under the proposed action, no long-term increases in emissions at Kulis ANGB would occur. Implementation of the proposed action would not lead to an exceedance of *de minimis* thresholds and would not result in an exceedance of the NAAQS. Implementation of the proposed action is not projected to result in long-term emissions increases at Kulis ANGB and determination of conformity to the Alaska SIP is not required. Therefore, no significant impacts to air quality would occur as a result of implementation of the proposed action.

4.1.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to air quality would be the same as those described under the proposed action. Therefore, no significant impacts to air quality would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.1.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. Baseline air quality, as described in Section 3.1 would remain unchanged. Therefore, no significant impacts to air quality would occur at Kulis ANGB as a result of implementation of the No-Action Alternative.

4.2 NOISE

4.2.1 Approach to Analysis

Noise impact analysis typically evaluates potential changes to the existing noise environment that would occur as a result of implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of noise receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increase exposure to unacceptable noise levels). Potential temporary and long-term noise impacts at Kulis ANGB resulting from proposed construction activities as well as the relocation of the Engine Test Stand have been compared to baseline noise levels and conditions, as described in Section 3.2.2.

4.2.2 Impacts

4.2.2.1 Proposed Action

Construction Activities

Under the proposed action, construction and demolition activities would require the use of heavy equipment for site preparation and development (e.g., vegetation removal, grading, and backfill) resulting in increased noise levels in the immediate areas. However, since construction activities would occur over a five year period, development operations would be focused in one small area of the installation at one time, thereby reducing the potential for generating substantial noise levels during proposed construction. In addition, construction activities would only occur during normal working hours (i.e., from 7:00 A.M. to 5:00 P.M.).

The nearest noise receptors to proposed construction activities are private residences located approximately 300 feet east of the base boundary. Generally, the average sound level produced by construction activities is approximately 85 dBA at a distance of 50 feet (USEPA 1971). During construction of the Pararescue Training Complex, Mobility Storage Warehouse Expansion, and the HAZMAT Pharmacy, sound levels reaching off-base residential areas located along the eastern boundary of the base would range between 65 and 75 dBA, the average noise levels associated with construction activities at this distance. Other proposed facilities would be constructed toward the interior of the base, further away from off-base residential areas and Kincaid Elementary School. Noise associated with construction of these facilities would not significantly affect off-base residential areas or the nearby elementary school (i.e., Kincaid Elementary) since noise levels would be less than 61 dBA, representative of existing ambient noise levels in the area.

The USEPA has identified an 8-hour L_{eq} of 75 dBA, and a L_{dn} (24-hour) of 70 dBA as thresholds for protecting individuals in the workplace (USEPA 1981). Kulis ANGB personnel would not be exposed to 8-hour L_{eq} values above 75 dBA, since they would be more than 50 feet away from proposed construction activities and would be inside of buildings which would reduce noise levels between 17 dBA (windows open) and 27 dBA (windows closed) (USEPA 1974).

Each individual construction project would be short-term in nature. Therefore, noise levels would temporarily increase in the area during construction but would decrease to a level representative of the existing ambient conditions after completion. As a result, impacts from implementation of the proposed action would be adverse but would not be significant because noise impacts would be short-term and off-base residential areas would not be subjected to an increase in unacceptable noise levels as they are currently located within the 70-75 dBA noise contours associated with the airport.

Proposed Facility Operations

Under the proposed action, the development of the Aircraft Corrosion Control Facility would require the relocation of the Engine Test Stand from its current location south of the airport to the northeast corner of the installation (refer to Figure 2-1). Figure 4-1 depicts estimated noise contours in 5 dBA (L_{dn}) increments for an average annual day using current aircraft operations and proposed Engine Test Stand operations. Noise contours associated with Engine Test Stand Operations do not account for the incorporation of acoustic protection materials and structures. Proposed operations at the facility would be the same as current operations (four, 1-hour tests, 3 times per month for a total of 144 annual hours); no additional operations are proposed and no night or evening operations would be conducted. Figure 4-2 presents estimated noise contours in 5 dBA (L_{dn}) increments for the proposed and alternative Engine Test Stand location without the incorporation of acoustic barriers. These contours represent estimated noise levels for one of the 36 days in which engine tests are conducted.

Under the proposed action, acoustic protection/barriers (i.e., earthen berms, baffles, etc.) for the Engine Test Stand would be added to reduce noise levels associated with operation of the facility. Though implementation of the proposed action without acoustic barriers would not result in a significant increase to existing ambient noise conditions, these barriers would reduce noise levels by as much as 10 to 15 dBA. Therefore, noise levels generated by operations of the facility would be below ambient noise levels at off-base residential areas. In addition, the Engine Test Stand would only be operated three times per month (144 hours per year).

The nearest sensitive noise receptors to the Engine Test Stand at the proposed location are the private residences located along the eastern boundary of Kulis ANGB (Figure 4-1). Currently, these residences experience aircraft-generated noise levels from 70 to 75 dBA (L_{dn}), due to their proximity to the airport. Under the proposed action, the closest residences are located approximately 700 feet from the Engine Test Stand at an angle of about 160 degrees from the front of the facility. Therefore, residences located approximately 700 feet from the proposed Engine Test Stand location would be exposed to maximum noise levels of 65-70 dBA (at low idle power setting), comparable to the noise from an automobile at a distance of 100 feet (refer to Table 3-3 and Figure 3-2). In addition, individuals inside their residences would experience a reduction in noise levels between 17 dBA (windows open) and 27 dBA (windows closed) (USEPA 1974).

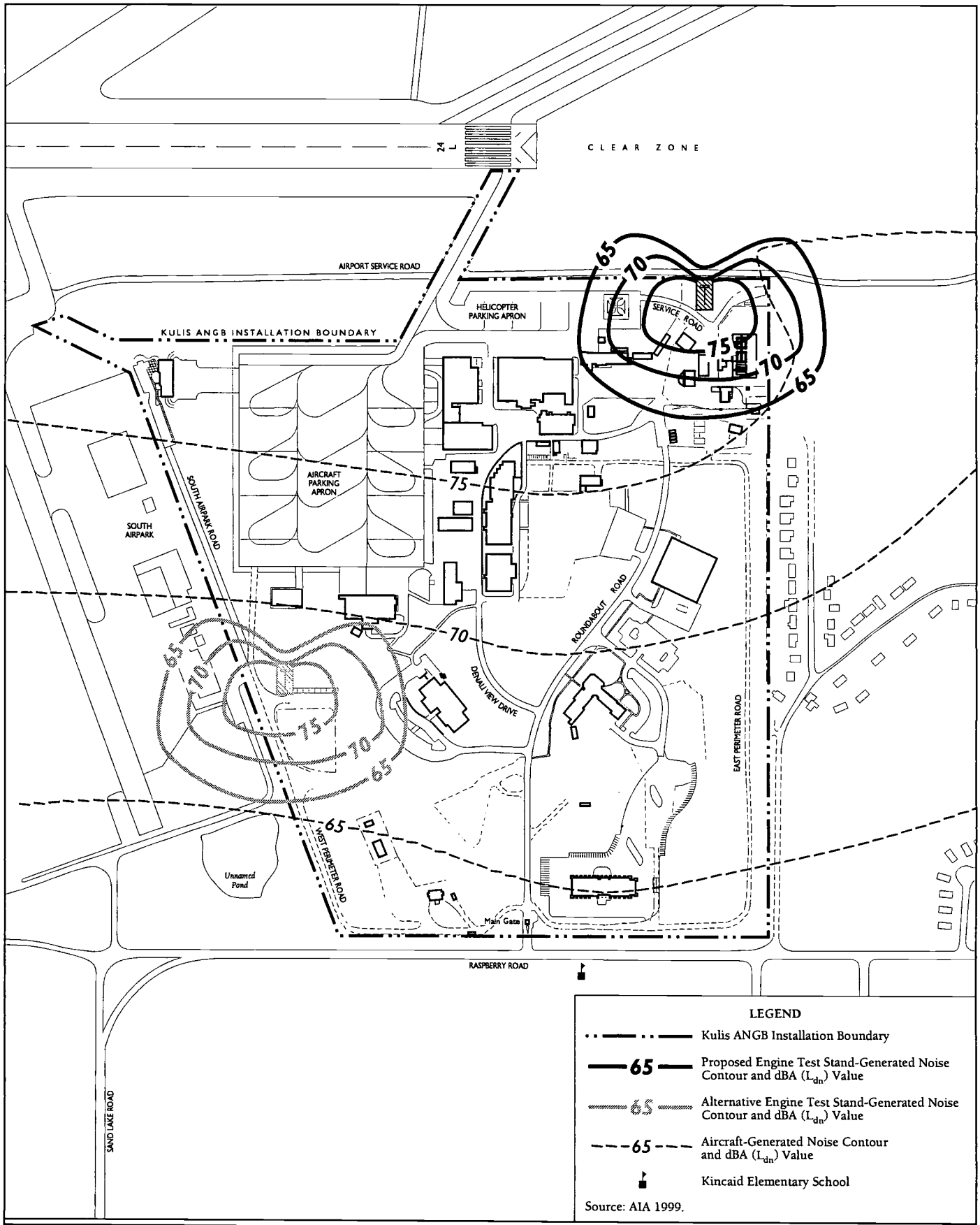


Figure 4-1
Proposed and Alternative Engine Test Stand-Generated Noise Contours (without Acoustic Protection) for an Average Annual Day at Kulis ANGB

