Final

Environmental Assessment

Construct Guard House

Cape Cod Air Force Station, Massachusetts

January 2004

Report Documentation Page

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14. ABSTRACT

This Final EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. This EA assesses the potential environmental impacts of implementing antiterrorism/force protection measures through construction of a guard house with automated entry control system on the installation?s entry road. Resource areas analyzed include air quality, geological resources, water resources, biological resources, cultural resources, aesthetics noise, environmental justice, and hazardous materials. In addition to the Proposed Action, the No Action Alternative was also analyzed in the EA. No significant impacts were identified during the analysis. The following is a summary of the environmental consequences of the Proposed Action. There would be short-term but not a significant increase in air emissions from construction; there would be no long-term impacts. There would be shortterm but not a significant disturbance to soils from digging during construction there would be no long-term impacts. No surface waters would be disturbed during the construction; the depth to groundwater is sufficient so no impacts would occur. There would be no impacts to wetlands or threatened or endangered species. There would be a short-term disturbance to vegetation from digging during construction; vegetation would be reestablished after construction. Some wildlife may be displaced during construction but would readily return after construction is complete. There would be no impact to cultural resources and a minimal change in the visual appearance of the entrance road. Noise levels would temporarily increase during construction but since it would take place during daytime hours and be for a limited timeframe; impacts would not be significant. There would be no impacts to low-income or minority populations. There would be a short-term increase in the use of fuels and oils in construction equipment impacts would not be significant.

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FONSI

FINDING OF NO SIGNIFICANT IMPACT

Construct Guard House
Cape Cod Air Force Station, Massachusetts

Pursuant to Section 102(2)(c) of the *National Environmental Policy Act* (NEPA) of 1969 and the Council on Environmental Quality regulations (40 CFR Sec. 1500-1508) implementing the procedural provisions of NEPA the Department of Defense gives notice that an Environmental Assessment (EA) has been prepared for the proposed construction of a Guard House at Cape Cod Air Force Station (AFS), Massachusetts, attached and incorporated by reference. Based on the EA it has been determined that an Environmental Impact Statement (EIS) is not required for the Proposed Action.

PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is to construct a guard house, an automated entry control system on an existing installation access road, and install fencing along the access road from the proposed guard house to the adjacent tree line. The site for the proposed guard house is the current fire-staging area, which consists of hardstand (pavement). No facility demolition would occur and the guard house would be constructed in a previously disturbed area (fire-staging area). The proposed guard house would include an area capable of accommodating a two person security team during increased threats, or at the installation commander's direction.

The proposed guard house would be up to 25 feet by 7 feet, located along the access road at the current fire-staging area. Construction of the guard house would include exterior walls, roof system, fire protection, heating and air conditioning, latrine facilities, electrical and plumbing systems, and connections to existing base utilities including telecommunications. The guard house would include a bathroom; waste from the guard house would be contained in a septic system or holding tank. Three boulders, approximately 3,000 pounds each, would be installed in front of the guard house, and two concrete posts would be installed behind the guard house to protect entry controllers from a low threat/low speed attack. Fencing would be installed around the guard house and along the access road to the adjacent tree line, restricting vehicle traffic to access through the defined entry point at the guard house. Landscaping would be conducted in accordance with the base's landscape design guide. Two heavy-duty hydraulic entry gates and a camera with a sensor would also be installed on the access road. The estimated timeframe for completing the construction on the guard house is three months.

NO ACTION ALTERNATIVE

Under the No Action Alternative, no additional security measures would be taken to protect the installation perimeter boundary at Cape Cod AFS.

FINDINGS

The following paragraphs summarize impacts that would likely occur from implementing any of the alternatives.

The Proposed Action would have short-term but not significant impacts on **air quality** generated by equipment and earth-moving activities during the construction. The No Action Alternative would not change existing air quality at Cape Cod AFS.

Impacts to **geological resources** would result primarily from excavation, grading, and compaction during construction of the fence and holding tank. These activities would affect less than 0.1 acres of soils along the access road from trenching and installing water and electricity lines to the guard house and less than 0.1 acres for the holding tank. Impacts to geological resources would not be significant. The No Action Alternative would not impact geological resources.

Impacts to **water resources** would not be significant. The depth to groundwater and distance to wells are adequate and would not be impacted during construction activities. There are no surface waters in the vicinity of the project site. Implementing best management practices would reduce the potential for erosion. Water resources would not change under the No Action Alternative.

Impacts to **biological resources** would not be significant. Less than 0.2 acres of grassland would be disturbed during construction activities. Any wildlife temporarily displaced would readily return to the area after construction activities are complete. There would be no impacts to threatened or endangered species.

There are no known **cultural resources** within the project area that would be affected as a result of the Proposed Action. No building demolition would occur. There would be no impacts to cultural resources from the Proposed Action or No Action Alternative.

There would be minimal **visual impacts** noticeable to the public due to the distance to State Highway 6 and Sandwich and the forested ground cover in the project area. Impacts to the physical characteristic of the landscape would not be significant from the Proposed Action and no changes in the landscape would occur under the No Action Alternative.

The impacts on the **noise** environment are related to the magnitude and duration of the noise levels generated during construction and the proximity of noise-sensitive receptors to the noise source. Noise generated during the construction activities would not affect sensitive receptors and the impacts would not be significant. Noise levels would not change under the No Action Alternative.

No significant **environmental justice** impacts were identified from the Proposed Action or No Action Alternative. None of the impacts from proposed construction would be significant, and they would not disproportionately impact minority populations or low-income populations, or children.

There would be no significant impacts from the use of hazardous materials during construction activities. There would be no change in hazardous materials usage under the No Action Alternative.

There would be no significant **cumulative impacts**.

CONCLUSION

Based on the attached EA, I conclude that the environmental effects of the Proposed Action and Alternatives analyzed are not significant and the preparation of an EIS is not warranted.

NINA M. ARMAGNO, Lt Col, USAF
Commander

12 Jan 04
Date

COVER SHEET

Agency: U.S. Air Force

Title: Construct Guard House at Cape Cod Air Force Station, Massachusetts

Date: January 2004

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Designation: Final Environmental Assessment (EA)

Abstract: This Final EA has been prepared in accordance with the *National Environmental Policy Act* (NEPA) of 1969, as amended. This EA assesses the potential environmental impacts of implementing antiterrorism/force protection measures through construction of a guard house with automated entry control system on the installation's entry road. Resource areas analyzed include air quality, geological resources, water resources, biological resources, cultural resources, aesthetics, noise, environmental justice, and hazardous materials. In addition to the Proposed Action, the No Action Alternative was also analyzed in the EA. No significant impacts were identified during the analysis.

The following is a summary of the environmental consequences of the Proposed Action. There would be short-term but not a significant increase in air emissions from construction; there would be no long-term impacts. There would be short-term but not a significant disturbance to soils from digging during construction; there would be no long-term impacts. No surface waters would be disturbed during the construction; the depth to groundwater is sufficient so no impacts would occur. There would be no impacts to wetlands or threatened or endangered species. There would be a short-term disturbance to vegetation from digging during construction; vegetation would be reestablished after construction. Some wildlife may be displaced during construction but would readily return after construction is complete. There would be no impact to cultural resources and a minimal change in the visual appearance of the entrance road. Noise levels would temporarily increase during construction but since it would take place during daytime hours and be for a limited timeframe; impacts would not be significant. There would be no impacts to low-income or minority populations. There would be a short-term increase in the use of fuels and oils in construction equipment; impacts would not be significant.

