ENVIRONMENTAL ASSESSMENT OF

PROPOSED VISITING QUARTERS FACILITIES AT PITTSBURGH INTERNATIONAL AIRPORT-AIR RESERVE STATION, PENNSYLVANIA

Headquarters, Air Force Reserve Command
Environmental Division
255 Richard Ray Boulevard
Robins Air Force Base, Georgia 31098-1637

DECEMBER 2003

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
DEC 2003	**N/A**	**-**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Environmental Assessment of Proposed Visiting Quarters Facilities at Pittsburgh International Airport - Air Reserve Station, Pennsylvania	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) **911th Airlift Wing/CE, Pittsburgh IAP ARS, 1100 Herman Avenue, Coraopolis, PA 15108-4421**	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	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**SAR**	**138**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

ABBREVIATIONS AND ACRONYMS

911 AW	911 Airlift Wing
ACHD	Allegheny County Health Department
ACM	Asbestos Containing Materials
AEI	Air Emissions Inventory
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health
AFPD	Air Force Policy Directive
AFRC	Air Force Reserve Command
AGE	Aerospace Ground Equipment
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
AQCR	Air Quality Control Region
AP	Accumulation point
ARS	Air Reserve Station
BAP	Base accumulation point
BR	Business Route
C&D	Construction and Demolition
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERLCA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMU	concrete masonry unit
CO	Carbon monoxide
CRMP	Cultural Resource Management Plan
CWA	Clean Water Act
CY	Calendar Year
dB	decibels
dBA	A-weighted sound level measurements
DERP	Defense Environmental Restoration Program
DoD	Department of Defense
DNL	Day-night level
DOPAA	Description of Proposed Action and Alternatives
DV	Distinguished Visitor
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FICON	Federal Interagency Committee on Urban Noise
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GOV	Government Owned Vehicles
gpm	Gallons per minute
GSF	Gilpin, Weikert, and Culleoka shaley silt loams, very steep
HAP	Hazardous Air Pollutant
HQ	Headquarters
HMMP	Hazardous Materials Management Program
HUD	U.S. Department of Housing and Urban Development
IAP	International Airport
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resource Management Program
kV	kilovolt
L_{dn}	Day-night average noise levels measured in A-weighted decibels
LBP	Lead-based paint
lb/day	Pounds per day
lb/hr	Pounds per hour
LMP	Lodging Management Plan
MAP	Management Action Plan
mgd	Million gallons per day
mg/m^3	milligrams per cubic meter
MSDS	Material Safety Data Sheet
mBtu	British Thermal Units
NAAQS	National Ambient Air Quality Standards

NCO	Non-Commissioned Officers
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
NSR	New Source Review
O_3	ozone
OSHA	Occupational Safety and Health Administration
O/W	oil/water
PADEP	Pennsylvania Department of Environmental Protection
PAPCA	Pennsylvania Air Pollution Control Act
Pb	Lead
PCB	polychlorinated biphenyls
PCS	Permanent Change of Station
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns in diameter
PM	Particulate matter
PM_{10}	particulate matter equal to or less than 10 microns in diameter
PMSA	Pittsburgh Metropolitan Statistical Area
POTW	publicly owned treatment works
POL	Petroleum, oil, and lubricants
POV	Privately Owned Vehicles
ppm	parts per million
PSD	Prevention of Significant Deterioration
psi	Pounds per square inch
PVC	Polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
ROG	Reactive organic gases
ROI	Region of Influence
sf	square feet
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SPIAQCR	Southwest Pennsylvania Intrastate Air Quality Control Region
SQG	Small quantity generator
T&E	Threatened and Endangered
TDY	Temporary Duty
tpy	Tons per year
TSD	Treatment, Storage, or Disposal Facility
TSP	Total suspended particulates
UCB	Urban land-Culleoka complex, gently sloping
UCD	Urban land-Culleoka complex, moderately steep
$\mu g/m^3$	micrograms per cubic meter
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
U.S.	United States
U.S.C.	U.S. Code
VOCs	Volatile organic compounds
VQ	Visiting Quarters
WWTP	Wastewater treatment plant

FINDING OF NO SIGNIFICANT IMPACT

PROPOSED VISITING QUARTERS FACILITIES AT PITTSBURGH INTERNATIONAL AIRPORT-AIR RESERVE STATION, PENNSYLVANIA

INTRODUCTION

The 911 Airlift Wing (911 AW) is an Air Force Reserve Command (AFRC) tenant unit at Pittsburgh International Airport (IAP), Pennsylvania. The 911 AW has proposed to demolish six of its existing Visiting Quarter (VQ) facilities and construct four new VQ facilities. The Proposed Action and the No Action Alternative were assessed in the attached Environmental Assessment (EA). The 911 AW is currently equipped with nine assigned C-130H Hercules cargo/transport aircraft. Providing both strategic, long-range airlift support to the active duty U.S. Air Force (USAF) and training for assigned Reservists, the 911 AW is, during peacetime, under the command and control of Headquarters (HQ) AFRC. In war or during times of national emergency, the 911 AW is under the direction of Air Mobility Command (AMC).

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The existing guestrooms and Distinguished Visitor's (DV) Suites do not meet current USAF space standards. Lodging is currently comprised of wooden structures constructed in 1952 and 1955. The space is not adequately configured, does not meet USAF lodging standards, does not have the proper environmental controls, and cannot be efficiently altered to create an adequate configuration. The deterioration of the existing facilities is such that only new construction can correct the situation.

These new VQ facilities would provide safe, effective, functional, and efficient VQ and DV suites that meet current USAF standards. The proposed VQ facilities are required to maintain morale, productivity, and to provide visiting reservists and temporary duty (TDY) civilian employees with adequate rest and relaxation during unit training assemblies and TDY tours.

DESCRIPTION OF THE PROPOSED ACTION

Pittsburgh IAP-ARS is proposing to demolish Buildings 206, 209, 216, 217, 218, and 219 (comprising 76,951 square feet [sf]) and construct four new VQ facilities (comprising 149,111 sf). These new VQ facilities would each be multi-storied, and have interior walkways, entryways, and an elevator. The Proposed Action would be conducted over four phases from Calendar Year (CY) 2007 to 2018.

NO ACTION ALTERNATIVE

Under the No Action Alternative, Pittsburgh IAP-ARS would continue to use existing VQ facilities, and would not construct new VQ facilities. Currently, these buildings fail to meet current USAF space standards. There would be no change from the existing conditions at the installation, and the inadequacy and degradation of the existing VQ facilities would continue. These buildings were constructed in 1952 and 1955 and show the effects of age and heavy use. The existing VQ facilities are approaching the end of their useful life expectancy. Implementation of the No Action Alternative would require USAF members and their families to continue staying in outdated, sub-standard facilities.

SUMMARY OF ANTICIPATED ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE PROPOSED ACTION

Analysis of the Proposed Action indicates that the affected environment would not be significantly impacted by proceeding with the proposed VQ demolition and construction activities.

PUBLIC REVIEW AND INTERAGENCY COORDINATION

Based on the provisions set forth in the Proposed Action, all activities were found to comply with the criteria or standards of environmental quality and coordinated with the appropriate Federal, state, and local agencies. The EA and Draft FONSI will be made available to the public for a 30-day review period. Additionally, copies of the EA and Draft FONSI will be forwarded to Federal, state, and local agencies for review and comment. Public and agency comments will be addressed at the end of the review period prior to implementing the Proposed Action.

FINDING OF NO SIGNIFICANT IMPACT

After review of the EA prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations, and Environmental Impact Analysis Process (EIAP), 32 Code of Federal Regulations 989, as amended, I have determined that the Proposed Action would not have a significant impact on the quality of the human or natural environment and, therefore, an Environmental Impact Statement (EIS) does not need to be prepared. This decision has been made after taking into account all submitted information, and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of USAF.

Carl E. Vogt

CARL E. VOGT, Col, USAFR
Commander

12 Dec 03

Date

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Headquarters, Air Force Reserve Command
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DECEMBER 2003

COVER SHEET

ENVIRONMENTAL ASSESSMENTOF
PROPOSED VISITING QUARTERS FACILITIES AT PITTSBURGH INTERNATIONAL AIRPORT-AIR RESERVE STATION, PENNSYLVANIA

Responsible Agencies: U.S. Air Force (USAF), Air Force Reserve Command (AFRC), and 911 Airlift Wing (911 AW), Pittsburgh International Airport-Air Reserve Station (IAP-ARS), Pennsylvania.

Affected Location: Pittsburgh IAP-ARS, Pennsylvania

Report Designation: Environmental Assessment (EA)

Proposed Action: The existing guestrooms and Distinguished Visitor's (DV) Suites do not meet current USAF space standards. Lodging is currently comprised of wooden structures constructed in 1952 and 1955. The space is not adequately configured, does not meet USAF lodging standards, does not have the proper environmental controls, and cannot be efficiently altered to create an adequate configuration. The deterioration of the existing facilities is such that only new construction can correct the situation. Therefore, Pittsburgh IAP-ARS is proposing to demolish Buildings 206, 209, 216, 217, 218, and 219 (comprising 76,951 square feet [sf]) and construct four new Visiting Quarters (VQ) facilities (comprising of 149,111 sf). These new VQ facilities would each be multi-storied, and have interior walkways, entryways, and an elevator. These new VQ facilities would provide safe, effective, functional, and efficient VQ and DV suites that meet current USAF standards. The Proposed Action would be conducted over four phases from Calendar Year (CY) 2007 to 2018.

This EA has been prepared to evaluate the Proposed Action and the No Action Alternative. Resources that were considered in the impact analysis are: air quality, noise, land use, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes.

ENVIRONMENTAL ASSESSMENT OF PROPOSED VISITING QUARTERS FACILITIES AT PITTSBURGH INTERNATIONAL AIRPORT AIR RESERVE STATION, PENNSYLVANIA

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1. Purpose of and Need for the Proposed Action

1.1 Background

The 911 Airlift Wing (911 AW) is an Air Force Reserve Command (AFRC) tenant unit at Pittsburgh International Airport (IAP), Pennsylvania. The 911 AW is currently equipped with nine assigned C-130H Hercules cargo/transport aircraft. Providing both strategic, long-range airlift support to the active duty U.S. Air Force (USAF) and training for assigned Reservists, the 911 AW is, during peacetime, under the command and control of Headquarters (HQ) AFRC. In war or during times of national emergency, the 911 AW is under the direction of Air Mobility Command (AMC).

The existing guestrooms and Distinguished Visitor's (DV) Suites in Buildings 206, 209, 216, 217, 218, and 219 do not meet current USAF space standards. The space is not adequately configured, does not meet USAF lodging standards, does not have the proper environmental controls, and cannot be efficiently altered to create an adequate configuration. The deterioration of the existing facilities is such that only new construction can correct the situation. Therefore, Pittsburgh IAP-Air Reserve Station (ARS) is proposing to demolish the existing Visiting Quarters (VQ) facilities (comprising 76,951 square feet [sf]) and construct four new VQ facilities (comprising 149,111 sf). The preparation of an Environmental Assessment (EA) has been undertaken to assess the potential environmental impacts associated with the proposed demolition of the current VQ facilities and construction of four new VQ facilities.

The EA addresses AFRC's Proposed Action and reasonable alternatives to the Proposed Action. It analyzes and documents potential environmental consequences associated with the proposed activities. If the analyses presented in the EA indicate that implementation of the Proposed Action would not result in significant environmental or socioeconomic impacts, then a Finding of No Significant Impact (FONSI) will be prepared. If significant environmental issues result that cannot be mitigated to insignificant, an Environmental Impact Statement (EIS) will be required.

1.2 Purpose of and Need for the Proposed Action

In support of worldwide missions, USAF personnel frequently travel on temporary duty (TDY) or permanent change of station (PCS). The USAF is committed to providing its personnel with an appropriate quality of life, while simultaneously reducing travel costs and contributing to mission effectiveness. The overall objective of the USAF lodging program is to support the USAF

mission by providing USAF personnel and other authorized patrons quality lodging quarters similar to U.S. mid-level, limited service commercial hotels/motels.

A Lodging Master Plan (LMP) Condition Assessment Survey for Pittsburgh IAP-ARS was conducted December 4-6, 2000 under the direction of HQ AFRC. The objective of the LMP Condition Assessment Survey was to perform a Command-wide analysis of transient lodging facility requirements, assess existing facility condition, and provide cost estimates for facilities not meeting the current USAF VQ standards. The requirements for the LMP were based on fiscal year (FY) 2001 personnel levels.

Based on the results of the LMP Condition Assessment Survey, the existing guestrooms and DV Suites (Buildings 206, 209, 216, 217, 218, and 219) on Pittsburgh IAP-ARS do not meet current USAF space standards as specified in Air Force Instruction (AFI) 34-246, *Air Force Lodging Program*. Lodging is currently comprised of wooden structures constructed in 1952. The space is not adequately configured, does not meet USAF lodging standards, does not have the proper environmental controls, and cannot be efficiently altered to create an adequate configuration. The deterioration of the existing facilities is such that only new construction can correct the situation.

The proposed VQ facilities are required to maintain morale, productivity, and to provide visiting reservists and TDY civilian employees with adequate rest and relaxation during unit training assemblies and TDY tours.

