

File EA/

**ENVIRONMENTAL ASSESSMENT OF
MULTIPLE CONSTRUCTION PROJECTS AT
ANDREWS AIR FORCE BASE, MARYLAND**



MARCH 2004

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE 28 SEP 2004		2. REPORT TYPE		3. DATES COVERED 00-00-2004 to 00-00-2004	
4. TITLE AND SUBTITLE Environmental Assessment of Multiple Construction Projects at Andrews Air Force Base, Maryland				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) e2M Inc,3949 Pender Drive, Suite 120,Fairfax,VA,22030				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit	MSL	mean sea level
89 AW	89th Airlift Wing	MSW	municipal solid waste
89 CES/CEV	89th Civil Engineer Squadron Environmental Flight	MTBE	methyl tertiary-butyl ether
ACM	asbestos containing material	NAAQS	National Ambient Air Quality Standards
AFB	Air Force Base	NEPA	National Environmental Policy Act
AFI	Air Force Instruction	NO ₂	nitrogen dioxide
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health	NO _x	nitrogen oxide(s)
AFPD	Air Force Policy Directive	NPDES	National Pollution Discharge Elimination System
AMC	Air Mobility Command	NSR	New Source Review
AOC	area of concern	O ₃	ozone
AQCR	Air Quality Control Region	P.L.	Public Law
BTEX	benzene, toluene, ethylbenzene, and xylene	Pb	lead
C&D	construction and demolition	PEPCO	Potomac Electric Power Company
CAA	Clean Air Act	PM ₁₀	particulate matter ≤ 10 microns in diameter
CEQ	Council on Environmental Quality	PM _{2.5}	particulate matter ≤ 2.5 microns in diameter
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	POL	petroleum, oil, and lubricants
CFR	Code of Federal Regulations	PSD	Prevention of Significant Deterioration
CIH	Certified Industrial Hygienist	RCRA	Resource Conservation and Recovery Act
CO	carbon monoxide	RRRP	Resources Recovery and Recycling Program
COMAR	Code of Maryland Regulations	SARA	Superfund Amendment and Reauthorization Act
COMBS	Contractor Operated and Maintained Base Supply	SIP	State Implementation Plan
CWA	Clean Water Act	SO ₂	sulfur dioxide
DOD	U.S. Department of Defense	SO _x	sulfur oxide(s)
EA	Environmental Assessment	SR	State Route
EIAP	Environmental Impact Analysis Process	tpy	tons per year
EIS	Environmental Impact Statement	U.S.	United States
EO	Executive Order	U.S.C.	United States Code
ERP	Environmental Restoration Program	USAF	United States Air Force
FONSI	Finding of No Significant Impact	USEPA	U.S. Environmental Protection Agency
FY	fiscal year	UST	Underground Storage Tank
HAP	hazardous air pollutant	VOC	volatile organic compound
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning	WWSC	Washington Suburban Sanitary Commission
LBP	lead-based paint	WWTP	wastewater treatment plant
MDE	Maryland Department of the Environment		

FINDING OF NO SIGNIFICANT IMPACT
MULTIPLE CONSTRUCTION PROJECTS
AT ANDREWS AIR FORCE BASE, MARYLAND

INTRODUCTION

This Finding of No Significant Impact (FONSI) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code 4231 et seq. as amended in Council on Environmental Quality (CEQ), 40 Code of Federal Regulations (CFR) § § 1500- and Environmental Impact Analysis Process, 32 CFR § 989. The decision in this FONSI is based upon information contained in the Environmental Assessment (EA) of the Multiple Construction Projects at Andrews Air Force Base (AFB), Maryland, which is hereby incorporated by reference. The EA analyzed potential environmental consequences from implementation of the proposed action or no action alternative.

The need for action is to replace inadequate existing facilities with new facilities adequate to perform activities necessary to meet USAF mission, enhance worker productivity and safety, and meet Force Protection requirements. For all proposed activities, Force Protection measures would be incorporate in accordance with the USAF Installation Force Protection Guide.

Description of Proposed Action and Alternatives

The 89th Airlift Wing proposes to construct a new Environmental Flight building, a consolidate aircraft supply center facility, a new education center and library, and upgrade the base recycling center. The Environmental Protection Function considered reasonable alternatives to formulate alternatives for analysis. There were no alternatives, in addition to the proposed action and the no action alternative, considered that would satisfy the purpose and need of action. Construction activities would be conducted in accordance with applicable Air Force safety regulations and standards prescribed by the Air Force Occupational Safety and Health requirements (AFI 91-301).


to initiation of construction activities, plans and documents would be prepared by the contractor to provide environmental controls. These plans and documents would be submitted to the contracting officer at Andrews AFB. The no action alternative is carried forward for analysis in accordance with NEPA, § 1502.14 (d). The no action alternative would be to construct any of the proposed facilities and to not upgrade the base recycling center. Under the no action alternative, the substandard conditions and inadequate facilities would persist.

Decision


Based on the review of the EA, I have decided to proceed with the proposed action. The potential impacts to the human and natural environment were evaluated relative to the existing environment. For each environmental resource or issue, anticipated direct and indirect effects were assessed, considering both short- and long-term project effects. Although the proposed action would affect the human and natural environment, minor impacts would be expected. The proposed action will have a temporary impact on local air quality. Implementation of the proposed action would not result in significant direct or indirect impacts on geological resources. No long-term negative impacts to water resources will occur. The proposed action will require the limited use of hazardous materials and will generate negligible amounts of hazardous waste. Some of the construction or demolition sites are located on or near Environmental Restoration sites. All hazardous materials and waste will be handled in strict conformance with applicable laws. No major impacts on the infrastructure, traffic, solid waste generation, or energy use will occur. No significant negative impacts to safety and occupational health will occur and the proposed action will result in long term beneficial impacts. No significant cumulative impacts are anticipated from the proposed action in conjunction with any identified projects at Andrews AFB.

Conclusion

In accordance with the CEQ regulations implementing NEPA and the Air Force Environmental Impact Analysis Process, I conclude that the proposed action will have no significant impact on the quality of the human environment and the preparation of an environmental impact statement is not warranted.



JOHN R. RANCK, JR., Colonel, USAF
Vice Commander



Date

**ENVIRONMENTAL ASSESSMENT OF
MULTIPLE CONSTRUCTION PROJECTS AT
ANDREWS AIR FORCE BASE, MARYLAND**

**AIR MOBILITY COMMAND
Environmental Planning Branch
507 Symington Drive
Scott Air Force Base, IL 62225-5022**

MARCH 2004

**ENVIRONMENTAL ASSESSMENT OF
MULTIPLE CONSTRUCTION PROJECTS AT
ANDREWS AFB, MARYLAND**

CONTENTS

1. PURPOSE OF AND NEED FOR THE PROPOSED ACTION	1-1
1.1 Background.....	1-1
1.2 Purpose of and Need for the Proposed Action.....	1-1
1.3 Location.....	1-3
1.4 Summary of Key Environmental Compliance Requirements.....	1-3
1.4.1 National Environmental Policy Act.....	1-3
1.4.2 Integration of Other Environmental Statutes and Regulations	1-5
1.4.3 Interagency and Intergovernmental Coordination for Environmental Planning	1-8
2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES	2-1
2.1 Introduction.....	2-1
2.2 Proposed Action.....	2-1
2.2.1 Construct CEV Building.....	2-1
2.2.2 Upgrade Base Recycling Center	2-1
2.2.3 Construct Consolidated Aircraft Supply Center Facility	2-4
2.2.4 Construct Education Center/Library	2-6
2.3 Alternatives Considered but Eliminated from Further Consideration	2-6
2.4 No Action Alternative.....	2-7
3. AFFECTED ENVIRONMENT.....	3-1
3.1 Air Quality	3-2
3.1.1 Definition of Resource.....	3-2
3.1.2 Existing Conditions.....	3-5
3.2 Geological Resources	3-6
3.2.1 Definition of Resource.....	3-6
3.2.2 Existing Conditions.....	3-6
3.3 Water Resources	3-7
3.3.1 Definition of Resource.....	3-7
3.3.2 Existing Conditions.....	3-8
3.4 Hazardous Materials and Waste.....	3-9
3.4.1 Definition of Resource.....	3-9
3.4.2 Existing Conditions.....	3-11
3.5 Infrastructure.....	3-14
3.5.1 Definition of the Resource	3-14
3.5.2 Existing Conditions.....	3-15
3.6 Safety	3-18
3.6.1 Definition of Resource.....	3-18
3.6.2 Existing Conditions.....	3-18
4. ENVIRONMENTAL CONSEQUENCES.....	4-1
4.1 Air Quality	4-1
4.1.1 Evaluation Criteria.....	4-1
4.1.2 Environmental Consequences.....	4-3
4.2 Geological Resources	4-4

4.2.1	Evaluation Criteria.....	4-4
4.2.2	Environmental Consequences.....	4-5
4.3	Water Resources.....	4-5
4.3.1	Evaluation Criteria.....	4-5
4.3.2	Environmental Consequences.....	4-6
4.4	Hazardous Materials and Waste.....	4-7
4.4.1	Evaluation Criteria.....	4-7
4.4.2	Environmental Consequences.....	4-7
4.5	Infrastructure.....	4-14
4.5.1	Evaluation Criteria.....	4-14
4.5.2	Environmental Consequences.....	4-14
4.6	Safety.....	4-16
4.6.1	Evaluation Criteria.....	4-16
4.6.2	Environmental Consequences.....	4-16
4.7	No Action Alternative.....	4-17
5.	CUMULATIVE AND ADVERSE IMPACTS.....	5-1
5.1	Unavoidable Adverse Impacts.....	5-1
5.2	Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls.....	5-2
5.3	Relationship Between Short-term Use and Long-term Productivity.....	5-2
5.4	Irreversible and Irrecoverable Commitments of Resources.....	5-2
6.	LIST OF PREPARERS.....	6-1
7.	REFERENCES.....	7-1

APPENDIX A – INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE

APPENDIX B – AIR QUALITY EMISSIONS CALCULATIONS SPREADSHEETS

LIST OF FIGURES

1-1.	Andrews AFB and Surrounding Area.....	1-4
2-1.	Location of Proposed Construction Projects at Andrews AFB.....	2-2
2-2.	Locations of Proposed CEV Building and Base Recycling Center.....	2-3
2-3.	Locations of Proposed Consolidated Aircraft Supply Center and Education Center/Library.....	2-5
4-1.	Locations of Proposed CEV Building and Base Recycling Center and ERP Sites.....	4-10
4-2.	Locations of Proposed Consolidated Aircraft Supply Center and Education Center/Library and ERP Sites.....	4-13

LIST OF TABLES

3-1.	National Ambient Air Quality Standards.....	3-3
4-1.	General Conformity Rule <i>de minimis</i> Emission Thresholds.....	4-2
4-2.	Annual Construction Emissions Estimates from the Proposed Action.....	4-4

1. Purpose of and Need for the Proposed Action

1.1 Background

Andrews Air Force Base (AFB) is a United States Air Force (USAF) base under the Air Mobility Command (AMC). The 89th Airlift Wing (89 AW) is the host unit at Andrews AFB and reports to AMC headquarters located at Scott AFB, Illinois. The mission of the 89 AW is to provide logistical support for the President, Vice President, cabinet members, and high-ranking U.S. and foreign government officials. The 89 AW also provides airlift, airdrop, and air refueling support, including the movement of troops, passengers, military equipment, cargo, and mail. Other responsibilities include operation, administration, and maintenance of Andrews AFB facilities.

This Environmental Assessment (EA) analyzes the 89 AW's Proposed Action and includes the No Action Alternative. Additional alternatives were evaluated and eliminated from further analysis because they did not meet the selection criteria. As such, only the Proposed Action and No Action Alternative are carried forward for further analysis. If the analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, a Finding of No Significant Impact (FONSI) would be prepared. A FONSI briefly presents why a Proposed Action would not have a significant effect on the human environment and why an Environmental Impact Statement (EIS) is unnecessary. If significant environmental issues result that cannot be mitigated to insignificance, an EIS would be required, or the Proposed Action would be abandoned and no action would be taken.

Based on the analysis in the EA, the USAF, as the decision-maker, will decide whether there are significant adverse environmental impacts associated with the proposed modifications and demolition activities. Based on the review of the analysis, the USAF will either prepare a FONSI or recommend the analysis proceed to an EIS.

1.2 Purpose of and Need for the Proposed Action

The purpose of the Proposed Action is to replace inadequate existing facilities and construct new facilities to perform activities necessary to meet USAF mission, enhance worker productivity and safety, and meet Force Protection requirements concerns at Andrews AFB. Andrews AFB has identified the need for the following four projects:

- Construction of a new 89 AW Civil Engineer Squadron Environmental Flight (89 CES/CEV) Administration Building

- Construction of an upgraded, modern recycling center
- Demolition of three buildings and construction of a new, consolidated Aircraft Supply Center facility
- Demolition of Buildings 1632 and 1642 and construction of a new education center and library

The purpose of and need for these actions are presented below. For all proposed facilities, Force Protection measures would be incorporated in accordance with the *USAF Installation Force Protection Guide*.

Construct CEV Building. The 89 AW Environmental staff (89 CES/CEV) is currently working in a temporary facility (Building 1419) with limited space for engineers and administrative staff. It is anticipated that the contracting office will require the use of Building 1419 for their own staff. The purpose of this project is to provide an adequate work environment for 89 CES/CEV. A new CES/CEV building closer to the 89 CES office would reduce travel time between facilities and enhance 89 CES/CEV personnel's ability to carry out their daily tasks.

Upgrade Base Recycling Center. The purpose of this project is to achieve a recycling center that would provide adequate space and design to conduct recycling activities. The current recycling center is inadequate, and it is not in accordance with Air Force Instructions (AFIs) 32-7080, *Pollution Prevention Program*, and 32-7042, *Solid and Hazardous Waste Compliance*. Department of Defense (DOD) regulations stipulate that 40 percent of solid waste be diverted away from landfills while deriving economic benefit by 2005. The need for this project is to satisfy these and other applicable health and safety standards and to improve the Andrews AFB recycling program to an acceptable level. The recycling center must be secured for asset protection, environmental compliance, and physical safety reasons.

Construct Consolidated Aircraft Supply Center Facility. The purpose of this project is to consolidate contractor activities associated with five aircraft (C-32A, C-9, C-20, C-40, and C-37A). The existing contractor facilities are located in four substandard buildings that do not meet space requirements dictated by government contracts. Maintenance of these four buildings has become costly. Therefore, the need for this project is to satisfy contract obligations by providing adequate administrative and warehouse space to store, ship, and receive all necessary aircraft components supporting aircraft contractors on base.

Construct Education Center and Library. The purpose of this project is to provide a one-stop service for professional military education, continuing education services, and training for all

military and civilian personnel. The current library suffers from serious space shortfalls that do not allow for acquisition of more library materials or services, and the scattered locations of the current education center classrooms that belong to other tenant organizations do not meet education needs. This project arises from the need to provide military personnel with a modern and adequate library that provides the educational opportunities that a base the size of Andrews AFB should reasonably have.

1.3 Location

Andrews AFB encompasses 6,828 acres and is located in Prince George's County, Maryland, five miles southeast of Washington, D.C. (see Figure 1-1). The communities of Camp Springs and Morningside surround the base. Interstate 495 (the Capital Beltway) is immediately northwest of the base. Flight operations at Andrews AFB use two parallel Class B runways (01L/19R, West Runway and 01R/19L, East Runway), both oriented in the north-south direction. Other tenants at Andrews AFB include Air Force Reserve Command (459th Airlift Wing), Air National Guard Readiness Center, D.C. Air National Guard (113th Wing), U.S. Priority Air Transport, Civil Air Patrol, Maryland State Police, and Naval Air Facility Washington.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act

The National Environmental Policy Act, commonly known as NEPA, is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ) that is charged with developing implementing regulations and ensuring agency compliance with NEPA. CEQ regulations mandate that all Federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that may affect the environment. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in Title 40 Code of Federal Regulations (CFR) Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*. The CEQ was established under NEPA to implement and oversee

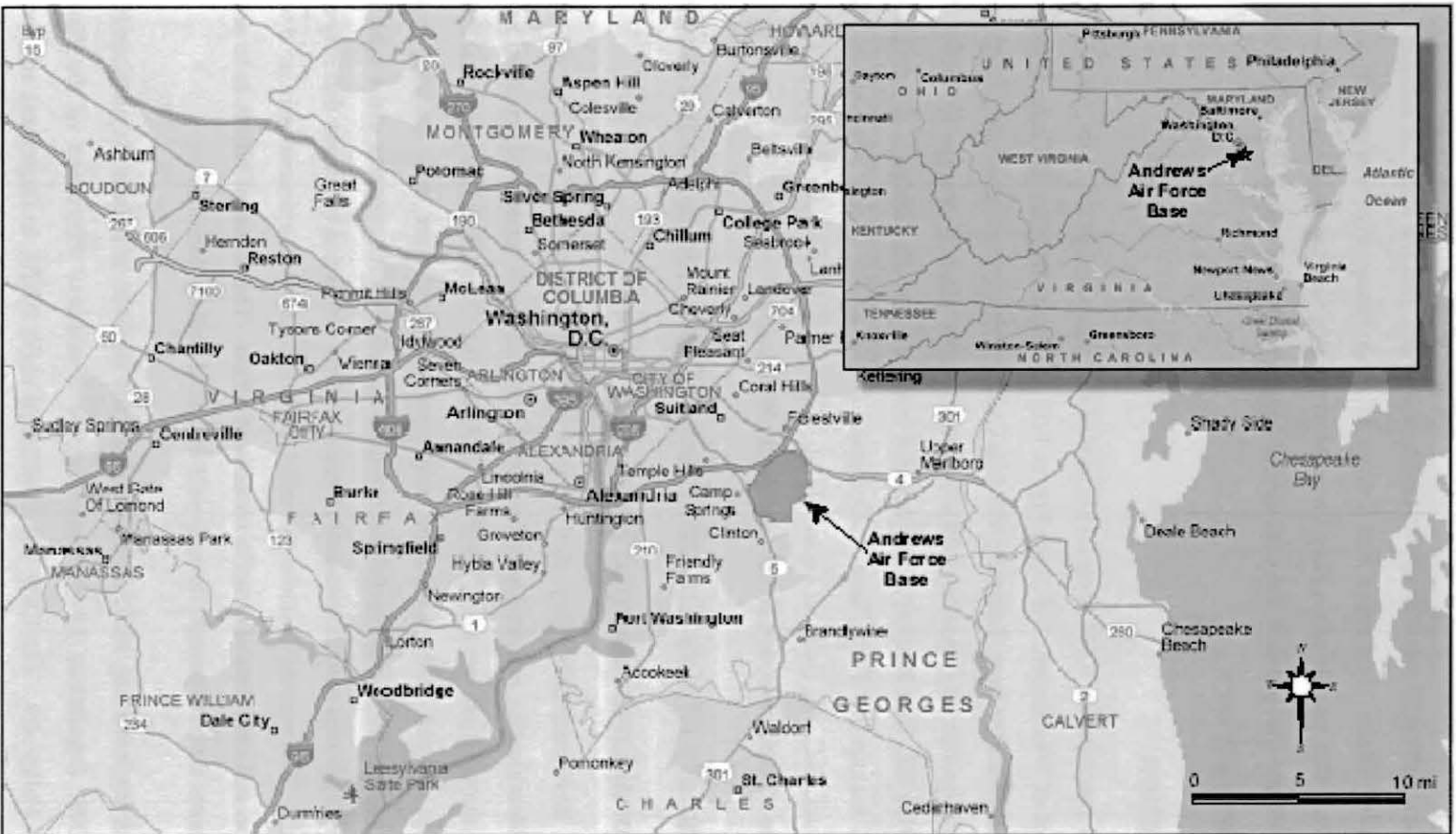


Figure I-1. Andrews AFB and Surrounding Area

Federal policy in this process. CEQ regulations specify the following must be accomplished when preparing an EA:

- Briefly provide evidence and analysis for determining whether to prepare an EIS or a FONSI
- Aid in an agency's compliance with NEPA when an EIS is unnecessary
- Facilitate preparation of an EIS when one is necessary

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is *The Environmental Impact Analysis Process (EIAP)*, 32 CFR Part 989, as amended.