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ACRONYMS/ABBREVIATIONS

AFH	Air Force Handbook
AFI	Air Force Instruction
AFS	Air Force Station
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
CO	Carbon monoxide
CO_2	Carbon dioxide
CWA	Clean Water Act
dB	Decibel
dBA	"A-weighted" decibel
DoD	Department of Defense
EA	Environmental assessment
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
^oF	Degrees fahrenheit
ft	Feet
FONSI	Finding of No Significant Impact
L_{eq}	Equivalent sound level
MAAQS	Massachusetts Ambient Air Quality Standards
MADEP	Massachusetts Department of Environmental Protection
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts General Law
MMR	Massachusetts MilitaryReservation
MNHESP	Massachusetts Natural Heritage and Endangered Species
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NEPA	National Environmental Policy Act
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O_3	Ozone

OHSPC	Oil and Hazardous Substance Pollution Contingency Plan
PAWS	Phased Array Warning System
Pb	Lead
PM	Particulate matter
PM_{10}	Particulate matter 10 microns in diameter
$PM_{2.5}$	Particulate matter 2.5 microns in diameter
PSD	Prevention of significant deterioration
PvC	Plymouth-Barnstable Complex, very bouldery, 3-15% slope
PxC	Plymouth-Barnstable Complex, extremely bouldery, 3-15% slope
PxD	Plymouth-Barnstable Complex, extremely bouldery, 15-35% slope
RES	Restricted emission status
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SO_x	Sulfur oxide
SPCC	Spill Prevention Control and Countermeasures Plan
SWS	Space Warning Squadron
tpy	Tons per year
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile organic compounds

CHAPTER 1

PURPOSE OF AND NEED FOR ACTION

1. PURPOSE AND NEED FOR ACTION

This section includes an introduction and then describes the purpose and need for the action, public review process, and the location of Cape Cod Air Force Station (AFS).

1.1 INTRODUCTION

The United States Air Force, 6th Space Warning Squadron (6 SWS), at Cape Cod AFS proposes to implement antiterrorism/force protection measures by constructing a guard house with an automated entry control system on the installation's entry road. Antiterrorism/force protection measures would be implemented to heighten security of incoming vehicle traffic, restrict overall installation access, and provide the installation with the resources to establish heightened security measures during increased threat levels as determined by the U.S. Department of Homeland Security.

The National Environmental Policy Act (NEPA) of 1969, as amended, requires Federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental analysis. The Air Force environmental impact assessment process is accomplished through the adherence to the procedures set forth in CEQ regulations (40 Code of Federal Regulations (CFR) 1500-1508) and 32 CFR 989, 15 Jul 99, and amended 28 Mar 01 (*Air Force Environmental Impact Analysis Process*). These Federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation, designed to ensure deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. Appendix A includes a summary of laws, regulations, and permitting requirements. This environmental assessment (EA) provides an analysis of potential environmental consequences that could result from the implementation of the Proposed Action or the No Action Alternative.

1.2 PURPOSE AND NEED FOR ACTION

In accordance with Department of Defense (DoD) Instruction 2000.16, *DoD Combating Terrorism Standards*, Air Force Instruction (AFI) 31-101, *The Air Force Installation Security Program*, and Air Force Handbook (AFH) 32-1084, *Facility Requirements*, DoD installations are required to implement antiterrorism/force protection construction standards and to develop protective measures for DoD assets. Currently, the entire installation boundaries are not protected and uncontested access by unauthorized personnel could jeopardize missions on the installation or endanger civilians who unknowingly cross the installation boundaries. The 1.5 mile access road and DoD land on each side of the road leading up to the installation is currently unrestricted and unmanned. The current security gate, which would also remain in place, is located at the end of the access road adjacent to the installation.

Cape Cod AFS has chosen to implement antiterrorism/force protection measures, in accordance with AFH 32-1084 and AFI 31-101, by constructing a guard house, entry control system, and associated fencing at the initial boundary of the installation. The purpose and need for the action is to increase installation security by restricting vehicle

access through an automated entry control system or by security police forces. The proposed guard house would provide additional security to prevent unrestricted access to the installation.

1.3 PUBLIC REVIEW PROCESS

A Notice of Availability was published in the Falmouth, Mashpee, Bourne, and Sandwich Enterprise newspapers on Friday, November 14, 2003 announcing the availability of the Draft EA and Draft Finding of No Significant Impact (FONSI) for public review. The public comment period ran through December 14, 2003. No public comments were received. A copy of the Notice of Availability is shown in Appendix B.

1.4 LOCATION OF CAPE COD AIR FORCE STATION

The Massachusetts Military Reservation (MMR), located in Barnstable County, encompasses approximately 20,000 acres and supports the Massachusetts Air National Guard, U.S. Coast Guard, U.S. Army, U.S. Marine Corps, U.S. Air Force, U.S. Department of Agriculture, and the Federal Aviation Administration. Cape Cod AFS is situated atop Flat Rock Hill on Cape Cod within the northeastern portion of the MMR (see Figure 1.4-1). Flatrock Hill is the highest point on Cape Cod. Cape Cod occupies approximately 100 acres of leased land which includes 87 acres for the installation, 11.5 acres for the access road, and 2 acres for electrical transmission lines. Cape Cod AFS is approximately 60 miles south of Boston and 2 miles west of the town of Sandwich.

Cape Cod AFS is home to the 6th SWS where one of the Air Force's PAVE Phased Array Warning System (PAWS) radar stations is located. The mission of the approximately 125 personnel who operate the radar is to detect and track sea-launched ballistic missiles heading for North America. The 10-story tall radar also tracks satellites in orbit, transmitting spacetrack data into the Space Surveillance Center at Cheyenne Mountain. This radar site has been operational since 1978.

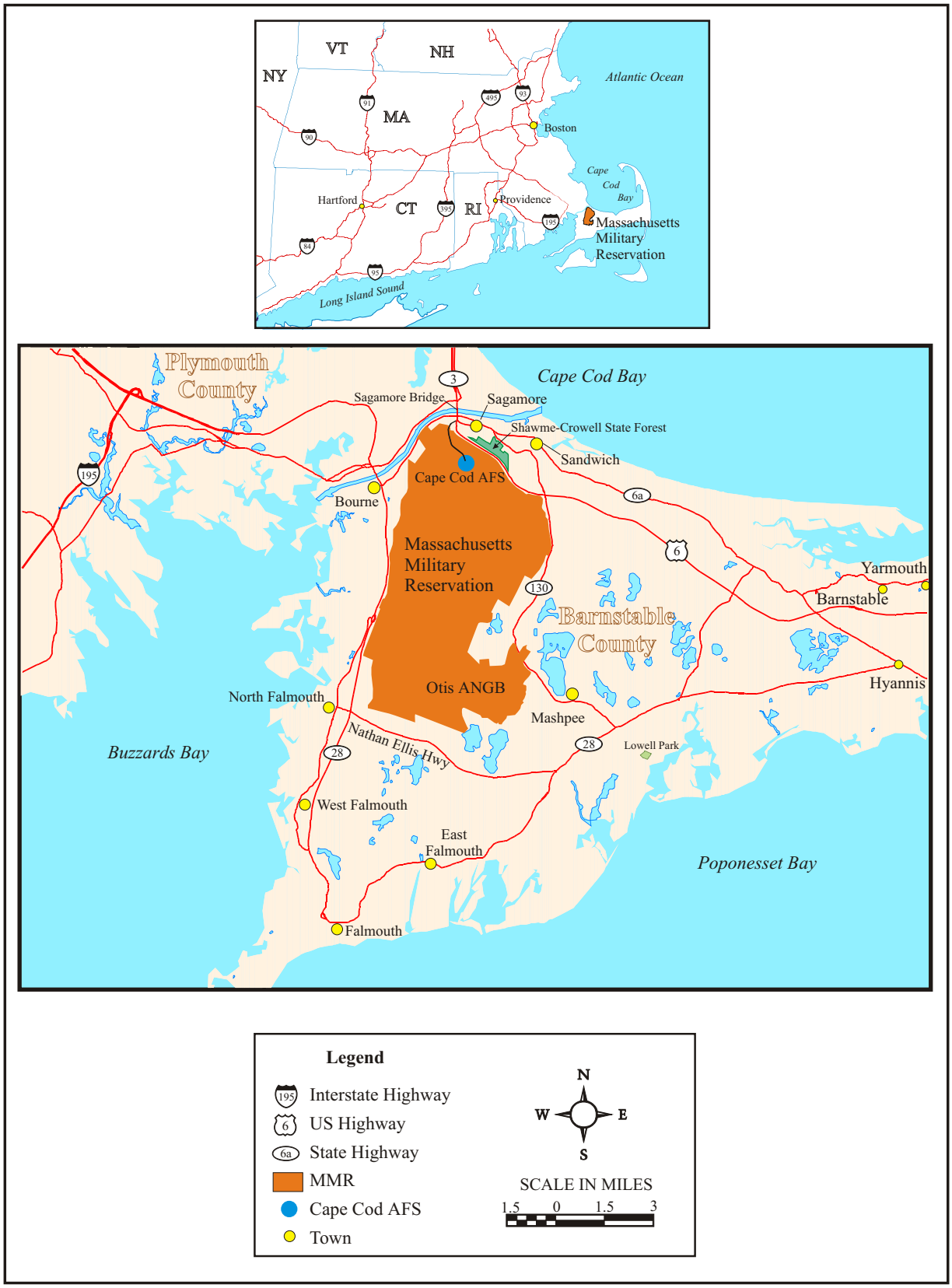

Figure 1.4-1. General Location of Cape Cod AFS

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CHAPTER 2

DESCRIPTION OF THE ALTERNATIVES INCLUDING THE PROPOSED ACTION

2. DESCRIPTION OF THE ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section describes the Proposed Action and the No Action Alternative, and concludes with a summary of environmental consequences and their significance, based on the resource-specific analyses in Chapter 3.