1.3 Location of the Proposed Action

Pittsburgh IAP-ARS is located in the western portion of Allegheny County, Pennsylvania, approximately 15 miles west of downtown Pittsburgh (see Figure 1-1). The installation encompasses approximately 115 acres (12 acres owned and 103 acres leased) in the eastern portion of Pittsburgh IAP. The 911 AW is the host unit at Pittsburgh IAP-ARS. The 911 AW also controls 43 acres at a small arms firing range in Clinton, Pennsylvania and one acre at Morgantown, West Virginia. Pittsburgh IAP-ARS is situated within Moon Township and is comprised of aircraft support facilities adjacent to Pittsburgh IAP. The communities of Coraopolis, Moon, Coraopolis Heights, Carnot, Clinton, and McAlister's Crossroads surround the base (see Figure 1-1). Access to Pittsburgh IAP-ARS is provided by Business Route (BR)-60. BR-60 runs adjacent to the installation along its eastern border. It serves as the link between the

Figure 1-1. Pittsburgh IAP-ARS Regional Map

base and Interstate 79, located approximately 8 miles to the southeast. Interstate 79 connects Pittsburgh with Erie, Pennsylvania to the north and Charleston, West Virginia to the south.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act of 1969

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 the development of 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) 1500-1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.* The CEQ was established under NEPA to implement and oversee 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 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 11 resource areas including air quality, noise, land use, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes. 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, including those of the AFRC.

Air Quality

The *Clean Air Act* (CAA) 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 require Federal agencies to determine the conformity of proposed actions with respect to State Implementation Plans (SIPs) for attainment of air quality goals.

The Pennsylvania Air Pollution Control Act (PAPCA), enacted originally on January 8, 1960, established the framework for air pollution control activities in Pennsylvania. Under the original PAPCA, the Pennsylvania Department of Environmental Protection (PADEP) implemented air pollution control programs that successfully addressed the major public health and welfare air quality concerns of the time. The 1990 Amendments to the CAA required a significant number

of changes to the PAPCA to authorize PADEP to develop and implement the highly prescriptive programs and achieve the goals mandated by Congress.

Air regulations are implemented by the Allegheny County Health Department (ACHD) Division of Air Quality. Implementing air regulations are under ACHD Rules and Regulations, Article XXI, *Air Pollution Control*.

Noise

Federal Aviation Administration (FAA) Part 150, *Airport Noise Compatibility Planning,* provides guidance to measure noise at airports and surrounding areas and determine exposure of individuals to noise that result from the operations of an airport. FAA Part 150 identifies those land uses which are normally compatible with various levels of exposure to noise by individuals. It also provides technical assistance to airport operators, in conjunction with other local, state, and Federal authorities, to prepare and execute appropriate noise compatibility planning and implementation programs (CFR Title 14, Part 150).

Infrastructure and Utilities

Infrastructure consists of the systems and physical structures that enable a population in a given area to sustain itself. Consideration of infrastructure is applicable to a proposed action or alternative where there may be an issue with respect to local capacities (e.g., utilities, transportation networks, energy) to provide the required support.

Water Resources

The *Clean Water Act (CWA) of 1977 (33 United States Code [U.S.C.] 1344)* and the *Water Quality Act of 1987, 33 U.S.C. 1251, et seq., as amended)* establish 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* (ESA) 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 (USFWS).

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 (USACE).

Cultural Resources

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

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

The *Archeological Resources Protection Act of 1979* 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.

1.5 Interagency Coordination and Community Involvement

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. CEQ regulations implementing NEPA specifically state, "There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to proposed actions. This process shall be termed scoping." 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 AFRC 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, AFRC notified relevant Federal, state, and local agencies of the action proposed and provided them sufficient time to make known their environmental concerns specific to the action. The IICEP process provided AFRC the opportunity to cooperate with and consider state and local views in implementing this Federal proposal. Upon receipt, agency responses were provided to AFRC and incorporated into the analysis of potential environmental impacts performed as part of the EA. AFRC coordinated with agencies such as U.S. Environmental Protection Agency (USEPA), USFWS, SHPO, and other Federal, state, and local agencies. Appendix A of the EA includes a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, and agency responses.

A Notice of Availability for the EA and Draft FONSI was published in the *Moon Star Record*. This was done to solicit comments on the Proposed Action and involve the local community in the decision-making process. No public comments were received on the EA and Draft FONSI.

1.6 Introduction to the Organization of this Document

The EA is organized into seven chapters. Chapter 1 contains background information on Pittsburgh IAP-ARS, a statement of the purpose of and need for the Proposed Action, the location of the Proposed Action, a listing of applicable regulatory requirements, interagency coordination and community involvement, and an introduction to the organization of the EA. Chapter 2 provides a detailed description the mission of the 911 AW, the Proposed Action, the No Action Alternative, alternatives eliminated from further discussion, and decision to be made and identification of the preferred alternative. Chapter 3 contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action or the No Action Alternative. Chapter 4 presents an analysis of the environmental consequences. Chapter 5 includes an analysis of the potential cumulative and adverse impacts on Pittsburgh IAP-ARS. Chapter 6 lists the preparers of the document. Chapter 7 lists the sources of information used in the preparation of the document. Appendix A of the EA includes a copy of the IICEP letter mailed to the agencies for this action, IICEP distribution list, agency responses, and Notice of Availability. Appendix B of the EA includes CAA General Conformity emission calculations for the Proposed Action.

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2. Description of the Proposed Action and Alternatives

2.1 Introduction

This section describes the mission of the 911 AW, the Proposed Action, the No Action Alternative, alternatives eliminated from further discussion, and decision to be made and identification of the preferred alternative.

2.2 Mission

It is the wartime mission of the 911 AW to provide airlift of airborne forces, their equipment and supplies, and delivery of these forces and materials by air drop, landing or cargo extraction systems using its nine assigned C-130H "Hercules" cargo/transport aircraft. The 911 AW also provides intra-theater aeromedical evacuation. During peacetime, the 911 AW is tasked with training and equipping reservists and assigned personnel to maintain readiness to meet wartime taskings and peacetime contingencies as directed. As a key training installation within AFRC, Pittsburgh IAP-ARS provides training and readiness facilities for AFRC and other Department of Defense (DoD) personnel as the need arises.

2.3 Detailed Description of the Proposed Action

Quality lodging facilities and services are provided to authorized personnel to maintain mission readiness and quality of life, while keeping official travel costs to a minimum. Commercial lodging accommodations are provided to eligible guests when adequate on-base lodging is not available.

Visiting Quarters Facility Guidelines. For facilities configured as VQs, a separation of general areas between guests that fall into different rank categories is normally desirable. AFI 34-246, *Air Force Lodging Program*, provides housing guidelines. To the extent possible, airmen/non-commissioned officers (NCOs), officers, and aircrew members are assigned to rooms on separate floors/wings, especially when crew rest is an issue. When rooms in the normally designated area are not available, guests are assigned to any available VQ room on a first-come, first-served basis.

Lodging Facility and Guest Room Standards. DoD Directive 4165.63-M, *DoD Housing Management*, and AFI 34-246, *Air Force Lodging Program*, prescribe standards for transient, unaccompanied personnel housing (lodging). HQ AFRC/CE submitted a memorandum regarding a revision to the *Final Air Force Reserve Lodging Master Plan* on 17 June 2001. This

memorandum provided new space requirements for TDY personnel on AFRC installations (see Table 2-1).

Table 2-1. Minimum Space and Privacy Standards for VQ Facilities

Grade	Standard
Distinguished visitors	560 sf (net) living area: private bedroom, private bathroom, and combination living room and kitchen service area
All commissioned officers and senior non-commissioned officers	280 sf (net) living area: private bedroom and private bathroom
All airmen, junior NCOs, and other visitors	150 sf (net) living area: private bedroom and private bathroom

Source: HQ AFRC/CE 2002

Note: The net living area of a private room or suite is measured from the inside face of the peripheral wall and includes all enclosed, unshared spaces, and partitions. The net living area of a shared room is the clear area in the sleeping room allocated for an individual's bed, locker (wardrobe, closet), furniture, and circulation. It excludes lounges, bathrooms, hallways, and storage areas designated for military mobility and field gear, or equivalent. In open bay, net living area is one equal share per person.

Personnel staying in DoD lodging operations should have the same quality facilities, furnishings, and services as they would find in a good quality, mid-level, commercial hotel. The DoD Directive, AFI, and HQ AFRC/CE memorandum standards identified above are designed with the customer in mind. The customer wants consistent, quality service in all facets of the lodging operation and expects the same quality facilities, furnishings, and service from one USAF lodging operation to the next. USAF general managers, through their chain of command, are responsible for ensuring every aspect of their operation adheres to these standards. The use of these standards also maximizes economy and efficiency in USAF lodging operations.

Pittsburgh IAP-ARS has a total of six lodging facilities (Buildings 206, 209, 216, 217, 218, and 219). Five of the facilities are configured predominately with central latrines, none are entirely configured with private baths, and one is predominately configured with shared baths. There are no existing lodging facilities on Pittsburgh IAP-ARS that are currently configured to meet VQ standards.

According to the LMP, the lodging requirement at Pittsburgh IAP-ARS is to provide transient lodging for 320 personnel based on a projected authorization of 400 personnel. This is based on providing lodging for 80 percent of eligible reservists on-base with 20 percent utilizing off-base lodging.

In addition, the LMP specifies that the average daily TDY occupancy rate of existing rooms is 40 percent of 228 rooms, making a requirement of 66 rooms at 280 sf.

The Proposed Action would consist of four phases. During each phase of the LMP, specific lodging facilities would be demolished and replaced by new lodging facilities. The existing condition of the VQ facilities and each of the proposed phases of the LMP are described below.

2.3.1 Current Pittsburgh IAP-ARS Lodging Facilities

Building 206 was constructed in 1955 and was last renovated in 1987. This building has a total of 25 rooms, of which 2 are considered suites. Two rooms are predominantly over 280 sf and the other 23 are less than 250 sf. The typical living space within these buildings is a private bedroom with shared baths. These buildings are wood structures with asphalt shingle roofs, and interior entrances. Currently, Pittsburgh IAP-ARS is proposing to renovate Building 206 in the fall of 2003 to provide private baths.

Buildings 209, 216, 217, 218, and 219 were constructed in 1952 and were last renovated in 1993. These buildings each have the same configuration. Each of these buildings has a total of 28 rooms, of which two are considered suites. Two rooms are predominantly over 280 sf and the other 26 are less than 250 sf. The typical living space within these buildings is a private bedroom with half of these spaces having a central latrine and the other half having a private bath. These buildings are wood structures with asphalt shingle roofs, and interior entrances.

Buildings 206, 209, 216, 217, 218, and 219 are wooden structures and therefore classified as not having potential for renovation in order to comply completely with VQ standards. The existing guestrooms and DV Suites in these facilities do not meet current USAF space standards. The space is not adequately configured, does not meet USAF lodging standards, does not have the proper environmental controls, and cannot be efficiently altered to create an adequate configuration. The deterioration of the existing facilities is such that only new construction can correct the situation. Therefore, Pittsburgh IAP-ARS is proposing to demolish these existing VQ facilities (comprising 76,951 sf) and construct four new VQ facilities (comprising of 149,111 sf). Figures 2-1 and 2-2 show the location of proposed demolition and construction projects according to each phase of the Proposed Action.