1.4.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decision-making process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decision-maker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively." The EA will examine potential effects of the Proposed Action and alternatives on six resource areas including air quality, geological resources, water resources, hazardous materials and wastes, infrastructure, and safety. The following paragraphs present examples of relevant laws, regulations, and other requirements that are often considered as part of the analysis.

Safety

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements AFPD 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with the USAF Mishap Prevention Program (AFI 91-202), these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities.

Air Quality

The *Clean Air Act of 1970* (CAA) (Public Law [P.L.] 91-604) establishes Federal policy to protect and enhance the quality of the nation's air resources to protect human health and the environment. The CAA requires that adequate steps be implemented to control the release of air pollutants and prevent significant deterioration in air quality. The 1990 amendments to the CAA (P.L. 101-549) require Federal agencies to determine the conformity of proposed actions with respect to State Implementation Plans (SIPs) for attainment of air quality goals.

Water Resources

The *Clean Water Act* (CWA) (33 United States Code [U.S.C.] 1251 *et seq.*, as amended) establishes Federal policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters, and where attainable, to achieve a level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water.

Executive Order (EO) 11988, *Floodplain Management*, requires Federal agencies to take action to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to or within floodplains. Where information is unavailable, agencies are encouraged to delineate the extent of floodplains at their site.

Biological Resources

The *Endangered Species Act* (16 U.S.C. 1531 *et seq.*) requires Federal agencies that fund, authorize, or implement actions to avoid jeopardizing the continued existence of federally listed threatened or endangered species, or destroying or adversely affecting their critical habitat. Federal agencies must evaluate the effects of their actions through a set of defined procedures, which can include preparation of a Biological Assessment and formal consultation with the U.S. Fish and Wildlife Service.

EO 11990, *Protection of Wetlands*, requires that Federal agencies provide leadership and take actions to minimize or avoid the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

The CWA, under Section 404, contains provisions for protections of wetlands and establishes a permitting process for activities having potential effects in wetland areas. Wetlands, riverine, and open water systems are considered waters of the United States and, as such, fall under the regulatory jurisdiction of the U.S. Army Corps of Engineers.

Cultural Resources

The *National Historic Preservation Act of 1966* (16 U.S.C. 470 *et seq.*) provides the principal authority used to protect historic properties, establishes the National Register of Historic Places, and defines, in Section 106, the requirements for Federal agencies to consider the effect of an action on properties on or eligible for the National Register of Historic Places.

Protection of Historic Properties (36 CFR 800 [1986]) provides an explicit set of procedures for Federal agencies to meet their obligations under the National Historic Preservation Act, including inventorying of resources and consultation with State Historic Preservation Officers.

The *Archeological Resources Protection Act of 1979* (16 U.S.C. 470aa *et seq.*) ensures that Federal agencies protect and preserve archeological resources on Federal or Native American lands and establishes a permitting system to allow legitimate scientific study of such resources.

EO 13007, *Indian Sacred Sites*, requires that, to the extent practicable, Federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.

EO 13084, *Consultation and Coordination with Indian Tribal Governments*, requires that each Federal agency shall have an effective process to permit elected officials and other representatives of Indian tribal governments to provide meaningful and timely input in the development of regulatory policies or matters uniquely affecting their communities.

Socioeconomics and Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs Federal agencies to assess the effects of their actions on minority and low-income populations within their region of influence. Agencies are encouraged to include demographic information related to race and income in their analysis of the environmental and economic effects associated with their actions.

1.4.3 Interagency and Intergovernmental Coordination for Environmental Planning

NEPA requirements help ensure that environmental information is made available to the public during the decision-making process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process. The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. AFI 32-7060 requires the USAF to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements.

Through the IICEP process, the 89 AW will notify relevant Federal, state, and local agencies of the action proposed and provided them time to make known their environmental concerns specific to the action. The IICEP process provides the 89 AW the opportunity to cooperate with and consider state and local views in implementing the Federal proposal. Upon receipt, agency responses will be incorporated into the analysis of potential environmental impacts. Appendix A will include a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, and agency responses, once received.

2. Description of Proposed Action and Alternatives

2.1 Introduction

This section describes the Proposed Action, Alternatives to the Proposed Action, and the No Action Alternative.

2.2 Proposed Action

Andrews AFB proposes to accomplish four construction and demolition (C&D) projects (see Figure 2-1). Each project is described in more detail below.

2.2.1 Construct CEV Building

89 CES/CEV offices are currently located in a temporary facility (Building 1419) with limited space for engineers and administrative staff. Building 1419 is located near the intersection of Menoher Drive and Arnold Avenue. Under the Proposed Action, a new facility would be constructed near Building 3465 in the triangle bounded by Perimeter Road, Fetchet Avenue, and Carolina Avenue (see Figure 2-2). The proposed CEV building would be one-story and provide a total of 461 square meters (4,960 square feet), approximately 19.4 meters by 23.8 meters, of space for the 89 CES/CEV personnel.

2.2.2 Upgrade Base Recycling Center

Resource Recovery and Recycling Programs (RRRP) at Andrews AFB are currently conducted in Building 3347, the former motor pool (see Figure 2-2). In 1994, two metal buildings were constructed to accommodate development of the RRRP, which were the only alterations to improve the site. Currently, customer drop-offs are unsafe because there is no separate deposit center for recyclables. The current recycling facility has deteriorated fencing and privacy screening. Because the recycling center is unpaved, heavy loads cause soil erosion, operational difficulties, and safety problems; and the grounds have standing water and drainage problems. The new recycling center would offer increased user- and operator-friendly amenities, eliminate safety and environmental problems, and increase the rate of recycling on base. The new recycling center must be located away from administrative offices and housing because of the industrial activities and heavy truck traffic associated with such a facility.

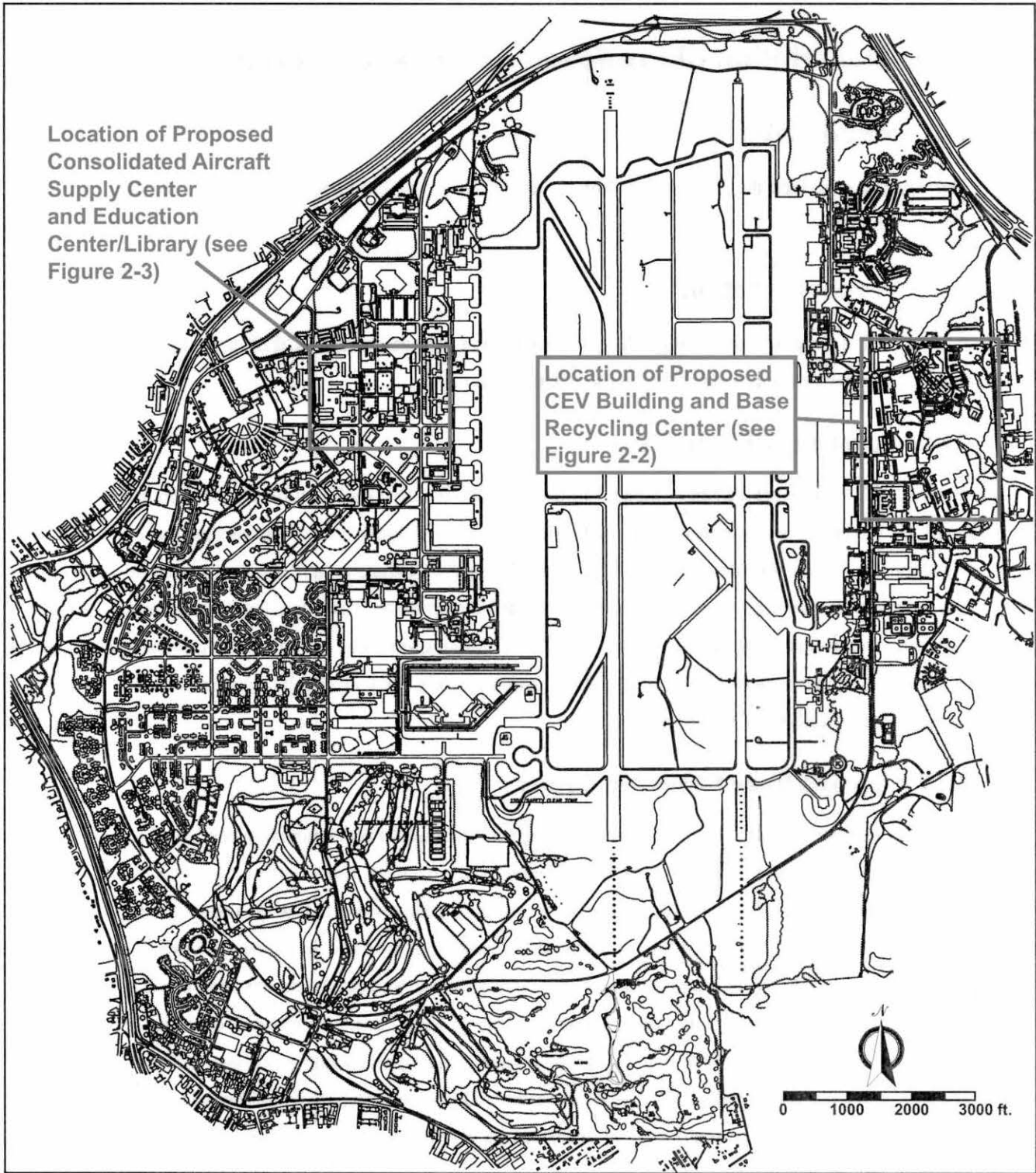


Figure 2-1. Location of Proposed Construction Projects at Andrews AFB

The Proposed Action is to upgrade the main recycling center (Building 3347) and a small lean-to near the recycling center. A small brick building in the vicinity would be demolished. Under the Proposed Action, base personnel would retrieve recyclables from offices and take them to the recycling center for processing and shipment preparation (collection is currently done by a contractor). Collecting, sorting, and packing equipment, including hydraulic machinery, would continue to be used to process and prepare recyclables. Once sorted, recycling vendors would pick up recyclables and remove them for the base.

The proposed upgrade to the recycling center would provide the necessary space and help Andrews AFB achieve the DOD-imposed goal of 40 percent solid waste reduction by 2005. The proposed design for the upgraded recycling facility would be based on established USAF work request standards and the experience of AMC bases that have modified their recycling centers.

2.2.3 Construct Consolidated Aircraft Supply Center Facility

The Contractor Operated and Maintained Base Supply (COMBS) operations are currently housed in four separate substandard facilities, violating required space allotments as specified in contracts between the government and contractors.

The proposed consolidated Aircraft Supply Center facility would be located on First Street, between D and G streets (see Figure 2-3). Construction would include a warehouse (8,027 square meters) and administrative space (924 square meters) (96,300 square feet total). The facility would house not only the aircraft contractors, but also the 89th Logistics Group Commander's offices and the 89th Logistics Support Squadron (currently located in a lean-to between Hangars 6 and 7). Under the Proposed Action, three facilities would require demolition, Buildings 1752, 1762, and 1772, totaling 4,675 square meters (50,300 square feet). The communications room and equipment in Building 1752 would be relocated because it is a fiber optic and communications hub for ten other local buildings.

Proposed construction is a multi-story facility with concrete foundation and masonry walls. Exterior appearance would include brick veneer and a sloped metal roof system. The facility would have moveable interior walls, fire protection system, vehicle parking, loading docks, and necessary support. The main and branch lines of the infrastructure would be improved and expanded to ensure reliable utility service to the proposed Aircraft Supply Center facility.

A consolidated Aircraft Supply Center facility would provide administrative and warehouse space for storing, shipping, and receiving all aircraft parts pertinent to the five aircraft contractors on base (supporting the C-32A, C-9, C-30, C-40, and C-37A aircraft). The improved 89 Logistics Group workspace would also satisfy their space requirements.

2.2.4 Construct Education Center/Library

The current library (Building 1642) is an undersized, inadequate facility. The current education center uses 24 classrooms located throughout the base, three-quarters of which are in facilities that belong to other organization and military services. Access to these classrooms can be restricted and denied at times.

The Proposed Action would provide a consolidated education center and library with adequate facilities for classrooms, materials, and services. The proposed education center and library would be located next to Building 1674 near the current library (see Figure 2-3). The education center would have 1,950 square meters of area, and the library would have 2,090 square meters, totaling 4,040 square meters (43,500 square feet). Buildings 1632 and 1642 (the current library), would be demolished, totaling 3,538 square meters.

The proposed structure would have concrete foundation and floor slab, masonry walls, and structural steel framing. It would also include a standing seam metal roof, utilities, and parking.

New construction of an education center/library would provide space to expand facilities and educational opportunities to military personnel at Andrews AFB, as well as civilian and retired military personnel in the D.C. area. The new facility would be adequate for a base as large as Andrews. Current demand for training would be met with this proposed educational facility.

2.3 Alternatives Considered but Eliminated from Further Consideration

As part of the NEPA process, reasonable alternatives to the Proposed Action must be considered. Other modifications were originally considered; however, such alternatives would not meet the Purpose and Need criteria presented in Section 2.2. The rationale for eliminating these alternatives is presented below.

New CEV Building. One alternative to the Proposed Action is to construct the new CES/CEV building in a different location. This alternative was eliminated based on the need to house

CES/CEV staff as close as possible to 89 CES squadron operations. Another suitable location was not found, and the proposed site was identified as the Proposed Action.

Upgraded Base Recycling Center. Two other alternatives were initially considered and eliminated from analysis: constructing a new recycling facility at a different location, or using off-site county recycling programs. Because of the industrial activities and heavy truck traffic that would take place at the recycling center, land away from administrative buildings and housing was necessary; no other land at Andrews AFB was available away from these types of land use. Using off-site, county recycling centers would be inconvenient for users and thereby reduce recycling rates, and would require collection vehicles to travel off-base.

Consolidated Aircraft Supply Center Facility. One alternative is to construct the proposed Consolidated Aircraft Supply Center Facility at a different location. Other suitable locations were not found, and the proposed site was identified as the Proposed Action. A second alternative is to house the Aircraft Supply Center functions in different (unconsolidated) new facilities. This alternative would not be as efficient as combining administrative and warehouse space for storing, shipping, and receiving all aircraft parts pertinent to the five aircraft contractors on base, and was not considered further.

Education Center and Library. One alternative is to renovate and expand the current library (Building 1642). This alternative was not practical because the current location has inadequate parking facilities, insufficient room to expand, and the existing library building is 44 years old, making renovation and expansion impractical and uneconomical. A second alternative is to construct the new library and education center in a different location. Other suitable locations were not found, and the proposed site was identified as the Proposed Action.

2.4 No Action Alternative

Under the No Action Alternative, Andrews AFB would continue to use the temporary CEV offices (Building 1419), substandard recycling center, fragmented contractor administrative and warehouse facilities, and education center and library in their current conditions and locations. The 89 CES/CEV would continue to use Building 1419 where there is inadequate and uncomfortable space for personnel, impacting implementation of environmental policies at Andrews AFB. The recycling center would continue to have inadequate space and operational safety issues, and Andrews AFB would not be able to attain DOD recycling goals. Contractor facilities would continue to be segmented and in violation of their contracts. The education

center and library would continue to not meet current demands for a modern and adequate space that provides appropriate educational opportunities.

3. Affected Environment

Section 3.0 describes the environmental and socioeconomic resources and conditions most likely to be affected by the proposed construction projects. This section provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential environmental and socioeconomic impacts of the Proposed Action and No Action Alternative on the baseline conditions are described in Section 4.0.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially affected by the Proposed Action. Some aspects of the affected environment (noise, land use, biological resources, cultural and historic resources, and socioeconomics and environmental justice) are not present in the area or would not be affected by the Proposed Action. Those resource areas have been omitted from this analysis. The following details the basis for such exclusions:

- **Noise.** Implementation of the Proposed Action does not involve permanent alterations to aircraft inventories, operations, or missions. No new, permanent ground-based heavy equipment operations are included in the Proposed Action. No activity included in the Proposed Action would result in a situation where residences would be impacted by an increase to present ambient noise levels. Furthermore, noise produced by construction and demolition activities associated with the Proposed Action would be short-term and not significantly affect sensitive receptors. Accordingly, USAF has omitted detailed examination of noise.
- **Land Use.** All activities associated with the Proposed Action would be consistent with present and foreseeable land use patterns at Andrews AFB. Implementation of the Proposed Action would not significantly alter the existing land use at any of the construction project locations. Accordingly, USAF has omitted detailed examination of land use.
- **Biological Resources.** The Proposed Action would not affect biological resources at Andrews AFB. Proposed construction projects would occur on previously disturbed, developed land that is not known to have any sensitive or threatened or endangered species or their habitat. There are no wetlands near the proposed project locations. Any noise effects as a result of construction would be minor and short-term, having a negligible effect, if any, on biological resources. Accordingly, USAF has omitted detailed examination of biological resources.
- **Cultural Resources.** The *Integrated Cultural Resources Management Plan* for Andrews AFB indicates that the only cultural resources eligible for inclusion on the National Register of Historic Places are located in the Belle Chance area (AAFB 2003a). This section is in the northwest area of main Andrews AFB, a

considerable distance from the Area of Potential Effect for the proposed construction sites. Therefore, within the Area of Potential Effect there would be no effects to cultural, historic, or potentially historic resources as a result of the Proposed Action. Accordingly, USAF has omitted detailed examination of cultural resources.

- **Socioeconomics and Environmental Justice.** The Proposed Action does not involve any activities that would contribute to changes in socioeconomic resources. The construction projects are relatively small and would not affect the local construction industry or the demand for construction workers or equipment. There would be no change in the number of personnel assigned to Andrews AFB, therefore there would be no changes in area population or associated changes in demand for housing and services. Furthermore, all construction would occur within Andrews AFB boundaries, eliminating any disproportionate effects on minority or low-income populations outside the base under EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. Accordingly, USAF has omitted detailed examination of socioeconomics.

3.1 Air Quality

3.1.1 Definition of Resource

Air quality in a given location is determined by the concentration of various pollutants in the atmosphere. National Ambient Air Quality Standards (NAAQS) are established by the U.S. Environmental Protection Agency (USEPA) for “criteria pollutants,” including ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂, or NO_x when referring to any nitrogen oxide), sulfur dioxide (SO₂, or SO_x when referring to any sulfur oxide), particulate matter equal to or less than 10 microns in diameter (PM₁₀), particulate matter equal to or less than 2.5 microns in diameter (PM_{2.5}), and lead (Pb). NAAQS represent maximum levels of background pollution in the ambient air that are considered safe, with an adequate margin of safety to protect public health and welfare (see Table 3-1).

The CAA places most of the responsibility to achieve compliance with the NAAQS on the individual states and/or local agencies that have been delegated CAA authority by USEPA. This is achieved through a SIP, which is required under the CAA. The SIP is a compilation of goals, strategies, schedules, permitting programs, and enforcement actions that lead the state into compliance with all NAAQS. Any changes to the compliance schedule or plan must be incorporated into the SIP and approved by USEPA. Areas not in compliance with a standard can be declared “nonattainment areas” by USEPA or the appropriate state or local agency. Based on the severity of an area’s nonattainment (i.e., number of times that ambient air quality exceeds the

Table 3-1. National Ambient Air Quality Standards

Pollutant	Standard Value ^b		Standard Type
Carbon Monoxide (CO)			
8-hour Average	9 ppm ^c	(10 mg/m ³) ^d	Primary
1-hour Average	35 ppm	(40 mg/m ³)	Primary
Nitrogen Dioxide (NO₂)			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m ³) ^e	Primary and Secondary
Ozone (O₃)			
1-hour Average ^a	0.12 ppm	(235 µg/m ³)	Primary and Secondary
8-hour Average	0.08 ppm	(157 µg/m ³)	Primary and Secondary
Lead (Pb)			
Quarterly Average		1.5 µg/m ³	Primary and Secondary
Particulate ≤ 10 micrometers (PM₁₀)			
Annual Arithmetic Mean		50 µg/m ³	Primary and Secondary
24-hour Average		150 µg/m ³	Primary and Secondary
Particulate ≤ 2.5 micrometers (PM_{2.5})			
Annual Arithmetic Mean		15 µg/m ³	Primary and Secondary
24-hour Average		65 µg/m ³	Primary and Secondary
Sulfur Dioxide (SO₂)			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m ³)	Primary
24-hour Average	0.14 ppm	(365 µg/m ³)	Primary
3-hour Average	0.50 ppm	(1300 µg/m ³)	Secondary

Notes:

^a The ozone 1-hour standard applies only to areas that were designated nonattainment when the ozone 8-hour standard was adopted in July 1997. The new 8-hour ozone standard is currently being contested in Federal court. No areas have been deemed nonattainment with the new 8-hour standard pending resolution of this case.