2.1 PROPOSED ACTION

The Proposed Action is to construct a guard house, an automated entry control system on the installation access road, and install fencing along the access road from the proposed guard house to the adjacent tree line (see Figure 2.1-1). The proposed guard house would be up to 25 feet by 7 feet, located along the access road at the current fire-staging area (see Figure 2.1-2). No facility demolition would occur. Vegetation and soils at the proposed site have been previously disturbed and there is an existing hardstand (pavement) area. The proposed guard house would include an area capable of accommodating a two person security team during increased threats, or at the installation commander's direction.

Construction of the guard house would include exterior walls, roof system, fire protection, heating and air conditioning, latrine facilities, electrical and plumbing systems, and connections to existing base utilities including telecommunications. The guard house would include a bathroom; waste from the guard house would be contained in a septic system or holding tank. Three boulders, approximately 3,000 pounds each, would be installed in front of the guard house, and two concrete posts would be installed behind the guard house to protect entry controllers from a low threat/low speed attack. Fencing would be installed around the guard house and along the access road to the adjacent tree line (see Figure 2.1-1), restricting vehicle traffic to access through the defined entry point at the guard house. Landscaping would be conducted in accordance with the base's landscape design guide. Two heavy-duty hydraulic entry gates and a camera with a sensor would also be installed on the access road. Construction could begin as early as the spring of 2004 (the estimated timeframe for construction is three months).

Water, electricity, and communication lines would be installed from existing lines at the built-up portion of the installation, about 1,600 feet to the southeast. These lines would be routed along the access road right of way. A security fence (70 linear feet) would be installed perpendicular to the access road to the adjacent tree line, on both sides of the road (see Figure 2.1-1). In accordance with AFI 31-101 and AFH 32-1084, the fence would be 6 feet high with an outrigger containing three strands of barbed wire. The fence posts would be no more than 10 feet apart. Foundations for line posts, constructed of concrete, would be 12 inches in diameter with a minimum depth of 42 inches below grade. Foundations for terminal and gate posts would be 18 inches in diameter.

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, antiterrorism/force protection measures would not be implemented to protect the base perimeter boundary at Cape Cod AFS. The current security gate, located at the end of the access road near the installation, would remain in place.

2.3 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Based on discussions with Air Force personnel, and comparisons with similar military activities, areas of potential concern for the Proposed Action and No Action Alternative have been identified. The potential impacts were evaluated and are described in Chapter 3.

The intensity of an impact can be "significant" or "not significant", as defined by 40 CFR 1508.27 (see Section 3 for further discussion on significance). Table 2.3.1 summarizes the environmental consequences for each resource area under the Proposed Action and No Action Alternative.

Table 2.3.1
Summary of Environmental Consequences

	Proposed Action	No Action Alternative
Air Resources		
Air Quality	Short-term but not significant increase in air emissions from construction; no long-term increase	No change in current level of emissions
Geological Resources		
Soils	Short-term but not significant disturbance to soils; no long-term impact	No impacts to soils
Geology	No impact to underlying geological layers	No impacts to geology
Water Resources		
Surface	No impact to surface waters	No impact to surface waters
Groundwater	Short-term but not significant impact from construction; no long-term impact	No impact to groundwater
Floodplain	No impact to floodplains	No impact to floodplains
Biological Resources		
Vegetation	Short-term but not significant impact to vegetation from construction; no long-term impact	No impact to vegetation
Wildlife	Short-term but not a significant impact to wildlife from habitat disturbance; no long-term impact	No impact to wildlife
T&E Species	No impacts to T&E species	No impacts to T&E species
Wetlands	No impacts to wetlands	No impacts to wetlands
Cultural Resources		
Archaeological	No impacts to archaeological resources	No impacts to archaeological resources
Aesthetics		
Visual	Minimal (not a significant) impact to visual resources	No change in visual resources
Noise		
Noise	Short-term but not significant impact from construction related noise; no long-term impact	No change in noise levels

Table 2.3.1 Summary of Environmental Consequences		
	Proposed Action	**No Action Alternative**
Environmental Justice		
Environmental Justice	No impacts to minority or low-income populations, or children	No impacts to minority or low-income populations, or children
Hazardous Materials		
Fuel, lubricants	Short-term but not significant impact from construction; no long-term impact	Short-term but not significant impact from construction; no long-term impact

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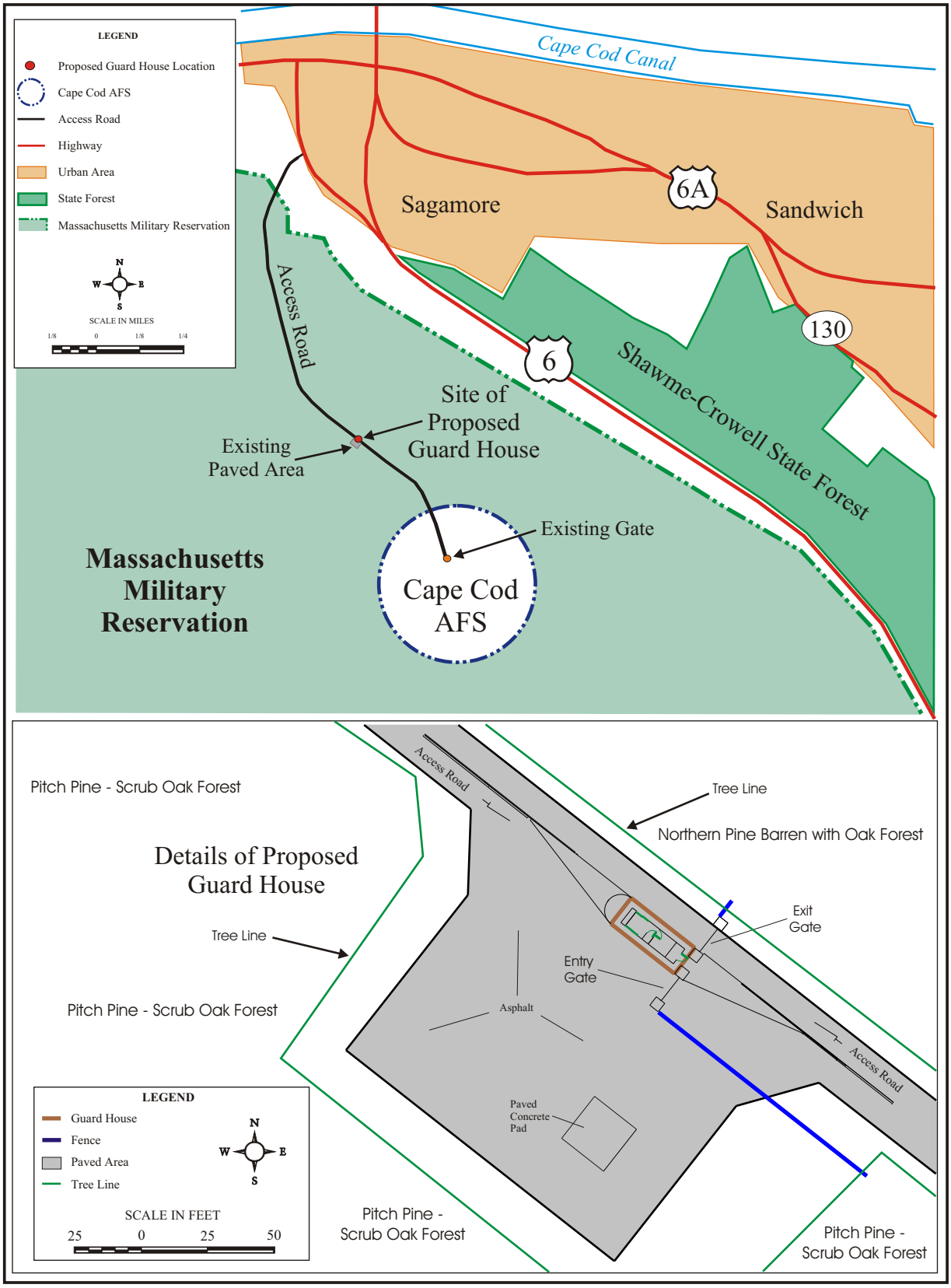