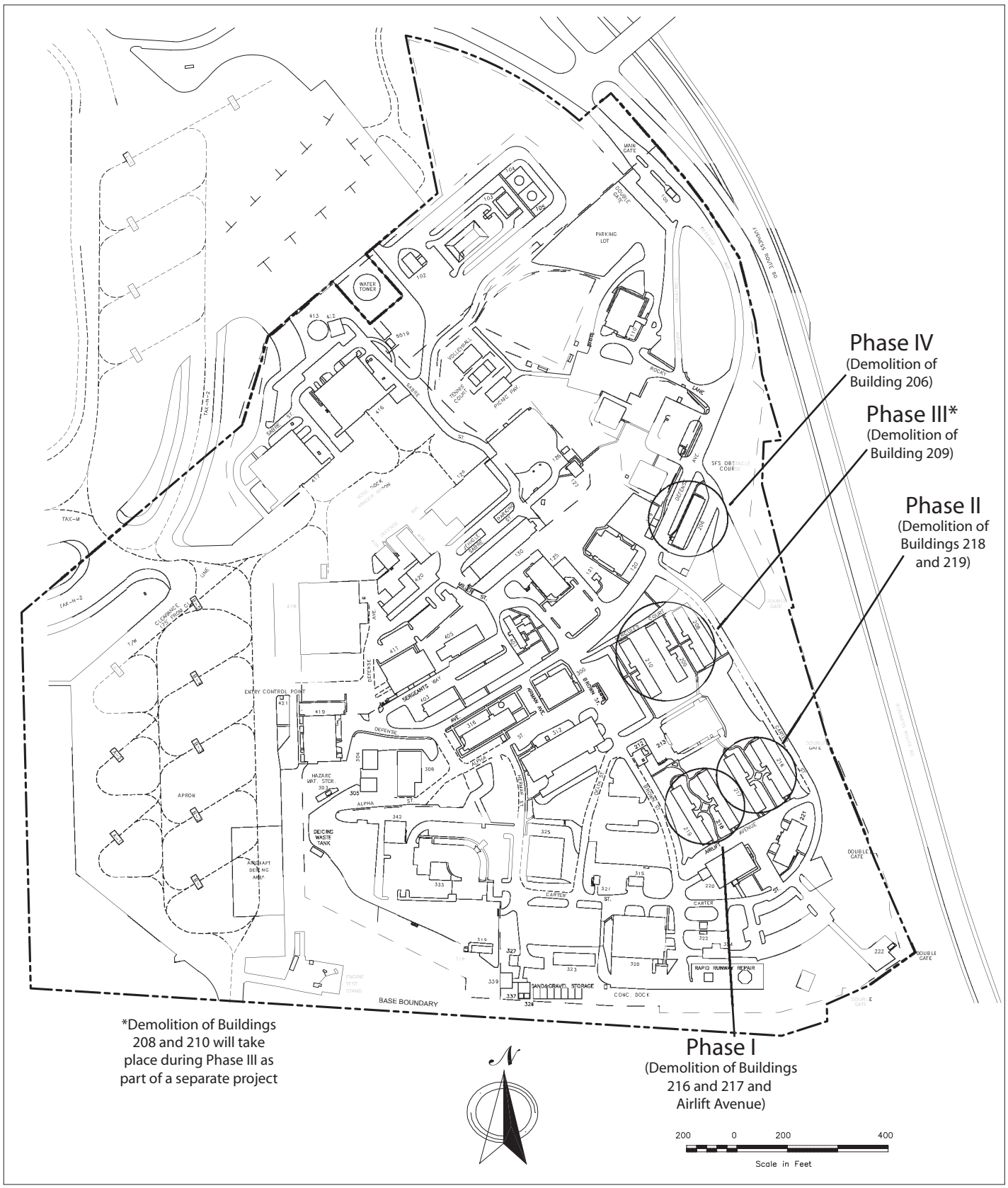

Figure 2-1. Location of Proposed LMP Demolition Projects

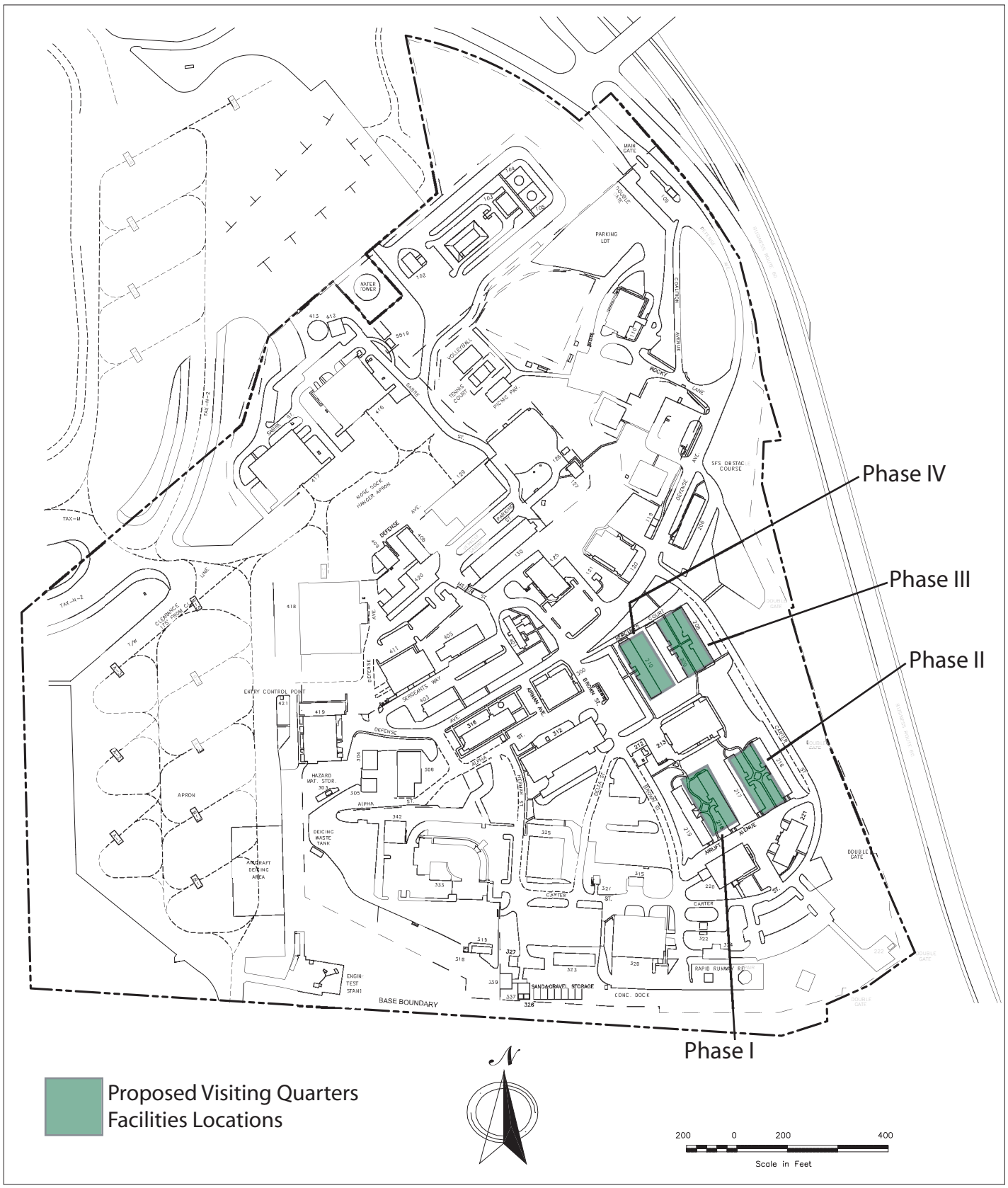

Figure 2-2. Location of Proposed LMP Construction Projects

2.3.2 Proposed Phase I Construction Projects

Pittsburgh IAP-ARS would demolish Buildings 216 and 217 (12,970.5 sf each for a total of 25,941 sf) in calender year (CY) 2007. Demolition of these buildings would take approximately 60 days. In addition to the buildings, demolition of Airlift Avenue (because of the 80 foot setback requirement for antiterroism/force protection), existing sidewalks, and abandoned utilities would be required.

Pittsburgh IAP-ARS would construct a new 42,065 sf VQ facility on the same location as the demolished buildings. The project would be phased and designed to allow Building 216 to remain operational during the construction of the new VQ facility. Once the new VQ facility is in operation, Building 216 would be demolished and the remaining site work would be completed. Construction of the new VQ facility would begin in CY 2007 and would take approximately 300 days. This new VQ facility would consist of 84 rooms and would be multi-storied. Each DV suite would have a separate living room and bedroom, private bathroom, and kitchen service area. This facility would contain living/sleeping quarters, administrative support areas, facility service support areas, and general common use areas.

2.3.3 Proposed Phase II Construction Projects

Pittsburgh IAP-ARS would demolish Buildings 218 and 219 (12,970.5 sf each for a total of 25,941 sf) in CY 2012. Demolition of these buildings would take approximately 60 days. Pittsburgh IAP-ARS would construct a new 35,682 sf VQ facility on the same location as the demolished buildings. The project would be phased and designed to allow Building 218 to remain operational during the construction of the new VQ facility. Once the new VQ facility is in operation, Building 219 would be demolished and the remaining site work would be completed. In addition, a new parking lot would be constructed adjacent to the the new VQ facility.

Construction of the new VQ facility would begin in CY 2012 and would take approximately 300 days. This new VQ facility would consist of 85 rooms and would be multi-storied. This facility would contain living/sleeping quarters, facility service support areas, and general common use areas.

2.3.4 Proposed Phase III Construction Projects

Pittsburgh IAP-ARS would demolish Building 209 (comprising 12,970.5 sf) in CY 2015. The demolition would take approximately 60 days. Pittsburgh IAP-ARS would construct a new

35,682 sf VQ facility on the same location as the demolished building. In addition, a new parking lot would be constructed adjacent to the new VQ facility.

Construction of the new VQ facility would begin in CY 2015 and would take approximately 300 days. This new VQ facility would consist of 85 rooms and would be multi-storied. This facility would contain living/sleeping quarters, facility service support areas, and general common use areas.

2.3.5 Proposed Phase IV Construction Projects

Pittsburgh IAP-ARS would demolish Building 206 (comprising 12,098.6 sf) in CY 2018. The demolition would take approximately 60 days. Pittsburgh IAP-ARS would construct a new 35,263 sf VQ facility in the area currently ocupied by Buildings 208, 209, and 210. In addition, a new parking lot would be constructed adjacent to the new VQ facility. Buildings 208 and 210 are scheduled for demolition during Phase III under a separate project for construction of a new headquarter facility. This project has been analyzed under a separate EA.

Construction of the new VQ facility would begin in CY 2018 and would take approximately 300 days. This new VQ facility would consist of 84 rooms and would be multi-storied. This facility would contain living/sleeping quarters, administrative support areas, facility service support areas, and general common use areas.

2.3.6 Elements Common to All Proposed Construction Projects

All the proposed VQ facilities would have the following:

- Interior walkways, entryways, and elevators
- Combination living room/bedrooms (DV suites would have separate living and dining areas), private bathrooms, and kitchen service areas
- Quarters constructed with concrete masonry unit (CMU) walls, brick veneer, and standing seam metal roofs
- Interior communication services including 4-pair telephone outlets, shielded data outlets, fiber optic cable outlets, television cable outlets, and necessary cable
- External communication services including trenching, backfill, duct banks, manholes, hand holes, raceways, concrete, and necessary cable and terminations

- Limited new exterior facilities such as adequate sidewalk networks for accessibility to all exterior entries from the parking and street areas (this includes accessibility for handicapped guests and visitors)

All the new VQ facilities would be designed to comply with the current architectural standards at Pittsburgh IAP-ARS and would incorporate the current exterior features of existing facilities near the proposed project site including brick veneer and a standing seam metal roof. All landscaping would be in accordance with Pittsburgh IAP-ARS standards and all construction would comply with all fire and safety codes. To the extent possible, all VQ facilities would be constructed using sustainable design concepts. Sustainable design concepts emphasize state-of-the-art strategies for site development, efficient water and energy use, and improved indoor environmental quality. In addition, facilities would be constructed with salvaged, recycled, and bio-friendly materials obtained locally to reduce potential environmental impacts related to materials manufacturing and transportation.

Utilities are available at or near the proposed project sites including water, sanitary sewer, storm sewer, underground/overhead primary electric, and natural gas. Some of the existing utilities would require relocation and some would need to be abandoned, removed, and/or capped. Trenching of utility lines to the proposed VQ facilities would be minimized to the greatest extent possible. All current utilities are adequate to meet the Proposed Action's utility demands.

Construction and demolition (C&D) waste would be the responsibility of the contractor. All C&D waste generated as part of the Proposed Action would be recycled to the greatest extent practical. The contractor would transport the remaining C&D waste to an approved landfill.

The proposed VQ facilities would result in no change in officer, reserve officer, unit reserve enlisted authorizations, or enlisted air reserve technician positions.

Because of budget and programming constraints, Pittsburgh IAP-ARS may opt to construct fewer, larger VQ facilities under less project phases to provide the same net amount of required rooms. Actual future dates for construction of the proposed phases could change based on funding and direction from the military construction program.

2.4 No Action Alternative

Under the No Action Alternative, Pittsburgh IAP-ARS would continue to use existing VQ facilities, and would not construct new VQ facilities. Currently, these buildings fail to meet

current USAF space standards. There would be no change from the existing conditions at the installation, and the inadequacy and degradation of the existing VQ facilities would continue. These buildings were constructed in 1952 and 1955 and show the effects of age and heavy use. The existing VQ facilities are approaching the end of their useful life expectancy. Implementation of the No Action Alternative would require USAF members and their families to continue staying in outdated, sub-standard facilities. Inclusion of the No Action Alternative is prescribed by CEQ regulations and therefore, will be carried forward for further analysis in the EA.

2.5 Alternatives Eliminated From Further Discussion

As part of the NEPA process, potential alternatives to the Proposed Action must be considered. Two alternatives to the Proposed Action were considered by AFRC but eliminated from further review based on financial and mission constraints. These alternatives are described in detail below.

2.5.1 Renovation of Existing VQ Facilities

This alternative would include the renovation of the existing VQ facilities, maintaining the current rank/room composition. The existing buildings would be updated to current USAF space standards. The renovated buildings would provide a safe, comfortable, and appealing living environment. However, this alternative is not acceptable because the improvements necessary to bring these buildings to meet USAF space standards would not be economically feasible. The cost would be more than 70 percent of the replacement costs. USAF guidelines require work to be classified as construction if repair costs are greater than 70 percent of the cost for replacement. Therefore, this alternative is not viable and has been eliminated from further consideration.

2.5.2 Direct Compensation

This alternative would involve demolishing the existing VQ facilities. All DVs and other authorized visitors would stay off-base at local hotels and would be paid a temporary housing allowance while visiting Pittsburgh IAP-ARS. Although the short-term costs of demolishing the current lodging facilities and housing TDY and PSC personnel off-base would be lower than the cost of the Proposed Action, the economic impact of paying these visitors to stay off-base would greatly outweigh the costs of constructing and maintaining new VQ facilities in the long-term. Therefore, this alternative was eliminated from further consideration.

2.6 Decision to be Made and Identification of Preferred Alternative

AFRC would make one of the following decisions:

- Implement the Proposed Action
- Not implement the Proposed Action (No Action Alternative)

The Preferred Alternative is the implementation of the Proposed Action as selected by AFRC.