^b Parenthetical value is an approximately equivalent concentration.

^c ppm – parts per million

^d mg/m³ – milligrams per cubic meter

^e µg/m³ – micrograms per cubic meter

NAAQS), USEPA also categorizes nonattainment areas (e.g., marginal, serious, severe, extreme). Areas designated by USEPA as being in nonattainment for one or more of the seven NAAQS may petition USEPA for redesignation as a maintenance area if they are able to demonstrate they have met the national standard for the three years preceding the redesignation request. At the time the state petitions USEPA for redesignation, it must also submit a revision of its SIP to provide for the maintenance of the applicable NAAQS for at least 10 years after redesignation (“maintenance plan”) pursuant to CAA §175(A).

Under the General Conformity Rule, the CAA prohibits Federal agencies from performing projects that do not conform to a USEPA-approved SIP. In 1993, USEPA developed final rules for how Federal agencies must determine air quality conformity prior to implementing a proposed Federal action. Under these rules, certain actions are exempted from conformity determinations, while others are assumed to be in conformity if total project emissions are below *de minimis*

levels established under 40 CFR 93.153. Total project emissions include both direct and indirect emissions caused by the Federal action.

The CAA and the CAA Amendments of 1990 also require states to permit “major” stationary sources. A major stationary source is a facility (i.e., plant, base, or activity) that emits more than 100 tons annually of any one criteria air pollutant, 10 tons per year (tpy) of a single hazardous air pollutant (HAP), or 25 tpy of any combination of HAPs. There are 188 listed HAPs regulated under the CAA. The purpose of the permitting rule is to establish regulatory control over large facilities or processes that routinely emit significant amounts of pollutant activities, and to assess and monitor their impact upon local and regional air quality.

USEPA classifies the air quality in an Air Quality Control Region (AQCR) or an air basin according to whether the concentration of criteria pollutants in ambient air exceeds the primary or secondary NAAQS. The State of Maryland is divided into six AQCRs; Andrews AFB is located in AQCR IV.

Areas within each AQCR are designated as “attainment,” “nonattainment,” or “unclassifiable” for each of the six criteria pollutants. Attainment means that the air quality within an air basin or AQCR is better than the NAAQS; nonattainment indicates that a specific air pollutant’s concentration exceeds NAAQS; and an unclassifiable air quality designation by USEPA means that there is not enough information to classify an air basin or AQCR appropriately, so the area is considered attainment.

The General Conformity Rule requires that any Federal action conform to the requirements of a SIP or Federal Implementation Plan. More specifically, CAA Conformity is assured when a Federal action *does not do any one of the following*:

- Cause a new violation of a NAAQS
- Contribute to an increase in the frequency or severity of violations of NAAQS
- Delay the timely attainment of any NAAQS, interim progress milestones, or other milestones toward achieving compliance with the NAAQS

The Conformity Rule applies only to actions in nonattainment or maintenance areas, and considers both direct and indirect emissions. However, since stationary sources are addressed by local or state New Source Review (NSR) permitting requirements that ensure conformity with applicable CAA elements, this rule only addresses nonstationary/unpermitted emissions sources. Additionally, the rule applies only to Federal actions that are considered “regionally significant”

or where the total emissions from the action meet or exceed the *de minimis* thresholds. An action is regionally significant when the total nonattainment pollutant emissions exceed 10 percent of the nonattainment areas total emissions inventory for that nonattainment pollutant. If a Federal action meets the *de minimis* threshold requirements and is not considered regionally significant, then a full Conformity Determination is not required.

3.1.2 Existing Conditions

Regional Climate. The climate at Andrews AFB is temperate and influenced by an easterly air flow that produces frequent successions of high and low pressure systems. Rainfall is generally distributed throughout the year, with summer being the wettest season. The average annual temperature at Andrews AFB is 56° Fahrenheit (°F), the mean annual precipitation is 42.46 inches, the mean average snowfall is 21.5 inches, and the average wind speed is 6 knots (USAF 2001).

Regional Air Quality. Andrews AFB is located in Prince George's County, Maryland within the boundaries of Maryland AQCR IV, which is regulated by Maryland Department of the Environment (MDE). This region consists of Washington, D.C.; Prince George's, Montgomery, Calvert, Charles, and Fredrick counties, Maryland; Stafford, Prince William, Loudoun, Arlington, and Fairfax counties, Virginia; and the cities of Falls Church and Alexandria in Virginia. Based on historical ambient air quality monitoring records, Maryland AQCR IV has been designated by the USEPA as a "severe" nonattainment area for O₃. Ground-level O₃ is created by chemical reactions between NO_x and volatile organic compounds (VOCs) in the presence of sunlight. Emissions from industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOCs. The USEPA is also establishing dates by which Washington, D.C., the State of Maryland, and the Commonwealth of Virginia each must submit revisions to their SIPs to adopt severe area requirements. Maryland AQCR IV is in attainment for CO, PM₁₀, SO_x, NO₂, and Pb.

Air quality regulations for the State of Maryland are in the Code of Maryland Regulations (COMAR) 26.11. As required under MDE rules and regulations, each year Andrews AFB compiles and submits an inventory of regulated pollutant emissions from permitted stationary sources (AFIERA 2002a). This comprehensive inventory includes stationary/permitted equipment, as well as fugitive and area sources of regulated pollutants generated during the reporting period.

3.2 Geological Resources

3.2.1 Definition of Resource

Geological resources consist of the earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of topography, soils, geology, minerals, and, where applicable, paleontology.

Geology, the study of the earth's composition, provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition. Hydrogeology extends the study of the subsurface to water-bearing structures. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soils properties must be examined for their compatibility with particular construction activities or types of land use.

3.2.2 Existing Conditions

Physiography and Topography. Andrews AFB is near the western edge of the middle Atlantic Coastal Plain physiographic province with the fall line between the Piedmont and Coastal Plain located approximately 12 miles west of the main base. The Blue Ridge Mountains are about 60 miles west of the main base, and the Chesapeake Bay is 25 miles east. The Coastal Plain province is primarily characterized by unconsolidated substrata. The vast majority of this area is level to gently sloping with local relief generally being less than 100 feet except for moderately steep stream banks. Andrews AFB is located in a level plateau between the Anacostia River on the west and the Patuxent River on the east. Land surface elevations on Andrews AFB vary from approximately 215 feet above mean sea level (MSL) to about 281 feet above MSL (USAF 2001).

Natural Hazards. The mid-Atlantic and central Appalachian region, including Maryland, is characterized by a moderate amount of low-level earthquake activity, but their cause or causes are

largely a matter of speculation. In Maryland, for example, there are numerous faults, but none are known or suspected to be active. Because of the relatively low seismic energy release, this region has received little attention from earthquake seismologists (MGS 2003).

Soils. Two major soil associations are present in the Andrews AFB area, the Sassafras-Croom association and the Beltsville-Leonardtown-Chillum association (USAF 2001). The Sassafras-Croom association is found along major drainage ways to Tinker Creek and Piscataway Creek. It consists of gently sloping to steep, well-drained, dominantly gravelly soils with a compact subsoil or substratum. This association consists of 30 percent Sassafras soils, 25 percent Croom soils, and 45 percent minor soils.

The Beltsville-Leonardtown-Chillum association covers most of the north end of main base, extends through the central portion of main base to the southern boundary and along the eastern boundary of the base. These soils are predominately gently to moderately sloping, but might include areas that are nearly level to fairly steep. This association consists mainly of moderately deep, well-drained soils with a compacted subsoil or substratum. This association is composed of about 45 percent Beltsville soils, 13 percent Leonardtown soils, and 42 percent Chillum and minor soils.

3.3 Water Resources

3.3.1 Definition of Resource

Water resources include groundwater, surface water, and floodplains. The quantity and quality of available water and the demand for potable, irrigation, and industrial water affect its value.

Groundwater. Groundwater consists of the subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically may be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface Water. Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Storm water flows, which may be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, are important to management of surface water. Storm water is important to surface water quality also because of the potential to introduce sediments and other contaminants into lakes, rivers, and streams.

Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. For a variety of reasons, storm water systems might employ many different devices to slow the movement of water. For instance, a large, sudden flow could scour a streambed and harm biological resources in that habitat. Storm water systems provide the benefit of reducing amounts of sediments and other contaminants that would otherwise flow directly into surface waters. Failure to size storm water systems appropriately to either hold or delay conveyance of the largest predicted precipitation event often leads to downstream flooding and the environmental and economic damages associated with flooding. As a general rule, higher densities of development, such as those found in urban areas, require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban centers.

Floodplains. Floodplains are areas of low-level ground present along a river or stream channel. Such lands may be subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency, which evaluates the floodplain for 100- and 500-year flood events. EO 11988, *Floodplain Management*; state; and local regulations often limit floodplain development to passive uses such as recreational and preservation activities in order to reduce the risks to human health and safety.

3.3.2 Existing Conditions

Groundwater. Andrews AFB is located in a section of the Inner Coastal Plain where several minor and regional aquifers exist. Several of these hydrogeologic units occur at or near the ground surface. The upland deposits are typically underlain by a Calvert Formation, consisting of stratified sand, silt, clay, and gravel. Groundwater is generally encountered at depths of less than 20 feet below ground level and probably exists under water table conditions. Precipitation is the main source of groundwater recharge to the upland deposits. The general direction of groundwater movement is believed to be downgradient toward local streams or downward to underlying aquifers.

Several major or regionally significant aquifers underlie the main base at significant depths (USAF 2001). In descending stratigraphic sequence, these include the Aquia, Magothy, Patapsco, and Patuxent formations. The lake supply well (depth of this well is approximately 385 feet) near the base lake at Andrews AFB draws water from the Patapsco formation. The Aquia

formation, which lies at approximately 150 feet, is not a major aquifer at Andrews AFB; however, this formation receives recharge in the area northwest of Andrews AFB where the aquifer directly underlies the upland deposits.

Surface Water. Andrews AFB and the surrounding area are located within three significantly diverse watersheds: the Potomac River, Anacostia River, and Patuxent River. These watersheds drain 2,317 square miles of the east-central portion of the Chesapeake Bay Basin. The Potomac River Watershed drains approximately 158,000 acres of the eastern portion of Prince George's County, while 132,000 acres drain to the Anacostia River (USAF 2001). The majority of the base lies within the Potomac River Watershed. Several major tributaries to the Potomac River originate on the main base or fall within a relatively short proximity to its boundaries.

Floodplains. Floodplains are defined as areas adjoining inland or coastal waters that are prone to flooding. These areas must be reserved in order to discharge the 100-year flood without cumulatively increasing the water surface elevation more than a designated height. Once a floodplain is established, no additional obstruction (e.g., a building) should be placed in the floodplain that will increase the 100-year flood water surface elevation. Floodplains occur in two locations on Andrews AFB, one on the far western boundary of the base and the other on the southern boundary near the base lake (USAF 2001).

3.4 Hazardous Materials and Waste

3.4.1 Definition of Resource

Hazardous material is defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and the Toxic Substances Control Act, as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that might cause an increase in mortality, a serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous waste is defined by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that poses a substantial present or potential hazard to human health or the environment.

Evaluation of hazardous materials and wastes focuses on underground storage tanks (USTs) and aboveground storage tanks and the storage; transport and use of pesticides and herbicides; fuels; and petroleum, oil, and lubricants (POL). Evaluation may also extend to generation, storage,

transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well being of wildlife species, botanical habitats, soil systems, and water resources. In the event of release of hazardous materials or wastes, the extent of contamination varies based on the type of soil, topography, and water resources.

Special hazards are those substances that may pose a risk to human health but are not regulated as contaminants under the hazardous wastes statutes. Significant hazards associated with the Proposed Action are asbestos containing material (ACM) and lead-based paint (LBP). The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

To protect habitats and people from inadvertent and potentially harmful releases of hazardous substances, the DOD has dictated that all facilities develop and implement Hazardous Material Emergency Planning and Response Plans or Spill Prevention, Control, and Countermeasure Plans. Also, DOD has developed the Environmental Restoration Program (ERP), intended to facilitate thorough investigation and cleanup of contaminated sites located on military installations. These plans and programs, in addition to established legislation (i.e., CERCLA and RCRA), effectively form the "safety net" intended to protect the ecosystems on which most living organisms depend.

AFPD 32-70, *Environmental Quality*, establishes the policy that USAF is committed to:

- Cleaning up environmental damage resulting from its past activities
- Meeting all environmental standards applicable to its present operations
- Planning its future activities to minimize environmental impacts
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust
- Eliminating pollution from its activities wherever possible

AFPD 32-70 and the AFI 32-7000 series incorporate the requirements of all Federal regulations, other AFIs and DOD Directives for the management of hazardous materials, hazardous wastes, and special hazards.

3.4.2 Existing Conditions

Hazardous Materials. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials; and to those who manage, monitor, or track any of those activities. The 89 AW has established a hazardous materials pharmacy in accordance with AFI 32-7086 (AFIERA 2002b). The pharmacy ensures that only the smallest quantities of hazardous materials necessary to accomplish the mission are purchased and used.

Hazardous and toxic material procurements at Andrews AFB are approved and tracked by the Bioenvironmental Engineering Office located at Andrews AFB. The Environmental Management Flight office at Andrews AFB supports and monitors environmental permits, hazardous material and hazardous waste storage, spill prevention and response, and participation on the Base Environmental Protection Committee.

Hazardous Wastes. Hazardous wastes generated within the State of Maryland must be managed in accordance with USEPA (40 CFR Parts 260 to 282), State of Maryland (COMAR 26.13, *Disposal of Controlled Hazardous Substances*), and USAF regulatory requirements (AFI 32-7042, *Solid and Hazardous Waste Compliance*). The 89 AW maintains a *Hazardous Waste Management Plan* (AFIERA 2002b) as directed by AFI 32-7042. This plan prescribes the roles and responsibilities of all members of Andrews AFB with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan establishes the procedures to comply with applicable Federal, state, and local standards for solid and hazardous wastes management.

Wastes generated at Andrews AFB include pesticides, herbicides, POL, deicing fluids, flammable solvents, contaminated fuels and lubricants, paint/coating, stripping chemicals, waste oils, waste paint-related materials, municipal solid waste (MSW), and other miscellaneous wastes. Management of hazardous wastes is the responsibility of each waste-generating organization and environmental flight (89 CES/CEV). Andrews AFB has a USEPA permit for hazardous waste (AFIERA 2002b).

A USEPA identification number has been assigned to Andrews AFB for use in tracking hazardous waste once it leaves the base. It is the responsibility of hazardous waste generators to ensure that their hazardous waste is transferred daily to a designated 90-day hazardous waste site.

Accumulation of hazardous wastes at Andrews AFB includes three different periods of

accumulations: initial accumulation points, interim accumulation (accumulation site) at the centralized accumulation site (90-day storage area), and extended storage at the treatment, storage, and disposal facility. There are a number of hazardous wastes initial accumulation points authorized on Andrews AFB. Base Supply/Pharmacy has appointed a primary and alternate manager for each hazardous wastes site on Andrews AFB. Hazardous wastes generators are required to maintain a listing of all the hazardous waste streams generated in their section, proper identification, handling, storage, and record keeping of hazardous waste.

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in the Emergency Planning and Community Right-to-Know Act, Pollution Prevention Act of 1990; EO 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*; EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*; and EO 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*. In accordance with EO 13101, USAF preferentially chooses recycled-content products where possible. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 89 AW fulfills this requirement with the following plans:

- Storm Water Pollution Prevention Plan (89 AW 1998)
- Hazardous Waste Management Plan Andrews AFB, MD (AFIERA 2002b)
- Pollution Prevention Management Plan (AAFB 2003b)
- Hazardous Material Emergency Planning and Response Plan Andrews Air Force Base, Maryland (AAFB 1998)
- Solid Waste Management Plan (AAFB 2003c)

These plans ensure that Andrews AFB maintains a waste reduction program and meets the requirements of the CWA; the National Pollutant Discharge Elimination System (NPDES) permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Asbestos Containing Material. AFI 32-1052, *Facilities Asbestos Management*, provides the direction for asbestos management at USAF installations. This instruction incorporates by reference applicable requirements of 29 CFR 669 *et seq.*, 29 CFR 1910.1025, 29 CFR 1926.58, 40 CFR 61.3.80, Section 112 of the CAA, and other applicable AFIs and DOD Directives. AFI 32-1052 requires bases to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities, as well as documenting asbestos management efforts. In addition, the instruction requires installations to

develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects. ACM is regulated by the USEPA with the authority promulgated under the Occupational Safety and Health Act, 29 U.S.C. § 669, et seq. Section 112 of the CAA and COMAR 26.11.21, *Control of Asbestos*, regulate emission of asbestos fibers to ambient air. The USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

Asbestos at Andrews AFB is managed in accordance with the *Asbestos Management Program Plan* that was updated in 2002 (89 AW 2002). This plan specifies procedures for the removal, encapsulation, enclosure, and repair activities associated with ACM abatement projects. Additionally, it is designed to protect personnel who live and work on Andrews AFB from exposure to airborne asbestos fibers as well as to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to ACM. Not all of the buildings on Andrews AFB have been surveyed to locate, identify, and evaluate all ACM (89 AW 2002). Materials that may contain asbestos include pipe insulation and floor tiles. Asbestos materials are removed on an as-needed basis to minimize health risks from release of asbestos fibers during normal activities, maintenance, renovation, or demolition.

Lead-Based Paint. The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards.

USAF policy and guidance establishes LBP management at USAF facilities. The policy incorporates by reference the requirements of COMAR 26.16 (*Lead*), 29 CFR 1910.120, 29 CFR Part 1926, 40 CFR 50.12, 40 CFR Parts 240 through 280, the CAA, and other applicable Federal regulations. Additionally, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. LBP at Andrews AFB is managed in accordance with the *Lead-Based Paint Management Plan* that was updated in 2002 (USAF 2002). Not all of the buildings on Andrews AFB have been surveyed to locate, identify, and evaluate all materials containing LBP (USAF 2002).

Environmental Restoration Program. ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense Environmental Restoration Program that became law under the SARA. The ERP requires each DOD installation to identify, investigate, and cleanup hazardous waste disposal or release sites.

Andrews AFB began its ERP in 1985 with the investigation of possible locations of hazardous wastes contamination (Amoako 2003). Andrews AFB was officially listed on the National Priorities List by the USEPA in May 1999. The CERCLA sites are managed by the Andrews AFB's regulatory partnering group, which includes USEPA, MDE, and the Prince George's County Health Department. Petroleum sites exempted from regulation under CERCLA are delegated by USEPA to the MDE Waste Management Administration, Oil Control Program.

Andrews AFB manages 23 sites and 10 Areas of Concern (AOC), which includes three remote sites located in Brandywine and Davidsonville, Maryland. Numerous cleanup actions have taken place at Andrews AFB, including the removal of hundreds of USTs, installation of groundwater treatment systems at key locations, and removal of residual waste from areas to decrease the risk to human health and the environment.

Four of the 23 sites and ten AOC have been closed by MDE's Oil Control Program (Amoako 2003). All the contamination at the Andrews AFB ERP sites, with the exception of one (Landfill 5/LF-05), is contained within the base boundaries. A remedial investigation is currently ongoing to assess the off-base contamination, if any, resulting from past waste-disposal activities at LF-05.

Andrews AFB is still evaluating the potential risks posed by the contamination at their other ERP sites and AOCs. However, from information gathered so far, no surrounding communities are affected.

3.5 Infrastructure

3.5.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as "urban" or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to economic growth of an area. The infrastructure information contained in this section was obtained from the *Andrews Air Force Base General Plan* and provides a brief overview of each infrastructure component and comments on its existing general condition (AAFB undated). The infrastructure components to be discussed in this section include transportation systems, utilities (electrical power, natural gas, liquid fuel, and water supply), solid waste, and sanitary systems.

Solid waste management primarily deals with the availability of landfills to support a population's residential, commercial, and industrial needs. Alternative means of waste disposal may involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance of landfills for disposal.