Figure 2.1-1. Location of the Proposed Guard House

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LEGEND

Proposed Guard House

Image from MassGIS, 2003
Photographed April 2001

N
W
E
S

Scale in Feet

1,200 0 1,200

Figure 2.1-2 Location of the Proposed Guard House

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CHAPTER 3

AFFECTED ENVIRONMENT

3. AFFECTED ENVIRONMENT

This section describes the potentially affected environment at Cape Cod AFS, providing baseline information to allow the evaluation of potential environmental impacts that could result from the Proposed Action or No Action Alternative. As stated in 40 CFR 1508.14, the human environment includes natural and physical resources and the relationship of people to those resources. The order of resource description is based on introducing the physical environment (air, geology, and water), the natural environment (biology), the local community (cultural resources, aesthetics, noise, and environmental justice), and concludes with hazardous materials. Those resources that are more likely to be affected by the proposed action are described in more detail than those resources that are less likely to be affected.

3.1 AIR RESOURCES

Cape Cod AFS is located near the base of Cape Cod, which results in a humid marine climate. The area is subject to thunderstorms and heavy rainfall, with about 50 percent of the annual precipitation occurring from April through September. Mean precipitation is about 45 inches per year. Prevailing winds are from the northwest throughout the year. Wind speeds usually range from 15 to 22 miles per hour, with the highest speeds occurring in the winter and the lowest in late summer and early fall (NRCS, 1993; NCDC, 2001).

The National Ambient Air Quality Standards (NAAQS), established by the United States Environmental Protection Agency (USEPA), and adopted by the Massachusetts Department of Environmental Protection (MA DEP), define the maximum allowable concentrations of pollutants that may be reached but not exceeded within a given time period. These ambient standards are established under Section 109 of the Clean Air Act, and they currently address six criteria pollutants; carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter (PM), and sulfur dioxide (SO_2). Particulate matter has been further defined by size. There are standards for particulate matter smaller than 10 microns in diameter (PM_{10}) and smaller than 2.5 microns in diameter ($PM_{2.5}$). Table 3.1-1 presents the current NAAQS and Massachusetts Ambient Air Quality Standards (MAAQS) for the six criteria pollutants. Strategies for attaining the standards for approval are incorporated into the Federally-enforceable State Implementation Plan (SIP). Exceeding the concentration levels within a given time period is a violation, and constitutes a nonattainment of the pollutant standard.

Cape Cod AFS is located in Barnstable County, which lies within the Eastern Massachusetts non-attainment area for ozone. The region is currently in serious non-attainment for O_3, but in attainment for all other criteria pollutants (USEPA, 2003). A budget for nitrogen oxides (NO_x) has been established for utilities and for stationary point sources with emissions greater than 50 tons per year (tpy) (MA DEP, 2001; MA DEP, 2003a). Cape Cod AFS is below this threshold. Conformity thresholds, as defined in 40 CFR 51, Subpart W, are used to determine conformity of an action with a SIP. The thresholds for NO_x and volatile organic compounds (VOC) are 50 tpy in a serious nonattainment area. Proposed Federal actions within a nonattainment or maintenance area must conform to the SIP. These provisions are known as the General Conformity Rule.

Table 3.1-1
National Ambient Air Quality Standards (NAAQS)
and Massachusetts Ambient Air Quality Standards (MAAQS)

Pollutant	Averaging Time	NAAQS µg/m3 (ppm)[a]		MAAQS
		Primary[b]	Secondary[c]	
O_3	1 hr 8 hr	235 (0.12) 157 (0.08)	same same	same
CO	1 hr 8 hr	40,000 (35) 10,000 (9)	none none	same same
NO_2	AAM[d]	100 (0.053)	same	same
SO_2	3 hr 24 hr AAM	none 365 (0.14) 80 (0.03)	1,300 (0.5) none none	same same same
PM_{10}	AAM 24 hour	50 150	same same	same same
$PM_{2.5}$	AAM 24 hour	15 65	same same	same same
Pb	¼ year	1.5	same	same

[a] µg/m3 — micrograms per cubic meter; ppm — parts per million

[b] National Primary Standards establish the level of air quality necessary to protect the public health from any known or anticipated adverse effects of a pollutant, allowing a margin of safety to protect sensitive members of the population.

[c] National Secondary Standards establish the level of air quality necessary to protect the public welfare by preventing injury to agricultural crops and livestock, deterioration of materials and property, and adverse impacts on the environment.

[d] AAM —Annual Arithmetic Mean.

PM_{10} is particulate matter equal to or less than 10 microns in diameter

Source: 40 CFR 50; 310 CMR 6.00

An action exceeding the conformity thresholds or an action that is regionally significant (a Federal action for which the direct and indirect emissions of any pollutant represent 10 percent or more of a nonattainment or maintenance area's emissions inventory for that pollutant) would require a conformity determination.

An Air Emissions Inventory was completed for Cape Cod AFS for calendar year 2002 (USAF, 2003). The MA DEP issued a Restricted Emission Status (RES) permit to Cape Cod AFS on January 23, 2003. The 2003 RES permit restricts NO_x emissions (as defined by potential to emit) to less than 50 tpy (below the reasonable available control technology applicability threshold for nitrogen oxides) (MA DEP, 2003b). Emissions of other criteria pollutants are not specifically restricted by the 2003 RES permit, however 310 Code of Massachusetts Regulations (CMR) 7, Appendix C requires emissions from all facilities to stay below Title V major sources thresholds or obtain Title V permits. The installation-wide criteria pollutant totals are shown in Table 3.1-2.

Table 3.1-2
Installation-Wide 2002 Air Pollutant Emissions at Cape Cod AFS (values in tpy)

Stationary Emissions	PM_{10}	NO_x	SO_x	CO	VOCs	HAPs
Actual Sources	0.33	17.07[1]	2.68	3.68	0.71	0.038
Potential to Emit	1.04	45.82	7.84	10.47	1.72	0.075

[1] Calculated in accordance with permit requirements (using a NO_x release factor of 51.5 pounds per hour for the large generators)

Source: USAF, 2003

The largest source of stationary emissions is the five emergency backup diesel generators. The RES permit limits operation of these five generators to 340 hours per year per generator (MA DEP, 2003b). Other sources regulated by the RES permit include five diesel boilers, three diesel fuel storage tanks, and three propane heaters.

Cape Cod AFS is not a major stationary source, as the potential to emit for any criteria pollutant is less than 100 tpy (USAF, 2003). Therefore, the base is not subject to Prevention of Significant Deterioration (PSD) review requirements of 40 CFR 52.21.

3.2 GEOLOGICAL RESOURCES

Cape Cod AFS is located at the top of Flatrock Hill at an elevation of 272 ft above mean sea level. The land slopes away from Flatrock Hill in all directions at slopes ranging from 3 to about 35 percent.

The Natural Resources Conservation Service identified the following soil types in the vicinity of the proposed guard house and route for installation of utilities:

- Plymouth-Barnstable Complex (PxD), hilly, extremely bouldery, 15 to 35 percent slopes
- Plymouth-Barnstable Complex (PvC), rolling, very bouldery, 3 to 15 percent slopes

Generally, there is little soil erosion on Cape Cod AFS due to the dense vegetative cover and strong root system. Erosion does occur in disturbed areas, such as around fence posts. The Plymouth-Barnstable Complex soils are on side slopes, hills, and ridges. Slopes range from 3 to 15 percent in rolling areas to 15 to 35 percent in hilly areas. All of the soils are well drained, with a water table of six feet or deeper throughout the year. Permeability ranges from moderately rapid (2 to 6 inches per hour) to rapid (6 to 20 inches per hour) in the upper layers of the soil to rapid to very rapid (more than 20 inches per hour) in the lower layers. Flooding does not occur in any of these soils and none of these soils are hydric (capable of supporting wetlands). All of the Plymouth-Barnstable Complex soils are potentially highly erodible (steeper sloped areas within the soils are highly erodible, while gentler slopes are not) (NRCS, 1993).