3. Affected Environment

This section describes the environmental and socioeconomic conditions most likely to be affected by the Proposed Action and 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.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, the description of the affected environment focuses on those resources and conditions potentially subject to impacts. These resources and conditions include air quality, noise, land use, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes.

Resource Areas. The term "resource areas" refers to those aspects of the human environment that may be affected by a proposed action. Resource areas are organized into broad groupings of environmental assets, such as water resources or biological resources. Some aspects of the environment reflect conditions imposed by humans. These include land use and hazardous waste sites.

Principal Resource Areas. Analysis of potential environmental effects focuses on those resource areas that are appropriate for consideration in light of a proposed action. All resource areas are initially considered, but some may be eliminated from detailed examination because of their inapplicability to a particular proposal. When detailed analysis within a principal resource area is eliminated, the "Definition of the Resource" will describe the portion of the proposal from which the analysis is excluded and rational for its exclusion. The following discussions identify major aspects of the resources areas and conditions and indicate environmental aspects typically grouped under the major headings.

3.1 Air Quality

3.1.1 Definition of the Resource

In accordance with CAA requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The air quality in a region is a result not only of the types and quantities of

atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. In order to protect public health and welfare, the USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. The USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants including: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulates equal to or less than 10 microns in diameter [PM_{10}]) and particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$)], and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation, crops, and other public resources along with maintaining visibility standards. Table 3-1 presents the primary and secondary NAAQS that apply to the air quality in Pennsylvania.

Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because ozone is typically not emitted directly from most emissions sources. O_3 is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or "O_3 precursors." These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emission sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations through the control of VOC pollutants (also identified as reactive organic gases or ROG) and NO_2.

The CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and must promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels. These programs are detailed in State Implementation Plans (SIPs) that must be developed by each state or local regulatory agency and approved by the USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan

(i.e., new regulations, emission budgets, controls, etc.) must be incorporated into the SIP and approved by the USEPA.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
Carbon Monoxide (CO)			
8-hour Average	9 ppm	(10 mg/m^3) [2]	Primary & Secondary
1-hour Average	35 ppm	(40 mg/m^3) [2]	Primary
Nitrogen Dioxide (NO_2)			
Annual Arithmetic Mean	0.053 ppm	(100 $\mu g/m^3$) [2]	Primary & Secondary
Ozone (O_3)			
1-hour Average[1]	0.12 ppm	(235 $\mu g/m^3$) [2]	Primary & Secondary
8-hour Average[1]	0.08 ppm	(157 $\mu g/m^3$) [2]	Primary & Secondary
Lead (Pb)			
Quarterly Average		1.5 $\mu g/m^3$	Primary & Secondary
Particulate < 10 micrometers (PM_{10})			
Annual Arithmetic Mean		50 $\mu g/m^3$	Primary & Secondary
24-hour Average		150 $\mu g/m^3$	Primary & Secondary
Particulate < 2.5 micrometers ($PM_{2.5}$)			
Annual Arithmetic Mean		15 $\mu g/m^3$	Primary & Secondary
24-hour Average		65 $\mu g/m^3$	Primary & Secondary
Sulfur Dioxide (SO_2)			
Annual Arithmetic Mean	0.03 ppm	(80 $\mu g/m^3$) [2]	Primary
24-hour Average	0.14 ppm	(365 $\mu g/m^3$) [2]	Primary

Notes:

[1] In July of 1997, the 8-hr O_3 standard was promulgated and the 1-hour O_3 standard was remanded for all areas, excepting areas that were designated non-attainment with the 1-hour standard when the O_3 8-hour standard was adopted. In July of 2000, the O_3 1-hour standard was re-instated as a result of the Federal lawsuits that were preventing the implementation of the new 8-hour O_3 standard. USEPA estimates that the revised 8-hour O_3 standard rules will be promulgated in 2003-2004. In the interim, no areas can be deemed to be definitively non-attainment with the new 8-hr standard.

[2] Parenthetical value is an approximately equivalent concentration.

ppm – parts per million

mg/m^3 – milligrams per cubic meter

$\mu g/m^3$ – micrograms per cubic meter

In 1997, USEPA initiated work on new General Conformity rules and guidance to reflect the new 8-hour O_3, $PM_{2.5}$, and regional haze standards that were promulgated in that year. However, because of the litigation and resulting delay in implementation of the new O_3 and $PM_{2.5}$ ambient air quality standards, these new conformity requirements have not been completed by USEPA, and no draft rule language is currently available.

The General Conformity Rule and the promulgated regulations found in 40 CFR Part 93, exempt certain Federal actions from conformity determinations (e.g., contaminated site clean-up and natural emergency response activities). Other Federal actions are assumed to be in conformity if total indirect and direct project emissions are below *de minimis* levels presented in 40 CFR Part 93.153. The threshold levels (in tons of pollutant per year) depend upon the non-attainment status that USEPA has assigned to a non-attainment area. Once the net change in non-attainment pollutants are calculated, the Federal agency must compare them to the *de minimis* thresholds.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, base, or activity) that has the potential to emit more than 100 tons annually of any one criteria air pollutant, 10 tons per year (tpy) of a hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. However, lower pollutant-specific "major source" permitting thresholds apply in non-attainment areas. For example, the Title V permitting threshold for an "extreme" O_3 non-attainment area is 10 tpy of potential VOC or NO_x emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and to monitor their impact upon air quality.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be "significant" if: 1) a proposed project 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 any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more (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)).

3.1.2 Existing Conditions

Under the authority of the CAA and subsequent regulations, USEPA has divided the country into geographical regions known as Air Quality Control Regions (AQCRs) to evaluate compliance with the NAAQS. Pittsburgh IAP-ARS is located in the Southwest Pennsylvania Intrastate Air Quality Control Region (SPIAQCR). The SPIAQCR consists of Allegheny, Armstrong, Beaver, Butler, Greene, Fayette, Indiana, Washington, and Westmoreland counties (Pittsburgh IAP-ARS 2002a). The SPIAQCR is under the jurisdiction of the PADEP, Bureau of Air Quality. Section 12 of the PAPCA reserved powers to political subdivisions to enact air pollution control ordinances that are not less stringent than the requirements of the CAA, the PAPCA, and

regulations adopted under the Acts. The only local air pollution control agencies authorized under the PAPCA are the Philadelphia Department of Health Air Management Services and the Allegheny County Health Department (ACHD) (PDES 2003).

Ambient air quality within SPIAQCR and subsections of it are monitored for NO_x, CO, SO_2, O_3, PM_{10}, $PM_{2.5}$, and total suspended particulate (TSP) (or particulate matter [PM]) to determine compliance with NAAQS. Air quality monitors are operated by the Pennsylvania DEP and ACHD. The subsection of SPIAQCR in which Pittsburgh IAP-ARS is situated is currently in attainment for NO_x, CO, SO_2, PM_{10}, PM, and O_3. On October 2001, the Pittsburgh-Beaver Valley portion of SPIAQCR was re-designated from non-attainment to attainment for O_3. Therefore, this area is currently classified as a maintenance area for O_3. However, due to its designation as an O_3 transport region, the subsection of SPIAQCR in which Pittsburgh IAP-ARS is situated is currently treated as moderate non-attainment for O_3. In addition, the area within a half-mile radius of the Pittsburgh IAP-ARS PM monitor currently does not meet the secondary standard for PM. It should be noted that other subsections of SPIAQCR away from Pittsburgh IAP-ARS are currently in non-attainment for CO, SO_2, PM_{10}, and PM (PDES 2003).

Climate. Pittsburgh IAP-ARS is located in a humid, temperate climate, consisting of warm, humid summers and cold winters. The annual precipitation averages 36.39 inches, and is fairly evenly distributed throughout the year. July has the highest amount of rainfall. During winter months, approximately one fourth of the precipitation occurs as snow. Snow covers the ground on an average of 33 days per year. Average annual snowfall is approximately 45 inches (Pittsburgh IAP-ARS 2001a).

The average annual temperature is 52.3 degrees Fahrenheit. The temperature varies widely throughout the year due to seasonal variations. The relative humidity averages between 78 percent in the morning and 57 percent in the afternoon. Winds are predominately from the west to southwest at an average of 9.1 miles per hour (Pittsburgh IAP-ARS 2001a).

Each CY, Pittsburgh IAP-ARS is required to prepare and submit an annual emissions inventory (AEI) to Headquarters AFRC. The purpose of this AEI is to estimate and document air pollutant emissions from stationary and mobile sources.

Stationary source categories include: external combustion sources, internal combustion sources, fuel transfer/dispensing, storage tanks, surface coating operations, degreasers/solvent cleaners, aircraft fuel cell maintenance, off-aircraft engine testing, miscellaneous chemical usage, and dust

collectors. Mobile source categories include: aircraft operations, aerospace ground equipment (AGE), government-owned vehicles (GOVs), privately owned vehicles (POVs), and non-road engines/vehicles.

Mobile Sources. Numerous non-road support vehicles are involved in construction and maintenance activities at Pittsburgh IAP-ARS. Non-road vehicles consist of heavy-duty construction equipment (i.e., tractors, loaders, and backhoes) (Pittsburgh IAP-ARS 2002a). As shown in Table 3-2, the actual annual emission estimates for each criteria air pollutant at Pittsburgh IAP-ARS are less than the corresponding major source thresholds. Therefore, the base is not required to have a Title V permit (Pittsburgh IAP-ARS 2002a).

Table 3-2. 2001 and 2000 Air Pollutant Emission Summary for Stationary and Mobile Sources at Pittsburgh IAP-ARS

Pollutant	Actual 2001 Emissions (tpy)	Actual 2000 Emissions (tpy)	Major Source Thresholds (tpy)
NO_x			
Stationary Sources	2.5	2.5	**100**
Mobile Sources	41	50	
Total	**43.5**	**52.5**	
VOCs			
Stationary Sources	0.66	0.68	**50**
Mobile Sources	12	16	
Total	**12.66**	**16.68**	
CO			
Stationary Sources	1.4	1.5	**100**
Mobile Sources	93	113	
Total	**94.4**	**114.5**	
SO_2			
Stationary Sources	0.07	0.06	**100**
Mobile Sources	2.5	2.4	
Total	**2.57**	**2.46**	
PM_{10}			
Stationary Sources	0.25	0.26	**100**
Mobile Sources	6.7	7.5	
Total	**6.95**	**7.76**	
$PM_{2.5}$			
Stationary Sources	0.25	N/A	**100**
Mobile Sources	6.6	N/A	
Total	**6.85**	N/A	
Hazardous Air Pollutants (HAPs)			
Stationary Sources	1.1	0.51	**25**
Mobile Sources	N/A	N/A	
Total	**1.1**	**0.51**	

Source: Pittsburgh IAP-ARS 2002a
Note: Major source thresholds only apply to stationary sources.

External Combustion Sources. External combustion sources include boilers, furnaces, and heaters using natural gas. All external combustion sources at Pittsburgh IAP-ARS use only natural gas. Under the existing conditions, there are no limitations on the amount of natural gas that can be used in these sources at the base (Pittsburgh IAP-ARS 2002a).

Internal Combustion Sources. Internal combustion engine sources include engines powering emergency electricity generators and fire pumps (Pittsburgh IAP-ARS 2002a).

Surface Coating. In order to satisfy the requirements of Part E, Subpart 1, Section 2105.10 of the Allegheny County Rules and Regulations, VOC emissions from surface coating processes at the base are limited to 3 pounds per hour (lb/hr), 15 pounds per day (lb/day), and 2.7 tpy (Pittsburgh IAP-ARS 2002a).

3.2 Noise

3.2.1 Definition of the Resource

Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech, etc. Thus, noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human response to noise varies according to the source type, characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day.

Sound is measured with instruments that record instantaneous sound levels in decibels (dB). A-weighted sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency content of a noise event to represent the way in which the average human ear responds to the noise event. All sound levels analyzed in this EA are A-weighted; thus, the term dB implies dBA unless otherwise noted.

Noise Criteria and Regulations. Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. The following paragraphs describe the guidelines and regulations that are relevant to the project.

According to USAF, FAA, and U.S. Department of Housing and Urban Development (HUD) criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the noise exposure exceeds a day-night level (DNL) of 75 dBA; "normally unacceptable" in regions exposed to noise between the DNL of 65 to 75 dBA; and "normally acceptable" in areas exposed to noise where the DNL is 65 dBA or less. The Federal Interagency Committee on Urban Noise (FICON) developed land-use compatibility guidelines for noise in terms of DNL (USDOT 1980). DNL is the metric used by the USAF in determining noise impacts of military airfield operations for land use planning. USAF land use compatibility guidelines (relative to DNL values) are documented in the AICUZ Program Handbook (USAF 1999). Five noise zones are used in Air Installation Compatible Use Zone (AICUZ) studies to identify noise impacts from aircraft operations. These noise zones range from a DNL of 65 dBA to a DNL of 80 dBA and above. For example, it is recommended that no residential uses, such as homes, multifamily dwellings, dormitories, hotels, and mobile home parks, be located where the noise is expected to exceed a DNL of 65 dBA. If sensitive structures are located in areas within a DNL range of 65 to 75 dBA, noise sensitive structures should be designed to achieve a 25 to 30 dBA interior noise reduction. Some commercial and industrial uses are considered acceptable where the noise level exceeds DNL of 65 dBA. For outdoor activities, USEPA recommends DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population will be at risk from any of the effects of noise (USEPA 1974).