3.5.2 Existing Conditions

Transportation Systems. Andrews AFB is located approximately five miles southeast of Washington, D.C. The base is situated at the confluence of major transportation arteries making it readily accessible to the Washington, D.C. Metropolitan Area, State of Maryland, and Commonwealth of Virginia.

The off-base transportation system consists of regional access to the base via Interstate 495, to the north. The base is bounded by Allentown Road (State Route [SR]-337) on the west and north, Branch Avenue (SR-5) on the west, Marlboro Pike and Pennsylvania Avenue (SR-4) on the northeast, Dower House Road on the east, and Old Alexandria Ferry Road on the south. Suitland Road provides direct access to the Main Gate at Andrews AFB. Other Andrews AFB gates are West Gate, North Gate, Virginia Avenue Gate, Maryland Gate, and Pearl Harbor Gate. The West, Maryland, and Pearl Harbor gates are not used. The Virginia Avenue Gate is open, and the North Gate is open with restrictions. Traffic patterns and gate openings are subject to change on short-notice to meet required Force Protection conditions. The transportation network on-base is delineated according to the road classifications outlined in AFI 32-7062, *Air Force Comprehensive Planning*. This AFI classifies the road network into three groups: arterial, collector, and local.

A network of major and minor collector roads provide vehicular circulation on the base. These roads are fed by local residential and limited-access streets. The major roads on-base are Perimeter Road, Patrick Avenue, Arnold Drive, Virginia Avenue, and Menoher Drive. Minor roads on-base are Pennsylvania Avenue/Fetchet Avenue, Brookley Avenue, Alabama Avenue/D Street, Arkansas Road/Arkansas Avenue, San Antonio Boulevard, Tuskegee Drive, and Atlanta Avenue.

Electrical Power. The Potomac Electric Power Company (PEPCO) provides Andrews AFB with electrical power. The base receives power delivered through three high voltage primary feeders via overhead lines and a 69 kilovolt main substation. The primary electrical distribution system

on base is via 13.2 kilovolt transmission lines. Power metering in the main substation belongs to PEPCO and all other electrical equipment in the main substation and throughout the base is government owned and maintained.

Natural Gas. Washington Gas Light Company provides Andrews housing units with natural gas. There are two separate 100-pounds per square inch gauge steam distribution systems serving the rest of the base. Each of these distribution systems is served by a central heating plant. Both systems consist of direct-buried piping; however, the western system is selectively being replaced with shallow-trench mains. All boilers in these two central heating plants have recently been converted to natural gas.

Liquid Fuel. Piney Point Industries provides liquid fuel distribution to Andrews AFB via an 8-inch pipeline. This line enters the base and connects to three storage tanks owned by Piney Point Industries before finally connecting to USAF-owned POL systems. Andrews AFB uses JP-8, diesel, compressed natural gas, and motor gas fuels.

Water Supply, Wastewater and Storm Water Systems. The Washington Suburban Sanitary Commission (WSSC) provides water supply to Andrews AFB via a 14-inch service connection.

No wastewater treatment plant (WWTP) is located on Andrews AFB. However, there are 128 lift stations located throughout the base. Domestic and industrial wastewater from the main base is piped to the WWTP managed by the WSSC. Wastewater is monitored at two sites on Andrews AFB: one located on the east side of the base, and one on the west side of the base.

There are five small ponds and one larger surface water impoundment on Andrews AFB. Storm water passes through oil/water separators in the industrial areas and through swales and ditches in other areas. Primarily, underground concrete pipes convey storm water runoff. Two major storm drain outfalls discharge eventually into Henson Creek, Meeting House, and the Payne Branch to the west; Henson and Cabin Creeks and the Charles Branch to the east; and Piscataway Creek to the southeast. Ultimately, the discharges flow to the Patuxent and Potomac Rivers (USAF 2001).

Solid Waste. MSW at Andrews AFB is managed in accordance with the guidelines specified in AFI 32-7042, *Solid and Hazardous Waste Compliance*. This AFI incorporates by reference the requirements of COMAR 26.04.07, *Solid Waste Management*; Subtitle D, 40 CFR Parts 240 through 244, 257, and 258; and other applicable Federal regulations, AFIs, and DOD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a Solid Waste Management Plan (AAFB

2003c); procedures for handling, storage, collection, and disposal of solid waste; record-keeping and reporting; and pollution prevention.

The Environment Article Annotated Code of Maryland and COMAR Title 26 are the primary statute and regulations relating to environmental protection and regulation in the State of Maryland. These laws and regulations contain requirements for landfills, asbestos, medical waste, tire recycling, industrial waste disposal, and wood waste, newsprint, plastic container labeling, telephone directory recycling, yard waste banned from disposal facilities, battery collection and battery recycling. The annual reporting of quantities of solid waste disposed in the state, and the jurisdictions where it originated is also governed by these laws. In addition, solid waste exported from the state for disposal is addressed within these laws and regulations.

A contractor handles the collection, transportation, and removal of nonhazardous MSW from Andrews AFB. Waste is collected in dumpsters located throughout the base and then removed. Currently, there are no operating landfills at Andrews AFB.

Subtitle 21-126 of the Prince George's County Code and Section 9-210(b) (2) and (3) of the Environment Article regulate the disposal of materials in a rubblefill. A rubblefill is a landfill in which construction or building demolition rubble is placed in a controlled manner. Rubble is a type of solid waste and includes land clearing debris, demolition debris and construction debris.

In Prince George's County, there is currently one operating rubblefill, the Ritchie-Marlboro facility (PGC 2002). The Ritchie-Marlboro Road Rubblefill has an approved State permit (1999-WRF-0126, issued October 25, 1999, expiring October 24, 2004) and County license (RF-001-86) and is currently in operation. Recently, an additional 30 acres were purchased at the site. However, this additional land is not approved for use as part of the existing rubblefill operation. The projected capacity based on projected demands is an additional 20 years.

Nonhazardous MSW from Andrews AFB is primarily transported to the Brown Station Road Sanitary Landfill, located in Prince George's County approximately two miles northwest of the Town of Upper Marlboro. The Brown Station Road Sanitary Landfill is managed by Prince George's County.

In Fiscal Year (FY) 2002, Andrews AFB disposed 1,177 tons of non-hazardous MSW and 17.5 tons of C&D waste (AAFB 2003c). C&D wastes on Andrews AFB have been hard to quantify since historical records have not been kept and not all contractors report their C&D waste streams to 89 CES/CEV. Andrews AFB is currently trying to correct this problem to obtain a more

accurate estimate of the C&D waste stream (AAFB 2003c). C&D waste generated from specific construction, renovation, and maintenance projects on Andrews AFB, most of which are performed by off-base contractors, is the responsibility of the contractor. All nonrecyclable C&D waste is collected in C&D dumpsters and stored on the project site until it is taken away by the contractor to an approved C&D landfill. C&D waste contaminated with hazardous waste, ACM, LBP, or other undesirable components are managed in accordance with AFI 32-7042.

3.6 Safety

3.6.1 Definition of Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses (1) workers' health and safety during demolition and construction activities and facilities construction, and (2) public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction work site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration and USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Other safety issues typically associated with and specific to military flying units and their airfields include the potential for mid-air aircraft mishaps, aircraft collisions with objects on the ground, weather-related accidents, and bird-aircraft collisions. However, since the Proposed Action does not involve additions to or changes in any of the aircraft operations at Andrews AFB, information relating to the safety of aircraft is not presented in this EA.

3.6.2 Existing Conditions

All contractors performing construction activities at Andrews AFB are responsible for following ground safety regulations and worker compensation programs and are required to conduct construction activities in a manner that does not pose any risk to its workers or base personnel. An industrial hygiene program addresses exposure to hazardous materials, use of personal

protective equipment, and availability of Material Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplace operations; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures.

THIS PAGE INTENTIONALLY LEFT BLANK

4. Environmental Consequences

This section of the EA assesses potential environmental consequences associated with the Proposed Action. Potential impacts are addressed in the context of the scope of the Proposed Action as described in Section 2.0 and in consideration of the potentially affected environment as characterized in Section 3.0. The EA analysis includes direct, indirect, and cumulative impacts. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Cumulative effects are impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). The cumulative impact analysis is provided in Section 5 of this EA.

4.1 Air Quality

4.1.1 Evaluation Criteria

The potential impacts to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS attainment areas would be considered significant if the net increases in pollutant emissions from the Federal action resulted in one of the following scenarios:

- Caused or contributed to a violation of any national or state ambient air quality standard
- Exposed sensitive receptors to substantially increased pollutant concentrations
- Represented an increase of ten percent or more emissions inventory in the affected AQCR

Impacts to air quality in NAAQS nonattainment areas would be considered significant if the net changes in project-related pollutant emissions resulted in one of the following scenarios:

- Caused or contributed to a violation of any national or state ambient air quality standard
- Increased the frequency or severity of a violation of any ambient air quality standard
- Exceeded any significance criteria established in a SIP
- Delayed the attainment of any standard or other milestone contained in the SIP

With respect to the General Conformity Rule, impacts to air quality would be considered significant if the proposed Federal action resulted in an increase of a nonattainment or maintenance area's emission inventory by ten percent or more for one or more nonattainment pollutants. The project could also be significant if such emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been designated as a nonattainment or maintenance area. In such cases, a more detailed conformity determination is required.

The *de minimis* threshold emission rates were established by the USEPA in the General Conformity Rule in order to focus analysis requirements on Federal actions with the potential to have significant air quality impacts. Table 4-1 presents these thresholds by regulated pollutant. These *de minimis* thresholds are similar, in most cases, to the definitions for major stationary sources of criteria and precursors to criteria pollutants under the CAA's NSR Program (CAA Title I). As shown in Table 4-1, *de minimis* thresholds vary depending upon the severity of the nonattainment area designation by USEPA.

Table 4-1. General Conformity Rule *de minimis* Emission Thresholds

Pollutant	Status	Nonattainment Classification	<i>de minimis</i> Threshold (tpy)
Ozone (measured as NO _x or VOCs)	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO _x)
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO _x)
		Outside ozone transport region	100
Carbon Monoxide (CO)	Nonattainment/ Maintenance	All	100
Particulate Matter <10 microns (PM ₁₀)	Nonattainment Maintenance	Serious	70
		Moderate	100
		Not Applicable	100
Sulfur Dioxide (SO ₂)	Nonattainment/ maintenance	Not Applicable	100
Nitrogen Dioxide (NO ₂)	Nonattainment/ maintenance	Not Applicable	100

Source: 40 CFR 93.153(b)

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions to be significant if (1) a proposed major stationary source is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of $1 \mu\text{g}/\text{m}^3$ or more of any regulated pollutant in the Class I area (40 CFR 52.21(b)(23)(iii)). PSD regulations also define ambient air increments—limiting the allowable increases to any area's baseline air contaminant concentrations, based on the area's designation as Class I, II, or III (40 CFR 52.21(c)).

Local and regional pollutant impacts resulting from direct and indirect emissions from stationary emission sources under the Proposed Action are addressed through Federal and state permitting program requirements under the NSR and PSD regulations (40 CFR Parts 51 and 52 and MDE regulations). As noted previously, Andrews AFB has appropriate permits in place and has met all applicable permitting requirements and conditions for specific stationary devices.

4.1.2 Environmental Consequences

Since a USEPA-designated nonattainment area is affected by this Proposed Action, the USAF must comply with the Federal General Conformity Rule (40 CFR Part 93). To do so, an analysis has been completed to ensure that, given the changes in direct and indirect emissions of the O_3 precursors (NO_x and VOCs), PM_{10} , and CO, the Proposed Action would be in conformity with applicable CAA requirements. The Conformity Determination requirements specified in this rule can be avoided if the project-related nonattainment pollutant emission rate increases are below *de minimis* thresholds levels for each pollutant and are not considered regionally significant. For purposes of determining conformity in this nonattainment area, projected regulated pollutant emissions associated with the Proposed Action were estimated using available construction emissions and other non-permitted emission source information. The emission calculations and *de minimis* threshold comparisons are provided in Appendix B.

Construction Activities. The Proposed Action consists of four projects including demolition and construction activities. A description of each construction project is provided in Section 2.2.

For purposes of this analysis, the project duration and affected project site area to be disturbed presented in Section 2.2 was used to estimate fugitive dust and all other criteria pollutant emissions. The construction emissions presented in Table 4-2 include the estimated annual construction PM_{10} emissions associated with the Proposed Action at Andrews AFB. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. However,

the effects would be temporary, and would fall off rapidly with distance from the proposed construction site.

Table 4-2. Annual Construction Emissions Estimates from the Proposed Action

Calendar Year	NO _x ¹ (tpy)	VOC ¹ (tpy)	CO (tpy)	SO ₂ (tpy)	PM ₁₀ (tpy)
2005	2.16	1.34	1.77	0.11	2.49
2006	16.73	5.81	15.37	0.81	3.56
2007	20.20	6.72	18.56	0.98	4.29
2008	9.88	3.91	9.08	0.48	3.52

¹ Denotes nonattainment pollutant in Maryland AQCR IV.

4.2 Geological Resources

4.2.1 Evaluation Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts of a proposed action on geological resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Analysis of potential impacts on geological resources typically includes the following steps:

- Identification and description of resources that could potentially be affected
- Examination of a proposed action and the potential effects this action could have on the resource
- Assessment of the significance of potential impacts
- Provision of mitigation measures in the event that potentially significant impacts are identified

Impacts to geology and soils would be significant if they would alter the lithology, stratigraphy, and geological structure that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or change the soil composition, structure or function within the environment.

4.2.2 Environmental Consequences

The geology and soils of each construction site would be directly impacted from site preparation activities. Land clearing and excavation for facility foundations and storm water systems would require that the upper layers of the soil strata be removed. Only short-term, adverse effects to geological resources are expected as a result of the Proposed Action, which would arise from construction and demolition activities (i.e., grading, excavating, and recontouring of the soil). The Proposed Action would comply with COMAR 26.17.01, *Maryland Erosion and Sediment Control Guidelines for State and Federal Projects*. To minimize adverse effects from sediment erosion and runoff, a Sediment and Erosion Control Plan must be prepared for all projects equaling or exceeding 5,000 square feet. The proposed consolidated Aircraft Supply Center and library/education center would be 96,300 square feet and 43,500 square feet of new construction, which both require a site-specific Sediment and Erosion Control Plan. Sediment and Erosion Control Plans must be coordinated with the contracting office and 89 CES/CEV before submission to MDE.

All construction projects would use best management practices to limit potential impacts resulting from construction activities. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed. Standard erosion control means (e.g., silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce potential impacts related to these characteristics. Therefore, impacts to soils at the base would not be significant.

The Proposed Action would not cause or create significant changes to the topography of Andrews AFB or the surrounding area. Therefore, no significant direct or indirect impacts on geological resources would result from implementation of the Proposed Action.

4.3 Water Resources

4.3.1 Evaluation Criteria

Significance criteria for water resources impacts are based on water availability, quality, and use; existence of floodplains; and associated regulations. A potential impact on water resources would be significant if it were to result in one of the following scenarios:

- Reduce water availability to existing users or interfere with the supply
- Create or contribute to overdraft of groundwater basins or exceed safe annual yield of water supply sources

- Adversely affect water quality or endanger public health by creating or worsening adverse health hazard conditions
- Threaten or damage unique hydrologic characteristics
- Violate established laws or regulations that have been adopted to protect or manage water resources of an area.

The impact of flood hazards on a proposed action is potentially significant if such an action is proposed in an area with a high probability of flooding.

4.3.2 Environmental Consequences

Construction activities as a result of the Proposed Action could result in increased soil runoff, adversely impacting surface water quality. However, the Proposed Action would comply with COMAR 26.08.02, *Surface Water Quality Standards*; COMAR 26.17.01, *Erosion and Sediment Control Guidelines for State and Federal Projects*; and COMAR 26.17.02, *Storm Water Management Guidelines for State and Federal Projects*. By reference, 40 CFR Part 122, NPDES permitting is incorporated into COMAR 26.17.02. Andrews AFB maintains a Storm Water Pollution Prevention Plan containing best management practices to control storm water runoff pertaining to Base activities (89 AW 1998). Adherence to proper engineering practices and applicable codes, ordinances, and plans would reduce storm water runoff-related impacts to a level of insignificance. The Proposed Action would require a Maryland NPDES General Permit for Construction Activity, Sediment and Erosion Control Plan, and Storm Water Management Plan. Erosion and sedimentation controls would be in place during construction to reduce and control siltation or erosion impacts to areas outside of the construction site. Implementation of sediment and erosion controls, as specified in Section 4.2.2, during the proposed construction activities would maintain surface water runoff quality at levels comparable to existing conditions and would limit potential adverse effects to soils resulting from the Proposed Action.

Construction and demolition activities would require the use of water for dust suppression. The volume of water to be used for dust control would be minimal. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil impacted. No runoff would be expected to result for this process. Therefore, no significant direct or indirect impacts to surface water are expected to result from the use of water for dust control during construction.

Floodplains are not located near the region of influence and would not be affected, nor would the Proposed Action stimulate development in a floodplain.

Construct CEV Building. No direct or indirect effects as a result of building operations are expected under the Proposed Action.

Upgrade Recycling Center. The Proposed Action would have a negligible direct effect on the quantity of storm water runoff from paving access roads to the recycling center, and minor, beneficial direct impacts to water quality from improved site conditions, reduced sedimentation from road soil erosion, potential contamination of standing water on site, and improved drainage.

Construct Consolidated Aircraft Supply Center Facility. No direct or indirect effects as a result of building operations are expected under the Proposed Action.

Construct Education Center/Library. An increased number of visitors would be expected under the Proposed Action. However, increased usage would not affect water quantity or quality, so the operations of the proposed education center/library would have no direct or indirect effects on water resources.

Short-term, adverse effects from construction and demolition are expected as a result of the Proposed Action. The Proposed Action is not expected to have any long-term effects on water resources at Andrews AFB. Therefore, there would be no significant impacts.

4.4 Hazardous Materials and Waste

4.4.1 Evaluation Criteria

Numerous local, state, and Federal laws regulate the storage, handling, disposal, and transportation of hazardous material and waste. The primary purpose of these laws is to protect public health and the environment. Potential impacts associated with hazardous material and waste would be significant if the storage, use, transportation, or disposal of these substances increased substantially the risk to human health or exposure to the environment.

4.4.2 Environmental Consequences

Construction activities associated with the Proposed Action would require the use of certain hazardous materials such as paints, welding gases, solvents, preservatives, and sealants. It is anticipated that the quantity of products containing hazardous materials used during construction would be minimal, and they would be used only for a short time. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance

with Federal and state regulations; this includes contractors submitting a list of hazardous materials to the Contracting Officer prior to the start of a project.

Construction equipment that would be used contains fuel, lubricating oils, hydraulic fluid, and coolants that could be regulated hazardous substances if spilled or leaked on the construction site. During project activities, contractors would be required to minimize the potential for a release of hazardous substances from all construction equipment, inspect equipment daily to ensure that there are no discharges, maintain appropriate spill containment material on site, and store all fuels and other materials in appropriate containers. Equipment maintenance activities would not be conducted on the construction site.

It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be negligible. Contractors would be responsible for the disposal of hazardous wastes in accordance with Federal and state laws and regulations. Construction of the proposed facilities would not directly or indirectly impact the Andrew AFB hazardous waste management program.

Any ACM or LBP encountered during demolition activities would be handled in accordance with established USAF policy and Andrews AFB's *Asbestos Management Program Plan* (89 AW 2002), *Lead-Based Paint Management Plan* (USAF 2002), *Hazardous Material Emergency Planning and Response Plan* (AAFB 1998), and *Hazardous Waste Management Program Plan* (AFIERA 2002b). USAF regulations prohibit the use of ACM and LBP for new construction.

It is anticipated that the Proposed Action would not directly or indirectly impact the pollution prevention program at Andrews AFB. It is the Contractor's responsibility to recycle, reclaim, or reuse all materials to avoid, to the greatest extent possible, disposing of waste generated as part of the project in landfills. The Contractor must also report (through the Contracting Office) the quantity of all wastes generated. Quantities of hazardous material and chemical purchases, off-base transport of hazardous waste, disposal of MSW, and energy consumption would remain unchanged under with implementation of the Proposed Action. The Pollution Prevention Program at Andrews AFB would accommodate the Proposed Action.