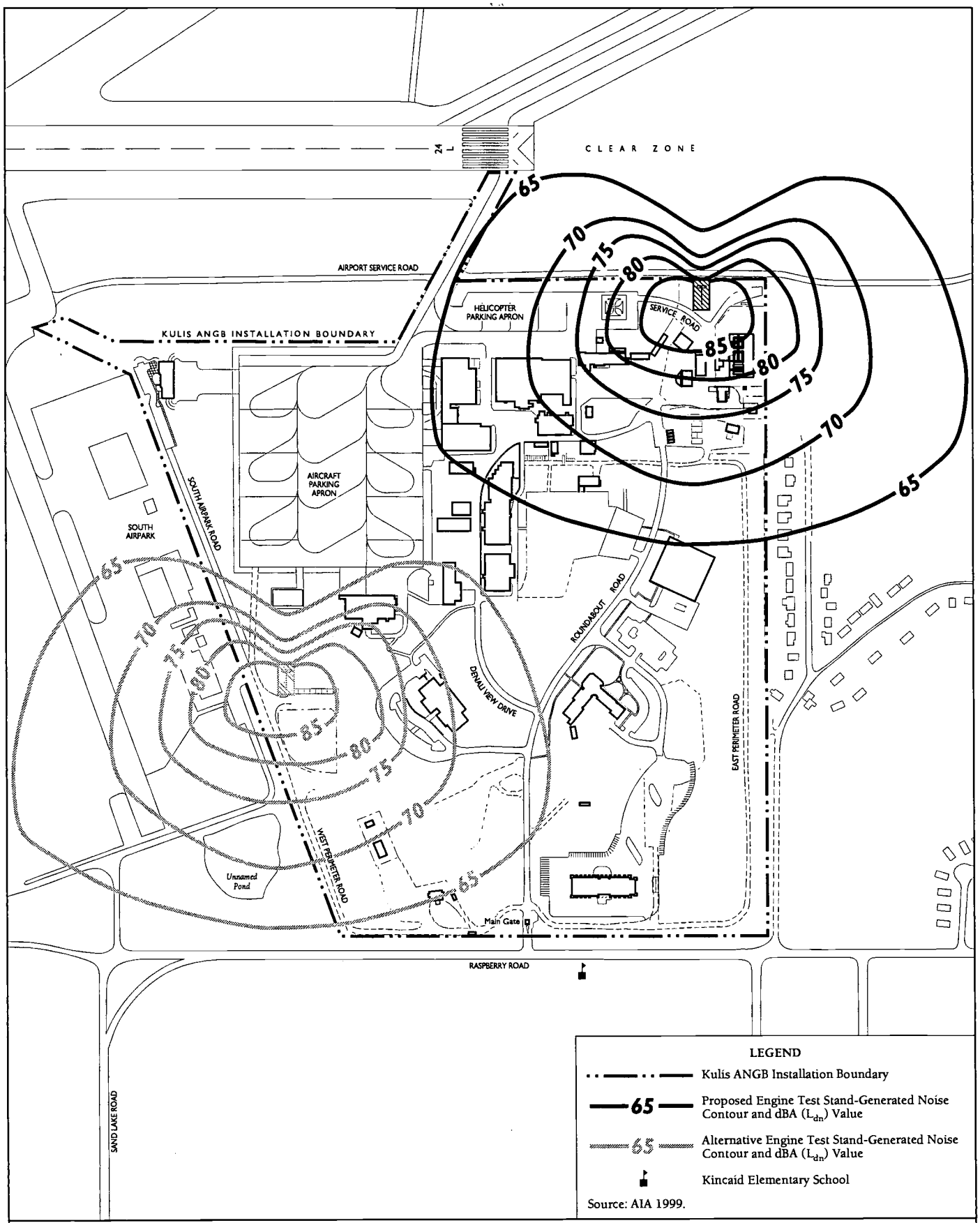


Figure 4-2
Proposed and Alternative Engine Test Stand-Generated Noise Contours (without Acoustic Protection) for Testing Days at Kulis ANGB

Kincaid Elementary School is located south of Raspberry Road, over 2,400 feet and 190 degrees from the proposed Engine Test Stand location (see Figure 4-1). Maximum noise levels at the school during engine tests would be approximately 45 dBA (at low idle power setting) (refer to Table 3-3). Average noise levels from current aircraft and proposed Engine Test Stand operations at Kulis ANGB would not represent a significant change from baseline noise conditions.

Individuals talking outside of the residences nearest the proposed Engine Test Stand could experience disruptions in their conversations during engine test operations. However, maximum noise levels (approximately 64 dBA) could potentially result in a 10 percent decrease in conversation intelligibility in conversations held outside with no decrease for those conversations held inside (USEPA 1981).

During times of especially cold weather, low frequency noise generated from the propeller blade tips can propagate in the direction the propeller blade tips are facing. However, the Engine Test Stand would be oriented so that the propeller blade tips would be facing north, thereby projecting the majority of the low-frequency noise towards the runways, away from sensitive noise receptors.

Under the proposed action, Kulis ANGB personnel working inside the buildings closest to the Engine Test Stand would be exposed to noise levels less than the identified environmental noise threshold of 70 dBA (L_{dn}), since engine test stand operations would occur only 36 days per year, for no more than 4 hours in one day, and personnel would be working inside buildings (which would reduce levels by an additional 17 to 27 dBA). Therefore, no significant noise impacts would occur as a result of implementation of the proposed action.

4.2.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south of its current location and would be set into a hillside just north of the softball field (refer to Figure 2-1). Figure 4-1 and Figure 4-2 also depict estimated annual average and testing day noise levels under the Engine Test Stand Siting Alternative without the incorporation of acoustic protection. Under this alternative, proposed operations would be the same as those conducted at the existing facility (four, 1-hour tests, 3 times per month for a total of 144 hours per year).

As part of the requirement for implementation of this alternative, acoustic protection/barriers would be incorporated into the design and construction of the Engine Test Stand to reduce noise levels. These barriers would reduce the noise levels generated by Engine Test Stand operations by as much as 10 to 15 dBA. Since development of the Engine Test Stand would require the construction of acoustic barriers, on and off-base noise levels associated with the Engine Test Stand Siting Alternative would likely be less than those depicted on Figure 4-1.

An industrial park (South Airpark) exists to the west of the Kulis ANGB boundary. Currently, the South Airpark and buildings on base are subjected to noise levels ranging from 65 to 80 dBA associated with existing Engine Test Stand operations (refer to Figure 3-5). If construction of the

Engine Test Stand did not incorporate acoustic barriers, these areas would be subjected to slightly increased noise levels ranging from 65 to 85 dBA during Engine Test Stand operations. However, as a result of the incorporation of acoustic barriers, as well as the additional reduction in noise from being inside buildings (17 to 27 dBA), the South Airpark and buildings on base would continue to be within normally acceptable levels for industrial areas (refer to Figure 3-3) (FICON 1992). In addition, the Engine Test Stand would be oriented so that the propeller blade tips would be facing north, thereby projecting the majority of the low-frequency noise towards the runways.

Under the Engine Test Stand Siting Alternative, Kincaid Elementary School, situated approximately 1,700 feet and 140 degrees from the front of the alternative Engine Test Stand location (see Figure 4-1), would be exposed to a maximum noise level of approximately 58 dBA at (low idle power setting). These noise levels are comparable to the noise from an air conditioner at a distance of 100 feet (refer to Table 3-3 and Figure 3-2). Though noise may be heard at the school when Engine Test Stand operations are occurring, there would be no significant change to the ambient noise environment (see Figure 4-1).

Under the Engine Test Stand Alternative, Kulis ANGB personnel working inside the buildings closest to the facility would be exposed to noise levels less than the identified environmental noise threshold of 70 dBA (L_{dn}), since engine test stand operations would occur only 36 days per year, for no more than 4 hours in one day, and personnel would be working inside buildings (which would reduce levels by an additional 17 to 27 dBA). Therefore, no significant noise impacts would occur as a result of implementation of the proposed action.

4.2.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. The baseline noise environment at Kulis ANGB, as described in Section 3.2, would remain unchanged. Due to the inefficiency of the current design of the existing Engine Test Stand, and the subsequent lack of acoustic protection, areas in and around Kulis ANGB would continue to be subjected to noise levels louder than projected under both the proposed and alternative actions.

4.3 LAND USE

4.3.1 Approach to Analysis

Significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action. In general, land use impacts would be significant if they would: 1) be inconsistent or in non-compliance with applicable land use plans or policies; 2) preclude the viability of an existing land use activity; 3) preclude continued use or occupation of an area; 4) be incompatible with adjacent or vicinity land use to the extent that public health or safety is threatened; or 5) conflict with airfield planning criteria established to ensure the safety and protection of human life and property.

4.3.2 Impacts

4.3.2.1 Proposed Action

Implementation of the proposed action would result in improved land use conditions at Kulis ANGB. Each proposed project has been designed to consolidate similar land uses and improve 176th Wing (176 WG) operational efficiency. Consequently, proposed construction and improvement projects would be inherently consistent with base and ANG planning policies and guidelines. Project components have been designed and sited to be compatible with current land use and airfield safety guidelines. No new land uses would be introduced into the project vicinity.

Currently, there are no known Anchorage International Airport (AIA) facility improvements or construction projects proposed that would disrupt the proposed action. AIA is currently in the process of updating their Master Plan which will include future facility and circulation improvements. One of the proposed projects in the Master Plan Update may include the development of an east-west taxiway. If AIA were to approve and initiate this project, implementation of the apron/taxiway additional associated with the proposed action at Kulis ANGB may require modification to be compatible with AIA improvements.

Site preparation and construction of the proposed projects would have minor, temporary effects on the noise environment in and around Kulis ANGB. However, noise levels would be similar to typical construction noise, would last only the duration of construction activities, and could be reduced through the use of equipment sound mufflers and restricted hours of construction. Therefore, construction noise impacts on off-base noise-sensitive land uses would be adverse, but not significant.

Under the proposed action, the Engine Test Stand would be located in the northeast corner of the installation (refer to Figure 2-1). The proposed action would incorporate acoustic protection/barriers that would reduce associated noises levels by 10-15 dBA (see Section 4.2.2.1, Noise, for a detailed discussion of potential noise impacts). Residential areas located near the eastern boundary of Kulis ANGB would not be subjected to increased noise levels associated with the proposed relocation of the Engine Test Stand (refer to Figure 4-1). Although noise

levels shown in Figure 4-1 do not account for acoustic protection/barriers, noise-reducing structures (earthen berms, baffles, etc.) would be constructed around the facility to reduce noise levels by 10-15 dBA. Noise levels associated with the proposed action would not subject any sensitive noise receptor to unacceptable noise levels. Therefore, no significant land use impacts would occur with implementation of the proposed action.