3.3 WATER RESOURCES

The closest surface water and any associated floodplains are more than a mile away from the project area; these resources are not described because there is no potential for them to be impacted due to their distance from the project site.

Water supplies on Cape Cod originate from the Sagamore Lens of the Cape Cod Aquifer in unconsolidated sand and gravel deposits. The aquifer is highly permeable and is capable of yielding high volumes of water to wells. The sole source of replenishment is rainfall. This lens supplies fresh water to the towns of Sandwich, Falmouth, Mashpee, Barnstable, and portions of Bourne and Yarmouth (see Figure 1.4-1) and has a recharge area of approximately 120 square miles (MMR, 1998). The depth to the water table of the Sagamore Lens beneath the installation varies from 160 to 200 feet below the surface. Groundwater depth at the site of the proposed guard house is about 160 feet (USGS, 2002). Groundwater flows primarily north in the project area (USGS, 2000; USGS, 2002).

3.4 BIOLOGICAL RESOURCES

Biological resources discussed below include vegetation, wildlife, and state-listed species. No wetlands or Federally-threatened or endangered species exist on the installation (USAF, 2001a).

3.4.1 Vegetation

The Massachusetts Natural Heritage and Endangered Species Program (MNHESP) conducted a floristic inventory of Cape Cod AFS (USAF, 1997). Two naturally occurring pine barren vegetation communities were identified on Cape Cod AFS, pitch pine – scrub oak barren and northern pine barren with oak trees. The majority of the area along the access road and near the site of the proposed guard house is the pitch pine (*Pinus rigida)* – scrub oak (*Quercus dumosa*) community. Other tree species present include scarlet oak, white oak, black oak, and red maple. The shrub understory includes chinquapin oak, sweet fern, lowbush blueberry, hillside blueberry, and huckleberry. The herbaceous layer is patchy and most diverse in roadside openings or breaks in the shrub oak thicket. Grassland species such as little blue stem, sedges, Lespedeza, and pinweed occur primarily along roadside and roadbed openings.

The area on the east side of the access road just north of the installation is northern pine barren with oak trees. Pitch pine and scarlet oak dominate the area with white oak, black oak, and red maple also present. The understory shrub layer consists of huckleberry, low blueberry, and occasional scrub oaks. The herb layer is sparse and includes bracken fern, wintergreen, sedges, and trailing arbutus.

3.4.2 Wildlife

Common wildlife known to occur on Cape Cod AFS include the southern redback vole, white-footed mouse, northern short-tailed shrew, masked shrew, meadow vole, and the eastern chipmunk. Other wildlife that could be present are the raccoon, weasel, red squirrel, and the white-tailed deer (USAF, 1997).

The MNHESP conducted a biological inventory of Cape Cod AFS in 1995. Two potentially rare small mammal species could occur on Cape Cod AFS, the southern bog lemming (*Synaptomys cooperi*) and the northern flying squirrel (*Glaucomys sabrinus*). Bog lemmings may occur in a wide variety of habitats including mixed deciduous or coniferous forests, fields, clearcuts, bogs, and marches (USAF, 1997). The northern flying squirrel is rarely found in the Cape Cod area but one specimen was captured on Camp Edwards in 1988 indicating a the possibility that the species could occur on Cape Cod AFS.

Migratory birds are protected through laws and acts and entrusted to the USFWS for their protection. The trees and dense understory of the forested areas provide food and shelter for a variety of birds. Bird fauna generally associated with the pitch pine/scrub oak barrens include Rufous-sided towhee, pine warbler, prairie warbler, and ruffed grouse (COM, 1990). A bird survey was conducted at Cape Cod AFS in 1996 as part of a biological survey. The most common species reported was the eastern towhee; the next most common species were black-capped chickadee, pine warbler, and common yellowthroat (USAF, 1997). According to the Natural Heritage and Endangered Species Program, the MMR supports at least 89 species of birds (MMR, 1998).

3.4.3 State-listed Species

The only state-listed species found at Cape Cod AFS are in the order Lepidoptera (moths and butterflies). The Lloyd Center for Environmental Studies conducted a survey for threatened and endangered lepidoptera at Cape Cod AFS in 1996 (USAF, 1996). A total of 294 species of lepidoptera were identified during the survey, eight of which are listed as rare by the MNHESP (USAF, 1999). Of the eight rare lepidoptera species known to exist on Cape Cod AFS, only five were identified during the 1996 survey.

The Massachusetts Endangered Species Act prohibits the "taking" of state-listed rare species without a permit. Take, in reference to animals, means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding, or migratory activity or attempt to engage in any such conduct, or to assist such conduct.

3.5 CULTURAL RESOURCES

An archaeological field reconnaissance was conducted on the entire installation in 1996 and no archaeological resources were recorded (USAF, 2000). Two buildings (Bldgs 2 and 4) constructed during the Cold War era are eligible for inclusion in the National Register of Historic Places (NRHP); and a Programmatic Agreement was signed by the Air Force, Advisory Council on Historic Preservation, and the State Historic Preservation Officer. The Air Force has documented the two buildings in accordance with the Historic American Buildings Survey and Historic American Engineering Record standards and no further consultations with the state are required (USAF, 2000). The Wampanoag Tribe of Gay Head (Aquinnah) is a Federally-recognized tribe of Native Americans that consider Camp Edwards, including Cape Cod AFS, to be within their ancestral lands. All actions that have the potential to impact tribal cultural resources must be reviewed by the tribe under the Section 106 process of the National Historic Preservation Act.

3.6 AESTHETICS

Cape Cod AFS and the access road are set in a forested, hilly area that visually dominates the local area. State Highway 6 is about 0.5 miles to the north of the proposed site for the guard house. The nearest inhabited areas, at the southern edge of Sandwich, are about 0.6 miles to the northeast. The setting in which the Proposed Action would occur is considered to have medium sensitivity to change (an area which is somewhat developed, but has recreational, scenic, or historic value).

3.7 NOISE

Noise is defined as any unwanted sound that interferes with normal activities or in some way reduces the quality of the environment. Ambient noise levels vary greatly in magnitude and character from one location to another, depending on the normal activities conducted in the area. Factors that have been found to affect the subjective assessment of the daily noise environment include the noise levels of individual events, the number of events per day, and the time of day at which the events occur.

A decibel (dB) is the physical unit commonly used to describe instantaneous sound levels. Sound measurement is further refined by using an "A-weighted" decibel (dBA) scale, which emphasizes the audio frequency response curve audible to the human ear. Equipment noise

impacts to nearby receptors during a typical day is normally measured over an 8-hour time period, using the equivalent sound level (L_{eq}). L_{eq} is calculated using the dBA levels of noise events averaged over time, taking into account the usage factor of various types of equipment. Table 3.7-1 provides approximate sound levels for various types of construction equipment. Normal background levels for noise vary according to the natural setting, intensity of development, and traffic in an area. For example, a typical quiet urban setting averages around 50 dBA during the daytime. Areas near highways and freeways typically average around 70 dBA. The site of the proposed guard house is within a wooded area of the MMR, about ½-mile from nearest residences. Highway 6 is located between the MMR and these residences and the area between the proposed guard house and Highway 6 is wooded.

Table 3.7-1
Approximate Sound Levels (L_{eq}) of Construction Equipment

	Sound Levels (Leq) at Various Distances (feet)						
Equipment Type	**50**	**100**	**200**	**400**	**800**	**1,600**	**3,200**
Front-end Loader	84	78	72	66	60	54	48
Dump Truck	83	77	71	65	59	53	47
Truck	83	77	71	65	59	53	47
Tractor	84	78	72	66	58	52	46

Sources: Thumann, 1976; U.S. Army, 1978

3.8 ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* requires that each Federal agency identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Environmental Justice also takes into consideration EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which requires that each Federal agency identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on children, who are more at risk because of developing body systems, comparatively higher consumption-to-weight ratios, behaviors that may expose them to more risks and hazards than adults, and less ability than adults to protect themselves from harm.

Most environmental impacts (such as emissions of criteria pollutants and soil disturbance) resulting from the Proposed Action would be localized within a few hundred feet of the construction sites. The exception would be noise, which would attenuate to within normal background levels over a distance of about 1,600 feet. This affected area lies within the boundaries of the MMR. There are no residential areas within a radius of ½ mile of the proposed site for the guard house or the route for the utilities (see Figure 2.1-1).