Construct CEV Building. Construction of the new CEV building would be located within ERP Site ST-14, East Side Service Station (see Figure 4-1). ERP Site ST-14 resulted from USTs and ancillary piping system gasoline leaks at the East Side Service Station (AAFB 2001). Subsequent investigations of ERP Site ST-14 indicated a solvent plume extending from the flightline to the

northeast. The potential contaminants of concern at ERP Site ST-14 include trichloroethene, benzene, carbon tetrachloride, semi-VOCs, and fuel hydrocarbons in the groundwater. ERP Site ST-14 is currently undergoing additional tests and analysis to determine the extent of the site's contamination and the actual contaminants of concern.

Contaminated groundwater and soil from solvent and petroleum releases could be encountered in the work area at ERP Site ST-14. To ensure the safety of site workers, a Health and Safety Officer would be present during all intrusive digging related to the Proposed Action to monitor air quality and to ensure all wastes are properly characterized. A site-specific health and safety plan would also be prepared in accordance with OSHA requirements to reflect the presence of groundwater impacts with trichloroethylene at concentrations exceeding 50 micrograms per liter (Fewster 2004). A Certified Industrial Hygienist (CIH) would review and approve the plan (Fewster 2004).

According to a June 2002 survey, groundwater was measured at a depth of 19.5 feet below ground surface at MW09-ST14, which is immediately adjacent to the proposed CEV building project area (Fewster 2004). No digging would occur within six feet of this well, and the 89 CES/CEVR must be notified if any digging would occur near this well. Any groundwater encountered during excavation in the project area would be assumed contaminated with VOCs and containerized and disposed of according to appropriate procedures. Efforts would be made to minimize spoils during excavation by grading any excess soils on site. Any waste encountered during construction of the CEV building would be evaluated for the presence of hazardous substances and proper disposal in a permitted MSW or hazardous waste (RCRA-C or RCRA-D) disposal facility. All wastes transported off-site would be managed and disposed of in accordance with applicable Federal, state, and local regulations, AFIs, and Andrews AFB programs and procedures.

Upgrade Recycling Center. The current recycling center stores and uses small quantities of hazardous materials in its operation, and has had no documented spills. The 89 CES/CEV maintains tire hauling and collection licenses for the recycling center. The site would store diesel fuel and other equipment fluids in storage tanks. There are no anticipated indirect effects from hazardous waste generation, storage, or transport from the proposed facility.

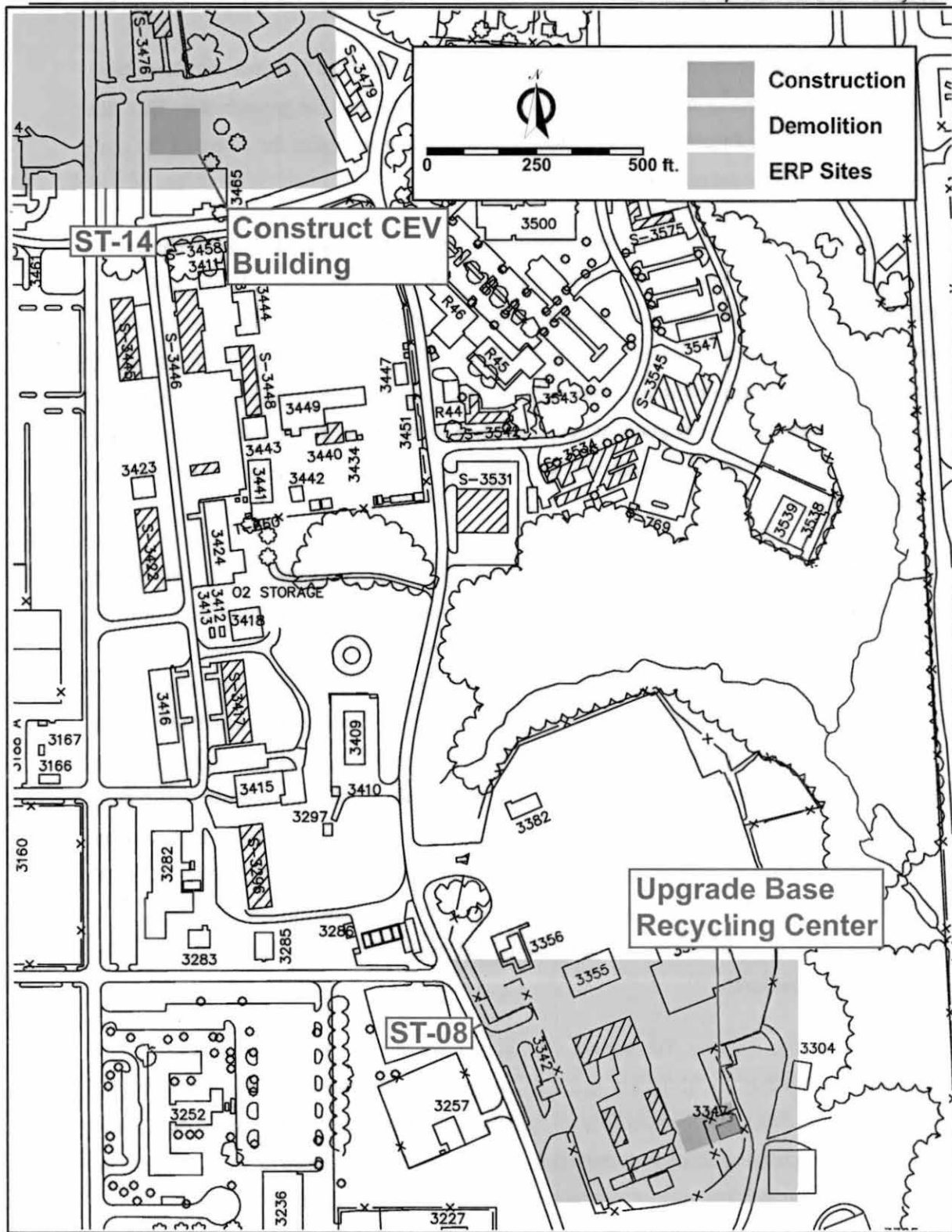


Figure 4-1. Locations of Proposed CEV Building and Base Recycling Center and ERP Sites

The proposed upgrade of the recycling center would be located in ERP Site ST-08, the Motor Gas UST Leak Site (see Figure 4-1). ST-08 includes the former Military Gas Station and associated Motor Pool located east of the gas station. The site was originally used to maintain, repair, and refuel base vehicles. Several leaks from USTs at the gas station occurred during the 1970s. Potential contaminants of concern at the site include BTEX (benzene, toluene, ethylbenzene, and xylene), chlorinated solvents, and metals in the groundwater. ST-08 is currently undergoing Interim Remedial Action and groundwater monitoring.

Contaminated groundwater and soil from solvent and petroleum releases could be encountered in the work area. To ensure the safety of site workers, a Health and Safety Officer would be present during all intrusive digging related to the Proposed Action to monitor air quality and to ensure all wastes are properly characterized. A site-specific health and safety plan would also be prepared in accordance with OSHA requirements. A CIH would review and approve the plan (Fewster 2004).

According to a June 2002 survey, groundwater was measured at a depth of 4.03 feet below ground surface at MW07-ST08, which is located approximately 200 feet northwest of Building 3347 (Fewster 2004). No digging would occur within six feet of this well, and the 89 CES/CEVR must be notified if any digging would occur near this well. Any groundwater encountered during excavation in the project area would be assumed contaminated with VOCs and containerized and disposed of according to appropriate procedures. Efforts would be made to minimize spoils during excavation by grading any excess soils on site. Any waste encountered during the upgrade to the base recycling center would be evaluated for the presence of hazardous substances and proper disposal in a RCRA-C or RCRA-D disposal facility. All wastes transported off-site would be managed and disposed of in accordance with applicable Federal, state, and local regulations, AFIs, and Andrews AFB programs and procedures.

Construct Consolidated Aircraft Supply Center Facility. The current contractor facilities store small quantities of hazardous materials. There are no anticipated indirect effects from hazardous waste generation, storage, or transport from the proposed facility.

The proposed demolition and construction activities of the consolidated Aircraft Supply Center facility is located adjacent to ERP Site ST-10, PD-680 Spill Site, and approximately 750 feet east of ERP Site ST-17, AAFES Service Station (see Figure 4-2). Site ST-10 involves two USTs that have leaked PD-680 solvent (AAFB 2001). Other USTs at this site contain glycol, waste oil, and JP-4 fuel. Potential contaminants of concern include base neutral/acid extractables, metals, and

VOCs and concentrations exceeding the maximum contaminant levels for arsenic and 1,2-dichloroethane. This site is high risk because of the potential for the groundwater solvent plume to grow larger.

ERP Site ST-17 is an active gasoline station located near southeast corner of the intersection of Brookley Avenue and F Street (AAFB 2001). The service station used five USTs to dispense leaded and unleaded gasoline until 1990, which were removed in 1993. Two additional USTs contained waste oil and heating oil and are located on the east side of the service station. An MTBE (methyl tertiary-butyl ether) plume was identified in 1995. Contaminants of concern are free-phase fuel, BTEX (benzene, toluene, ethylbenzene, and xylene), and MTBE in the groundwater. In order to speed remediation, a contract was awarded in 2003 to resolve challenges associated with expanding contamination in such a populated area of the base. Currently, it is estimated that ST-17 will be closed in 2008.

Contaminated groundwater and soil from solvent and petroleum releases could be encountered in the work area. A Health and Safety Officer must be present during all intrusive digging to ensure the safety of site workers. A CIH would review and approve the plan.

According to a June 2002 survey, groundwater was measured at a range of 11.70 to 16.66 feet below ground surface at MW01-ST10 and MW01/02/03-1752, which are located within the proposed construction footprint (Fewster 2004). No digging would occur within six feet, and the 89 CES/CEVR must be notified if any digging would occur near this well. Any groundwater encountered during excavation in the project area would be assumed contaminated with VOCs and containerized and disposed of according to appropriate procedures. Efforts would be made to minimize spoils during excavation by grading any excess soils on site. Any waste encountered during construction of the consolidated Aircraft Supply Center facility would be evaluated for the presence of hazardous substances and proper disposal in a RCRA-C or RCRA-D disposal facility. All wastes transported off-site would be managed and disposed of in accordance with applicable Federal, state, and local regulations, AFIs, and Andrews AFB programs and procedures.

Construct Education Center/Library. Construction of the education center/library is also located near ERP Site ST-17, the AAFES Service Station. Proposed construction is approximately 500 feet south of ST-17 (see Figure 4-2).

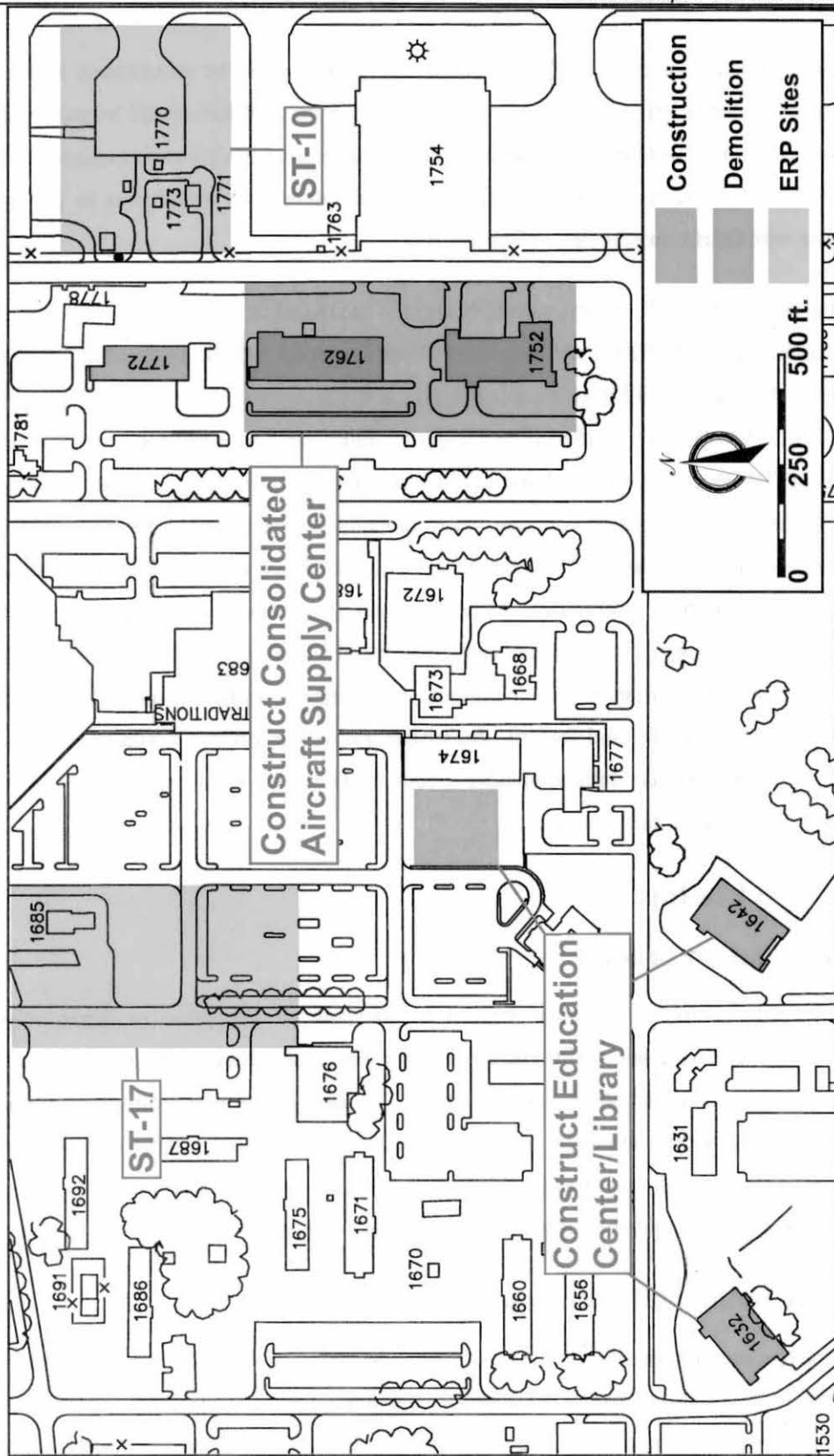


Figure 4-2. Locations of Proposed Consolidated Aircraft Supply Center and Education Center/Library and ERP Sites

Contaminated groundwater and soil from petroleum releases could be encountered in the work area. To ensure the safety of site workers, a Health and Safety Officer would be present during all intrusive digging related to the Proposed Action to monitor air quality and to ensure all wastes are properly characterized. A site-specific health and safety plan would also be prepared in accordance with OSHA requirements (Fewster 2004).

According to a June 2002 survey, groundwater was measured at a depth of 11.88 feet below ground surface at MW16-ST17, which is located approximately 500 feet north of the intersection of Brookley Avenue and D Street (Fewster 2004). No digging would occur within six feet, and the 89 CES/CEVR must be notified if any digging would occur near this well. A groundwater plume of MTBE extends southward and might reach a distance of 250 feet from the proposed education center/library construction area. Any groundwater encountered during excavation in the project area would be assumed contaminated with VOCs and containerized and disposed of according to appropriate procedures. Efforts would be made to minimize spoils during excavation by grading any excess soils on site. Any waste encountered during construction of the CEV building would be evaluated for the presence of hazardous substances and proper disposal in a RCRA-C or RCRA-D disposal facility. All wastes transported off-site would be managed and disposed of in accordance with applicable Federal, state, and local regulations, AFIs, and Andrews AFB programs and procedures.

4.5 Infrastructure

4.5.1 Evaluation Criteria

Impacts to infrastructure are evaluated on their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, wastewater systems, and transportation patterns and circulation. Impacts might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to base activities.

4.5.2 Environmental Consequences

A temporary, minor increase in traffic would be expected as a result of construction vehicles using existing roadways. However, following completion of the construction projects, traffic flow would resume as normal, resulting in no long-term significant direct or indirect impacts to traffic from construction activities.

In considering the basis for evaluating the significance of impacts on solid waste, several items were considered. These items include evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and capacity of the Brown Station Road Sanitary Landfill and the Ritchie-Marlboro Road Rubblefill. Solid waste generated from the proposed construction activities would consist of small amounts of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. The Ritchie-Marlboro Road Rubblefill has an estimated 20 years of capacity, and has the capacity to handle the additional C&D solid waste stream from the Proposed Action (PGC 2003). Therefore, implementation of the Proposed Action at Andrews AFB would not impact the solid waste management program at Andrews AFB or the capacity of the Ritchie-Marlboro Road Rubblefill.

Construct CEV Building. The proposed CEV building would utilize the same level of energy, water, and wastewater capacity. Because the proposed CEV building would be within walking distance of the 89 CES squadron operations, fewer staff trips might be taken resulting in a negligible, beneficial impact to transportation patterns and circulation. No direct or indirect effects as a result of building operations are expected under the Proposed Action.

Upgrade Recycling Center. The proposed Recycling Center would use the same level of energy, water, and wastewater capacity. The recycling center would have a beneficial effect on quantities of solid waste disposed of at Andrews AFB from the increased capability and efficiency of the recycling operation.

Construct Consolidated Aircraft Supply Center Facility. Consolidation of multiple older facilities into one new, energy efficient building would result in an overall decrease in electrical power and natural gas consumption. This is a long-term beneficial effect, though not significant.

Construct Education Center/Library. It is expected that the proposed education center/library would have more visitors than the old library. This increase in traffic would not have a measurable effect on transportation patterns and circulation on the base. More visitors to the education center/library would result not only in increased traffic, but also water consumption and sanitary sewer use. However, this increase, while considered a long-term, adverse effect, is insignificant compared with the number of people currently at Andrews AFB and subsequent condition of traffic and water consumption and disposal.

4.6 Safety

4.6.1 Evaluation Criteria

If implementation of the Proposed Action would lead to a substantial increase in risks associated with the safety of personnel, contractors, or the local community at Andrews AFB, or hinder the ability to respond to an emergency, it would represent a significant impact. Furthermore, if implementation of the Proposed Action would result in incompatible land use with regard to safety criteria (e.g., height restrictions), impacts to safety would be significant.

4.6.2 Environmental Consequences

Implementation of the Proposed Action would slightly increase the short-term risk associated with construction workers performing work at Andrews AFB during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to base personnel or activities at the base.

Construct CEV Building. There would be no substantive changes to operational activities under the Proposed Action. Therefore, there would be no direct or indirect effects on safety as a result of the Proposed Action.

Upgrade Recycling Center. The proposed recycling center would provide a safer working environment than the current recycling center with more space and better organization. The beneficial effects of improved safety would not be significant. No indirect effects are anticipated.

Construct Consolidated Aircraft Supply Center Facility. There would be no substantive changes to operational activities under the Proposed Action. Therefore, there would be no direct or indirect effects on safety as a result of the Proposed Action.

Construct Education Center/Library. There would be no substantive changes to operational activities under the Proposed Action. Therefore, there would be no direct or indirect effects on safety as a result of the Proposed Action.

Short-term adverse effects are expected as a result of construction for the Proposed Action. However, these are not significant. Long-term beneficial impacts to safety from a better organized and designed recycling center would also result from the Proposed Action.

4.7 No Action Alternative

Construct CEV Building. The mission of the 89 CES/CEV would be adversely impacted in the long term as a result of the No Action Alternative due to insufficient space for engineers and administrative personnel in Building 1419.

Upgrade Recycling Center. Without an improved base recycling center, the long-term waste reduction goals of the USAF and DOD would not be met under the No Action Alternative. Worker and user safety would be lower under the No Action Alternative.

Construct Consolidated Aircraft Supply Center Facility. Contractors would continue to work in older, inefficient, separate facilities.

Construct Education Center/Library. Under the No Action Alternative, education center and library resources would be limited, and fewer learning opportunities would be afforded to base personnel.

Therefore, there would be long-term adverse effects under the No Action Alternative.

THIS PAGE INTENTIONALLY LEFT BLANK

5. Cumulative and Adverse Impacts

Cumulative impacts on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

Other projects to evaluate for cumulative impacts were identified through a review of public documents and coordination with multiple agencies. Recently, an EA involving the beddown of eight KC-135 Stratotankers and associated construction was completed for the Air Force Reserve Command at Andrews AFB. The project is located in the northern portion of Andrews AFB. Several small operations and maintenance projects are also underway, including demolition on an old incinerator on the east side of base, modifications to a small facility in the middle of the base, and modifications to Building 1535. These construction projects are small in scope. No significant cumulative impacts are anticipated from the Proposed Action in conjunction with any these projects.