4.3.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated 300 feet south of its current location (refer to Figure 2-1). Implementation of the Engine Test Stand Siting Alternative would result in changes to the existing noise environment in the immediate vicinity of the facility. As part of the requirement for implementation of this alternative, acoustic protection/barriers would be incorporated into the design and construction of the Engine Test Stand. As discussed in Section 4.2.2.1, Noise, construction of the acoustic barriers would reduce noise levels by 10-15 dBA. Under this alternative, the South Airpark industrial area and buildings on base would continue to be exposed to noise levels associated with Engine Test Stand operations. However, since implementation of the Engine Test Stand Siting Alternative would require construction of acoustic barriers, the associated noise reduction would result in noise levels less than existing ambient noise conditions. Implementation of the Engine Test Stand Siting Alternative would not subject any sensitive noise receptors to unacceptable noise levels and no new land uses would be introduced in the vicinity. Consequently, under this alternative, construction and operation of the Engine Test Stand would be consistent with installation planning policies and guidelines, and would be compatible with existing land use in the vicinity.

4.3.2.3 No-Action Alternative

No impacts to land use, as described in Section 3.3, would occur from implementing the No-Action Alternative. Beneficial land use impacts such as consolidation of compatible land uses to better serve the 176 WG would not be accomplished under the No-Action Alternative. Because the current situation does not optimize operational efficiency in regard to land use, selection of the No-Action Alternative would result in continued adverse land use conditions.

4.4 GEOLOGICAL RESOURCES

4.4.1 Approach to Analysis

The protection of unique geologic features, minimization of soil erosion, and the location of facilities in relation to potential geologic hazards are considered when evaluating impacts of a proposed action. Generally, impacts on geological resources are not significant if proper construction techniques and erosion control measures are implemented to minimize or mitigate short- and long-term disturbance to soils and to overcome limitations imposed by earth resources.

4.4.2 Impacts

4.4.2.1 Proposed Action

Implementation of the proposed construction and demolition activities would not significantly affect the geologic units underlying Kulis ANGB. No unique geologic features or geologic hazards are present on the installation. The majority of excavation would occur during construction of the Composite Support Complex, Aircraft Corrosion Control Facility, and the Pararescue Training Complex. Construction of these facilities would require grading of previously undisturbed areas. Although ground disturbance would occur on the installation during construction, this is considered an adverse but not significant impact.

Kulis ANGB is relatively flat. Although proposed construction would require grading, no significant topographic features would be affected as a result of development associated with the proposed action. Therefore, no significant impacts to topography would occur as a result of implementation of the proposed action.

Soils would be disturbed during grading activities associated with proposed construction. However, implementation of BMPs during construction would reduce impacts to soils associated with grading and clearing activities. In addition, standard erosion control measures (e.g., silt fencing, sediment traps, application of water sprays, and revegetation of disturbed soils) would be applied to reduce potential impacts related to these characteristics. Therefore, no significant impacts to soils would occur as a result of implementation of the proposed action.

4.4.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to geological resources would be the same as those described under the proposed action. Therefore, no significant impacts to geological resources would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.4.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. Baseline geological resources, as described in Section 3.4, would remain unchanged. Therefore, no significant impacts to geological resources at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

4.5 WATER RESOURCES

4.5.1 Approach to Analysis

The analysis of water resources includes all surface and groundwater resources within Kulis ANGB as well as watershed areas affected by existing and potential runoff. Significant impacts to water resources could potentially occur if the proposed action resulted in changes to water quality or supply, threatened or damaged unique hydrologic characteristics, endangered public health by creating or worsening heath hazards, or violated established laws or regulations. Impacts of flood hazards on proposed actions would be significant if such actions are proposed in areas with high probabilities of flooding.

4.5.2 Impacts

4.5.2.1 Proposed Action

Under the proposed action, proposed construction activities would result in a temporary increase in runoff and total suspended particulate matter in nearby surface water features. To minimize impacts as a result of proposed construction activities, BMPs, as described in the Kulis ANGB *Stormwater Pollution Prevention Plan* would be implemented (Alaska Air National Guard [AKANG] 1996b). In addition, in compliance with the Kulis ANGB National Pollutant Discharge Elimination System (NPDES) General Permit, a Notice of Intent would be filed with the USEPA before initiating any construction activity that disturbs 5 or more acres.

Construction and demolition would have localized (i.e., site-specific) effects on surface water hydrology; however, BMPs would be incorporated during construction to minimize potential erosion, runoff, and sedimentation. No proposed construction activities would occur within a 100-year floodplain zone.

Under the proposed action, the amount of impervious surfaces at Kulis ANGB would increase by approximately 8 acres (approximately 350,000 SF) . This would result in an associated increase in stormwater discharge volumes and intensities. However, this increase would be minor and would be accommodated by the existing stormwater discharge infrastructure. In addition, no improvements to the existing infrastructure would be required as a result of implementing the proposed action. Increases in impervious surfaces as a result of proposed construction would have no anticipated effect on groundwater resources. Construction and demolition operations would not reach depths that could affect groundwater resources. Therefore, no significant impacts would occur to water resources as a result of implementation of the proposed action.

4.5.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to water resources would be the same as those described under the proposed action. Therefore, no significant impacts to water resources would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.5.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. Baseline water resources, as described in Section 3.5, would remain unchanged. Therefore, no significant impacts to water resources at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

4.6 BIOLOGICAL RESOURCES

4.6.1 Approach to Analysis

Determination of the significance of potential impacts to biological resources is based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration of ecological ramifications. Impacts to biological resources are significant if species or habitats of concern are adversely affected over relatively large areas or disturbances cause reductions in population size or distribution of a species of concern.

This section analyzes the potential for impacts to biological resources, such as habitat loss, from implementation of the proposed action or alternative. Analysis of on-base impacts focuses on whether and how ground-disturbing activities may affect biological resources. Federal, state, and local agencies were contacted to determine the presence and/or potential occurrence of sensitive species and habitats in the study area.

4.6.2 Impacts

4.6.2.1 Proposed Action

Vegetation and Wetlands

Construction and demolition of facilities associated with the proposed action would require vegetation removal in landscaped and previously disturbed areas and in previously undisturbed areas. Less than 2 acres (approximately 87,000 SF) of Mixed Forest would be lost as a result of implementation of the proposed action. However, due to the lack of sensitive vegetation at the proposed sites, proposed construction would not have significant impacts on vegetation.

Although the National Wetlands Inventory (NWI) Map identifies one palustrine, unconsolidated bottom, permanent wetland within the boundaries of Kulis ANGB (U.S. Fish and Wildlife Service [USFWS] 1992), the location of the wetland on the NWI Map is in the southwest corner of a gravel parking lot for Buildings 21 and 22. The gravel area does not exhibit any features in accordance with wetlands criteria, and it is presumed that the area identified on the NWI Map is an area where snow from the parking lot is plowed and stored. Implementation of the proposed construction projects would not require any change in this area, i.e., it will continue to be a parking lot. The proposed construction activities would not occur near any delineated wetlands on Kulis ANGB; therefore, there would be no impacts to wetlands with implementation of the proposed action.

Wildlife

Construction activities associated with the proposed action would temporarily displace wildlife from suitable habitat in the immediate vicinity of the project area. Smaller, less mobile species and those seeking refuge in burrows (e.g., gophers) could inadvertently be killed during

construction activities; however, long-term impacts to populations of such species would not result and there would be no significant impacts to wildlife with implementation of the construction activities associated with the proposed action.

Threatened and Endangered Species

No sensitive species are known to occur within the vicinity of the proposed construction projects at Kulis ANGB. Therefore, there would be no impacts to threatened or endangered species with implementation of the construction activities associated with the proposed action.

4.6.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to biological resources would be the same as those described under the proposed action. Therefore, no significant impacts to biological resources would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.6.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. Baseline biological resources, as described in Section 3.6, would remain unchanged. Therefore, no significant impacts to biological resources at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

4.7 TRANSPORTATION AND CIRCULATION

4.7.1 Approach to Analysis

Impacts on transportation and circulation would be considered significant if the proposed action affected the safety and/or the capacity of roads within the ROI. In addition, impacts would be considered significant if the proposed action increased the potential for traffic disruption or congestion along regional and local transportation corridors.

4.7.2 Impacts

4.7.2.1 Proposed Action

Construction Impacts

Proposed construction activities would require the removal of demolition-related debris and the delivery of construction equipment and materials to Kulis ANGB. However, construction traffic would constitute a small portion of the total existing traffic volume in the region and at Kulis ANGB. The majority of vehicles used for construction activities would be driven to the construction site and kept on-site for the duration of construction, resulting in only a small increase in vehicle trips. In addition, increases in traffic volumes associated with construction activity would be temporary; upon completion of construction, no long-term impacts to off-base transportation systems would occur.

Implementation of proposed construction projects at Kulis ANGB would result in minor, temporary impacts on base traffic circulation as a result of increased traffic associated with construction vehicles. In addition, some temporary traffic detours could occur around construction sites. However, these impacts would be short-term and would not have a significant impact on the installation's transportation network.

Implementation of the proposed action would not result in an increase in personnel; therefore, development associated with the proposed action would not contribute to the current deficit in parking spaces during unit training assembly (UTA) weekends.

Operational Impacts

Implementation of the proposed action would result in long-term beneficial impacts to aircraft circulation and parking at Kulis ANGB. Specifically, the construction of the taxiway addition connecting the ANG parking apron to AIA would alleviate existing response inefficiencies and aircraft traffic congestion caused by ANG aircraft waiting to taxi across the two active runways. Implementation of the taxiway addition would allow ANG aircraft to access the departure runway without crossing the two active runways, thereby reducing delays to departing aircraft. In addition, the proposed apron expansion would provide the additional surface area needed for sufficient wing tip clearance between AKANG aircraft, as mandated by the Federal Aviation Administration (FAA). Currently, when all AKANG aircraft are parked on the apron, the amount of space for wing tip clearance is not sufficient. Therefore, implementation of the

proposed action would result in long-term beneficial impacts to aircraft transportation, circulation, and parking at Kulis ANGB.

Under the proposed action, long-term beneficial impacts to vehicle circulation would result at Kulis ANGB. Specifically, relocating the main gate/guardhouse approximately 300 feet inward from its existing location would improve vehicle control and traffic management, especially during UTA weekends. In addition, the construction of a second lane for outbound vehicles would increase the efficiency of vehicle circulation at Kulis ANGB. Therefore, implementation of the proposed action would result in long-term beneficial impacts to vehicle transportation and circulation at Kulis ANGB.