3.2.2 Existing Conditions

The *Greater Pittsburgh International Airport Part 150 Study Update of 1992*, updated its noise contours map in accordance with FAA Part 150. This map is the record drawing for noise contours affecting Pittsburgh IAP-ARS (FAA 1992).

Nearly all studies on the compatibility of residential development and aircraft noise recommend no residential uses in noise zones above 75 dB average DNL. Usually, no restrictions are recommended in noise zones below 65 dB. Between a 65 and 75 dB, there is currently no consensus. Figure 3-1 displays the noise contours generated by current aircraft operations on Pittsburgh IAP-ARS.

As expected, the highest average sound levels (75 dB and above) occur adjacent to the runways. Sound levels exceeding 75 dB are experienced throughout the southern industrial area. Four visiting airmen quarters are also located within this noise contour. Average sound levels between 70 and 75 dB are experienced at Wing Headquarters (Building 316) and other administrative

Figure 3-1. Noise Contours

facilities (Buildings 208 and 210). The 65 dB contour extends as far north as the Airlift Club (Building 110), leaving only the main gate and the POL complex in an area experiencing modest average levels of sound.

As part of its standard aircraft operating procedures, the 911 AW attempts to minimize noise disturbances to the civilian community. On-base, land use planning and facility siting are compatible with airfield operations and related noise levels. With limited sites for visiting officer and airmen quarters, base planners ensure that noise attenuation features are included in the design of facilities to be constructed in high noise areas, thereby reducing building interior noise to acceptable levels. Noise from aircraft operations is not expected to constrain future development at the base (Pittsburgh IAP-ARS 2001a).

Construction Program. Building construction, modification, and demolition work can cause considerable noise emissions. A variety of sounds come from cranes, cement mixers, welding, hammering, boring, and other work processes. Construction equipment and building operations are often poorly silenced, but quickly become part of the ambient noise levels heard everyday.

3.3 Land Use

3.3.1 Definition of the Resource

The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, "labels," and definitions vary among jurisdictions.

Natural conditions of property can be described or categorized as unimproved, undeveloped, conservation or preservation area, and natural or scenic area. There is a wide variety of land use categories resulting from human activity. Descriptive terms often used include residential, commercial, industrial, agricultural, institutional, and recreational.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the locations and extent of proposed actions need to be evaluated for their potential effects

on project site and adjacent land uses. The foremost factor affecting a proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its "permanence."

In the context of aircraft operations, land use compatibility is also described in the context of noise levels. As described above in Section 3.2, an L_{dn} of 65 dB is useful to recognize as a level that, when exceeded, is normally not compatible with residential land use.

3.3.2 Existing Conditions

The on- and off-base land use information provided below was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a). Pittsburgh IAP-ARS is a compact base bounded by Business Route 60 to the east and Pittsburgh IAP on its remaining three sides. The dominant feature on the western side of the installation is the airfield, consisting of permanent and temporary aircraft parking aprons, apron access taxiways, and the international airport property. Immediately adjacent to the airfield is a consolidated area devoted to aircraft operations and maintenance. Located within this area are key operational facilities, including the fuels systems maintenance hangar (Building 416), aircraft maintenance hangar (Building 417), and aircraft maintenance shop (Building 418), which are served by the hangar access apron. An isolated operational area surrounds the engine test stand.

There are three distinct industrial areas which border the airfield and the operational areas. At the northern boundary of the base is the newly constructed bulk fuels storage facility, consisting of fuel storage tanks, dispensing facilities and refueler truck parking area. To the southeast of the new petroleum, oil, and lubricants (POL) complex, on the side of the hill, is the former fuel storage facility, which also consists of storage tanks, POL operations facilities, and dispensing apparatus. This area is slated for environmental remediation, which will allow it to be used in the future for non-industrial activities. The third industrial area encompasses much of the southern half of the base, and includes base civil engineering, base supply, and other related functions.

The wing headquarters (Building 316) and finance office (Building 403) are located within the primary administrative area, which is centrally located at the western end of Defense Avenue. Other administrative functions, such as recruiting, social actions, disaster preparedness, security

forces, and contracting, are accommodated in Building 221 and converted dormitories (Buildings 208 and 210).

The billeting office and housing for unaccompanied personnel are consolidated in the southeast quadrant of the base. The dormitories are flanked by supporting community activities, including the base-exchange, gymnasium, chapel, and dining hall. The other principal community facility is the consolidated open mess, located in the northern portion of the base, west of Defense Avenue.

The steeply sloping eastern boundary of the base is reserved as an open space buffer. The other open space areas can be developed and are reserved for long-range use as construction sites or parking. The single outdoor recreation use is a consolidated softball, volleyball, tennis, and picnic complex adjacent to the consolidated club.

Off-Base Land Use. The land use planning for property adjacent to Pittsburgh IAP-ARS is largely dependent on two public bodies, the County of Allegheny Department of Aviation and Moon Township. The County of Allegheny Department of Aviation is responsible for current operations and long-range development plans of Pittsburgh IAP, which borders the base to the north, west, and south. Currently, the land north and northwest of the base is occupied by the former airport terminal, and has been developed into Airside Business Park, which is a commercial and office complex currently in operation. The future airport layout plan for Pittsburgh IAP indicates that this area will eventually be converted for use as an air cargo operation.

Immediately to the west of the base are taxiway N and cross-wind runway 14/32. Further west are the airport's new passenger terminal and the balance of the airport's runways and taxiways. The presence of these facilities effectively precludes the base from constructing any facilities west of this point. To the south of the base are two parallel runways, 10C/28C and 10R/28L. South of the runways is the Pennsylvania Air National Guard's base and open space reserved for the eventual construction of another east-west runway. The location of the parallel runways and their corresponding protection zones also limits the base's ability to expand in a southerly direction. The eastern boundary of the base is established by the presence of Business Route 60, a limited access highway. Land use to the east of Business Route 60 consists of the Cherrington Corporate Center, a commercial and office complex, a golf course, and low-density residential property.

3.4 Safety

3.4.1 Definition of the 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 activities and facilities construction, and (2) public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction 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 (OSHA) 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.

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of highly noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.4.2 Existing Conditions

All contractors performing construction activities are responsible for following ground safety and OSHA regulations and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and use and availability of Material Safety Data Sheets (MSDS). Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplaces; 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 or engaged in hazardous waste work.

3.5 Geological Resources

3.5.1 Definition of the 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.

Topography. 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. 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.

Geology. Geology, which concerns itself with 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.

3.5.2 Existing Conditions

The geological resources information provided in this EA was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a). Pittsburgh IAP-ARS is located in the unglaciated Appalachian Plateau physiographic province. This province is characterized by nearly level stream valleys with steep side slopes and gently sloping

to steep ridge tops. Installation elevations range from 1,147 feet above mean sea level on the parking apron to 1,030 feet at the base's southeastern boundary.

The predominant bedrock consists of shale, siltstone, and sandstone of the Upper Pennsylvania Casselman Formation. The base is underlain by the following lithologic units (in descending order): surface soils, limestone, siltstone, shale, and sandstone. Several thin coal beds are present in the subsurface. The basal units consist of massive shale beds with interbeds of siltstone and limestone. Subsurface sedimentary rocks generally dip to the southwest towards the Ohio River Basin.

The natural topography for the vast majority of the base has been reconfigured during development. Development sites have been leveled into terraces through cut and fill, to provide better building sites. Steep slopes (greater than 10 percent) are scattered throughout the base.

Pittsburgh IAP-ARS is located within the Urban land-Wharton-Gilpin soil association which is characterized by moderately deep well drained soils and urban lands that are underlain by gray shale on uplands. There are three soil series which cover the installation property. The Urban land-Culleoka complex, gently sloping (UCB) covers the hilltop area including the aircraft apron and the hillside sloping eastward toward the dorm complex, and totals 53 percent of the base. The natural slopes for UCB soils vary from 0-8 percent, however, much of the developed portions have been subjected to cut and fill leaving a varied depth of soil, if any.

The Urban land-Culleoka complex, moderately steep (UCD) covers the sloping south-central and northeastern portions of the base totaling 41 percent. The natural slopes for UCD soils vary from 8-25 percent. Most of these soils have been reconfigured through cut and fill.

The last series, the Gilpin, Weikert, and Culleoka shaley silt loams, very steep (GSF) is located in the southeastern corner and occupies six percent of the base. The GSF type has a shallow depth and natural slopes ranging from 25 to 80 percent. Much of the GSF soil at the base has been involved in previous reconfiguration and fill activities.

The base's topography, soil types, and intensity of local storms, require careful design of storm drainage and landscaping in conjunction with construction projects. Adequate measures are required to prevent erosion.

3.6 Water Resources

3.6.1 Definition of the Resource

Water resources include groundwater, surface water, floodplains, and wastewater and storm water systems. Evaluation identifies the quantity and quality of the resource and its demand for potable, irrigation, and industrial purposes.

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 the management of surface water. Storm water is also important to surface water quality 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. Storm water systems provide the benefit of reducing amounts of sediments and other contaminants that would otherwise flow directly into surface waters. Failure to appropriately size storm water systems to either hold or delay conveyance of the largest predicted precipitation event will often lead to downstream flooding and the environmental and economic damages associated with flooding. As a general rule, higher densities of development, such as are 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 (FEMA), which evaluates floodplains for 100 and 500-year flood events. Federal, 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.

Wastewater Systems. Wastewater treatment systems may treat sanitary sewer, industrial, or both kinds of wastes. Most systems are publicly owned treatment works (POTW). For regulatory purposes, there is a sub-category of Federally owned treatment works. Wastewater treatment systems consist of a central treatment plant and a collection system of piping from waste sources. As a very general rule, treatment works are identified as primary (mechanical treatment only), secondary (mechanical and biological treatment), or tertiary (mechanical and biological or chemical treatment). Wastewater treatment plants operate under National Pollution Discharge Elimination System (NPDES) permits issued by USEPA or the states pursuant to the CWA. Key issues concerning wastewater systems typically involve the age of the system (either its collection system and infiltration/inflow problems or the treatment plant itself), the capacity of a treatment plant (usually expressed in millions of gallons per day [mgd]), and a treatment plant's record of violations of its NPDES permit.

3.6.2 Existing Conditions

The water resources information provided below was obtained from the Pittsburgh International Airport-Air Reserve Station General Plan (Pittsburgh IAP-ARS 2001a) and the Storm Water Pollution Prevention Plan (Pittsburgh IAP-ARS 2002c).

Surface Water. Pittsburgh IAP-ARS's hydrological system is comprised of storm water management systems which outfall storm water to an unnamed tributary of McClaren's Run (just outside the eastern boundary of the base). Storm water from McClaren's Run passes through Pittsburgh IAP and continues until it flows into Montour Run. Montour Run flows into the Ohio River just upstream of the town of Coraopolis.

The natural drainage is sloped in a southeasterly direction. Pittsburgh IAP-ARS is located near the top of the ridge line occupied by the Pittsburgh IAP. There are no natural ponds or drainage features on base. Storm water is transported through nine outfalls on-base. There are no surface water or drainage features that present a constraint to future development on the base.

Floodplains. Given its topography and soils, Pittsburgh IAP-ARS is well drained. The FEMA map for the Moon Township area indicates that there are no 50- or 100-year floodplains which might constrain future development on the base. An unnamed tributary of McClaren's Run is located along the base's eastern border; however, the surrounding land is steeply sloped and cannot be developed, so the tributary itself does not pose a constraint.

Wastewater Systems. Pittsburgh IAP-ARS's wastewater is collected by the base sanitary sewer system before it is discharged to the Moon Township sanitary sewer lines. All wastewater is then conveyed to the Moon Township Municipal Authority wastewater treatment plant (WWTP), which is a POTW.

Wastewater from industrial areas flows through oil/water (O/W) separators at facilities where petroleum-based products are used and, once separated, is discharged into the sanitary sewer system. The separators are checked periodically and oil is removed by a contractor as needed. The Pittsburgh IAP-ARS storm water system of catch basins and culverts guides water through a series of natural drainageways, underground pipes, and man-made ditches; this system delivers storm water to one of the installation's nine storm water outfalls.

3.7 Biological Resources

3.7.1 Definition of the Resource

Biological resources include native or naturalized plants and animals, and the habitats, such as wetlands, forests, and grasslands, in which they exist. Sensitive and protected biological resources include plant and animal species listed as threatened or endangered by the USFWS or a state.

Wetlands are an important natural system and habitat because of the diverse biologic and hydrologic functions they perform. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, unique flora and fauna niche provision, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the "waters of the United States" under Section 404 of the Clean Water Act. The term "waters of the United States" has a broad meaning under the Clean Water Act and incorporates deep-water aquatic habitats and special aquatic habitats (including wetlands). USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328).

Under the ESA (16 U.S.C. 1536), an "endangered species" is defined as any species in danger of extinction throughout all or a significant portion of its range. A "threatened species" is defined as any species likely to become an endangered species in the foreseeable future. The USFWS also

maintains a list of species considered to be candidates for possible listing under the ESA. Although candidate species receive no statutory protection under the ESA, the USFWS has attempted to advise government agencies, industry, and the public that these species are at risk and may warrant protection under the Act.

3.7.2 Existing Conditions

The biological resources information provided in this EA was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a). Pittsburgh IAP-ARS is located in an urban environment adjacent to Pittsburgh IAP. Accordingly, there are few natural features that potentially affect the location of new buildings and facilities. Because of the base's size, Pittsburgh IAP-ARS has received a waiver for developing an Integrated Natural Resources Management Plan (INRMP). Typically, the purpose of an INRMP is to describe a base's physical and biotic environment and provide management practices, in compliance with Federal, state and local standards, and to mitigate negative effects of the installation's mission on regional ecosystems.