5.1 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

Geological Resources. Under the Proposed Action, construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit potential impacts resulting from construction activities. Standard erosion control methods would also reduce potential impacts related to these characteristics. Although unavoidable, the effect on soils at Andrews AFB base is not considered significant.

Hazardous Materials and Waste. The generation of hazardous materials and wastes are unavoidable conditions associated with the Proposed Action. However, the potential for these unavoidable situations would not significantly increase over baseline conditions and, therefore, are not considered significant.

Energy. The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed Action or No Action Alternative.

5.2 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Impacts to the ground surface as a result of the Proposed Action would occur entirely within the boundaries of Andrews AFB. Construction of the CEV Building, Recycling Center, Consolidated Aircraft Supply Center facility, or Education Center/Library would not result in any significant or incompatible land use changes on or off base. The proposed projects have been sited according to existing land use zones. Consequently, construction activities would not be in conflict with base land use policies or objectives. The Proposed Action would not conflict with any applicable off-base land use ordinances or designated clear zones.

5.3 Relationship Between Short-term Use and Long-term Productivity

Short-term uses of the biophysical components of man's environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity that occurs over a period of less than five years. Long-term uses of man's environment include those impacts occurring over a period of more than five years, including permanent resource loss.

Several kinds of activities could result in short-term resource uses that compromise long-term productivity. Filling of wetlands or loss of other especially important habitats and consumptive use of high-quality water at nonrenewable rates are examples of actions that affect long-term productivity.

The Proposed Action would not result in an intensification of land use at Andrews AFB. Implementation of the Proposed Action would not represent a loss of open space.

5.4 Irreversible and Irretrievable Commitments of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action involve the consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals).

Material Resources. Material resources used for the Proposed Action include building materials (for construction of facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure). Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. Energy resources utilized for the Proposed Action would be irretrievably lost. These include petroleum-based products (such as gasoline and diesel), natural gas, and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. During operation, gasoline would be used for the operation of private and government-owned vehicles. Natural gas and electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would be expected.

Biological Habitat. The Proposed Action would not result in the loss of vegetation or wildlife habitat on proposed construction sites. Proposed construction is occurring on already developed land that is restricted for other uses for security reasons. Furthermore, the Proposed Action would not remove open space or undeveloped land currently functioning as biological habitat.

Human Resources. The use of human resources for construction and operation is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities, and is considered beneficial.

THIS PAGE INTENTIONALLY LEFT BLANK

6. List of Preparers

This EA has been prepared under the direction of Andrews AFB. The individuals who contributed to the preparation of this document are listed below.

Suanne Collinworth

engineering-environmental Management, Inc. (e²M)
M.S. Environmental Sciences and Engineering
B.S. Geology
Certificate of Water Quality Management
Years of Experience: 6

Timothy Demorest

e²M
A.M. Classical Studies
B.A. Classical Studies
Years of Experience: 2

Brian Hoppy

e²M
B.S. Biology
Certificate of Environmental Management
Years of Experience: 13

Ron Lamb

e²M
M.S. Environmental Science
M.A. Political Science/International Economics
B.S. Political Science
Years of Experience: 18

Sean McCain

e²M
M.B.A. Business Administration
B.S. Forestry and Natural Resources Management
Years of Experience: 9

Rachel Schneider

e²M
B.A. Chemistry with Environmental Studies
Years of Experience: 3

Mary Young

e²M
B.S. Environmental Science
Years of Experience: 1

THIS PAGE INTENTIONALLY LEFT BLANK

7. References

- 89 AW 1998 89th Airlift Wing (89 AW). 1998. *Storm water Pollution Prevention Plan*. 89th Airlift Wing Andrews Air Force Base, Maryland. August 1998.
- 89 AW 2002 89th Airlift Wing (89 AW). 2002. *89 AW OPLAN 32-1052 Asbestos Management Program Plan*, Andrews Air Force Base, Maryland. 1 August 2002.
- AAFB 1998 Andrews Air Force Base (AAFB). 1998. *Hazardous Material Emergency Planning and Response Plan Andrews Air Force Base, Maryland*. 1998.
- AAFB 2001 Andrews Air Force Base (AAFB). 2001. *Andrews Air Force Base Installation Restoration Program Summary Status Report*. Revision 1. December 2001.
- AAFB 2003a Andrews Air Force Base (AAFB). 2003. *Integrated Cultural Resources Management Plan*. Andrews Air Force Base, Maryland. Prepared for 89 CES/CEV. June 2003.
- AAFB 2003b Andrews Air Force Base (AFB). 2003. *Pollution Prevention Management Plan Volume I: Basic Plan*.
- AAFB 2003c Andrews Air Force Base (AAFB). 2003. *PreFinal Solid Waste Management Plan Andrews Air Force Base, Maryland*. Prepared by Geo-Marine, Inc. March 2003.
- AAFB undated Andrews Air Force Base (AAFB). Undated. *Andrews Air Force Base General Plan*.
- AFIERA 2002a Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis (AFIERA). 2002. *2001 Emissions Certification Report and Air Emissions Inventories for Andrews Air Force Base*. Prepared for 8CES/CEVQ. March 2002.
- AFIERA 2002b Air Force Institute for Environment, Safety, and Occupational Health Risk Analysis (AFIERA). 2002. *Hazardous Waste Management Plan Andrews Air Force Base, Maryland*. March 2002.
- Amoako 2003 Amoako, Eugene (89 CES/CEV). 2003. Electronic communication with Mr. Amoako regarding ERP sites and ERP site mitigation measures in the vicinity of the Proposed Action. 26 March 2003.
- Fewster 2004 Fewster, Brandon (89 CES/CEVR). 2004. Letter from Mr. Fewster to Mr. Keith Harris (89 CES/CEVP) regarding comments of the *Draft Environmental Assessment of Multiple Construction Projects at Andrews AFB, MD* pertaining to ERP sites. 23 January 2004.

- MGS 2003 Maryland Geological Survey (MGS). 2003. "Geologic Maps of Maryland." <<http://www.mgs.md.gov/esic/brochures/earthquake.html>>. Verified on March 2003.
- PGC 2002 Prince George's County (PGC), Maryland. 2002. *Prince George's County, Maryland Ten Year Solid Waste Management Plan*. 2002.
- PGC 2003 Prince George's County (PGC). 2003. Verbal communication with Ms. Carol Bracaglia (Department of Environmental Resources, Waste Management) regarding sanitary landfills and rubblefills in Prince George's County. March 2003.
- USAF 2001 U.S. Air Force (USAF). 2001. *Integrated Natural Resources Management Plan, Andrews Air Force Base, Maryland*. November 2001.
- USAF 2002 U.S. Air Force (USAF). 2002. *Final Lead-Based Paint Management Plan, Andrews Air Force Base*. 31 May 2002.

APPENDIX A

**INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR
ENVIRONMENTAL PLANNING CORRESPONDENCE**

*Interagency and Intergovernmental Coordination for Environmental Planning List
Andrews AFB, Maryland*

Ms. Susan Essig
Chief, Division of Habitat Conservation
USFWS Region 5
300 Westgate Center Drive
Hadley, MA 01035-9589

Mr. Bill Arguto
Environmental Review Coordinator
USEPA Region 3
1650 Arch St.
Philadelphia, PA 19106

Mr. John Wolflin
Field Supervisor
USFWS, Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401

Mrs. Linda C. Janey, J.D.
Manager, Maryland State Clearinghouse
Maryland Office of Planning
Room 1104, 301 West Preston St.
Baltimore, MD 21201-2365

Mr. J. Rodney Little
SHPO
Maryland Historical Trust
100 Community Place, Third Floor
Crownsville, MD 21032-2023

Nick Motta
Chief, Countywide Planning Division
Prince George's County Planning Board and Planning Department
14741 Governor Oden Bowie Drive
Upper Marlboro, MD 20772



April 8, 2004

«Name»
«Title»
«Company»
«Address1»
«Address2»
«CityStateZip»

Dear «Name»

The 89th Airlift Wing is preparing Environmental Assessment (EA) of Multiple Construction Projects at Andrews Air Force Base, Maryland. The EA and Draft Finding of No Significant Impact (FONSI) are included with this correspondence as Attachments 1 and 2.

The environmental impact analysis process for these proposals is being conducted by the Air Mobility Command (AMC) in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached EA and Draft FONSI and solicit your comments concerning the proposal and any potential environmental consequences. Please provide written comments or information regarding the action at your earliest convenience but no later than May 10, 2004. Appendix A of the EA includes a listing of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposal, please include them in your distribution of this letter and the attached materials.

Please address questions or comments regarding the proposals to our consultant, engineering-environmental Management, Inc. (e²M). The point-of-contact at e²M is Ms. Suanne Collinworth. She can be reached at (703) 273-7171. Please forward your written comments to Ms. Collinworth, in care of e²M, Inc., 3949 Pender Drive, Suite 120, Fairfax, VA 22030. Thank you for your assistance.

Sincerely,
engineering-environmental Management, Inc.

Suane O. Collinworth
Project Manager

Attachments:

1. EA of Multiple Construction Projects at Andrews Air Force Base, Maryland
2. Draft FONSI for Multiple Construction Projects at Andrews Air Force Base, Maryland

3949 Pender Drive, Suite 120, Fairfax, VA 22030 • (703) 273-7171 • Fax (703) 273-1711

DENVER • JACKSONVILLE • PHILADELPHIA • SACRAMENTO • SAN ANTONIO • SAN DIEGO • TULSA • WASHINGTON, DC

The Northern Virginia Journal • The Arlington Journal • The Prince George's Journal

Journal

NEWSPAPERS

PROOF OF PUBLICATION

I, James McDonald Publisher of the Prince George's Journal a newspaper in the County/City of Prince George's published in the English language, and having a bona fide list of paid subscribers located in the aforementioned County/City, and entered as second class matter under the Postal Laws and Regulations of the United States of America for 52 successive weeks or more prior to the issue of 04/19/04, certify that the notice of

FONSI ANDREWS AIR FORCE BASE
for
E2M

attached hereto has been published on 04/19/2004.



James McDonald

Sworn to and subscribed before me this 19th day of April, 2004.



My commission expires

My Commission Expires May 31, 2007

Ad number: 11507607
End date : 04/19/2004
04/19/2004
E2M
SUSAN MCKINNEY



6408 Edsall Road, Alexandria, Virginia 22312

PUBLIC NOTICE

Notice of Availability Draft Finding of No Significant Impact for Environmental Assessment

The 89th Airlift Wing is proposing to issue a Finding of No Significant Impact (FONSI) based on an Environmental Assessment (EA) of Multiple Construction Projects at Andrews Air Force Base, Maryland.

The analysis considered in detail potential effects of the Proposed Action and other Reasonable Alternatives including the No Action Alternative on the following resources: air quality, geological resources, water resources, hazardous materials and waste, infrastructure, and safety. The results, as found in the EA, show that the Proposed Action would not have an adverse impact on the environment, indicating that a FONSI would be appropriate. An Environmental Impact Statement should not be necessary to implement the Proposed Action.

Copies of the Draft FONSI and EA showing the analysis are available for review Prince George's County Memorial Library System Upper Marlboro Branch Library, 14730 Main St, Upper Marlboro, MD 20772, (301) 838-2061. Public comments on the Draft FONSI and EA will be accepted through May 10, 2004.

Comments and inquiries should be directed to Mr. Keith Harris, 89 CES/CEV, 1419 Menoher, Andrews AFB, MD 20762, (301) 981-4653.

April 19, 2004

BOP-PG-11507607/amh



Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Andry E. Scott
Secretary
Florence E. Burian
Deputy Secretary

April 29, 2004

Ms. Susanne Collinsworth
Project Manager
engineering-environmental Management, Inc.
3949 Pender Drive, Suite 120
Fairfax, VA 22030

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20040414-0319

Reply Due Date: 05/10/2004

Project Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force: construct 3 buildings; demolish 6 buildings; upgrade base recycling center

Project Location: County of Prince George's

Clearinghouse Contact: Bob Rosenbush

Dear Ms. Collinsworth:

Thank you for submitting your project for intergovernmental review. Your participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps to ensure that your project will be consistent with the plans, programs, and objectives of State agencies and local governments.

We have forwarded your project to the following agencies and/or jurisdictions for their review and comments: the Maryland Departments of Transportation, the Environment, Housing and Community Development, including the Maryland Historical Trust, Natural Resources; the County of Prince George's; and the Maryland Department of Planning. A composite review and recommendation letter will be sent to you by the reply due date. Your project has been assigned a unique State Application Identifier that you should use on all documents and correspondence.

Please be assured that we will expeditiously process your project. The issues resolved through the MIRC process enhance the opportunities for project funding and minimize delays during project implementation.

A "Project Survey" form is enclosed with this letter. Please complete and return it within 14 days of the date of this letter. If you need assistance or have questions, contact the State Clearinghouse staff noted above at 410-767-4490 or through e-mail at brosenbush@mdp.state.md.us. Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey, J.D., Director
Maryland State Clearinghouse for Intergovernmental Assistance

LCJ:BR
Enclosure(s)
04-0319_NRR.NEW2.doc



Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Andrey E. Solt
Secretary
Florence E. Barian
Deputy Secretary

PROJECT SURVEY

Would you please take a few moments and tell us the source of information used by your agency to apply to the U.S. Department of Defense (DOD/USAF) for this grant and/or service. Please complete this form and return it to the State Clearinghouse within 14 days of April 29, 2004, to the address or fax number noted below.

TO: Maryland State Clearinghouse
Maryland Department of Planning
301 West Preston Street
Room 1104
Baltimore, MD 21201-2305

DATE: _____
(Date form completed)

FROM: _____
(Name of person completing this form.)

PHONE: _____
(Area Code & Phone number)

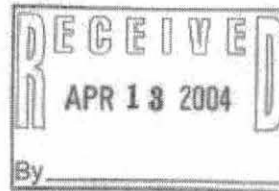
RE: State Application Identifier: MD20040414-0319
Project Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force: construct 3 buildings; demolish 6 buildings; upgrade base recycling center

Table with 3 columns and 10 rows of checkboxes for information sources like Chronicle of Philanthropy, GrantsNet, Nonprofit Organization Website, etc.

Thank you.



F
USAF
EJR



April 8, 2004

Mr. J. Rodney Little
SHPO
Maryland Historical Trust
100 Community Place, Third Floor
Crownsville, MD 21032-2023

20040188

Dear Mr. Little:

PKC.

The 89th Airlift Wing is preparing Environmental Assessment (EA) of Multiple Construction Projects at Andrews Air Force Base, Maryland. The EA and Draft Finding of No Significant Impact (FONSI) are included with this correspondence as Attachments 1 and 2.

The environmental impact analysis process for these proposals is being conducted by the Air Mobility Command (AMC) in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached EA and Draft FONSI and solicit your comments concerning the proposal and any potential environmental consequences. Please provide written comments or information regarding the action at your earliest convenience but no later than May 10, 2004. Appendix A of the EA includes a listing of those Federal, state, and local agencies that have been contacted. If there are any additional agencies that you feel should review and comment on the proposal, please include them in your distribution of this letter and the attached materials.

Please address questions or comments regarding the proposals to our consultant, engineering-environmental Management, Inc. (e²M). The point-of-contact at e²M is Ms. Suanne Collinsworth. She can be reached at (703) 273-7171. Please forward your written comments to Ms. Collinsworth, in care of e²M, Inc., 3949 Pender Drive, Suite 120, Fairfax, VA 22030. Thank you for your assistance.

Sincerely,
engineering-environmental Management, Inc.

Suanne O. Collinsworth
Suanne O. Collinsworth
Project Manager

The Maryland Historical Trust has determined that there are no historic properties affected by this undertaking.
E. J. Cole Date *4/26/04*

Attachments:

- 1. EA of Multiple Construction Projects at Andrews Air Force Base, Maryland
- 2. Draft FONSI for Multiple Construction Projects at Andrews Air Force Base, Maryland

#1A BC 4/24/04
No h.p. in APE

3949 Pender Drive, Suite 120, Fairfax, VA 22030 • (703) 273-7171 • Fax (703) 273-1711

DENVER • JACKSONVILLE • PHILADELPHIA • SACRAMENTO • SAN ANTONIO • SAN DIEGO • TULSA • WASHINGTON, DC

FAX TRANSMITTAL DOCUMENT

To: Susanne Collingsworth, engineering-environment, Inc. 703-273-1711 (fax)

From: Bob Rosenbush, Maryland Department of Planning, State Clearinghouse
410-767-4487 (telephone) 410-767-4480 (fax) *Bob Rosenbush*

Subject: Environmental Assessment (E.A.) and Draft FONSI: Multiple Construction
Projects at Andrews Air Force: construct 3 buildings; demolish 6 buildings; upgrade base
recycling center
MD20040414-0319

Date: May 7, 2004

Here is 1 hard-copy response that we have received to date. The review of this E.A. and
Draft FONSI is not yet completed, because outstanding comments are pending from the
Maryland Departments of the Environment, Natural Resources, Transportation, and
Planning.

The Maryland Department of Housing and Community Development, including the
Maryland Historical Trust stated that "it has been determined that the project will have
'no effect' on historic properties and that the federal and/or State historic preservation
requirements have been met" (received by network communication via the Internet).

Total Fax Submittal 2 pages

Please Complete Your Review & Recommendation Before May 7, 2004

Return Completed Form To: Linda C. Janey, J.D., Director, Maryland State Clearinghouse for Intergovernmental Assistance, Maryland Department of Planning, 301 West Preston Street, Room 1164, Baltimore, MD 21201-2308
Phone: 410-767-4480 Fax: 410-767-4480

State Application Identifier: MD20040414-0319		Clearinghouse Contact: Bob Rosenbush, 410-767-4480 brosenbush@mdp.state.md.us	
Location: County of Prince George's			
Applicant: engineering environmental Management, Inc.			
Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force; construct 3 buildings; demolish 6 buildings; upgrade base recycling center			
Based on a Review of the Information Provided, We Have Checked (✓) the Appropriate Determination Below			
CONSISTENT RESPONSES (For Use By STATE AGENCIES Only)			
C1	It is Consistent with our plans, programs, and objectives		
C2	It is Consistent with the policies contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), Executive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectives.		
C3	(MHP ONLY) It has been determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.		
C4	(DNR ONLY) It has been determined that this project is in the Coastal Zone and is not inconsistent with the Maryland Coastal Zone Management Program.		
C7	(MDP ONLY) It is consistent with the requirements of State Finance and Procurement Article 5-7B-02, 03, 04 and 05 Smart Growth and Neighborhood Conservation (Priority Funding Areas).		
CONSISTENT RESPONSES (For Use By COUNTY & LOCAL AGENCIES Only)			
C5	It is Consistent with our plans, programs, and objectives.		
C6	It is Consistent with the Economic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B - Smart Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.		
OTHER RESPONSES (For Use By ALL)			
R1	GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally consistent with our plans, programs and objectives, but the attached qualifying comment is submitted for consideration.		
R2	CONTINGENT UPON CERTAIN ACTIONS: It is generally consistent with our plans, programs and objectives contingent upon certain actions being taken as noted in the attached comment(s).		
R3	NOT CONSISTENT: It raises problems concerning compatibility with our plans, programs, objectives, or Planning Act vision/policies; or it may duplicate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, please check here: <input type="checkbox"/>		
R4	ADDITIONAL INFORMATION REQUESTED: Additional information is required to complete the review. The information needed is identified below. If an extension of the review period is requested, please check here: <input type="checkbox"/>		
R5	FURTHER INTEREST: Due to further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applicant.		
R6	SUPPORTS: Supports "Smart Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities in urban areas.		

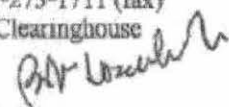
Attach additional comments if necessary OR use these spaces: _____

Name: Beverly G. Warfield
 Organization: PRINCE GEORGE'S COUNTY GOVERNMENT CEO
 Address: 9600 Popperwood Place, Suite 610
Largo, MD 20774

Signature: *Beverly G. Warfield*
 Phone: (301) 883-5838
 Date Completed: 5/6/04
 Check here if comments are attached.