4.7.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to transportation and circulation would be the same as those described under the proposed action. Therefore, implementation of the Engine Test Stand Siting Alternative would result in long-term beneficial impacts to vehicle transportation and circulation at Kulis ANGB.

4.7.2.3 No-Action Alternative

Under the No-Action Alternative, implementation of the proposed short-term construction activities at Kulis ANGB would not occur. Baseline transportation and circulation resources, as described in Section 3.7, would remain unchanged. However, circulation constraints and parking deficiencies would continue on base because vehicle parking and apron/taxiway improvements would not occur. Therefore, selection of the No-Action Alternative would not alleviate current circulation and parking deficiencies and the resulting impact to on-base transportation and circulation would be adverse.

4.8 VISUAL RESOURCES

4.8.1 Approach to Analysis

Determination of the significance of impacts to visual resources is based on the level of visual sensitivity in the area. Visual sensitivity is defined as the degree of public interest in a visual resource and the concern over potential adverse changes in the quality of that resource. In general, impacts to visual resources would be considered significant if implementation of the proposed action resulted in a substantial alteration to an existing sensitive visual setting.

4.8.2 Impacts

4.8.2.1 Proposed Action

Implementation of proposed building construction and facility modification projects at Kulis ANGB would be visually consistent with existing structures at Kulis ANGB. The proposed consolidation of like facilities would result in a more visually cohesive base, which would result in a negligible but slightly beneficial impact to visual resources at Kulis ANGB. In addition, the visual environment of Kulis ANGB is already characteristic of a military airfield and local visual sensitivity is low. Therefore, no significant impacts to local or regional visual resources would occur as a result of implementation of the proposed action.

4.8.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to visual resources would be the same as those described under the proposed action. Therefore, no significant impacts to visual resources would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.8.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not be implemented and no changes would occur to visual resources as described in Section 3.8. Therefore, no significant impacts to visual resources at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

4.9 CULTURAL RESOURCES

4.9.1 Approach to Analysis

Cultural resources are subject to review under both federal and state laws and regulations. Section 106 of the National Historic Preservation Act of 1966 empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, funded, or permitted projects affecting cultural sites listed or eligible for inclusion on the National Register of Historic Places (NRHP). Once cultural resources have been identified, they are evaluated for their eligibility for inclusion into the NRHP. If they are determined to be eligible, an assessment of effect would be evaluated to identify any impacts that would occur as a result of the undertaking. Only cultural resources determined to be significant (i.e., eligible for the NRHP) are protected under the National Historic Preservation Act.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts. Direct impacts may occur by 1) physically altering, damaging, or destroying all or part of a resource; 2) altering characteristics of the surrounding environment that contribute to resource significance; 3) introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or 4) neglecting the resource to the extent that it deteriorates or is destroyed. Direct impacts can be assessed by identifying the type and location of the proposed action and by determining the exact locations of cultural resources that could be affected. Indirect impacts primarily result from the effects of project-induced population increases and the resultant need to develop new housing areas, utilities services, and other support functions necessary to accommodate population growth. These activities and facilities' subsequent use can disturb or destroy cultural resources.

4.9.2 Impacts

4.9.2.1 Proposed Action

There are no listed NRHP sites on Kulis ANGB or adjoining properties that would be effected by the proposed action. Although no surveys have been performed, current literature research does not indicate that any properties at Kulis ANGB are considered eligible for NRHP listing. While the State Historic Preservation Officer (SHPO) has been provided a listing of the projects and has not responded in writing within the prescribed time period, it is anticipated that no issues will arise that would prevent these actions from going forward. If additional information is required by the SHPO, the unit will provide the necessary information upon written request.

As part of the proposed action, Buildings 10, 11, 1003, and 1004 would be demolished and Buildings 1, 21, and 23 would undergo expansions (refer to Figure 2-1 and Table 2-1). Since these buildings were constructed between 1964 and 1993, do not represent a unique resource to the AKANG, and do not meet one or more of the criteria as defined in 36 CFR 60.4 for inclusion in the NRHP, demolition and modification of these buildings would not be considered significant.

The majority of proposed construction associated with the proposed action is located on previously developed areas on Kulis ANGB. While these areas have been previously disturbed and have a low probability of containing buried archaeological resources, evidence of such resources could be uncovered during ground-disturbing activities. In the event such resources were uncovered during the course of the project development, construction would be suspended until the SHPO has been contacted, and until a qualified archaeologist could determine the significance of the encountered resources (s).

Executive Order (EO) 13084, *Consultation and Coordination with Indian Tribal Governments*, mandates that Native American tribal governments be provided meaningful and timely input in regards to the development of regulatory policies on matters that significantly or uniquely affect their communities. EO 13007, *Indian Sacred Sites,* requires all Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites. However, as there have been no resources or issues of interest to Native Americans identified that would be affected by the proposed action at Kulis ANGB, potential traditional or sacred resources of interest to Native Americans would not be affected. Therefore, implementation of the proposed action would not have the potential to significantly affect cultural resources at Kulis ANGB.

4.9.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to cultural resources would be the same as those described under the proposed action. Therefore, no significant impacts to cultural resources would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.9.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. Baseline cultural resources, as described in Section 3.9, would remain unchanged. Therefore, no significant impacts to cultural resources at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

4.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.10.1 Approach to Analysis

Significance of population and expenditure impacts are assessed in terms of their direct effects on the local economy and related effects on other socioeconomic resources within the ROI. Socioeconomic impacts would be considered significant if the proposed action resulted in a substantial shift in population trends, or notably affected regional employment, spending and earning patterns, or community resources.

4.10.2 Impacts

4.10.2.1 Proposed Action

Economic activity associated with proposed construction activities at Kulis ANGB, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale. As the proposed action would not result in an increase or decrease in Kulis ANGB personnel levels, no long-term economic changes would occur upon implementation of the proposed action. Therefore, implementation of the proposed action would not result in a significant impact to regional or local socioeconomic characteristics.

Environmental Justice and Protection of Children

In order to comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, the ethnicity and poverty status in the vicinity of Kulis ANGB has been examined and compared to city, regional, state, and national data to determine if minority or low-income communities could potentially be disproportionately affected by implementation of the proposed action. In addition, to adhere to EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, the distribution of children in the vicinity of Kulis ANGB has been determined to ensure that potential environmental and safety risks to children are addressed.

Under the proposed action, demolition and construction activities would be contained entirely within the boundaries of Kulis ANGB; minority and low-income populations outside of Kulis ANGB would not be significantly impacted. Therefore, implementation of the proposed action would not disproportionally impact minority or low-income populations.

Implementation of the proposed action would not result in environmental health risks or safety risks to children, as no on-base housing or facilities for children exist at Kulis ANGB. During proposed demolition and construction projects, standard construction site safety precautions (e.g., fencing and patrolling) would be implemented. In addition, the existing high-security environment at Kulis ANGB prohibits access by unauthorized personnel. For these reasons, potential health or safety impacts to children living or playing in the vicinity of Kulis ANGB

would be minimized. Therefore, no significant impacts to children from health risks or safety risks would occur as a result of implementing the proposed action at Kulis ANGB.

4.10.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to socioeconomics, environmental justice, and children would be the same as those described under the proposed action. Therefore, no significant impacts to socioeconomic conditions at Kulis ANGB or within the ROI would occur as a result of implementation of the Engine Test Stand Siting Alternative.

4.10.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not occur. Baseline socioeconomics and environmental justice resources, as described in Section 3.10, would remain unchanged. Therefore, no significant impacts to socioeconomics, environmental justice, and children at Kulis ANGB or within the ROI would occur as a result of implementation of the No-Action Alternative.

4.11 HAZARDOUS MATERIALS AND WASTES

4.11.1 Approach to Analysis

Federal, state and local laws regulate the storage, disposal, and transportation of hazardous materials and wastes. These laws have been established to protect human health and the environment from potential impacts. The significance of impacts associated with hazardous wastes and materials is based on the toxicity of the substance, transportation and storage risk, and the method of waste disposal. Impacts are considered significant if the storage, use, transportation, or disposal of these substances increases human health risks or environmental exposure.

4.11.2 Impacts

4.11.2.1 Proposed Action

Hazardous materials and wastes associated with 176 WG operations are managed in accordance with all federal, state, and local regulations. Under the proposed action, construction and operation of the proposed facilities would not have a significant impact on hazardous materials and wastes use, storage, or generation at Kulis ANGB. The proposed construction of the Aircraft Corrosion Control Facility and Hazardous Materials Pharmacy would significantly improve the handling and management of hazardous materials and wastes at the base.

Currently, Kulis ANGB does not have a dedicated area to train or perform environmentally safe aircraft corrosion control operations. These operations are currently performed at the existing maintenance or fuel cell hangers. However, if these facilities are unavailable, the corrosion control operations are performed outside or delayed. Due to Alaska's inclement weather and the lack of daylight hours in the winter, performing these operations outside is difficult to accomplish. Proposed construction of the Aircraft Corrosion Control Facility would result in an overall improvement in the handling of hazardous materials and wastes associated with this operation.

Construction of the proposed Hazardous Materials Pharmacy Facility would provide a central distribution point for the collection and distribution of hazardous materials. In addition, the facility would provide a hazardous materials management system for Kulis ANGB, which in turn would minimize the amount of hazardous materials used on the installation.

Under the proposed action, four buildings are proposed for demolition or remodeling that contain asbestos containing materials (ACMs): Buildings 1, 21, 22, and 49. The most common ACM in these buildings are floor tiles and mastic used to hold them down. The second source of ACM identified in the buildings is mudded thermal insulation that is typically found on the hot water supply fittings. Proposed construction or remodeling activities would result in the removal or disturbance of these materials; however all appropriate state and federal regulations would be followed concerning removal of ACMs. Prior to construction, based on recommendations from the Asbestos Management Team, intrusive sampling of these building would be performed to identify any hidden asbestos.

4.11.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to hazardous materials and wastes would be the same as those described under the proposed action. Therefore, no significant impacts to hazardous materials and wastes would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.11.2.3 No-Action Alternative

Under the No-Action Alternative, proposed short-term construction activities at Kulis ANGB would not be implemented and no changes would occur to hazardous materials and wastes conditions as described in Section 3.11. Therefore, no significant impacts to hazardous materials and wastes at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

4.12 SAFETY

4.12.1 Approach to Analysis

If implementation of the proposed action would substantially increase risks associated with aircraft mishap potential or flight safety relevant to the public or the environment, it would represent a significant impact. In addition, if implementation of the proposed action would result in incompatible land use with regard to safety criteria such as Runway Protection Zones (RPZs) or quantity-distance (QD) arcs, impacts would be significant.