Because Pittsburgh IAP-ARS does not have an INRMP, the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a) is the consolidated document providing guidance on the management of the installation's land and natural resources. This plan is a tool to ensure that conservation of natural resources and the military mission are not mutually exclusive. Therefore, all current and planned development activities, including master planning, construction, site approval requests, and training exercise plans must consider DoD and base policies on the protection of natural resources.

The natural topography of the base has been extensively altered over time. Development areas have been leveled into terraces by cut and fill to provide suitable building sites. Steeply sloping (greater than 10 percent) hillsides are scattered throughout the base. The topography of the base escalates the cost of construction and may require the installation of retaining walls or extensive cut and fill.

Pittsburgh IAP-ARS was reviewed for identification of wetland areas in June 1994. No wetland areas were identified during the review of Pittsburgh IAP-ARS; therefore, wetlands do not present an impediment to future development on the base.

Since any wooded areas at the base have long since been removed, developed, or affected by adjacent development, there are no unique or sensitive natural or mature wooded areas on base.

The only small wooded area that remains occupies less than one acre and is located along the eastern base boundary and an unnamed tributary to McClaren's Run. This wooded area slopes to the stream bank and is composed of mixed hardwoods, such as oak, maple, and ash. Previous surveys have revealed there are no known threatened and endangered (T&E) or locally rare wildlife species or habitats.

Pittsburgh IAP-ARS has made a concerted effort to gather data on natural resources potentially affecting the base, and to develop management polices to preserve and protect identified resources while still accomplishing its mission. Pittsburgh IAP-ARS has recently submitted for a review against the Pennsylvania Natural Diversity Inventory List to determine if resources of special concern are located on base.

3.8 Cultural Resources

3.8.1 Definition of the Resource

Cultural resources are defined by the NHPA as prehistoric and historic sites, structures, districts, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or any other reason. Depending on the condition and historic use, such resources may provide insight into living conditions in previous civilizations and/or may retain cultural and religious significance to modern groups.

Several Federal laws and regulations govern protection of cultural resources, including the NHPA (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (ARPA, 1979), and the Native American Graves Protection and Repatriation Act (1990).

Typically, cultural resources are subdivided into *archaeological resources* (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing) or *architectural resources* (buildings or other structures or groups of structures that are of historic or aesthetic significance). Archaeological resources comprise areas where human activity has measurably altered the earth or deposits of physical remains are found (e.g., arrowheads and bottles).

Architectural resources include standing buildings, bridges, dams and other structures of historic or aesthetic significance. Generally, architectural resources must be more than 50 years old to be

considered for the National Register, however, more recent structures, such as Cold War-era resources, may warrant protection if they have the potential to gain significance in the future.

Traditional cultural properties or sacred sites can include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

3.8.2 Existing Conditions

The cultural resources information provided below was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a). Pittsburgh IAP was originally built by the U.S. Army Air Corps in 1942 as a large, state-of-the-art facility to provide for the air defense of western Pennsylvania's industrial base, and as a refueling stop for military transports. Historically, Pittsburgh IAP has hosted active duty and reserve flying units. In 1944, as needs caused by World War II diminished, the airfield was ceded to Allegheny County with part of the airfield reserved for continued use by the military as an ARS.

In 1963, the 911 Troop Carrier Group was activated to administer the 758th Troop Carrier Squadron. It became a Military Airlift Group when the unit converted to C-123K aircraft in 1972. The unit converted to C-130A aircraft in 1980 and C-130H aircraft in 1987. The unit was renamed the 911 Airlift Group in 1992 and was later named the 911 Airlift Wing in 1994. By 1996, the Wing had a total of nine C-130H aircraft at its disposal.

In 1997, Pittsburgh IAP-ARS prepared a *Cultural Resources Management Plan* (CRMP) which was based on surveys performed to identify historic buildings and archaeological resources at the base. Neither historic buildings nor archaeological resources were identified during the survey. The plan stated that past construction and grading have extensively disturbed the grounds at the base. Due to the geographic limitations of the archaeological survey, the CRMP provides procedures for verifying the absence of archaeological resources in undisturbed portions of the base slated for development. If these procedures are followed, future installation development should not be constrained by historic or archaeological resources.

The CRMP is integral in surveying and identifying historic, archaeological, and cultural resources. It identifies natural and human-associated sites for the purpose of increasing the awareness of the Pittsburgh community as to the richness of its past while enhancing its cultural environment.

The CRMP assists base personnel in handling the discovery of an unidentified cultural resource on base property. While it is unlikely that a cultural resource will be discovered on base, it is important that base personnel and contractors take the appropriate actions to prevent the inadvertent disturbance of artifacts, archaeological sites or historical findings. The CRMP also sets aside protective and reporting measures in the event that culturally significant sites are identified on-base.

As part of the 1997 CRMP, a Phase I historic buildings survey failed to note the presence of either historic sites or structures on the base. However, Buildings 206, 209, 216, 217, 218, and 219 surpassed 50 years of age since the survey; 50 years of age is a significant criteria used to evaluate historical significance. Most of the grounds within the base have been disturbed by construction and grading.

3.9 Socioeconomics and Environmental Justice

3.9.1 Definition of the Resource

Socioeconomics are defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Regional birth and death rates and immigration and emigration affect population levels. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these two fundamental socioeconomic indicators may be accompanied by changes in other components, such as housing availability and the provision of public services. Socioeconomic data at county, state, and national levels permits characterization of baseline conditions in the context of regional, state, and national trends.

Data in three areas provide key insights into socioeconomic conditions that might be affected by a proposed action. Data on employment may identify gross numbers of employees, employment by industry or trade, and unemployment trends. Data on personal income in a region can be used to compare the “before” and “after” effects of any jobs created or lost as a result of the Proposed Action. Data on industrial or commercial growth or growth in other sectors provides baseline and trend line information about the economic health of a region.

In appropriate cases, data on an installation’s expenditures in the regional economy help to identify the relative importance of an installation in terms of its purchasing power and jobs base.

Demographics identify the population levels and changes to population levels of a region. Demographics data may also be obtained to identify and evaluate a proposed action by its characteristics in terms of race, ethnicity, poverty status, educational attainment level, and other broad indicators.

On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The essential purpose of the EO is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of where a proposed action would occur. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

Socioeconomic data shown in this section are presented at county, state, and U.S. levels to characterize baseline socioeconomic conditions in the context of regional, state, and national trends. Data have been collected from the U.S. Bureau of Census.

On April 21, 1997, the President issued EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This EO requires Federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. The EO further requires Federal agencies to ensure that their policies, programs, activities, and standards address these disproportionate risks. The order defines environmental health and safety risks as "risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink and use for recreation, the soil we live on, and the products we use or are exposed to)." Such information aids in evaluating whether a proposed action would render vulnerable children targeted for protection in the EO.

3.9.2 Existing Conditions

The socioeconomic and environmental justice information provided below was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a). Pittsburgh IAP-ARS is located within the six-county Pittsburgh Metropolitan Statistical Area (PMSA). The base is located within the largest county in the PMSA, Allegheny County, with a population of roughly 1.3 million. Although it has a large population, the region's demographics are characterized by slow population growth. The region also possesses a generally older population than many metropolitan areas in the country.

The median household income for Allegheny County grew from $17,994 in 1980 to $28,136 in 1990 for a total growth of 56.4 percent. Except for Butler County, this growth is more than any other county within the PMSA. The city of Pittsburgh is the largest municipality within Allegheny County and supports several industries of national and world-wide export. Some of the largest employers in the area include USX, PPG Industries, Bayer, and General Motors. With roughly 1,700 jobs associated with the operation of the base, Pittsburgh IAP-ARS easily ranks among the top ten employers in Allegheny County.

The 911 AW budget for salaries and operating expenses exceeds $34 million annually, including $16 million in civilian salaries, $7 million in operating expenses, and $11 million in reservists payroll and travel. Facilities construction has added $30 million in recent years to the area economy. The 911 AW's overall economic impact is estimated at $64 million annually (Pittsburgh IAP-ARS 2003c).

Residents of the region enjoy a relatively high quality of life attributable to numerous recreational and cultural activities, including more than 15 museums, 9 colleges and universities, professional sports teams and numerous theaters and fine dining areas. Nature parks are also available in surrounding counties. World class medical facilities are also located in the Pittsburgh area.

While the airport occupies land in both Findlay and Moon Townships, the base is situated entirely in Moon Township. Moon Township views the operation of the base as a use permitted by right under its zoning code.

Approximately 1,700 personnel populate Pittsburgh IAP-ARS. Organizations such as the U.S. Navy Reserve Seabees and the Civil Air Patrol use the station facilities for training. Various contractors and resident businesses provide services to the base. USACE also maintains an office on the base.

The 911 AW includes approximately 1,240 Air Force Reserve members, including 170 officers and 1,070 enlisted personnel. The unit employs approximately 380 full-time civilians, which includes 155 Air Reserve Technician members holding dual civilian and military positions. No personnel are permanently lodged on-base.

The region of influence (ROI) for economic activities at Pittsburgh IAP-ARS is Allegheny County, Pennsylvania. Data relevant to Allegheny County, the State of Pennsylvania, and the U.S. are provided in Table 3-3. To comply with EO 12898, ethnicity and poverty status in the vicinity of the base were examined and compared to state and national data. The Census Bureau bases the poverty status of families and individuals on threshold variables, including income, family size, number of family members under 18 and over 65 years of age, and amount spent on food. The U.S. poverty threshold is $13,738 for a family of three, and 12.4 percent of the U.S. population were below the poverty level in 2000. Based on the 2000 U.S. Census Bureau (Table 3-3), residents in Allegheny County have a slightly lower poverty level than the national and state poverty levels.

Table 3-3. Race and Poverty Characteristics in Allegheny County, the State of Pennsylvania, and the U.S.

	U.S.	State of Pennsylvania	Allegheny County, Pennsylvania
Total Population	281,421,906	12,281,054	1,281,666
Percent White	75.1	85.4	84.3
Percent Black	12.3	10	12.4
Percent Hispanic or Latino	12.5	3.2	0.9
Percent American Indian, Eskimo, or Aleut	0.9	0.1	0.1
Percent Asian or Pacific Islander	3.6	1.8	1.7
Percent Other	5.5	1.5	0.3
Percent Reporting 2 or more races	2.4	1.2	1.1
Percent Living in Poverty	12.4	11	11.2

Source: U.S. Bureau of Census 2000

3.10 Infrastructure and Utilities

3.10.1 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 provided below was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (Pittsburgh IAP-ARS 2001a) and provides a brief overview of each infrastructure component and comments on its existing general condition. The infrastructure components to be discussed in this section include transportation systems, utilities (electrical power, natural gas, and water supply), solid waste, and sanitary systems.

Solid waste management primarily concerns itself 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.

3.10.2 Existing Conditions

Water Supply. The base obtains its potable water by purchase from the Moon Township Municipal Authority and has an alternate water supply point from the Moon Township along Defense Avenue. The water acquired from the Authority is metered and delivered to the base via one 12-inch main. The water supply is then delivered into the distribution system through an 8-inch main. The average water pressure supplied to the base is 90 pounds per square inch (psi). Pittsburgh IAP-ARS has no active potable water wells.

The station's potable water is treated by the Moon Township Municipal Authority before it is conveyed to the base. Treatment includes chlorine contact, settling, filtering, and both chlorination and fluoridation. The base does not provide any additional treatment to the potable water supply prior to consumption. There are no reported potable water quality problems.

Water storage is provided by a 1.5-million gallon elevated water storage tank owned and operated by the Moon Township Municipal Authority. Constructed by the Authority in 1996 on a site provided by the base, the tank serves both the local community and the installation. In addition to ensuring adequate water pressure and storage system-wide, the Authority reserves 300,000 gallons of water exclusively for use by the base.

The water distribution system is government-owned and consists of both water mains and service laterals. The water mains were upgraded in 1995 and are primarily polyvinyl chloride (PVC)

with some ductile iron pipes. They range in size from six to ten inches. Lateral lines range in size from one to six inches and are also primarily PVC construction. The base's original water distribution system was abandoned in place during the system-wide upgrade completed in 1995.

Although not dramatic, on-base elevation changes coupled with dead-end lines can result in stagnant or slow flows in limited areas of the station; one such area is in the vicinity of Building 305. Recent improvements to the system include minimizing the number of dead end loops. Other improvements to the water distribution system include the installation of frost-free hose bibs, and the extension of wet-pipe fire protection lines to key facilities. Maintenance personnel cite the overall condition of the water supply system as excellent.

Fire hydrants are provided at regular intervals on the potable water distribution system throughout the base. Supplemental fire protection is provided through the storage of 300,000 gallons of water in the elevated storage tank of Moon Township Municipal Authority system.

Bio-environmental Engineering periodically conducts complete water sampling tests to ensure that high quality potable water is continuously supplied. Currently, no additional improvements to the water system are required, and no major improvements are planned in the near future. Deficient water lines will be replaced as necessary, and system expansion will occur concurrent with new construction on base.