3.9 HAZARDOUS MATERIALS

Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a substantial danger to public health or the

environment if released. There is no asbestos or lead-based paint in the affected area. Small amounts of hazardous materials such as paints, thinners, and sealants may be used during the construction activities.

Fuels at Cape Cod AFS are managed in accordance with all applicable federal, state, local, DoD, and Air Force regulations, standards, and laws that apply to the installation. Cape Cod AFS has prepared a Spill Prevention Control and Countermeasures Plan (SPCC), and Oil and Hazardous Substance Pollution Contingency Plan (OHSPC) (USAF, 2001b). The purpose of the plan is to provide guidance to installation personnel regarding spill prevention and response. The installation has a spill response team that responds to all reported spills on the installation. Spill response includes the use of on-site spill containment equipment and materials. Small spills are contained by the installation response team; large or dangerous spills are handled by an off-site agency.

No reportable spills have occurred on Cape Cod AFS since 1990 (USAF, 2001b). There are diesel fuel and waste oil tanks on Cape Cod AFS near the power plant, entry control point, supply warehouse, and CE building. There are no tanks located within the area proposed for constructing the guard house or along the access road.

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CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

4. ENVIRONMENTAL CONSEQUENCES

This section discusses the potential for impacts to the human environment as a result of implementing the Proposed Action or No Action Alternative. As defined in 40 CFR Section 1508.14, the human environment is interpreted to include natural and physical resources, and the relationship of people with those resources. This analysis focused on identifying the types of impacts and estimating their potential significance. This section discusses the effects that the Proposed Action or No Action Alternative could generate on the environmental resource areas described in Section 3.

The concept of "significance" used in this assessment includes consideration of both the context and the intensity or severity of the impact, as defined by 40 CFR 1508.27. Severity of an impact could be based on the magnitude of change, the likelihood of change, the potential for violation of laws or regulations, the context of the impact (both spatial and temporal), and the resilience of the resource. Significant impacts are effects that are most substantial and should receive the greatest attention in decision making. Impacts that are not significant include those that result in little or no effect to the existing environment and cannot be easily detected. If a resource would not be affected by a proposed activity, a finding of no impact was declared. If a resource would be improved by a proposed activity, a beneficial impact was noted.

This chapter is organized by resource element in the same order as introduced in Chapter 3. The chapter provides a discussion of the analysis methods and the potential impacts of the Proposed Action and No Action Alternative. Best management practices are included in the discussion as applicable. No significant impacts were identified during the analysis; therefore, no mitigation measures are required or suggested.

4.1 AIR RESOURCES

The analysis for air quality was based on a review of existing air quality in the region, information on Cape Cod AFS air emission sources, projections of emissions from the proposed activities, a review of the Federal and Massachusetts regulations for air quality, and the use of air emissions factors from the USEPA.

Local air quality would be impacted from constructing the proposed guard house and installation of utilities. Estimated emissions from the Proposed Action would not exceed the NAAQS or MAAQS due to the amount of criteria pollutants generated, the relatively large area in which the emissions would occur, and the dispersive meteorological conditions in which the emissions would be generated. Estimated emissions are far below conformity thresholds and regional significance (see Table 4.1-1) (Appendix C shows detailed calculations for estimating air emissions). Therefore, this project is exempt from further conformity analysis pursuant to 40 CFR 93.153. Best management practices would be used to control emissions of fugitive dust during construction. Operation of the guard house would not substantially impact the operation of five large diesel generators at Cape Cod AFS, and compliance with the RES permit would not be impacted. Impacts to air quality at Cape Cod AFS would not be significant.

There would be no impacts from the No Action Alternative.

Table 4.1-1 Estimated Emissions from Construction of Guard House (values in tpy)					
Emissions	CO	VOCs	NO_x	SO_x	PM_{10}
Construction[1]	0.02	0.00	0.02	0.00	0.01
Regionally significant		27740.00	33580.00		
Conformity thresholds		50.00	50.00		

[1] Emissions were estimated using the latest emission factors from USEPA, 2002; USEPA, 2001; and USAF, 2002

4.2 GEOLOGICAL RESOURCES

The geological resources within the proposed project area were studied to determine the potential impacts from constructing the guard house. USGS documents, the Soil Survey of Barnstable County, and a USGS topographical map were reviewed to characterize the existing environment.

Construction of the guard house would occur in an area that is currently covered with asphalt. No undisturbed ground would be impacted and only a limited area of soil would be disturbed for placing footings for the guard house. Less than 0.1 acres along the access road would be disturbed from trenching and installing water and electricity lines to the guard house from the main portion of the installation (a distance of about 1,600 feet). The utilities would be installed near the edge of the access road. This area was disturbed during construction of the access road and is generally level close to the road. Because the soils are highly erodible, and the area receives heavy rainfall during the spring and summer, best management practices should be implemented to limit potential erosion. This would include silt fences as needed in areas of steeper slopes, daily watering as needed to reduce soil blowing, and revegetating the disturbed areas as soon as possible.

The guard house would be unmanned most of the time, but would include a septic system or holding tank for sanitary waste. Under 310 CMR 15, holding tanks (also known as tight tanks) are only approved where a septic system cannot be approved. Several factors need to be considered for placement of a septic system. These include depth to groundwater, soil permeability, distance to water wells (public and private), and slope. Permeability in Plymouth-Barnstable Complex soils would generally be adequate for septic systems, but a site specific test would need to be conducted. A potential limitation for a septic system would be the slopes greater than 30 percent in the vicinity of the proposed site. A septic system or holding tank approved by the State would be constructed in accordance with 310 CMR 15. Construction of a holding tank would impact about 100 to 200 square feet of soil. Construction of a septic system would likely disturb around 5,000 square feet (about 0.1 acres), depending on design requirements for the selected site. Due to the high erosion hazard and heavy rainfall, best management practices would be implemented to reduce potential erosion. Best management practices include daily watering as needed, chemical stabilization, maintaining existing vegetation as much as possible, and revegetating sites as soon as possible. Impacts to soil would not be significant.

There would be no impacts to geological resources or soils under the No Action Alternative.

4.3 WATER RESOURCES

To establish the potential impacts of constructing the guard house, documents on the hydrology and hydrogeology of the area were reviewed. Maps showing topography, watersheds, and installation drainage were reviewed. The review focused on the proximity of the proposed activities to surface waters, floodplains, and hydrogeology in the area. Federal Emergency Management Agency Flood Insurance Rate Maps were reviewed to identify floodplains in the project area.

Construction equipment used to trench and bury utility lines or construct the guard house could potentially leak or spill fuel or lubricants. A spill is not likely during construction in this area, but if one occurs, it should be cleaned up immediately, in accordance with the Spill Response Plan, to prevent contamination of the aquifer. The soils and geologic strata overlying the aquifer are moderately to highly permeable, but given the small amount of oil and fluids used by construction equipment, and depth to groundwater (about 160 feet), potential impacts to the aquifer would not be significant.

As discussed above, a septic system or holding tank for sanitary waste would be constructed as part of the Proposed Action. The depth to groundwater and distance to wells are adequate for a septic system. A septic system or holding tank approved by the State would be constructed in accordance with 310 CMR 15, which includes design and siting requirements to protect water resources. Impacts to groundwater from construction and operation of the system would not be significant due to regulatory requirements for these systems, and the depth to groundwater at the site.

There would be no impacts to water resources from the No Action Alternative.

4.4 BIOLOGICAL RESOURCES

The assessment of potential impacts to biological resources focused on the existing habitat in the proposed location of the guard house. The existing vegetation, wildlife, and state threatened and endangered species in the project area were evaluated. The Cape Cod AFS Integrated Natural Resource Management Plan (USAF, 2001a), the Draft Final Biological Survey Report of Cape Cod AFS (USAF, 1997), and other environmental documents were reviewed to provide data on existing biological resources in the project area.

Less than 0.1 acres along the access road would be disturbed trenching and installing water and electricity lines to the guard house. This would primarily affect grassland species along the roadside. It is not anticipated that any trees would be affected or removed. Construction of the guard house would occur in a paved area and would not impact vegetated areas. Construction of a holding tank would impact about 100 to 200 square feet of land, with a minimal amount of vegetation disturbed. If a septic system were constructed, it would impact about 0.1 acre (additional space would be needed to construct the drain field). Up to 0.1 acres of vegetation (primarily pine trees) would be disturbed; impacts would not be significant.