4.12.2 Impacts

4.12.2.1 Proposed Action

The current air and ground safety procedures and precautions in place with the 176 WG operations are managed in accordance with all federal, state, and local regulations. Although all eleven of the proposed construction projects are designed to improve efficiency and safety, three of these projects would specifically improve aircraft and base safety. These proposed projects include the Apron/Taxiway Expansion, Hazardous Materials Pharmacy, and the Relocation of the Main Gate Guardhouse. None of the proposed construction projects would increase airspace congestion, Bird-Aircraft Strike Hazard (BASH), or endanger public safety.

Aircraft Mishaps

The potential for aircraft mishaps is directly related to an increase or decrease in authorized or scheduled flight hours. Under the proposed actions, flight hours and the mission for the unit would remain unchanged. Therefore, implementation of proposed construction projects would not have a significant impact on aircraft mishaps. Furthermore, the proposed Apron/Taxiway Expansion would alleviate current aircraft traffic congestion on the ground and aircraft parking deficiencies, thus resulting in an improvement to ground safety.

Runway Protection Zones

No 176 WG facilities currently present an incompatible land use with regard to established RPZs associated with the airfield complex at Kulis ANGB. The proposed action would not result in a change in shape or shift in location of established RPZs. Therefore, no land use conflict with regard to airfield safety would result from implementation of the proposed action.

Explosives Safety

Under the proposed action, implementation of construction projects would not impact explosives safety. Two of the eleven construction projects are directly related to improving explosives safety. These projects include the Pararescue Training Complex and Hazardous Materials Pharmacy. The Pararescue Training Complex would provide a 25,900 SF facility to support the 210th Rescue Squadron's (210 RQS) pararescue mission including training storage, maintenance, and preflight operations. As part of this operation, the facility would provide a secure and

classified storage for arms, ammunition, flares, and classified military equipment. The Jewel Lake Armory, which is located on the opposite side of the AIA currently provides training and storage for the pararescue operation. The armory is a small ineffective facility for training operations and storage of potentially explosive materials. The proposed Pararescue Training Complex would centralize pararescue equipment and training facilities resulting in a significant improvement in the readiness of the 210 RQS.

Under the proposed action, the Hazardous Materials Pharmacy would consist of a 1,700 SF pre-fabricated building located southwest of Building 23. This new facility would serve as a central distribution point for the collection and distribution of hazardous materials. The pharmacy would also provide a hazardous material inventory management system for operations at Kulis ANGB. Development of this facility would ensure that hazardous materials were stored properly minimizing the risk of a chemical reaction that could result in an explosion or fire.

4.12.2.2 Engine Test Stand Siting Alternative

Under this alternative, the existing Engine Test Stand would be relocated approximately 300 feet south from its current location (refer to Figure 2-1). Potential impacts to safety conditions would be the same as those described under the proposed action. Therefore, no significant impacts to safety conditions would occur at Kulis ANGB as a result of implementation of the Engine Test Stand Siting Alternative.

4.12.2.3 No-Action Alternative

Under the No-Action Alternative, implementation of the proposed short-term construction activities at Kulis ANGB would not occur. Baseline safety conditions, as described in Section 3.12, would remain unchanged. Therefore, no significant impacts to safety conditions at Kulis ANGB would occur as a result of implementation of the No-Action Alternative.

SECTION 5
CUMULATIVE IMPACTS

Council on Environmental Quality (CEQ) regulations stipulate that potential environmental impacts resulting from cumulative impacts should be considered within an environmental assessment (EA). Cumulative impacts are defined as "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency or person undertakes such other actions" (40 Code of Federal Regulations [CFR] 1508.7). Cumulative impacts can result from minor, but collectively substantial actions undertaken over a period of time by various agencies (federal, state, or local) or persons. In accordance with the National Environmental Policy Act (NEPA), a discussion of cumulative impacts resulting from projects that are proposed, currently under construction, recently completed, or anticipated to be implemented in the near future is necessary.

Currently, no substantial facility improvements or construction projects are proposed to be implemented at or in the immediate vicinity of Anchorage International Airport (AIA) that would be disrupted by or, in turn, would disrupt the proposed action. AIA is currently in the process of updating their Master Plan which will include future facility and circulation improvements. One of the proposed projects in the Master Plan Update may include the development of an east-west taxiway. If AIA were to approve and initiate this project, implementation of the apron/taxiway additional associated with the proposed action at Kulis Air National Guard Base (ANGB) may require modification to be compatible with AIA improvements.

Regionally, no development (e.g., residential, commercial, or industrial) or infrastructure upgrades have recently been completed or are planned that would affect or be affected by the implementation of the proposed action at Kulis ANGB. Therefore, no significant cumulative impacts would occur as a result of implementation of construction and facility modification projects at Kulis ANGB.

[This page intentionally left blank]

SECTION 6
SUMMARY OF FINDINGS

This environmental assessment (EA) evaluates the potential environmental and human resource impacts associated with the implementation of proposed short-term construction projects at Kulis Air National Guard Base (ANGB), located at Anchorage International Airport (AIA), Alaska. The proposed action is composed of 4 demolition and 11 construction projects, to be implemented within the next 5 years. The proposed action would not result in a change in personnel, mission requirements, or airspace utilization for the 176th Wing (176 WG) stationed at Kulis ANGB. Potential impacts associated with proposed short-term construction activities at Kulis ANGB have been analyzed for all resource areas.

Air Quality

Implementation of the proposed action would result in minor and temporary increases in criteria pollutant emissions associated with proposed construction activities. However, no long-term increase in criteria pollutant emissions would occur. Fugitive dust emissions (particulate matter less than 10 microns in diameter [PM_{10}]) would be reduced by employing dust minimization practices. Emissions from construction vehicles would be temporary and minor, as the majority of vehicles would be kept at the project site for the duration of construction activities. The proposed action would not lead to a violation of the National Ambient Air Quality Standards (NAAQS) and would not violate the *de minimis* threshold for carbon monoxide (CO) emissions. Therefore, no significant impacts to air quality would occur.

Noise

Proposed construction activities would result in temporary and minor increases to the noise environment at Kulis ANGB. The use of heavy equipment during construction would generate noise levels above typical ambient levels at the proposed construction sites. However, the noise generated would be typical of construction activities, would be short-term, and would be restricted to normal working hours. In addition, the noise environment at Kulis ANGB would continue to be dominated by aircraft associated with Kulis ANGB and AIA operations.

Under the proposed action, the existing Engine Test Stand would be relocated to the northeast corner of Kulis ANGB, an overall louder noise environment. In addition, the Engine Test Stand would be oriented to minimize noise impacts and noise-reducing berms and walls would be constructed to further reduce noise impacts. There would be no change to the average annual noise environment, and people inside buildings would not be exposed to hazardous noise levels greater than 70 A-weighted decibels (dBA) (day-night average sound level [L_{dn}]), the identified environmental noise level threshold. The construction of the Engine Test Stand at either the proposed or alternative sites would only occur if acoustic protection is designed and subsequently incorporated into the facility. Therefore, no significant impacts to noise would occur.

Land Use

Implementation of the proposed action at Kulis ANGB would result in beneficial impacts to land use. Specifically, implementation of the proposed action would consolidate similar land uses and improve 176 WG efficiency. Proposed facility construction and modifications would be similar to existing infrastructure at Kulis ANGB. Currently, there are no known AIA facility improvements or construction projects proposed that would disrupt the proposed action. AIA is currently in the process of updating their Master Plan which will include future facility and circulation improvements. One of the proposed projects in the Master Plan Update may include the development of an east-west taxiway. If AIA were to approve and initiate this project, implementation of the apron/taxiway additional associated with the proposed action at Kulis ANGB may require modification to be compatible with AIA improvements. All other proposed construction projects would be contained within the boundaries of Kulis ANGB. Therefore, no significant impacts to land use would occur.

Geological Resources

Implementation of the proposed action at Kulis ANGB would result in temporary and minor impacts to geological resources from ground-disturbing activities. Specifically, demolition and construction activities would disturb surface and sub-surface soils. However, most construction projects would occur on previously disturbed land. In addition, implementation of Best Management Practices (BMPs) during construction activities would minimize impacts to geological resources. Erosion control measures would also be initiated to further reduce potential impacts. Therefore, no significant impacts to geological resources would occur as a result of implementation of the proposed action.

Water Resources

Implementation of the proposed action at Kulis ANGB would result in localized and minor effects to surface and sub-surface water resources. However, BMPs would be employed to minimize erosion, runoff, and sedimentation. Upon completion of construction, long-term impacts to water resources at Kulis ANGB would be negligible. Kulis ANGB is not located within an identified 100-year floodplain zone; therefore, implementation of the proposed action would not result in an increased risk of flooding potential. Therefore, no significant impacts to water resources would occur.

Biological Resources

Implementation of the proposed action at Kulis ANGB would result in the removal of some native vegetation. However, due to the lack of threatened, endangered, or sensitive species or critical habitat at Kulis ANGB, proposed construction activities would not impact threatened and endangered species or their habitat. No wetland areas would be affected by the proposed action. Therefore, no significant impacts to biological resources would occur.

Transportation and Circulation

Implementation of the proposed action at Kulis ANGB would result in a minor increase in average daily traffic volumes within the vicinity of Kulis ANGB during construction activities. However, construction-related traffic would constitute a small percentage of traffic in the region and many vehicles would remain on site for the duration of construction activities. No long-term increase in traffic would occur as a result of implementation of the proposed action. In addition, aircraft and vehicle transportation, circulation, and parking infrastructure at Kulis ANGB would improve as a result of implementation of the proposed action. Therefore, no significant impacts to transportation and circulation would occur.

Visual Resources

Implementation of the proposed action at Kulis ANGB would result in the construction of facilities that would be consistent with existing structures on the installation. The visual environment of Kulis ANGB is characteristic of a military airfield and visual sensitivity is low; therefore, implementation of the proposed action would not impact the existing visual environment. In addition, the proposed action would not infringe upon any existing viewsheds. Therefore, no significant impacts to visual resources would occur.