Sanitary Sewer. Wastewater generated by the base is disposed of through Moon Township Municipal Authority's sanitary sewer lines and sewage treatment facility. Pittsburgh IAP-ARS' wastewater is carried off-base via one 15-inch sewer main, which runs along the eastern border of the base. All wastewater is delivered to the Moon Township Municipal Authority's wastewater treatment plant, where it is treated and discharged into Montour Run. The treatment facility was upgraded by the Authority in 1991 from 3.1 mgd capacity to 6.2 mgd. Pittsburgh IAP-ARS does not use septic systems for the treatment and disposal of wastewater. Industrial wastes are treated through oil/water separators which subsequently discharge directly to the sanitary sewer system for additional treatment.

The on-base collector system consists of approximately 16,500 feet of gravity flow pipe. The collection system includes service laterals, oil/water separators, underground holding tanks, and collector mains. Service laterals are typically three to six inches in diameter and mains range from six to eight inches. Construction materials include vitrified clay for older portions of the system and PVC for all newer piping. The system was originally installed in the 1950s, and the

age of lines vary with the area of the base. The base's terrain and slopes provide for adequate flow and all mains are gravity driven. The base's sanitary sewerage system ties into Moon Township's collector line at four locations along the eastern boundary of the base.

A utility master plan prepared in 1992 concluded that the base's sanitary sewerage system was functional, although some components were in need of maintenance and repair. The Moon Township Municipal Authority's sanitary sewer collection system and sewage treatment plant are adequate to meet the wastewater treatment requirements of Pittsburgh IAP-ARS and all components of the system are presently adequate to meet daily and future requirements.

Natural Gas. Peoples Natural Gas Company is the natural gas provider for Pittsburgh IAP-ARS. Peoples Natural Gas Company purveys natural gas to the base via one 6-inch coated and wrapped steel gas line. This line extends from another transmission line approximately two miles away and operates at a pressure of 40 pounds per square inch (psi). Due to the presence of several interstate natural gas transmission lines, the overall availability of natural gas in the Pittsburgh area is good.

The 6-inch supply line enters the base southeast of the main gate, running parallel along Defense Avenue to the on-base gas metering station at Building 119. At the metering station, the line pressure is reduced to 10 psi prior to distribution to base facilities. The lines exiting the metering station are 4-inch polyethylene inserted within either an 8- or 6-inch steel pipe gas line. All remaining lines in the system are polyethylene plastic in steel, ranging in size from 0.5- to 4-inches.

Peoples Natural Gas Company owns all natural gas supply lines and the meter and regulator system to the point of pressure reduction; thus, Pittsburgh IAP-ARS assumes ownership of gas lines on the "low side" of the reducing station.

Natural gas is the primary heating source for base facilities. Natural gas supplies the central heating plant (Building 213 basement) serving the dormitory complex, and fuels natural gas-fired furnaces for steam boilers and radiant heat systems located within individual facilities. The gas distribution system is being expanded as stand-alone boilers are installed in new facilities.

The distribution system consists of several loops serving the flightline/support area, the dining hall/dormitory complex, the civil engineering and maintenance area, and the base's administrative core. Isolation valves are located at each building and throughout the system, thereby allowing portions of the system to be shut off for maintenance without affecting or interrupting service to

other facilities. In most cases, tracer wires marking distribution lines have been installed to facilitate line location.

Although Peoples Natural Gas Company provides interruptible service to the base, utility personnel indicate that historically there have been no capacity or supply hindrances. Pittsburgh IAP-ARS' natural gas system was extensively rehabilitated in 1991 and the distribution lines are in excellent condition. The system's line pressure of 10 psi is capable of accommodating base growth and new construction; the existing system and line pressure are adequate to support existing and future requirements.

Central Heating and Cooling. Pittsburgh IAP-ARS operates one central heating plant located in the basement of Building 213. This heating plant does not provide heating basewide. The plant hosts two boilers, a 1988-model hot water boiler rated at 7.3 million British Thermal Units (mBtu) per hour and a 1997-model steam boiler rated at 1.5 mBtu per hour. The hot water boiler produces low pressure hot water for heating Buildings 208-210, 213, and 216-219, while the steam boiler serves the dining hall kitchen in Building 213 with 40 psi steam. Both boilers are natural gas-fired; there is no secondary fuel source.

Six-inch hot water supply and return lines connect the central plant to the individual buildings it serves. The insulated steel lines are located within rickwells and are cathodically protected. The hot water is circulated by two, 350 gpm, 5 horsepower pumps at temperatures ranging from 140 to 180 degrees. Maintenance personnel estimate the age of the distribution lines to be approximately 20 years.

Maintenance personnel cite the overall rating of the central heating system as good. The boilers currently in use are new and, due to better insulated buildings and an increase in the number of pitched roofs, the same capacity as those originally installed decades ago. Because of the predominate use of individual gas-fired boilers and radiant heating units, there are no plans to expand the central heating system beyond its current configuration.

Electricity. The Duquesne Light Company is the purveyor of electricity for Pittsburgh IAP-ARS. Duquesne Light supplies electrical power to the reserve station from two 22.9 kilovolt (kV), three-phase overhead supply lines. The primary source originates at Duquesne Light's Montour Substation located approximately four miles east of the base, while the secondary feed begins at the Russell Burdsall and Ward substation located three miles north of the base. The primary and secondary circuits have capacities of 17,055 and 10,313 kV-amperes, respectively. Automatic

sectionalizing switches at the base substation control the two circuits. In the event of an outage on the Montour circuit, the base will automatically be switched to the secondary Russell Burdsall circuit. Once power is restored, the base will be switched back to the primary circuit, thereby providing the installation with virtually non-interruptible service. In addition, key facilities have emergency generators for backup of electrical systems in case of a power failure.

Duquesne Light's 22.9 kV transmission lines terminate at Facility 212, the base substation. A three-phase, 1,500 kV transformer owned and maintained by the power company steps down the voltage to 4.16 kV for primary distribution on-base. From the transformer, cables feed two 1,200 amp government-owned vacuum circuit breakers which protect two 4.16 feeders (one underground and one overhead) as they leave the substation. The underground feeder serves facilities in the southeast quadrant of the base. The overhead feeder, which includes some underground segments, is operated as a closed double loop system and serves the majority of the base's facilities.

Communications. The 911 Communications Squadron operates and maintains communications systems and equipment at Pittsburgh IAP-ARS to meet mission requirements. The communications system consists of twisted pair copper cable and fiber optic cable; underground cable is direct bury, in duct, or armor jacketed. Direct bury characterizes a majority of the underground cable in the network. The communications system is host to a manhole and duct system which facilitates the distribution of and access to base communications. The cable vault and main distribution frame are located in Building 405, the central office.

The current local area network architecture is a newly installed fiber optic backbone in an Ethernet-based star network configuration. This network will enhance the data transfer capabilities for local area network users as well those users of data systems which require dedicated circuits.

Transportation Network. Vehicular access to Pittsburgh IAP-ARS is limited to the Main Gate, which is staffed 24 hours a day. The entrance to the base was substantially reconfigured in 1992, in conjunction with the construction of the interchange at Thorn Run Road and BR-60. As a result of this project, the route to the main gate is via an access road which originates west of the interchange and terminates at the main gate.

Business Route 60 runs adjacent to the installation along its eastern border. It serves as the link between the base and Interstate 79, located approximately 8 miles to the southeast. Interstate 79

connects Pittsburgh with Erie, Pennsylvania to the north and Charleston, West Virginia to the south.

The on-base street system consists of Defense Avenue, a primary road providing access off-base, and Carter Street, a primary road that forms a partial loop before terminating in the vicinity of the Base Civil Engineer complex. Defense Avenue begins at the main gate and provides access to individual parking lots and minor streets prior to its terminal point at Building 409. Carter Street begins at its intersection with Defense Avenue west of Building 206 and serves the dormitories and base supply and engineering complexes.

The base roadway network is primarily in place, and the system offers sufficient vehicular access to all necessary facilities. With selected improvements and maintenance, the roadway system will be adequate to meet the present and future needs of the base.

Solid Waste. Wastes disposed of in the solid waste stream at Pittsburgh IAP-ARS are expected to consist only of those materials that cannot be effectively recycled. This commonly includes paper towels and other sanitary wastes, food-soiled wrappings and packagings, most food wastes, plastic bags and wrappings, non-recyclable C&D wastes, and other miscellaneous non-recyclable materials from administrative, industrial, food-service, and retail operations.

Refuse pickup is handled at Pittsburgh IAP-ARS by Waste Management of Pennsylvania, Inc., under a combined refuse and recycling contract. This refuse is disposed of in the Arden Landfill, which is owned and operated by Waste Management and permitted by PADEP. Pittsburgh IAP-ARS does not have an on-base solid waste landfill.

C&D waste and non-recurring MSW generated under contract are the responsibility of the contractor. C&D waste and non-recurring MSW generated under contract or by base personnel are recycled to the greatest extent possible. Contractors are required to report the quantities of recycled C&D waste. Specifications in these contracts require contractors to provide information regarding the disposition of the waste they generate. A 30-cubic-yard C&D dumpster is used by base personnel to dispose of non-recyclable C&D waste.

3.11 Hazardous Materials and Wastes

3.11.1 Definition of the Resource

AFPD 32-70, *Environmental Quality*, establishes the policy that the 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

Hazardous material is defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that may cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that may pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

Evaluation of hazardous materials and wastes focuses on underground storage tanks and aboveground storage tanks and the storage, transport, and use of pesticides and herbicides, fuels, and POLs. 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 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 waste statutes. Included in this category are asbestos containing materials (ACM), radon, lead-based paint (LBP), polychlorinated biphenyls (PCBs), and unexploded ordnance. The presence of special hazards or controls over them may 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.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, and the Toxic Substances Control Act define hazardous materials. The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, defines hazardous wastes. In general, both hazardous materials and wastes include substances that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

Through its Environmental Restoration Program (ERP), DoD evaluates and cleans up sites where hazardous wastes have been spilled or released to the environment. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, to control the migration of contaminants, to minimize potential hazards to human health and the environment, and to clean up contamination. Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that may be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage may be foreclosed where a groundwater contaminant plume remains to complete remediation).

3.11.2 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 mange, monitor, or track any of those activities. The 911 AW has established a hazardous materials management program (HMMP) in accordance with AFI 32-7086 (Pittsburgh IAP-ARS 2003a). The HMMP ensures that only the smallest quantities of hazardous materials necessary to accomplish the mission are purchased and used.

Hazardous and toxic material procurements at the Pittsburgh IAP-ARS are approved and tracked by the Bioenvironmental Engineering, Safety Office and Environmental Flight through the use of the Air Force Environmental Management and Information System (EMIS) software. Environmental Flight at Pittsburgh IAP-ARS supports and monitors environmental permits, hazardous material and hazardous waste storage, and spill prevention and response.

Hazardous Wastes. Hazardous wastes generated within the State of Pennsylvania must be managed in accordance with USEPA, State of Pennsylvania, and USAF regulatory requirements. The 911 AW maintains a *Hazardous Waste Management Plan* (Pittsburgh IAP-ARS 2003a) as directed by AFI 32-7042, *Solid and Hazardous Waste Compliance*. This plan prescribes the roles and responsibilities of all members of Pittsburgh IAP-ARS 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 waste and hazardous waste management.

Pittsburgh IAP-ARS is a small quantity generator (SQG), which is defined by RCRA as a generator who generates greater than 100 kilograms but less than 1,000 kilograms per month of hazardous waste. Pittsburgh IAP-ARS does not have a USEPA permit for hazardous waste (Pittsburgh IAP-ARS 2003a). An USEPA identification number has been assigned to Pittsburgh IAP-ARS for use in tracking hazardous waste once it leaves the base.

All organizations on base are considered one generator for purposes of determining the quantity of hazardous waste generated monthly. A SQG may accumulate hazardous waste on site for up to 180 days without a permit. The 911 AW has a base accumulation point (BAP) located in Building 339 for the storage of hazardous wastes for less than 180 days before they are transported off site for proper handling. Individual shops manage wastes at satellite or initial accumulation points (APs) before transporting the wastes to the BAP. Processes generating hazardous wastes on Pittsburgh IAP-ARS include aircraft and vehicle maintenance, parts cleaning, support equipment maintenance, general facility maintenance, painting, non-destructive inspection, weapons training and cleaning, and expired shelf-life chemicals.

Hazardous waste is temporarily accumulated and stored at Pittsburgh IAP-ARS at either hazardous waste APs or the 180-Day BAP located at Building 339. There is no permitted storage facility at Pittsburgh IAP-ARS, and hazardous wastes must be shipped to a permitted Treatment, Storage, or Disposal Facility (TSD Facility) or to a facility that has interim status within 180 days of receipt at the BAP. Pittsburgh IAP-ARS uses the DoD-operated (Defense Reutilization and Marketing Office [DRMO]) in Mechanicsburg, Pennsylvania for the transfer of the majority of its hazardous waste to a permitted TSD facility.

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 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 911 AW fulfills this requirement with the following plans:

- Storm Water Pollution Prevention Plan (Pittsburgh IAP-ARS 2002c)
- Hazardous Waste Management Plan (Pittsburgh IAP-ARS 2003a)
- Hazardous Material Emergency Planning and Response Plan (Pittsburgh IAP-ARS 2002b)
- Solid Waste Management Plan (Pittsburgh IAP-ARS 2003b)

These plans ensure that Pittsburgh IAP-ARS maintains a waste reduction program and meets the requirements of the CWA, the NPDES permit program and Federal, state, and local requirements for spill prevention control and countermeasures.