Wildlife (including any protected species) in the immediate vicinity of construction would be temporarily displaced by construction noise and limited disturbance of vegetated areas, but impacts would be short-term and not significant.

There would be no impacts to biological resources from the No Action Alternative.

4.5 CULTURAL RESOURCES

To determine potential impacts to cultural resources, the analysis focused on the project area and potential resources known to exist in the area. The Cultural Resources Management Plan and past NEPA documents were reviewed to provide data on existing cultural resources in the project area.

Buildings 2 and 4 would not be disturbed during the construction of the guard house and installation of utilities. The Proposed Action would negligibly disturb natural areas along the access road. Cultural resources related to the Wampanoag Tribe would not be affected. In the event of an unexpected archaeological discovery, the Air Force would follow procedures in accordance with Section 106 of the Archaeological Resources Protection Act.

There would be no impacts to cultural resources under the No Action Alternative.

4.6 AESTHETICS

To determine visual impacts the analysis looked at the location and design of the guard house and the degree of changes to the physical characteristics of the landscape.

Constructing the proposed guard house would have minimal visual impact due to its size and location on an existing access road. The visual impact would be limited to a few hundred feet because of the forested ground cover and hilly topography. Due to the distance to State Highway 6 and Sandwich, the forested ground cover, and the elevation differences between Cape Cod AFS and these sites, there would be no discernable visual impacts to the public.

There would be no visual impacts from the No Action Alternative.

4.7 NOISE

The analysis of noise impacts was based on an assessment of the estimated noise levels generated from construction equipment and a comparison of existing noise levels. The analysis also looked at the distance of nearby residences to the construction site.

The noise generated by constructing the proposed guard house and installing utilities would be limited to a few weeks and would attenuate to below background levels in neighboring residential areas, due to the distance and tree cover between the proposed guard house and the residences, and the proximity of Highway 6 to the residences. Highway 6 would continue to generate more traffic noise to residences in the area than would be heard from the construction equipment. Impacts from noise generated by the Proposed Action would not be significant.

There would be no changes in noise levels from the No Action Alternative.

4.8 ENVIRONMENTAL JUSTICE

Measures used for impact analysis include demographic and income data obtained from the U.S. Bureau of Census; this data was used to locate minority populations and low-income populations within the project area.

The Proposed Action would result in increased emissions of criteria pollutants and noise generated by construction equipment. None of these impacts would be significant. The Proposed Action would take place in an uninhabited area. The affected area is within the

boundaries of the MMR and would not affect any off-base population. No significant impacts would occur from the Proposed Action, and no disproportionate impacts to minority or low-income populations or children would occur.

There would be no impacts to minority populations, or low-income populations from the No Action Alternative.

4.9 HAZARDOUS MATERIALS

The hazardous materials analysis was based on a review of the equipment and materials that would be used for construction of the guard house. The analysis also reviewed the mechanisms of potential spills or leaks, the likelihood of a spill or leak, and the severity of consequences if one were to occur.

Small amounts of hazardous materials such as paints, thinners, and sealants may be used during the construction activities, but would be controlled under standard safety and handling procedures. Impacts would not be significant. The fuel storage tank near Building 58 (the civil engineering building) is about 1,570 feet from the nearest point of excavation (for installing the water line along the access road to the proposed guard house). The excavations would not impact any fuel storage tanks. Small amounts of fuels and lubricants would be used for operating equipment to construct the guard house and install utilities. A spill is not likely during construction in this area, but if one occurs, it should be cleaned up immediately, in accordance with the Spill Response Plan, to prevent contamination of the aquifer. Potential impacts to groundwater are discussed in Section 4.3.

There would be no change in hazardous materials used under the No Action Alternative.

4.10 CUMULATIVE IMPACTS

Cumulative impacts are those changes to the physical and biological environments that would result from the Proposed Action in combination with reasonably foreseeable future actions. Significant cumulative impacts could result from impacts that are not significant individually, but when considered together, are collectively significant.

The Proposed Action would continue to comply with Federal and Massachusetts air quality laws and Air Force policies which are designed to minimize long-term cumulative impacts to air quality. About 0.1 acres of soil would be disturbed by the Proposed Action, but the disturbance would be temporary and there would be no increase in impermeable surface. Impacts to other resource areas would also be short-term and not significant. There are no other substantial projects planned in the foreseeable future in or near the affected area. No significant cumulative impacts are anticipated.

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CHAPTER 5

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5. REFERENCES

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CHAPTER 6

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APPENDIX A

REGULATORY REVIEW AND PERMIT REQUIREMENTS

APPENDIX A — REGULATORY REVIEW AND PERMIT REQUIREMENTS

This section lists a brief summary of Federal and state laws and regulations that may be applicable to the Proposed Action or Alternatives and addresses regulatory review and permitting requirements.

A.1 FEDERAL AND STATE LAWS AND REGULATIONS

Environmental Policy

The National Environmental Policy Act of 1969 [42 U.S.C. Sec. 4321, et seq.] establishes national policy, sets goals, and promotes efforts, which will prevent or eliminate damage to the environment and biosphere. The NEPA process is intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. The process is also intended to provide information regarding the analyses of proposed major Federal actions that may significantly affect the environment to the public [40 CFR Subsections 1500.1 and 1500.2].

32 CFR 989, Environmental Impact Analysis Process (EIAP), implements the Air Force EIAP and provides procedures for environmental impact analysis.

Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality, as amended by EO 11991, sets the policy for directing the Federal Government in providing leadership in protecting and enhancing the quality of the nation's environment.

The Massachusetts Environmental Policy Act (MEPA) (Code of Massachusetts Regulations (CMR) Sec. 300-399) is a state law that directs the Massachusetts Executive Office of Environmental Affairs to require public study, disclosure, and development of feasible mitigation for a proposed project. It does not pass judgement on whether a project is environmentally beneficial, or whether a project can or should receive a particular permit; those decisions are left to the permitting agencies. The MEPA review occurs before permitting agencies act, to ensure that they know the environmental consequences of their actions.

Air Quality

The *Clean Air Act* (CAA) [42 U.S.C. Sec. 7401, et seq., as amended] establishes as federal policy the protection and enhancement of the quality of the Nation's air resources to protect human health and the environment. The *CAA* sets national primary and secondary ambient air quality standards as a framework for air pollution control.

The *Massachusetts Air Quality Act* (310 CMR 6.00-8.00) sets forth requirements to achieve and maintain levels of air quality to protect human health and safety, to prevent injury to plant and animal life and property, and to provide a coordinated statewide program of air pollution prevention, abatement, and control.

Air Force Instruction (AFI) 32-7040, *Air Quality Compliance*, instructs the Air Force on compliance with the CAA, and federal, state, and local regulations.

Determining Conformity of Federal Actions to State or Federal Implementation Plans [40 CFR 93] discusses guidelines for determining the conformity of a federal action to State and federal implementation plans in nonattainment or maintenance areas.

Water Quality

The *Clean Water Act (CWA)* [33 U.S.C. Sec. 1251, et seq., as amended] establishes federal limits, through the National Pollution Discharge Elimination System (NPDES), on the amounts of specific pollutants that are discharged to surface waters in order to restore and maintain the chemical, physical, and biological integrity of the water. A NPDES permit, or modification to an existing permit, would be required for any change from the present parameters in the quality or quantity of wastewater discharge and/or storm water runoff.

40 CFR 112, *Oil Pollution Prevention*, establishes procedures, methods, equipment, and other requirements to prevent discharge of oil into waters of the United States. The regulations also establish criteria for determining adequate secondary containment.

The *Massachusetts Clean Waters Act (310 CMR 41.00 and 314 CMR 1.00-15.00)* serves to protect the public health and enhance the quality and value of the water resources of the Commonwealth. The Department of Environmental Protection designated the most sensitive uses for which the various waters of the Commonwealth shall be enhanced, maintained and protected; which prescribe the minimum water quality criteria required to sustain the designated uses; and which contain regulations necessary to achieve the designated uses and maintain existing water quality including, where appropriate, the prohibition of discharges. Regulation 314 CMR 4.00 deals specifically with the water quality standards for surface waters and 314 CMR 6.00 concerns groundwater quality standards.

AFI 32-7041*, Water Quality Compliance*, instructs the Air Force on how to assess, attain, and sustain compliance with the CWA and federal, state, and local environmental regulations.