Cultural Resources

There are no listed National Register of Historic Places (NRHP) sites on Kulis ANGB or adjoining properties that would be effected by the proposed action. Although no surveys have been performed, current literature research does not indicate that any properties at Kulis ANGB are considered eligible for NRHP listing. While the State Historic Preservation Officer (SHPO) has been provided a listing of the projects and has not responded in writing within the prescribed time period, it is anticipated that no issues will arise that would prevent these actions from going forward. If additional information is required by the SHPO, the unit will provide the necessary information upon written request. The majority of proposed construction associated with the proposed action is located on previously developed areas on Kulis ANGB. While these areas have been previously disturbed and have a low probability of containing buried archaeological resources, evidence of such resources could be uncovered during ground-disturbing activities. In the event such resources were uncovered during the course of the project development, construction would be suspended until the SHPO has been contacted, and until a qualified archaeologist could determine the significance of the encountered resource(s).

Executive Order (EO) 13084, *Consultation and Coordination with Indian Tribal Governments*, mandates that Native American tribal governments be provided meaningful and timely input in regards to the development of regulatory policies on matters that significantly or uniquely affect their communities. EO 13007, *Indian Sacred Sites,* requires all Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites. However, as there have been no resources or issues of interest to Native Americans identified that would be affected by the proposed action at Kulis ANGB, potential traditional or sacred

resources of interest to Native Americans would not be affected. Therefore, no significant impacts to cultural resources would occur.

Socioeconomics and Environmental Justice

Implementation of the proposed action at Kulis ANGB would result in minor short-term economic benefits to the local economy associated with construction activities. However, these beneficial impacts would be negligible on a regional scale. No long-term changes or impacts in local or regional economic activity are expected with implementation of the proposed action.

In order to comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, regional demographic characteristics were assessed. However, as the proposed action would be contained within the boundaries of Kulis ANGB and no significant impacts would occur, no populations (minority, low-income or otherwise) would be disproportionately impacted. In addition, implementation of the proposed action would not result in environmental health risks or safety risks to children, as children would not be affected by the proposed action. Therefore, no significant impacts to socioeconomics resources would occur.

Hazardous Materials and Wastes

Implementation of the proposed action at Kulis ANGB would not result in an increase in the amount of hazardous materials used or the generation of hazardous wastes. Conversely, proposed construction of the Aircraft Corrosion Control Operations and Hazardous Materials Pharmacy facilities would result in an overall improvement in the handling of hazardous materials and wastes and could potentially decrease the total amount of hazardous materials used and hazardous wastes generated. In addition, hazardous materials and wastes associated with 176 WG operations at Kulis ANGB would continue to be handled in accordance with the Kulis ANGB *Hazardous Waste Management Plan*. Should any asbestos containing materials (ACMs) be discovered during proposed demolition activities, all applicable ANG, state, and federal regulations concerning removal of ACMs would be adhered to. Therefore, no significant impacts to hazardous materials and wastes would occur.

Safety

Implementation of the proposed action at Kulis ANGB would not result in changes to the frequency, type, and location of aircraft operations performed by the 176 WG. Subsequently, no increase in aircraft mishap rates, or Bird-Aircraft Strike Hazard (BASH) potential would occur. In addition, the construction of the proposed taxiway/apron addition would allow 176 WG aircraft to maneuver in accordance with Federal Aviation Administration (FAA) mandated wing tip clearance regulations.

The Pararescue Training Complex would provide a secure and classified storage for arms, ammunition, flares, and classified military equipment. In addition, the Hazardous Materials

Pharmacy would serve as a central distribution point for the collection and distribution of hazardous materials, ensuring that hazardous materials at Kulis ANGB are stored properly, thereby minimizing the risk of explosion or fire. In addition, no incompatible land use activities at the base currently occur or are proposed to be established within the established quantity distance (QD) arcs. Therefore, no significant impacts to safety would occur as a result of implementation of the proposed action.

[This page intentionally left blank]

SECTION 7
SPECIAL PROCEDURES

Impact evaluations presented in this environmental assessment (EA) have determined that no significant environmental impacts are expected to occur as a result of implementation of the proposed action or alternatives at Kulis Air National Guard Base (ANGB). This determination is based upon a thorough review and analysis of existing environmental and human resource information, the application of accepted modeling methodologies, and coordination with knowledgeable personnel from the 176th Wing (176 WG), the Air National Guard (ANG), and local, state, and federal agencies.

Implementation of the proposed action at Kulis ANGB would not require changes or modifications to airspace or airfield operations. In addition, there would be no significant environmental and human resources impacts for all resource areas. Therefore, no special procedures are necessary for implementation of the proposed action or alternatives at Kulis ANGB.

[This page intentionally left blank]

SECTION 8
REFERENCES

176th Civil Engineering Squadron. 1999. Proposed Military Construction Projects, DD Form 1391. Kulis ANGB, Anchorage, AK. July.

Air National Guard (ANG). 1993. Asbestos Management Plan. Kulis Air National Guard Base, Alaska Air National Guard, Anchorage, AK. ANG Civil Engineering Technical Services Center, Minot, ND.

ANG. 1997. 1996 Stationary Source Air Emissions Inventory. Alaska Air National Guard, 176th Wing, Kulis ANGB, Anchorage, AK. Prepared for the Environmental Division, Andrews Air Force Base, MD. October.

ANG. 1999. 176 WG OPLAN 91-202. Bird-Aircraft Strike Hazard (BASH) Plan. Kulis ANGB, Anchorage, AK. 10 June.

Alaska Air National Guard (AKANG). 1995. Master Plan, Kulis ANG Base, Anchorage International Airport, Anchorage, AK. Phase III, Final Submittal. July.

AKANG. 1996a. Stormwater Pollution Prevention Plan. Volume I: Plan. 176th Wing, Anchorage, AK. February.

AKANG. 1996b. Stormwater Pollution Prevention Plan. Volume 2: BMP Manual. 176th Wing, Anchorage, AK. March.

AKANG. 1999a. Hazardous Waste Management Plan. 176 WG, Anchorage, AK. March.

AKANG. 1999b. Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. 176th Wing, Anchorage, AK. February.

Alaska Department of Community and Economic Development. 2000. "Anchorage: Economy, Employment, Income and Poverty." http://www.comregaf.state.ak.us/CF_BLOCK.cfm. 7 February.

Alaska Department of Transportation. 1999. Personal Communication via telephone, D. Murford, Regional Traffic Engineer. Anchorage, AK. 29 October.

Alaska Geophysical Data Clearinghouse. 1998. "Preliminary Vegetation Classes." http://agdc.usgs.gov/data/usgs/erosafo/veg/veg.html. 18 November.

Alaska State Climate Center. 1999. "Anchorage Weather Service Office." http://www.uaa.alaska.edu/enri/ascc_web/ascc_home.html. 18 October.

Anchorage International Airport (AIA). 1996. Master Plan Update, Anchorage International Airport. Final Report. Anchorage, AK. June.

AIA. 1998. FAR Part 150 Update. Noise Exposure Map. State of Alaska Department of Transportation and Public Facilities, Anchorage, AK. November.

AIA. 1999. FAR Part 150 Update. Final Noise Compatibility Program. State of Alaska Department of Transportation and Public Facilities, Anchorage, AK. July.

AIA. 2000. Personal communication via telephone, Ms. Maryellen Tuttell, Planner. 15 May.

Bureau of Indian Affairs [BIA]. 2000. Personal communication via telephone, Mr. Al Kahkalen, Anchorage Field Representative, Bureau of Indian Affairs. 3 February.

Federal Aviation Administration (FAA). 1995. Environmental Assessment and Finding of No Significant Impact. Anchorage International Airport Runway 32 Extension. Project No. 51365. Prepared by Sate of Alaska, Department of Transportation and Public Facilities. Anchorage, AK. May.

Federal Interagency Committee on Noise (FICON). 1992. Federal Agency Review of Selected Airport Noise Analysis Issues. Washington, DC. August.

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

Harris, C.M. 1979. Handbook of Noise Control. McGraw-Hill Book Company. New York, NY.

Kulis Air National Guard Base (ANGB). 1995. Master Plan, Kulis Air National Guard Base. Anchorage International Airport, Anchorage, AK. July.

Kulis ANGB. 1999a. Personal communication via email, Mr. Howard Weaver, Environmental Manager, 176 WG. Kulis ANGB, Anchorage, AK. 4 November.

Kulis ANGB. 1999b. Personal communication via email, Mr. Howard Weaver, Environmental Manager, 176 WG. Kulis ANGB, Anchorage, AK. 4 November.

Kulis ANGB. 1999c. United States Air Force Real Property Inventory Detail List for Kulis ANGB, Anchorage, Alaska. October 1.

Kulis ANGB. 2000a. Personal communication via email, Mr. Howard Weaver, Environmental Manager, 176 WG. Kulis ANGB, Anchorage, AK. 19 May.

Kulis ANGB. 2000b. Personal communication via mail, Mr. Howard Weaver, Environmental Manager, 176 Wing. Kulis ANGB, Anchorage, AK. 18 January.

Municipality of Anchorage (MoA). 1999a. "Climate Indicators." http://www.ci.anchorage.ak.us/Services/Departments/Com/Research/Indicate/climate.html. 18 October.

MoA. 1999b. "Air Quality Program-Carbon Monoxide." http://www.ci.anchorage.ak.us/Services/Departments/Health/Environ/air.html. 18 October.

MoA. 1999c. Air Quality in Anchorage. A Summary of Air Monitoring Data and Trends (1980-1998). Air Quality Program, Environmental Services Division, Department of Health and Human Services. Anchorage, AK. May.

MoA. 1999d. "Anchorage Historical Highlights." http://www.ci.anchorage.ak.us/History.html. 1 December.

MoA. 2000a. "Anchorage Research and Technical Services: Population Trends." http://www.muni.org/Services/Departments/Com/Research/Indicate/pop.html. 7 February.

MoA. 2000b. "Anchorage Research and Technical Services: Anchorage & Alaska Population 1929-1996." http://www.muni.org/Services/Departments/Com/Research/Indicate/graphs/poptrend.html. 7 February.

MoA. 2000c. "Anchorage Research and Technical Services: Employment Trends." http://www.muni.org/Services/Departments/Com/Research/Indicate/employ.html. 7 February.