FAX TRANSMITTAL DOCUMENT

To: Susanne Collingsworth, engineering-environment, inc. 703-273-1711 (fax)
From: Bob Rosenbush, Maryland Department of Planning, State Clearinghouse
410-767-4487 (telephone) 410-767-4480 (fax)



Subject: **Environmental Assessment (E.A.) and Draft FONSI: Multiple construction projects at Andrews Air Force Base: construct 3 buildings; demolish 6 buildings; upgrade base recycling center**
MD20040414-0319

Date: May 11, 2004

Here is 2 response forms from the Maryland Departments of Natural Resources and Planning. The review of the E.A. and Draft FONSI is not yet completed, because outstanding comments are pending from the Maryland Departments of the Environment and Transportation.

If you have questions or concerns, kindly contact me at 410-767-4487 (phone); 410-767-4480 (fax); or by e-mail at brosebush@mdp.state.md.us

Thank you. Total Fax Submittal 3 pages

Please Complete Your Review & Recommendation Before May 7, 2004

Return Completed Form To: Linda C. Janey, J.D., Director, Maryland State Clearinghouse for Intergovernmental Assistance, Maryland Department of Planning, 301 West Preston Street, Room 1104, Baltimore, MD 21201-2305
 Phone: 410-767-4490 Fax: 410-767-4480

State Application Identifier: MD2004D414-0319		Clearinghouse Contact: Bob Rosenbush, 410-767-4490 brosenbush@mdp.state.md.us	
Location: County of Prince George's			
Applicant: engineering-environmental Management, Inc.			
Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force: construct 3 buildings; demolish 6 buildings; upgrade base recycling center			
Based on a Review of the Information Provided, We Have Checked (☑) the Appropriate Determination Below			
CONSISTENT RESPONSES - (For Use By STATE AGENCIES Only)			
C1	It is Consistent with our plans, programs, and objectives		
C2	It is Consistent with the policies contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), Executive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectives.		
C3	(MHT ONLY) It has been determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.		
C4	(DNR ONLY) It has been determined that this project is in the Coastal Zone and is not inconsistent with the Maryland Coastal Zone Management Program.		
C7	(MDP ONLY) It is consistent with the requirements of State Finance and Procurement Article 5-7B-02; 03; 04 and 05 Smart Growth and Neighborhood Conservation (Priority Funding Areas).		
CONSISTENT RESPONSES - (For Use By COUNTY & LOCAL AGENCIES Only)			
C5	It is Consistent with our plans, programs, and objectives.		
C6	It is Consistent with the Economic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B - Smart Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.		
OTHER RESPONSES - (For Use By ALL)			
R1	GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally Consistent with our plans, programs and objectives, but the attached qualifying comment is submitted for consideration.		
R2	CONTINGENT UPON CERTAIN ACTIONS: It is generally Consistent with our plans, programs and objectives contingent upon certain actions being taken as noted in the attached comment(s).		
R3	NOT CONSISTENT: It raises problems concerning compatibility with our plans, programs, objectives, or Planning Act visions/policies; or it may duplicate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, please check here: <input type="checkbox"/>		
R4	ADDITIONAL INFORMATION REQUESTED: Additional information is required to complete the review. The information needs is identified below. If an extension of the review period is requested, please check here: <input type="checkbox"/>		
R5	FURTHER INTEREST: Due to further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applicant.		
R6	SUPPORTS: Supports "Smart Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities in urban areas.		

Attach additional comments if necessary OR use these spaces:

5-11-04 BR spoke to Jim Noonan, JN said MDP's comment is "C1" consistent with our plans, programs, and objectives.

Name: JAMES T. NOONAN Signature: [Signature]
 Organization: MD DEPT OF PLANNING Phone: (410) 767-4570
 Address: (MDP) Date Completed: 5/3/04

- Check here if comments are attached.

RECEIVED
MAY 04 2004

Please Complete Your Review & Recommendation Before May 7, 2004

Return Completed Form To: Linda C. Joney, J.D., Director, Maryland State Clearinghouse for Intergovernmental Assistance,
 Maryland Department of Planning, 301 West Preston Street, Room 1104, Baltimore, MD 21201-2305
 Phone: 410-767-4480 Fax: 410-767-4480

State Application Identifier: MD20040414-0319		Clearinghouse Contact: Bob Rosenbush, 410-767-4490 rosenbush@mdp.state.md.us	
Location: County of Prince George's			
Applicant: engineering-environmental Management, Inc.			
Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force; construct 3 buildings; demolish 6 buildings; upgrade base recycling center			
Based on a Review of the Information Provided, We Have Checked (☐) the Appropriate Determination Below			
CONSISTENT RESPONSES - (For Use By STATE AGENCIES Only)			
<input checked="" type="checkbox"/>	C1	It is consistent with our plans, programs, and objectives	
<input type="checkbox"/>	C2	It is consistent with the policies contained in Executive Order 01.01.1992.27 (Maryland Economic Growth, Resource Protection, and Planning Act of 1992), Executive Order 01.01.1998.04 (Smart Growth and Neighborhood Conservation Policy), and our plans, programs, and objectives.	
<input type="checkbox"/>	C3	(MHT ONLY) It has been determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.	
<input type="checkbox"/>	C4	(DNR ONLY) It has been determined that this project is in the Coastal Zone and is not inconsistent with the Maryland Coastal Zone Management Program.	
<input type="checkbox"/>	C7	(MDP ONLY) It is consistent with the requirements of State Finance and Procurement Article 5-7B-02; 03; 04 and 05 Smart Growth and Neighborhood Conservation (Priority Funding Areas).	
CONSISTENT RESPONSES - (For Use By COUNTY & LOCAL AGENCIES Only)			
<input type="checkbox"/>	C5	It is consistent with our plans, programs, and objectives.	
<input type="checkbox"/>	C6	It is consistent with the Economic Growth, Resource Protection, and Planning Visions (Planning Act of 1992), State Finance and Procurement Article 5-7B - Smart Growth and Neighborhood Conservation (Priority Funding Areas), and our plans, programs, and objectives.	
OTHER RESPONSES - (For Use By ALL)			
<input type="checkbox"/>	R1	GENERALLY CONSISTENT WITH QUALIFYING COMMENTS: It is generally consistent with our plans, programs and objectives, but the attached qualifying comment is submitted for consideration.	
<input type="checkbox"/>	R2	CONTINGENT UPON CERTAIN ACTIONS: It is generally consistent with our plans, programs and objectives contingent upon certain actions being taken as noted in the attached comment(s).	
<input type="checkbox"/>	R3	NOT CONSISTENT: It raises problems concerning compatibility with our plans, programs, objectives, or Planning Act visions/policies; or it may duplicate existing program activities, as indicated in the attached comment(s). If a meeting with the applicant is requested, please check here: <input type="checkbox"/>	
<input type="checkbox"/>	R4	ADDITIONAL INFORMATION REQUESTED: Additional information is required to complete the review. The information needed is identified below. If an extension of the review period is requested, please check here: <input type="checkbox"/>	
<input type="checkbox"/>	R5	FURTHER INTEREST: Due to further interest/questions concerning this project, we request that the Clearinghouse set up a conference with the applicant.	
<input type="checkbox"/>	R6	SUPPORTS: Supports "Smart Growth" and Federal Executive Order 12072 (Federal Space Management), which directs federal agencies to locate facilities in urban areas.	

Attach additional comments if necessary OR use fitness spaces: _____

Name: Ray Dentana Signature: [Signature]
 Organization: DNR Phone: (410) 260-1331
 Address: Maryland Department of Date Completed: 5-5-04
NATURAL RESOURCES
 Check here if comments are attached:

RECEIVED
MAY 10 2004



Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Audrey E. Scott
Secretary
Florence E. Burian
Deputy Secretary

May 18, 2004

Ms. Susanne Collinworth
Project Manager
engineering-environmental Management, Inc.
3949 Pender Drive, Suite 120
Fairfax, VA 22030

STATE CLEARINGHOUSE RECOMMENDATION

State Application Identifier: MD20040414-0319

Applicant: Engineering-Environmental Management, Inc.

Project Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force: construct 3 buildings; demolish 6 buildings; upgrade base recycling center

Project Location: County of Prince George's

Approving Authority: U.S. Department of Defense

Recommendation: Consistent Contingent Upon Certain Actions

Dear Ms. Collinworth:

In accordance with Presidential Executive Order 12372 and Code of Maryland Regulation 14.24.04, the State Clearinghouse has coordinated the intergovernmental review of the referenced project. This letter constitutes the State process review and recommendation. This recommendation is valid for a period of three years from the date of this letter.

Review comments were requested from the Maryland Departments of Transportation, the Environment, Housing and Community Development, including the Maryland Historical Trust, Natural Resources, Prince George's County, and the Maryland Department of Planning. As of this date, the Maryland Department of the Environment has not submitted comments. **This recommendation is contingent upon the Applicant considering and addressing any problems or conditions that may be identified by their review. Any comments received will be forwarded.**

The Maryland Departments of Housing and Community Development including the Maryland Historical Trust (the Trust), Transportation, and Natural Resources; Prince George's County; and the Maryland Department of Planning found this project to be consistent with their plans, programs, and objectives.

The Trust has determined that the project will have "no effect" on historic properties and that the federal and/or State historic preservation requirements have been met.

Ms. Susanne Collinworth

May 18, 2004

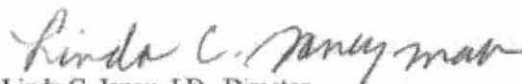
Page 2

Any statement of consideration given to the comments(s) should be submitted to the approving authority, with a copy to the State Clearinghouse. The State Application Identifier Number must be placed on any correspondence pertaining to this project. The State Clearinghouse must be kept informed if the approving authority cannot accommodate the recommendation.

Please remember, you must comply with all applicable state and local laws and regulations. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at brosenbush@mdp.state.md.us. **Also please complete the attached form and return it to the State Clearinghouse as soon as the status of the project is known. Any substitutions of this form must include the State Application Identifier Number.** This will ensure that our files are complete.

Thank you for your cooperation with the MIRC process.

Sincerely,



Linda C. Janey, J.D., Director
Maryland State Clearinghouse
for Intergovernmental Assistance

LCJ:BR

Enclosure(s)

cc: Beverly Warfield - PGEO
Ronald Spalding - MDOT
Inane Mueller - MDF

Beth Cole - DHCD/MHT
Ray Dintaman - DNR

04-0319_CRR.CLS.doc



Maryland Department of Planning

Robert L. Ehrlich, Jr.
Governor
Michael S. Steele
Lt. Governor

Andry E. Scott
Secretary
Flannice E. Borian
Deputy Secretary

PROJECT STATUS FORM

Please complete this form and return it to the State Clearinghouse upon receipt of notification that the project has been approved or not approved by the approving authority.

TO: Maryland State Clearinghouse
Maryland Department of Planning
301 West Preston Street
Room 1104
Baltimore, MD 21201-2305

DATE:
(Please fill in the date form completed)

FROM:
(Name of person completing this form.)

PHONE:
(Area Code & Phone number)

RE: State Application Identifier: MD20040414-0319
Project Description: E.A. and Draft FONSI: Multiple Construction Projects at Andrews Air Force;
construct 3 buildings; demolish 6 buildings; upgrade base recycling center

PROJECT APPROVAL
This project/plan was: [] Approved [] Approved with Modification [] Disapproved
Name of Approving Authority: Date Approved:

FUNDING APPROVAL
The funding (if applicable) has been approved for the period of:
, 200 to , 200 as follows:
Federal \$: Local \$: State \$: Other \$:

OTHER
[] Further comment or explanation is attached

APPENDIX B

AIR QUALITY EMISSIONS CALCULATIONS SPREADSHEETS

Appendix B - Clean Air Act General Conformity Analysis Emission Calculations

Emissions Calculations for O&M Construction Activities at Andrews AFB, MD

This workbook contains

- Summary** (this worksheet) Summarizes total emissions by calendar year.

- Combustion** (one sheet for each calendar year) Estimates emissions from non-road equipment exhaust as well as painting.

- Grading** (one sheet for each calendar year) Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions)

- Fugitive** (one sheet for each calendar year) Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust.

Summary of Construction Emissions

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2005	Combustion	2.16	1.34	1.77	0.11	0.19
	Fugitive Dust					2.30
	TOTAL CY2005	2.16	1.34	1.77	0.11	2.49

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2006	Combustion	16.73	5.81	15.37	0.81	1.26
	Fugitive Dust					2.29
	TOTAL CY2006	16.73	5.81	15.37	0.81	3.56

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2007	Combustion	20.20	6.72	18.56	0.98	1.52
	Fugitive Dust					2.77
	TOTAL CY2007	20.20	6.72	18.56	0.98	4.29

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2008	Combustion	9.88	3.91	9.08	0.48	0.74
	Fugitive Dust					2.77
	TOTAL CY2008	9.88	3.91	9.08	0.48	3.52

The following assumptions have been made for the construction projects.

- 1) If a project involves only interior renovations it was not included in the total disturbed acreage calculations nor was it included in the mobile equipment (i.e bulldozers and forklifts) calculations.
- 2) Interior renovation square footage was entered into this model as 25% of the total area of the facility being renovated because this model is designed to calculate emissions based on the total square footage of new construction projects.

General Conformity Regional Significance Thresholds (10% of regional budget)

Since future year budgets were not readily available, actual 1999 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

National Capital Interstate AQCR

Year	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	PM10 (tpy)	SO2 (tpy)
1999	154,089	130,071	983,509	61,933	136,609

Source: USEPA-AirData NET Tier Report (<http://www.epa.gov/air/data/nettier.html>). Site visited on 2/6/04

Determination Significance (Significance Threshold = 10%)

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	PM10 (tpy)	SO2 (tpy)
Minimum -1999	154,089	130,071	983,509	61,933	136,609
2005 Emissions	2.16	1.34	1.77	2.49	0.11
Proposed Action %	0.0014%	0.0010%	0.0002%	0.0040%	0.0001%

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	PM10 (tpy)	SO2 (tpy)
Minimum -1999	154,089	130,071	983,509	61,933	136,609
2006 Emissions	16.73	5.81	15.37	0.81	3.56
Proposed Action %	0.0109%	0.0045%	0.0016%	0.0013%	0.0026%

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	PM10 (tpy)	SO2 (tpy)
Minimum -1999	154,089	130,071	983,509	61,933	136,609
2007 Emissions	20.20	6.72	18.56	0.98	4.29
Proposed Action %	0.0131%	0.0052%	0.0019%	0.0016%	0.0031%

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	PM10 (tpy)	SO2 (tpy)
Minimum -1999	154,089	130,071	983,509	61,933	136,609
2008 Emissions	9.88	3.91	9.08	0.48	3.52
Proposed Action %	0.0064%	0.0030%	0.0009%	0.0008%	0.0026%

Proposed O&M Construction Activities at Andrews AFB, MD

Includes:

- | | | |
|---|--|------------|
| 1 | 100% Construction of 88 AW Civil Engineering Squadron Environmental Flight Administration Building | 4,962 ft2 |
| 2 | 100% Construction of Recycling Center Buildings | 4,080 ft2 |
| 3 | 100% Construction of Recycling Center Pavements | 72,656 ft2 |

Construction Site Air Emissions

Combustion Emissions of ROG, NOx, SO2, CO and PM10 Due to Construction

User Inputs:

Total Building Area:	9,042 ft ²	(1-2)
Total Paved Area:	72,656 ft ²	(3)
Total Disturbed Area:	1.9 acres	(1-3)
Construction Duration:	1.0 years	(assumed)
Annual Construction Activity:	230 days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	VOC	NOx	SO2	CO	PM10
Emissions, lbs/day	11.62	18.80	0.96	15.39	1.68
Emissions, tons/yr	1.34	2.16	0.11	1.77	0.19

Calculation of Unmitigated Emissions

Summary of Input Parameters

	VOC	NOx	SO2	CO	PM10
Total new acres disturbed:	1.88	1.88	1.88	1.88	1.88
Total new acres paved:	1.67	1.67	1.67	1.67	1.67
Total new building space, ft ² :	9,042	9,042	9,042	9,042	9,042
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.88	1.88	1.88	1.88	1.88
Area paved, acres in 1 yr:	1.67	1.67	1.67	1.67	1.67
Building space, ft ² in 1 yr:	9,042	9,042	9,042	9,042	9,042

Annual Emissions by Source (lbs/day)

	VOC	NOx	SO2	CO	PM10
Grading Equipment	0.5	3.0	0.2	0.6	0.5
Asphalt Paving	0.4	0.0	0.0	0.0	0.0
Stationary Equipment	1.5	1.2	0.1	0.3	0.1
Mobile Equipment	1.4	14.6	0.7	14.5	1.1
Architectural Coatings (Non-Res)	7.7	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	11.6	18.8	1.0	15.4	1.7

Emission Factors

Reference: Air Quality Thresholds of Significance, SMAQMD, 1994.

Source	SMAQMD Emission Factor				
	VOC	NOx	SO2 *	CO *	PM10
Grading Equipment	2.50E-01 lbs/acre/day	1.60E+00 lbs/acre/day	0.11 lbs/acre/day	0.35 lbs/acre/day	2.80E-01 lbs/acre/day
Asphalt Paving	2.62E-01 lbs/acre/day	NA	NA	NA	NA
Stationary Equipment	1.68E-04 lbs/day/ft ²	1.37E-04 lbs/day/ft ²	9.11E-06 lbs/day/ft ²	2.97E-05 lbs/day/ft ²	8.00E-06 lbs/day/ft ²
Mobile Equipment	1.60E-04 lbs/day/ft ²	1.61E-03 lbs/day/ft ²	7.48E-05 lbs/day/ft ²	0.0016 lbs/day/ft ²	1.20E-04 lbs/day/ft ²
Architectural Coatings (Non-Res)	8.15E-02 lbs/day/ft	NA	NA	NA	NA

* Factors for grading equipment and stationary equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors. Factors for mobile equipment are calculated from ratios with Mobile5a 2001 NOx emission factors for heavy duty trucks for each site.

Proposed O&M Construction Activities at Andrews AFB, MD

Construction Fugitive Dust Emissions

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	1.9 acres/yr	(From "Combustion" worksheet)
Grading days/yr:	6.0 days/yr	(From "Grading" worksheet)
Exposed days/yr:	90 assumed days/yr	graded area is exposed
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.5 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	50 %	(Soil moisture ranges from 30 to 70% throughout the year in Maryland)
Annual rainfall days, p:	140 days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, l:	25 %	Ave. wind speed at Andrews AFB http://www.epa.gov/ttnaaqs/ozone/areas/windr/13743.gif
Fraction of TSP, J:	0.5	(SCAQMD recommendation)
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	0.23 vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	2.6 lb/VMT	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor a	0.8 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor b	0.4 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor c	0.3 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	25.6 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	1 VMT/day	
Construction VMT per acre	3.6 VMT/acre	(Travel on unpaved surfaces within site)

Air Quality Emission Calculatons for Proposed Operations and Maintenance Construction Activities at Andrews AFB, MD

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-18.24, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-18.24
Vehicle Traffic	$[k(s/12)^a (W/3)^b / (M/0.2)^c] [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 7/98 and Section 13.2 dated 9/98

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.08 lbs/hr	25.6 hr/acre	2 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.65 lbs/VMT	3.6 VMT/acre	2.4 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Air Quality Thresholds of Significance, SCAQMD, 1994.

Soil Piles EF = $1.7(s/1.5)[(365 - H)/235][(I/15)(J) = (s)(365 - H)(I)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 7.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)

Soil Piles EF = 0.77 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	2 lbs/acre	1.88	NA	4	0.00
Grading	0.8 lbs/acre	1.88	NA	2	0.00
Vehicle Traffic	2.4 lbs/acre	1.88	NA	5	0.00
Erosion of Soil Piles	0.8 lbs/acre/day	1.88	90	130	0.06
Erosion of Graded Surface	26.4 lbs/acre/day	1.88	90	4,456	2.23
TOTAL				4,596	2.30

Soil Disturbance EF: 5.2 lbs/acre

Wind Erosion EF: 27.17 lbs/acre/day

Back calculate to get EF: 408.4 lbs/acre/grading day

Proposed O&M Construction Activities at Andrews AFB, MD

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 1.9 acres/yr (from "Combustion" Worksheet)
 Qty Equipment: 0.23 (calculated based on acres disturbed)

Assumptions.