Biological Resources

The *Endangered Species Act* [16 U.S.C. Sec. 1531-1543] requires federal agencies that authorize, fund, or carry out actions to avoid jeopardizing the continued existence of threatened or endangered species and to avoid destroying or adversely modifying their critical habitat. Federal agencies must evaluate the effects of their actions on threatened or endangered species of fish, wildlife, and plants, and their critical habitats, and take steps to conserve and protect these species. All potentially adverse impacts to threatened and endangered species must be avoided or mitigated.

The *Migratory Bird Treaty Act* [16 U.S.C. Sec. 703-711] imposes substantive obligations on federal agencies to protect migratory birds and their habitats. This Treaty makes it illegal to possess, harass or destroy birds or their parts, including eggs, nests, feathers and young or injured birds.

The *Massachusetts Endangered Species Act* (Massachusetts General Law (M.G.L.) c.131A and regulations 321 CMR 10.00). defines “Endangered” species as native species which are in danger of extinction throughout all or part of their range, or which are in danger of extirpation from Massachusetts, as documented by biological research and

inventory. "Threatened" species are defined as native species which are likely to become endangered in the foreseeable future, or which are declining or rare as determined by biological research and inventory. "Special Concern" species are defined as native species which have been documented by biological research or inventory to have suffered a decline that could threaten the species if allowed to continue unchecked, or which in such small numbers or with such restricted distribution or specialized habitat requirements, they would easily become threatened in Massachusetts. The Department of Fish and Wildlife evaluates the effects of actions on species native to the state.

AFI 32-7064*, Integrated Natural Resource Management*, provides the Air Force with guidance on compliance with the Endangered Species Act and federal, state, and local environmental regulations.

Public Health and Safety/Environmental Programs

The *Massachusetts Hazardous Waste Management Act* is intended to protect public health, safety, and welfare, and the environment, by comprehensively regulating the generation, storage, collection, transport, treatment, disposal, use, reuse, and recycling of hazardous waste in Massachusetts. The requirements are covered by 310 CMR 30.00, which should be read together with M.G.L. c. 21C, M.G.L. c. 21E Sec. 6 and St. 1987, c. 584, Sec. 47 (each of which has many important substantive requirements not repeated in 310 CMR 30.000).

AFI 32-7042, *Solid and Hazardous Waste Compliance*, provides guidance to the Air Force on compliance with Resource Conservation and Recovery Act (RCRA) and applicable federal, state, and local regulations.

The *Emergency Planning and Community Right-to-Know Act (EPCRA)* of 1986 [42 U.S.C. Sec. 11001, et seq.], sets forth the requirements for emergency planning, including timely notification and response to a release of hazardous substances.

Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, directs federal agencies to identify and address any disproportionately high and adverse human or environmental impacts of federal actions on minority or low-income populations.

Environmental Justice also takes into consideration EO 13045, Protection of Children from *Environmental Health Risks and Safety Risks*, which was signed by the President on April 21, 1997. This EO requires that each federal agency identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on children, who are more at risk because of developing body systems, comparatively higher consumption-to-weight ratios, behaviors that may expose them to more risks and hazards than adults, and less ability than adults to protect themselves from harm.

A.2 PERMIT REQUIREMENTS

The permit requirements identified for resource categories analyzed as part of this EA are identified below.

Storm Water

A storm water construction permit would not be required for construction of the guard house since only 0.1 acres would be disturbed.

On-Site Sewage Treatment and Disposal Systems

The on-site sewage treatment and disposal system that is constructed at the site (a septic system or a holding tank) would require approval under 310 CMR 15.

APPENDIX B

NOTICE OF AVAILABILITY

APPENDIX B —
NOTICE OF AVAILABILITY

This section includes a copy of the Notice of Availability that ran in the Falmouth, Mashpee, Bourne, and Sandwich Enterprise newspapers on Friday, November 14, 2003. The public comment period ran through December 14, 2003. No public comments were received.

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NOTICE OF AVAILABILITY

DRAFT ENVIRONMENTAL ASSESSMENT
AND DRAFT FINDING OF NO SIGNIFICANT IMPACT
FOR CONSTRUCTION OF A GUARD HOUSE
CAPE COD AIR FORCE STATION, MASSACHUSETTS

An environmental assessment (EA) has been prepared in accordance with the *National Environmental Policy Act* (NEPA) of 1969 and the Council on Environmental Quality implementing NEPA to analyze the potential environmental consequences of constructing a Guard House at the entrance of Cape Cod Air Force Station (AFS) as part of implementing antiterrorism/force protection measures. The EA analyzes potential impacts from the action to air quality; geology and soils; water resources; biological and cultural resources; aesthetics; noise, environmental justice, and hazardous materials. The Draft EA and FONSI, dated November 2003, are available for review at the following locations:

Falmouth Public Library, 123 Katharine Lee Bates Road, Falmouth
Jonathan Bourne Library, 19 Sandwich Road, Bourne
Mashpee Public Library, Steeple Street, Mashpee Common, Mashpee
Sandwich Public Library, 142 Main Street, Sandwich

Public comments on the EA will be accepted through December 14, 2003. Written comments and inquiries on the EA should be directed to Mr. George Gauger, HQ AFCEE/ECE, 3207 Sidney Brooks, Brooks City-Base, TX 78235-5344. Fax: (210) 536-3069. Email: george.gauger@brooks.af.mil

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APPENDIX C —
AIR EMISSION CALCULATIONS

This section includes the calculations performed for estimating air emissions generated from activities related to the Proposed Action. Emissions were estimated using emission factors from AP-42 (USEPA, 2001) and the Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling (USEPA, 2002).

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Table C-1 Estimated Air Emissions from Construction of the Guard House

Grading

PM_{10} emissions (fugitive dust) from grading

$PM = \frac{1.0*s^{1.5}}{M^{1.4}}$		1.311	lb/hr PM	24	hours				
		0.98	lbs/hr PM	23.6	lbs PM_{10}				
				0.01	**tons PM_{10}**				

where s = silt (%), M = moisture (%)

PM_{10} = PM * 0.75

Sandy loam and loamy sand are typically 10-20 percent silt, an average of 15 percent was used.

15 percent soil moisture was assumed.

Sources: AP-42 Vol I, Chapter 13.2.3 Heavy Construction Operations, January 1995

AP-42 Vol I, Chapter 11.9 Western Surface Coal Mining, October 1998

Construction Equipment Emissions

Equipment	Days	Hours/day	Pieces	CO	VOC	NOx	SOx	PM-10
Bore/Drill Rig	1	8	1	*129.76*	*16.97*	*306.60*	*21.90*	*25.73*
Emissions (grams)				1038.06	135.78	2452.80	175.20	205.86
Emissions (lbs)				2.29	0.30	5.40	0.39	0.45
Tractor/Backhoe	3	8	1	*277.55*	*54.78*	*282.12*	*18.26*	*42.45*
Emissions (grams)				6661.25	1314.72	6770.81	438.24	1018.91
Emissions (lbs)				14.67	2.90	14.91	0.97	2.24
Trencher	3	8	1	*276.35*	*53.30*	*338.45*	*48.13*	*46.06*
Emissions (grams)				6632.3	1279.3	8122.7	1155.1	1105.4
Emissions (lbs)				14.61	2.82	17.89	2.54	2.43
Crane	2	6	1	*73.85*	*30.53*	*549.46*	*91.58*	*24.62*
Emissions (grams)				886.23	366.31	6593.55	1098.93	295.41
Emissions (lbs)				1.95	0.81	14.52	2.42	0.65
Cement mixer	1	8	1	*18.41*	*1.97*	*23.43*	*1.79*	*2.02*
Emissions (grams)				147.30	15.77	187.44	14.34	16.13
Emissions (lbs)				0.32	0.03	0.41	0.03	0.04
Total Emissions	lbs			31.89	6.05	38.62	3.93	5.17
	tons			**0.02**	**0.00**	**0.02**	**0.00**	**0.00**

Emission factors from USEPA, 2002 Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling

Assumes Tier 1 equipment (model years between 1996 and 2000)

Emission factors (EF) (in italics) are calculated with the following formula: EF in grams/horsepower-hour multiplied by horsepower, multiplied times the typical load factor for each type of equipment.

EFs and horsepower are derived from USEPA, 2002, using the steady state EF multiplied by the transient adjustment factor.

Typical load factor from AFIERA, USAF, 2002 Air Emissions Inventory Guidance for Mobile Sources

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