MoA. 2000d. "Anchorage Research and Technical Services: Employment by Industry." http://www.muni.org/Services/Departments/Com/Research/Indicate/images/empind.gif. 7 February.

MoA. 2000e. "Anchorage Research and Technical Services: Income Trends." http://www.muni.org/Services/Departments/Con/Research/Indicate/income.html. 7 February.

MoA. 2000f. "Anchorage Research and Technical Services: Wage Rates." http://www.muni.org/Services/Departments/Com/Research/Indicate/wage.htm. 7 February.

MoA. 2000g. "Anchorage Research and Technical Services: Unemployment Trends." http://www.muni.org/Services/Departments/Com/Research/Indicate/unemploy.html. 7 February.

MoA. 2000h. "Anchorage Research and Technical Services: Annual Unemployment Rate." http://www.muni.org/Services/Departments/Com/Research/Indicate/images/unemp.gif. 7 February.

MoA. 2000i. "Anchorage Research and Technical Services: Population by Race and Ethnicity." http://www.muni.org/Services/Departments/Com/Research/Indicate/race.html. February.

MoA. 2000j. "Anchorage Research and Technical Services: Population by Race." http://www.muni.org/Services/Departments/Com/Research/Indicate/images/race.gif. 7 February.

National Register Information System. 1999. "National Register Information System, Results: Alaska." http://www.nr.nps.gov. 2 December.

State of Alaska. 1999. "Alaska's Best Homepage: History of Alaska." http://www.alaskabest.com/history.htm. 1 December.

The Environmental Company, Inc. (TEC). 1999. Field Survey, Kulis ANGB, Anchorage, AK. Mr. Kirk Lakey, Senior Ecologist. 10-12 August.

U.S. Army Corps of Engineers (USACE). 1979. Sheets 15 and 17 of Volume 7 of the Anchorage Area Soil Survey. Alaska District Corps of Engineers in cooperation with the Municipality of Anchorage. Anchorage, AK.

U.S. Census Bureau. 2000a. "Current Population Reports." http://www.census.gov/statab/freq/98s0002.txt. 7 February.

U.S. Census Bureau. 2000b. "Poverty Estimates for Anchorage Borough, Alaska." http://www.census.gov/hhes/www/saipe/estimate/cty/cty02020.htm. 7 February.

U.S. Census Bureau. 2000c. "Poverty Estimates for Alaska." http://www.census.gov/hhes/www/saipe/estimate/cty/cty02000.htm. 7 February.

U.S. Department of Agriculture (USDA). 1979. Exploratory Soil Survey of Alaska. Soil Conservation Service, Anchorage, AK.

USDA. 1991. Hydric Soils of the United States. Soil Conservation Service, in cooperation with the National Technical Committee for Hydric Soils, Miscellaneous Publication Number 149. Lincoln, NE.

U.S. Department of the Army. 1987. Corps of Engineers Wetlands Delineation Manual. Waterways Experiment Station Technical Report Y-87-1. Vicksburg, MS. January.

U.S. Environmental Protection Agency (USEPA). 1971. Noise from Construction Equipment and Home Appliances. Washington, DC.

USEPA. 1972. Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution throughout the Contiguous United States. Office of Air Programs, Research Triangle Park, NC. January.

USEPA. 1973. Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety. Report 550/9-74-004. March.

USEPA. 1974. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." http://www.nonoise.org/library/levels/levels.htm. March

USEPA 1981. "Noise Effects Handbook: A Desk Reference to Health and Welfare Effects of Noise." http://www.nonoise.org/library/handbook/handbook.htm July

USEPA. 1999a. "National Ambient Air Quality Standards." http://www.epa.gov/airs/criteria.html. 4 November.

USEPA. 1999b. "Criteria Pollutants." http://www.epa.gov/oar/oaqps/greenbk/o3co.html. 9 December.

USEPA. 1999c. "Currently Designated Nonattainment Areas for All Criteria Pollutants." http://www.epa.gov/oar/oaqps/greenbk/aycl.html. 18 October.

USEPA. 1999d. "AP-42, Fifth Edition, Volume I, Chapter 13: Miscellaneous Sources." http://www.epa.gov/ttn/chief/ap42c13.html. August.

U.S. Fish and Wildlife Service (USFWS). 1992. National Wetlands Inventory Map. Anchorage (A-8) NW, Alaska, 7.5 Minute Series. Anchorage, AK.

USFWS. 1999a. Endangered and Threatened Wildlife and Plants; Proposal to Remove the Aleutian Canada Goose from the List of Endangered and Threatened Wildlife. Federal Register 64:42058-42068.

USFWS. 1999b. Personal communication via mail, Ann. G. Rappoport, Field Supervisor. Anchorage, AK. 22 November.

USFWS. 2000. "Region 7 Listed Species by Lead Region and States as of January 31, 2000." http://endangered.fws.gov/r7spndx.html.

U.S. Geological Survey (USGS). 1999. "Water-Quality Assessment of the Cook Inlet Basin, Alaska – Environmental Setting. Water-Resources Investigations Report 99-4025." http://ak.water.usgs.gov/Publications/pdf.reps/wrir99.4025.pdf. 3 November.

University of Dayton Research Institute. 1999. OMEGA Version 11.3 Compute Runup Noise Measure Data for Military Aircraft. Developed for U.S. Air Force, AL/OEBN, Wright-Patterson Air Force Base, OH.

Viereck, L. A., C. T. Dyrness, A. R. Batten, and K. J. Wenzlick. 1992. The Alaska Vegetation Classification. General Technical Report PNW-GTR-286. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.

[This page intentionally left blank]

SECTION 9
AGENCIES AND REPRESENTATIVES CONTACTED

Albright, Rick. Director, Alaska Operations, U.S. Environmental Protection Agency (USEPA). Anchorage, AK.

Bartels, Gloria. Planning Technician, Municipality of Anchorage (MoA) Community Planning and Development.

Bergman, Pamela. Regional Environmental Officer, U.S. Department of the Interior, Office of Environmental Policy and Compliance. Anchorage, AK.

Birch, Chris. Manager Engineering and Environmental Services, Anchorage International Airport (AIA).

Bittner, Judith E. State Historic Preservation Office. Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation, Office of History and Archaeology. Anchorage, AK.

Bureau of Land Management. State Director. Anchorage, AK.

Dale, Rachel Joan. Archaeologist, Department of Natural Resources, Division of Parks and Outdoor Recreation, Office of History and Archaeology. Anchorage, AK.

Jesperson, Michelle. Archaeologist, Department of Natural Resources, Division of Parks and Outdoor Recreation, Office of History and Archaeology. Anchorage, AK.

Lamoreaux, Bill H. Engineer, Division of Air & Water Quality Watershed Development, State of Alaska Department of Environmental Conservation. Anchorage, AK.

Lein, Christine E. Environmental Manager, AIA.

Middendorf, Tom. Planning Manager, AIA.

Murford, D. Regional Traffic Engineer, Alaska Department of Transportation. Anchorage, AK.

National Park Service. Regional Director. Anchorage, AK.

Rappoport, Ann G. Field Supervisor, U.S. Fish and Wildlife Service, Anchorage, AK.

Sackett, Russell H. Architectural Historian, Department of Natural Resources, Division of Parks and Outdoor Recreation Office of History and Archaeology. Anchorage, AK.

Smith, Tim. State Historic Preservation Office, Division of Parks, Office of History and Archaeology.

State of Alaska. Department of Environmental Conservation, Division of Air and Water Quality. Anchorage, AK.

Tobish, Thebe. MoA Community Planning and Development.

Tuttell, Maryellen. Noise Program Manager, AIA.

U.S. Forest Service. Acting Director, Engineering and Aviation. Anchorage, AK.

Wallace, John. Federal Aviation Administration (FAA). Anchorage, AK.

SECTION 10
LIST OF PREPARERS

This report was prepared for and under the direction of, the Air National Guard, Environmental Division (ANG/CEV) by The Environmental Company, Inc. (TEC) under contract to Parsons Engineering Science, Inc. Members of the professional staff are listed below:

Project Management

William Halperin, Program Manager
Ph.D., Geography
Karen Waller, Project Manager
B.S., Public and Environmental Affairs

Quality Assurance

Rick Spaulding
M.S., Wildlife and Fisheries Science

Technical Analysts

Peer Amble
B.A., Physical Geography
Rebecca Cubba
B.A., Environmental Studies
Kirk Lakey
B.S., Range Management and Wildlife Habitat Management
Teresa MacDonald
M.A., Geography and Planning
Ryan Pingree
M.S., Environmental Science and Management

Graphic Design

Deirdre Stites
A.A., Geology

[This page intentionally left blank]

APPENDIX A
AGENCY CORRESPONDENCE

IICEP DISTRIBUTION LIST

EA FOR PROPOSED SHORT-TERM CONSTRUCTION
KULIS AIR NATIONAL GUARD BASE

Mr. Thebe Tobish
Municipality of Anchorage
Community Planning and Development
P.O. Box 196650, Room 210
Anchorage, AK 99519-6650
Tel (907) 343-4261

Mr. Rick Albright, Director
U.S. Environmental Protection Agency
Alaska Operations
2222 W. 7th Avenue, #19
Anchorage, AK 99513-7588
Tel (907) 271-5083

Ms. Pamela Bergman (7 Copies)
Regional Environmental Officer
U.S. Department of the Interior
Office of Environmental Policy and Compliance
1689 C. Street, Room 119
Anchorage, AK 99501-5126
Tel (907) 271-5011, Fax: -4102

Regional Director
U.S. Fish and Wildlife Service
1011 East Tudor Road, Room 135
Anchorage, AK 99503
Tel (907) 786-3542, Fax: -3306

State Director
Bureau of Land Management
222 West 7th Avenue, #13
Anchorage, AK 99513
Tel (907) 271-5076, Fax: -4596

Engineering and Aviation
Action Director
U.S. Forest Service
P.O. Box 21628
Juneau, AK 99802-10628

Regional Director
National Park Service
2525 Gambell Street, Room 107
Anchorage, AK 99503-2892
Tel (907) 257-2690, Fax: -2533

Mr. Chris Birch
Anchorage International Airport
Engineering & Environmental Services
4837 Aircraft Drive
Anchorage, AK 99502
Tel (907) 266-2709, Fax: 243-3012

Mr. Tim Smith
State Historic Preservation Officer
Division of Parks,
Office of History & Archeology
3601 "C" Street, Suite 1278
Anchorage, AK 99503-5921
Tel (907) 269-8715, Fax: -8908

Office of History and Archaeology
Department of Natural Resources
Division of Parks and Outdoor Recreation
3601 C Street, Suite 1278
Anchorage, AK 99503-5921
Tel (907) 269-8726

State of Alaska
Department of Environmental Conservation
Division of Air and Water Quality
555 Cordova Street
Anchorage, AK 99519-6650
Tel (907) 269-7523

Mr. John Wallace
FAA - FSDO
4510 West International Airport Road
Anchorage, AK 99502-1088
Tel (907) 271-2000

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services Anchorage
605 West 4th Avenue, Room 62
Anchorage, Alaska 99501-2249

1849•1999

RECEIVED
NOV 22 1999
BY: KAL

IN REPLY REFER TO:
WAES

NOV 19 1999

Mr. Kirk A. Lakey
The Environmental Company
710 NW Juniper, Suite 208
Issaquah, WA 98027

Dear Mr. Lakey:

We have reviewed your letter dated October 20, 1999, describing construction and modifications to five facilities at the Kulis Air National Guard Base (Kulis Ang) and have the following comments.