Terrain is mostly flat.
 An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
 200 hp bulldozers are used for site clearing.
 300 hp bulldozers are used for stripping, excavation, and backfill.
 Vibratory drum rollers are used for compacting.
 Stripping, Excavation, Backfill and Compaction require an average of two passes each.
 Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	1.88	3.13
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.88	0.92
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.94	0.95
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.94	0.39
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.88	0.78
TOTAL								6.15

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 6.15
 Qty Equipment: 0.23
 Grading days/yr: 6.15

Round to	6 grading days/yr
----------	-------------------

Proposed O&M Construction Activities at Andrews AFB, MD

Includes:

- | | |
|--|------------|
| 1 100% Construction of Educaiton Center and Library | 43,486 ft2 |
| 2 100% of Demolition of Buildings 1632 and 1642 for Education Center and Library | 38,083 ft2 |

Construction Site Air Emissions

Combustion Emissions of ROG, NOx, SO2, CO and PM10 Due to Construction

User Inputs:

Total Building Area:	81,569 ft ²	(1-2)
Total Paved Area:	0 ft ²	None
Total Disturbed Area:	1.9 acres	(1-2)
Construction Duration:	1.0 years	(assumed)
Annual Construction Activity:	230 days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	VOC	NOx	SO2	CO	PM10
Emissions, lbs/day	50.50	145.50	7.04	133.66	10.97
Emissions, tons/yr	5.81	16.73	0.81	15.37	1.26

Calculation of Unmitigated Emissions

Summary of Input Parameters

	VOC	NOx	SO2	CO	PM10
Total new acres disturbed:	1.87	1.87	1.87	1.87	1.87
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft ² :	81,569	81,569	81,569	81,569	81,569
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.87	1.87	1.87	1.87	1.87
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft ² in 1 yr:	81,569	81,569	81,569	81,569	81,569

Air Quality Emission Calculations for Proposed Operations and Maintenance Construction Activities at Andrews AFB, MD

Annual Emissions by Source (lbs/day)

	VOC	NOx	SO2	CO	PM10
Grading Equipment	0.5	3.0	0.2	0.6	0.5
Asphalt Paving	0.0	0.0	0.0	0.0	0.0
Stationary Equipment	13.7	11.2	0.7	2.4	0.7
Mobile Equipment	13.1	131.3	6.1	130.6	9.8
Architectural Coatings (Non-Res)	23.3	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	50.5	145.5	7.0	133.7	11.0

Emission Factors

Reference: Air Quality Thresholds of Significance, SMAQMD, 1994.

Source	SMAQMD Emission Factor				
	VOC	NOx	SO2 *	CO *	PM10
Grading Equipment	2.50E-01 lbs/acre/day	1.60E+00 lbs/acre/day	0.11 lbs/acre/day	0.35 lbs/acre/day	2.80E-01 lbs/acre/day
Asphalt Paving	2.62E-01 lbs/acre/day	NA	NA	NA	NA
Stationary Equipment	1.68E-04 lbs/day/ft ²	1.37E-04 lbs/day/ft ²	9.11E-06 lbs/day/ft ²	2.97E-05 lbs/day/ft ²	8.00E-06 lbs/day/ft ²
Mobile Equipment	1.60E-04 lbs/day/ft ²	1.61E-03 lbs/day/ft ²	7.48E-05 lbs/day/ft ²	0.0016 lbs/day/ft ²	1.20E-04 lbs/day/ft ²
Architectural Coatings (Non-Res)	8.15E-02 lbs/day/ft	NA	NA	NA	NA

* Factors for grading equipment and stationary equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.
 Factors for mobile equipment are calculated from ratios with Mobile5a 2001 NOx emission factors for heavy duty trucks for each site.

Proposed O&M Construction Activities at Andrews AFB, MD

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 1.9 acres/yr (from "Combustion" Worksheet)
 Qty Equipment: 0.22 (calculated based on acres disturbed)

Assumptions.

Terrain is mostly flat.
 An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
 200 hp bulldozers are used for site clearing.
 300 hp bulldozers are used for stripping, excavation, and backfill.
 Vibratory drum rollers are used for compacting.
 Stripping, Excavation, Backfill and Compaction require an average of two passes each.
 Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	1.87	3.12
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.87	0.92
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.94	0.94
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.94	0.39
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.87	0.77
TOTAL								6.14

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 6.14
 Qty Equipment: 0.22
 Grading days/yr: 6.14

Round to	6 grading days/yr
----------	-------------------

Proposed O&M Construction Activities at Andrews AFB, MD

Construction Fugitive Dust Emissions

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	1.9 acres/yr	(From "Combustion" worksheet)
Grading days/yr:	6 days/yr	(From "Grading" worksheet)
Exposed days/yr:	90 assumed days/yr	graded area is exposed
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.5 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	50 %	(Soil moisture ranges from 30 to 70% throughout the year in Maryland)
Annual rainfall days, p:	140 days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, l:	25 %	Ave. wind speed at Andrews AFB http://www.epa.gov/ttnaaqs/ozone/areas/windr/13743.gif
Fraction of TSP, J:	0.5	(SCAQMD recommendation)
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	0.23 vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	2.6 lb/VMT	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor a	0.8 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor b	0.4 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor c	0.3 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	25.6 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	1 VMT/day	
Construction VMT per acre	3.6 VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-18.24, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-18.24
Vehicle Traffic	$[k(s/12)^a (W/3)^b / (M/0.2)^c] [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 7/98 and Section 13.2 dated 9/98

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.08 lbs/hr	25.6 hr/acre	2 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.65 lbs/VMT	3.6 VMT/acre	2.4 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Air Quality Thresholds of Significance, SCAQMD, 1994.

Soil Piles EF = $1.7(s/1.5)[(365 - H)/235][(I/15)(J)] = (s)(365 - H)(I)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 7.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)

Soil Piles EF = 0.77 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	2 lbs/acre	1.87	NA	4	0.00
Grading	0.8 lbs/acre	1.87	NA	1	0.00
Vehicle Traffic	2.4 lbs/acre	1.87	NA	4	0.00
Erosion of Soil Piles	0.8 lbs/acre/day	1.87	90	130	0.06
Erosion of Graded Surface	26.4 lbs/acre/day	1.87	90	4,449	2.22
TOTAL				4,589	2.29

Soil Disturbance EF: 5.2 lbs/acre

Wind Erosion EF: 27.17 lbs/acre/day

Back calculate to get EF: 408.4 lbs/acre/grading day

Proposed O&M Construction Activities at Andrews AFB, MD

Includes:

- | | |
|--|------------------------|
| 1 50% Construction of Consolidated Aircraft Supply Center (CASC) | 48,174 ft ² |
| 2 100% of Demolition of Three Buildings for CASC | 50,321 ft ² |

Construction Site Air Emissions

Combustion Emissions of ROG, NO_x, SO₂, CO and PM₁₀ Due to Construction

User Inputs:

Total Building Area:	98,495 ft ²	(1-2)
Total Paved Area:	0 ft ²	None
Total Disturbed Area:	2.3 acres	(1-2)
Construction Duration:	1.0 years	(assumed)
Annual Construction Activity:	230 days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	VOC	NO _x	SO ₂	CO	PM ₁₀
Emissions, lbs/day	58.45	175.69	8.50	161.39	13.24
Emissions, tons/yr	6.72	20.20	0.98	18.56	1.52

Calculation of Unmitigated Emissions

Summary of Input Parameters

	VOC	NO _x	SO ₂	CO	PM ₁₀
Total new acres disturbed:	2.26	2.26	2.26	2.26	2.26
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft ² :	98,495	98,495	98,495	98,495	98,495
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	2.26	2.26	2.26	2.26	2.26
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft ² in 1 yr:	98,495	98,495	98,495	98,495	98,495

Air Quality Emission Calculators for Proposed Operations and Maintenance Construction Activities at Andrews AFB, MD

Annual Emissions by Source (lbs/day)

	VOC	NOx	SO2	CO	PM10
Grading Equipment	0.6	3.6	0.2	0.8	0.6
Asphalt Paving	0.0	0.0	0.0	0.0	0.0
Stationary Equipment	16.5	13.5	0.9	2.9	0.8
Mobile Equipment	15.8	158.6	7.4	157.7	11.8
Architectural Coatings (Non-Res)	25.6	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	58.4	175.7	8.5	161.4	13.2

Emission Factors

Reference: Air Quality Thresholds of Significance, SMAQMD, 1994.

Source	SMAQMD Emission Factor				
	VOC	NOx	SO2 *	CO *	PM10
Grading Equipment	2.50E-01 lbs/acre/day	1.60E+00 lbs/acre/day	0.11 lbs/acre/day	0.35 lbs/acre/day	2.80E-01 lbs/acre/day
Asphalt Paving	2.62E-01 lbs/acre/day	NA	NA	NA	NA
Stationary Equipment	1.68E-04 lbs/day/ft ²	1.37E-04 lbs/day/ft ²	9.11E-06 lbs/day/ft ²	2.97E-05 lbs/day/ft ²	8.00E-06 lbs/day/ft ²
Mobile Equipment	1.60E-04 lbs/day/ft ²	1.61E-03 lbs/day/ft ²	7.48E-05 lbs/day/ft ²	0.0016 lbs/day/ft ²	1.20E-04 lbs/day/ft ²
Architectural Coatings (Non-Res)	8.15E-02 lbs/day/ft	NA	NA	NA	NA

* Factors for grading equipment and stationary equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.
 Factors for mobile equipment are calculated from ratios with Mobile5a 2001 NOx emission factors for heavy duty trucks for each site.

Proposed O&M Construction Activities at Andrews AFB, MD

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 2.3 acres/yr (from "Combustion" Worksheet)
 Qty Equipment: 0.27 (calculated based on acres disturbed)

Assumptions.

Terrain is mostly flat.
 An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
 200 hp bulldozers are used for site clearing.
 300 hp bulldozers are used for stripping, excavation, and backfill.
 Vibratory drum rollers are used for compacting.
 Stripping, Excavation, Backfill and Compaction require an average of two passes each.
 Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	2.26	3.77
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	2.26	1.11
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	1.13	1.14
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	1.13	0.47
022 226 5020	Compaction	Vibrating roller, 6" lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	2.26	0.94
TOTAL								7.42

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 7.42
 Qty Equipment: 0.27
 Grading days/yr: 7.42

Round to	7 grading days/yr
----------	-------------------

Proposed O&M Construction Activities at Andrews AFB, MD

Construction Fugitive Dust Emissions

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	2.3 acres/yr	(From "Combustion" worksheet)
Grading days/yr:	7 days/yr	(From "Grading" worksheet)
Exposed days/yr:	90	assumed days/yr graded area is exposed
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.5 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	50 %	(Soil moisture ranges from 30 to 70% throughout the year in Maryland)
Annual rainfall days, p:	140 days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, l:	25 %	Ave. wind speed at Andrews AFB http://www.epa.gov/ttnnaags/ozone/areas/windr/13743.gif
Fraction of TSP, J:	0.5	(SCAQMD recommendation)
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	0.23 vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	2.6 lb/VMT	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor a	0.8 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor b	0.4 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor c	0.3 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	24.8 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	1 VMT/day	
Construction VMT per acre	3.5 VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-18.24, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-18.24
Vehicle Traffic	$[k(s/12)^a (W/3)^b / (M/0.2)^c] [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 7/98 and Section 13.2 dated 9/98

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.08 lbs/hr	24.8 hr/acre	2 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.65 lbs/VMT	3.5 VMT/acre	2.3 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Air Quality Thresholds of Significance, SCAQMD, 1994.

Soil Piles EF = $1.7(s/1.5)[(365 - H)/235][(I/15)(J)] = (s)(365 - H)(I)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 7.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
 Soil Piles EF = 0.77 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	2 lbs/acre	2.26	NA	5	0.00
Grading	0.8 lbs/acre	2.26	NA	2	0.00
Vehicle Traffic	2.3 lbs/acre	2.26	NA	5	0.00
Erosion of Soil Piles	0.8 lbs/acre/day	2.26	90	157	0.08
Erosion of Graded Surface	26.4 lbs/acre/day	2.26	90	5,372	2.69
TOTAL				5,541	2.77

Soil Disturbance EF: 5.1 lbs/acre
 Wind Erosion EF: 27.17 lbs/acre/day

Back calculate to get EF: 350.1 lbs/acre/grading day

Proposed O&M Construction Activities at Andrews AFB, MD

Includes:

1 50% Construction of Consolidated Aircraft Supply Center (CASC)

48,174 ft²

Construction Site Air Emissions

Combustion Emissions of ROG, NO_x, SO₂, CO and PM₁₀ Due to Construction

User Inputs:

Total Building Area: 48,174 ft² (1)
 Total Paved Area: 0 ft² None
 Total Disturbed Area: 1.1 acres (1)
 Construction Duration: 1.0 years (assumed)
 Annual Construction Activity: 230 days/yr (assumed)

Results:[Average per Year Over the Construction Period]

	VOC	NO _x	SO ₂	CO	PM ₁₀
Emissions, lbs/day	33.97	85.93	4.16	78.94	6.48
Emissions, tons/yr	3.91	9.88	0.48	9.08	0.74

Calculation of Unmitigated Emissions

Summary of Input Parameters

	VOC	NO _x	SO ₂	CO	PM ₁₀
Total new acres disturbed:	1.11	1.11	1.11	1.11	1.11
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft ² :	48,174	48,174	48,174	48,174	48,174
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.11	1.11	1.11	1.11	1.11
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft ² in 1 yr:	48,174	48,174	48,174	48,174	48,174

Air Quality Emission Calculators for Proposed Operations and Maintenance Construction Activities at Andrews AFB, MD

Annual Emissions by Source (lbs/day)

	VOC	NOx	SO2	CO	PM10
Grading Equipment	0.3	1.8	0.1	0.4	0.3
Asphalt Paving	0.0	0.0	0.0	0.0	0.0
Stationary Equipment	8.1	6.6	0.4	1.4	0.4
Mobile Equipment	7.7	77.6	3.6	77.1	5.8
Architectural Coatings (Non-Res)	17.9	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	34.0	85.9	4.2	78.9	6.5

Emission Factors

Reference: Air Quality Thresholds of Significance, SMAQMD, 1994.

Source	SMAQMD Emission Factor				
	VOC	NOx	SO2 *	CO *	PM10
Grading Equipment	2.50E-01 lbs/acre/day	1.60E+00 lbs/acre/day	0.11 lbs/acre/day	0.35 lbs/acre/day	2.80E-01 lbs/acre/day
Asphalt Paving	2.62E-01 lbs/acre/day	NA	NA	NA	NA
Stationary Equipment	1.68E-04 lbs/day/ft ²	1.37E-04 lbs/day/ft ²	9.11E-06 lbs/day/ft ²	2.97E-05 lbs/day/ft ²	8.00E-06 lbs/day/ft ²
Mobile Equipment	1.60E-04 lbs/day/ft ²	1.61E-03 lbs/day/ft ²	7.48E-05 lbs/day/ft ²	0.0016 lbs/day/ft ²	1.20E-04 lbs/day/ft ²
Architectural Coatings (Non-Res)	8.15E-02 lbs/day/ft	NA	NA	NA	NA

* Factors for grading equipment and stationary equipment are calculated from AP-42 for diesel engines using ratios with the NOx factors.
Factors for mobile equipment are calculated from ratios with Mobile5a 2001 NOx emission factors for heavy duty trucks for each site.

Proposed O&M Construction Activities at Andrews AFB, MD

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters

Construction area: 2.3 acres/yr (from "Combustion" Worksheet)
 Qty Equipment: 0.27 (calculated based on acres disturbed)

Assumptions.

Terrain is mostly flat.
 An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
 200 hp bulldozers are used for site clearing.
 300 hp bulldozers are used for stripping, excavation, and backfill.
 Vibratory drum rollers are used for compacting.
 Stripping, Excavation, Backfill and Compaction require an average of two passes each.
 Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	2.26	3.77
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	2.26	1.11
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	1.13	1.14
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	1.13	0.47
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	2.26	0.94
TOTAL								7.42

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 7.42
 Qty Equipment: 0.27
 Grading days/yr: 7.42

Round to	7 grading days/yr
----------	-------------------

Proposed O&M Construction Activities at Andrews AFB, MD

Construction Fugitive Dust Emissions

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	2.3 acres/yr	(From "Combustion" worksheet)
Grading days/yr:	7 days/yr	(From "Grading" worksheet)
Exposed days/yr:	90 assumed days/yr	graded area is exposed
Grading Hours/day:	8 hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)
Soil percent silt, s:	8.5 %	(mean silt content; expected range: 0.5 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	50 %	(Soil moisture ranges from 30 to 70% throughout the year in Maryland)
Annual rainfall days, p:	140 days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, I:	25 %	Ave. wind speed at Andrews AFB http://www.epa.gov/ttnnaaqs/ozone/areas/windr/13743.gif
Fraction of TSP, J:	0.5	(SCAQMD recommendation)
Mean vehicle speed, S:	5 mi/hr	(On-site)
Dozer path width:	8 ft	
Qty construction vehicles:	0.23 vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5 mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	2.6 lb/VMT	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor a	0.8 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor b	0.4 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
PM10 Adjustment Factor c	0.3 (dimensionless)	(AP-42 Table 13.2.2-2 9/98 for PM10)
Mean Vehicle Weight W	40 tons	assumed for aggregate trucks

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	24.8 hr/acre	
Bulldozer mileage per acre	1 VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	1 VMT/day	
Construction VMT per acre	3.5 VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-18.24, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-18.24
Vehicle Traffic	$[k(s/12)^a (W/3)^b / (M/0.2)^c] [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 7/98 and Section 13.2 dated 9/98

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.08 lbs/hr	24.8 hr/acre	2 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.65 lbs/VMT	3.5 VMT/acre	2.3 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Air Quality Thresholds of Significance, SCAQMD, 1994.

Soil Piles EF = $1.7(s/1.5)[(365 - H)/235](I/15)(J) = (s)(365 - H)(I)(J)/(3110.2941)$, p. A9-99.

Soil Piles EF = 7.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)

Soil Piles EF = 0.77 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	2 lbs/acre	2.26	NA	5	0.00
Grading	0.8 lbs/acre	2.26	NA	2	0.00
Vehicle Traffic	2.3 lbs/acre	2.26	NA	5	0.00
Erosion of Soil Piles	0.8 lbs/acre/day	2.26	90	157	0.08
Erosion of Graded Surface	26.4 lbs/acre/day	2.26	90	5,372	2.69
TOTAL				5,541	2.77

Soil Disturbance EF: 5.1 lbs/acre

Wind Erosion EF: 27.17 lbs/acre/day

Back calculate to get EF: 350.1 lbs/acre/grading day

Air Quality Emission Calculatons for Proposed Operations and Maintenance Construction Activities at Andrews AFB, MD

National Capital Interstate AQCR
Proposed O&M Construction Activities at Andrews AFB, MD

STATE	COUNTY	NOx (tpy)		VOC (tpy)		CO (tpy)		SO2 (tpy)		PM10 (tpy)	
		AREA SOURCE EMISSIONS	POINT SOURCE EMISSIONS	AREA SOURCE EMISSIONS	POINT SOURCE EMISSIONS	AREA SOURCE EMISSIONS	POINT SOURCE EMISSIONS	AREA SOURCE EMISSIONS	POINT SOURCE EMISSIONS	AREA SOURCE EMISSIONS	POINT SOURCE EMISSIONS
MD	Montgomery Co	25,645	11,883	31,157	167	270,214	489	12,493	30,643	15,001	541
MD	Prince George's Co	23,573	25,957	26,265	283	210,555	1,095	10,821	57,653	9,837	822
VA	Arlington Co	8,055	12	7,534	1	52,276	10	692	1	2,760	1
VA	Fairfax Co	33,165	3,090	45,674	357	316,545	403	2,748	664	16,573	81
VA	Loudoun Co	6,446	74	6,926	76	52,828	43	494	17	8,910	5
VA	Prince William Co	10,402	5,787	11,435	196	78,384	667	789	19,594	7,084	318
		107,286	46,803	128,991	1,080	980,802	2,707	28,037	108,572	60,165	1,768

National Capital Interstate AQCR

NOx	VOC	CO	SO2	PM10
154,089	130,071	983,509	136,609	61,933

SOURCE:

<http://www.epa.gov/air/data/nettier.html>

USEPA - AirData NET Tier Report

*Net Air pollution sources (area and point) in tons per year (1999)

Site visited on February 25, 2004