Based on your project description, we concur with your assessment that the proposed action is not likely to adversely affect species listed as threatened or endangered under the Endangered Species Act of 1973 (Act), as amended. This letter constitutes informal consultation under the Act. Further consultation regarding this project is not necessary at this time. Consultation should be reinitiated by your agency if: 1) the project plans change; 2) new information becomes available that would indicate listed or proposed species may be affected by the project in ways not previously addressed; 3) new species are listed or proposed for listing that may be affected by the project or; 4) listed or proposed species are observed on the project site.

We have reviewed the site map included in your letter and are not aware of any sensitive habitats that are within the boundaries of Kulis ANG. If you have questions about our comments please contact Marcia Heer at (907) 271-2440.

Sincerely,

Acting for Ann G. Rappoport
Field Supervisor

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF PARKS AND OUTDOOR RECREATION
OFFICE OF HISTORY AND ARCHAEOLOGY

TONY KNOWLES, GOVERNOR

3601 C STREET, SUITE 1278
ANCHORAGE, ALASKA 99503-5921
PHONE: (907) 269-8721
FAX: (907) 269-8908

WE'VE MOVED:
Alaska Dept. of Natural Resources
Office of History and Archaeology
550 West 7th Ave., Suite 1310
Anchorage, AK 99501-3561

December 28, 1999

FILE: 3130-2R AKANG

SUBJECT: Kulis ANGB Description of Proposed Action and Alternatives for Short-term Construction Projects.

Karen Waller
The Environmental Company, Inc.
1669 Hill Top Lane
Encinitas, CA 92024

Dear Ms. Waller:

My staff has reviewed the above referenced documentation. Proposed actions will require the Alaska Air National Guard (AKANG) to address Section 106 of the National Historic Preservation Act (as amended). My staff is available to assist the AKANG in meeting its Section 106 obligations.

If you have questions, contact Russ Sackett at 907-269-8726.

Sincerely,

Judith Bittner

Judith E. Bittner
State Historic Preservation Officer

JEB/rhs

Anchorage International Airport

State of Alaska DOT & PF
P.O. Box 196960
Anchorage, Alaska
USA 99519-6960

February 29, 2000

Van P. Williams, Jr. Colonel, AKANCG
176 WG/CC
Building 37, Stop 20
5005 Raspberry Road
Kulis ANG Base
Anchorage, AK 99502-1998

Subject: Kulis ANGB Description of Proposed Action and Alternatives

Dear Colonel Williams:

This letter is in response to your letter to Chris Birch dated December 9, 1999 in which you ask for comments on the Kulis ANGB Description of Proposed Action and Alternatives for Short-term Construction Projects. Thank you for requesting the Airport's comments on these projects.

1. Long Term Plan. The Airport is interested in ANG's long term plans and how short term projects fit with the long-term mission of the ANG. In the long term, both the ANG and the Airport may experience inadequate space to accomplish our missions. Does the ANG have plans to expand beyond its boundaries or relocate all or a portion of its mission to other facilities? How do these short-term improvements relate to the long-term plan? Contact Tom Middendorf, Airport Planning, 266-2544.

2. Shared Facilities. The Airport would like to continue dialogue with ANG regarding possible shared facilities to address areas of mutual interest such as Airport Rescue and Firefighting, Maintenance and Operations, storage and warehousing of equipment and supplies, etc. Contact Gorky Caldwell, Airport Operations 266-2690.

3. Drainage. Drainage and stormwater pollution prevention through the site, and particularly north of the apron, should be designed in accordance with the Airport Drainage Plan. We recommend Kulis consider completely self-contained drainage and sump systems in higher hazard areas such as maintenance and chemical storage areas. Contact Christine Klein, Environmental, 266-2484.

4. Air Quality and Conformity. The Airport has had discussions and meetings with community groups and the public on air quality. Some members of the public are interested in more than just "technical compliance" with regulations, and would like issues such as fuel odors addressed. You may wish to conduct further outreach with

Community Councils and other groups to assess their air quality concerns. For the purposes of determining air quality conformity we also recommend coordination with the Department of Environmental Conservation on defining the boundaries of the site and incorporating these projects into the State Implementation Plan. Contact Christine Klein, Environmental, 266-2484.

5. Engine Test Stand. The Airport continues to have concerns about the location and design of the engine test facility. We would like to review the scope of work and the results of studies for evaluating the noise impacts of test stand sites and the design of the facility. The Airport's noise consultant can assist us in reviewing this information. As for noise generated by the rest of the ANG facility, have a noise berm or fence, aircraft parking orientation or other measures been considered to reduce noise levels from the ANG facility into adjacent neighborhoods? Similar to the air conformity issue, we recommend additional outreach with neighborhoods and community councils regarding noise issues. We would be happy to participate in these discussions. Contact Maryellen Tuttell, Noise Planner, 266-2543.

6. Apron/Taxiway Addition. While the apron expansion would appear to not conflict with the current Airport Layout Plan, we are currently evaluating the need and location for a future east-west taxiway as part of the Master Plan Update. If that taxiway were to be built to Design Group VI standards, this apron and taxiway addition would conflict with the new Design Group VI taxiway. Part 77 surfaces should also be considered for this and other existing development on the north side of the site.

   The Taxiway connection to Taxiway E is not consistent with the Master Plan Update. We recommend revising the location of this new taxiway to coincide with a future planned parallel taxiway. As noted above, we are evaluating whether that parallel taxiway should be built to Design Group VI standards. Contact Tom Middendorf, Planning, 266-2544.

7. Hazardous Materials Pharmacy. Do plans include fire protection and secondary containment?

8. Draft and Final EA. The Airport would like to review and comment on the draft Environmental Assessment when it is completed.

Thank you again for the opportunity to comment on these projects.

Sincerely,

Tom Middendorf
Planning Manager

Cc: Chris Birch, Engineering
Corky Caldwell, Operations
Christine Klein, Environmental

DEPARTMENT OF THE AIR FORCE
Headquarters, 176th Wing (PACAF)

6 April 2000

MEMORANDUM FOR ANCHORAGE INTERNATIONAL AIRPORT
ATTENTION: TOM MIDDENDORF
P.O. BOX 196960
ANCHORAGE, AK 99519-6960

FROM: 176 WG/CE
Building 50, Stop 8
5005 Raspberry Road
Kulis ANG Base, Anchorage, AK 99502-1998

SUBJECT: Proposed Short-term Construction Projects at Kulis Air National Guard Base (ANGB)

1. Thank you for your detailed letter in response to our Kulis ANGB Description of Proposed Actions and Alternatives. Please find attached four copies of the Internal Draft of the Environmental Assessment (EA) for proposed short-term construction projects at Kulis ANGB. A web site link and password are also provided so that your staff can download the document if required. I believe that this document will answer many of the questions you raised in your response letter.

2. The Alaska Air National Guard remains committed to a long-term relationship with the Anchorage International Airport (AIA). We are very willing to continue dialogue with AIA to explore possibilities for shared facilities.

3. Following this Internal Draft the ANG will hold an informal public review meeting to present the proposed short-term construction projects and environmental analysis.

4. Please feel free to contact my staff with any further questions generated by this EA Internal Draft. 1LT Ed Soto in my Engineering Section can be reached at 249-1357. Mr. Darrell Weaver my Environmental Manager can be reached at 249-1726 and I can be reached at 249-1381. Please note that the military staff will be out of the office from 9-23 April 2000.

ANDREW J. MAMROL, Maj, AKANG
Base Civil Engineer

Attachment:
Internal Draft Environmental Assessment (4 copies)

cc:
176 SPTG/CC
ANG/CEVP (Mr. Marek)
The Environmental Company (Ms. Waller)

The Environmental Company, Inc.

1525 State Street • Suite 103
Santa Barbara, CA 93101
(805) 564-4940 • Fax (805) 564-4988
Internet: www.tecinc.com

September 15, 2000

Mr. Kevin Marek
ANG/CEVP
3500 Fetchet Ave
Andrews AFB, MD 20762-5157

Subject: Final Environmental Assessment (EA) for Proposed Short-Term Construction Projects at Kulis Air National Guard Base (ANGB) Contract DAHA90-94-D-0010

Dear Mr. Marek,

The Environmental Company, Inc. (TEC) is pleased to submit the Final Environmental Assessment (EA) for Proposed Short-Term Construction Projects at Kulis Air National Guard Base (ANGB). As requested, six copies and one CD of the EA and signed Finding of No Significant Impact (FONSI) are enclosed for your files. In addition, 20 copies and one CD have been forwarded to Howard Weaver at Kulis ANGB.

Thank you for the opportunity to support ANG/CEVP on this important project. It has been a pleasure working with you and the 176th Wing. Please contact me if you have any questions or comments.

Sincerely,

Karen M. Waller

Karen M. Waller
Project Manager

Enclosure

cc: LtCol Andrew Mamrol, Kulis ANGB
Howard Weaver, Kulis ANGB
Mark Collins, Parsons Engineering Science, Inc.