Asbestos. 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. Asbestos 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 regulates 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 Pittsburgh IAP-ARS is managed in accordance with the *Asbestos Management Program Plan* that was updated in 2001 (Pittsburgh IAP-ARS 2001b). 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 the base from exposure to airborne asbestos fibers as well as to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos. Not all of the buildings on Pittsburgh IAP-ARS have been surveyed to locate, identify, and evaluate any

materials containing asbestos (Pittsburgh IAP-ARS 2001b). Materials that may contain asbestos include roofing materials 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 lead-based paint 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 29 CFR 1910.120, 29 CFR 1926, 40 CFR 50.12, 40 CFR 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 Pittsburgh IAP-ARS is managed in accordance with the *Lead-Based Paint Management Plan* that was updated in 2001 (Pittsburgh IAP-ARS 2001c). Not all of the buildings on the base have been surveyed to locate, identify, and evaluate any materials containing LBP (Pittsburgh IAP-ARS 2001c).

Environmental Restoration Program. The ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense Environmental Restoration Program (DERP) that became law under the Superfund Amendments and Reauthorization Act. The ERP requires each DoD installation to identify, investigate, and cleanup hazardous waste disposal or release sites.

Pittsburgh IAP-ARS began its ERP in 1984. This consisted of a Phase I Records Search to identify potential sites of concern which warranted further investigation. In accordance with USAF policy, all ERP sites at the base are addressed in a manner consistent with the CERCLA process. None of the sites are on the National Priorities List (NPL) (Pittsburgh IAP-ARS 2002d).

The 2002 *Management Action Plan* (MAP) (Pittsburgh IAP-ARS 2002d) was developed to provide a picture of the environmental restoration activities completed at Pittsburgh IAP-ARS. Pittsburgh identified seven ERP sites identified through a rigorous process of site evaluation. Some of these seven sites encompass areas of soil and groundwater contamination stemming from past waste management practices (Pittsburgh IAP-ARS 2002d). The seven ERP sites have had comprehensive investigations which concluded that contamination does not pose a risk to human health or the environment.

4. Environmental Consequences

Section 4 presents an evaluation of the environmental impacts that may result from implementing the Proposed Action or the No Action Alternative. This chapter focuses on impacts considered potentially significant. The general approach followed throughout this Section is to describe briefly the range of impacts that would occur and then provide a discussion of impacts that are considered significant.

The specific criteria for determining the significance of impacts and assumption for the analyses are presented under each resource area. Significance criteria for most potential impacts were obtained from standard criteria; Federal, state, or local agency guidelines and requirement; and/or legislative criteria. Long-term implications of the Proposed Action are also presented in this Section.

The significance of an action is measured in terms of its context and intensity. The extent to which a proposed action may affect an environmental resource depends on many factors. In some cases, environmental resources may be affected directly; in others, they may be affected indirectly; and in some cases, not affected at all.

The significance of an action is analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance may vary with the setting of a proposed action.

Intensity refers to the severity of impact. Impacts may be beneficial or adverse. Consideration must be given to whether an impact affects public health or safety and whether it affects areas having unique characteristics, such as historical or cultural resources, wetlands, or ecologically critical areas. The significance of impacts may also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Significance may be found where an action sets a precedent for future actions having significant effects, as well as in cases involving cumulative impacts. In considering intensity, consideration must be given to the degree to which the action may adversely affect animal or plant species listed as endangered or threatened or their habitat. Finally, in evaluating intensity, consideration must be given to whether an action threatens a violation of a law or regulation imposed for the protection of the environment.

4.1 Air Quality

4.1.1 Significance 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:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of ten percent or more in an affected AQCR emissions inventory

Impacts to air quality in NAAQS non-attainment areas are considered significant if the net changes in project-related pollutant emissions result in one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Exceed any significance criteria established in a SIP
- Delay 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 would result in an increase of a non-attainment or maintenance area's emission inventory by ten percent or more for one or more non-attainment pollutants, or if such emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual non-attainment pollutants or for pollutants for which the area has been designated as a non-attainment or maintenance area.

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 New Source Review (NSR) Program (CAA Title I). As shown in Table 4-1, *de minimis* thresholds vary depending upon the severity of the non-attainment area designation by USEPA.

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

Pollutant	Status	Non-Attainment Classification	*de minimis* Threshold (tons/yr)
Ozone (measured as – "precursors": Nitrogen Oxides (NO_x) or Volatile Organic Compounds (VOCs))	Non-attainment	Extreme Severe Serious Moderate/marginal (inside ozone transport region) All others	10 25 50 50 (VOCs)/100 (NO_x) 100
	Maintenance	Inside ozone transport region Outside ozone transport region	50 (VOCs)/100 (NO_x) 100
Carbon Monoxide (CO)	Non-attainment/ Maintenance	All	100
Particulate Matter <10 microns (PM_{10})	Non-attainment Maintenance	Serious Moderate Not Applicable	70 100 100
Sulfur Dioxide (SO_2)	Non-attainment/ maintenance	Not Applicable	100
Nitrogen Dioxide (NO_2)	Non-attainment/ maintenance	Not Applicable	100

Source: 40 CFR 93.153(b)

4.1.2 Environmental Consequences

Since a USEPA-designated non-attainment area is affected by this Proposed Action, the USAF must comply with the Federal General Conformity Rule (40 CFR, Part 93 and Pennsylvania Code Title 25, Chapter 127, Subchapter J). 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 non-attainment 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 non-attainment 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 collectively presented in the Air Conformity Analysis provided in Appendix B.

Construction Activities. The Proposed Action consists of four phases and includes demolishing six VQ facilities and constructing four new VQ facilities. A description of each phase of

demolition and construction is provided in Section 2.3.1. Table 4-2 lists the projected start date, estimated duration, and areas affected by implementation of the proposed demolition and construction projects.

Table 4-2. Proposed Construction Projects at Pittsburgh IAP-ARS

Demolition and Construction Projects	Start Date [1] (CY)	Duration[2] (Days)	Project Area[3] (ft^2)
DEMOLITION PROJECTS			
Demolition–Buildings 217 and 218 and Airlift Avenue (Phase I)	2007	60	25,941
Demolition–Buildings 218 and 219 (Phase II)	2012	60	25,941
Demolition–Buildings 209 (Phase III)	2015	60	12,970
Demolition–Buildings 206 (Phase IV)	2018	60	12,099
CONSTRUCTION PROJECTS			
Construct new VQ Facility (Phase I)	2007	300	42,065
Construct new VQ Facility and Parking Lot (Phase II)	2012	300	32,682
Construct new VQ Facility and Parking Lot (Phase III)	2015	300	32,682
Construct new VQ Facility and Parking Lot (Phase IV)	2018	300	35,263

Notes: [1] Start dates based on project-specific information provided by 911 AW/MSG/CEC.
[2 & 3] Project durations and project area are based on estimates provided by 911 AW/MSG/CEC personnel.

The construction projects would generate TSP and PM_{10} emissions as fugitive dust from ground disturbing activities (e.g., grading, demolition, soil piles, etc.) and combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day-to-day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions for various construction activities were calculated using emission factors and assumptions published in USEPA's AP-42 Section 11.9 dated July 1998 and Section 13.2 dated September 1998. These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays). Using Pennsylvania Crop Weather data for Pittsburgh, PA the average soil percent moisture was estimated to be an average of 20 percent (Progressive Farmer 2003). Wind speed of greater then 12 mph is recorded

30 percent of the time during ozone season (April 1-October 31), which is based on average wind rose data and measured speed (PES 2003) for the city of Pittsburgh, PA.

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emission factors and estimates were generated based on guidance provided in *Air Quality Thresholds of Significance* from the Sacramento Metropolitan Air Quality Management District (SMAQMD 1994).

For purposes of this analysis, the project duration and affected project site area to be disturbed information presented in Table 4-2 was used to estimate fugitive dust and all other criteria pollutant emissions. The construction emissions presented in Table 4-3 include the estimated annual construction PM_{10} emissions associated with the Proposed Action at Pittsburgh IAP-ARS. 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 4-3. Annual Construction Emissions from the Proposed Action at Pittsburgh IAP-ARS

	Proposed Construction Emissions Estimates				
Calendar Year	**NO_x[1] (tpy)**	**VOC[1] tpy)**	**CO (tpy)**	**SO_x (tpy)**	**PM_{10}[1] (tpy)**
2007 (Phase I)	13.95	5.05	12.81	0.68	2.98
2012 (Phase II)	12.64	4.69	11.61	0.61	2.70
2015 (Phase III)	9.98	3.93	9.17	0.48	2.13
2018 (Phase IV)	9.72	3.86	8.92	0.47	2.08

Note: [1] Denotes non-attainment pollutant in SPIAQCR.

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project. For purposes of analysis, these parameters were estimated using established methodologies for construction and experience with similar types of construction projects. Combustion by-product emissions from construction equipment exhausts were estimated using USEPA's AP-42 emissions factors for heavy-duty diesel-powered construction equipment.

The construction emissions presented in Table 4-3 include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action. As with fugitive dust

emissions, combustion emissions would produce slightly elevated air pollutant concentrations. Early phases of construction projects involve more heavy diesel equipment and earthmoving, resulting in higher NO_x and PM_{10} emissions. Later phases of construction projects involve more light gasoline equipment and surface coating, resulting in more CO and VOC emissions. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

As mentioned earlier, SPIAQCR is currently classified as being moderate "non-attainment" for O_3 and is in attainment for all other criteria pollutants. As shown in Table 4-3, the Proposed Action would generate emissions well below conformity *de minimis* limits as specified in 40 CFR 93.153. Because the emissions generated would be below *de minimis* levels, it is reasonable to assume that the temporary construction emissions caused by the Proposed Action would not cause a violation of the NAAQS. Therefore, no significant impact on regional or local air quality would result from implementation of the Proposed Action. Appendix B details the emission factors, calculations, and estimates of construction-related emissions for the Proposed Action.

According to 40 CFR 81 no Class I areas are located in the State of Pennsylvania or in the vicinity to Pittsburgh IAP-ARS. Therefore, Federal PSD regulations would not apply to the Proposed Action.

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 NSR regulations (40 CFR 51 and 52). As noted previously, Pittsburgh IAP-ARS has appropriate permits in place and has met all applicable permitting requirements and conditions for specific stationary devices.

4.2 Noise

4.2.1 Significance Criteria

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased noise exposure to unacceptable noise levels). Projected noise impacts were evaluated quantitatively for the Proposed Action.

4.2.2 Environmental Consequences

The proposed construction and demolition projects would occur intermittently between CY 2007 and CY 2018. Base policy restricts construction activities to normal business hours (0700 to 1700, five days a week, excluding holidays). Implementation of the Proposed Action would have minor, temporary effects on the noise environment near the project sites resulting from the use of heavy equipment during construction activities. The nearby facilities would experience muffled construction noise during the workday. However, noise generation would last only for the duration of construction activities, and could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). Noise produced by construction at the sites would not affect sensitive receptors on or off the base. In addition, the noise environment on-base is dominated by military aircraft overflights. Noise associated with construction activities would be comparatively minor and would occur in relatively remote areas of the base. Therefore, short-term, minor adverse effects would be expected as a result of the Proposed Action.

Buildings 216, 217, 218, and 219 are located within the 70 and 75 dB noise contours, Building 209 is located in 70 dB noise contour, and Building 206 is located in 60 dB noise contour (see Figure 3-1). Construction personnel would be exposed to high noise levels during construction. Reservists and TDY personnel staying in the existing and new VQ facilities would be exposed to high levels of noise from aircraft operations. Therefore, noise attenuation features would be included in the design of proposed VQ facilities, thereby reducing building interior noise to acceptable levels.

4.3 Land Use

4.3.1 Significance Criteria

The significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action and compatibility of proposed actions with existing conditions. In general, a land use impact would be significant if it were to:

- Be inconsistent or in noncompliance with existing land use plans or policies
- Preclude the viability of existing land use
- Preclude continued use or occupation of an area
- Be incompatible with adjacent land use to the extent that public health or safety is threatened

- Conflict with planning criteria established to ensure the safety and protection of human life and property

Potential impacts on transportation and circulation are evaluated for disruption or improvement of current transportation patterns and systems, deterioration or improvement of traffic volume, and changes in existing levels of transportation safety. Impacts may arise from physical changes to

circulation (e.g., closing, rerouting, or creating roads), construction activity, introduction of construction-related traffic on local roads, or changes in daily or peak-hour traffic volumes increased by either direct or indirect work force and population changes related to facility activities. Impacts on roadway capacities would be significant if roads were forced to operate at or above their full design capacity.

4.3.2 Environmental Consequences

No conversion of land use would occur on Pittsburgh IAP-ARS as a result of the Proposed Action. Construction and demolition projects would occur on land classified as Housing. Impacts associated with construction, demolition and removal of construction materials and debris would include temporary disruption of land uses due to elevated noise levels, increased dust, interference with roadway access and visual effects. The installation of utilities, such as power, telephone and fiber optic cable could temporarily affect land uses. Pittsburgh IAP-ARS would realize beneficial effects resulting from the upgrading of facilities, utilities, roads, and parking lots.

There would be no adverse effects to the land use surrounding Pittsburgh IAP-ARS. All construction and demolition activities would be limited to areas located on the base.

4.4 Safety

4.4.1 Significance Criteria

Impacts were assessed based on direct effects from construction activities, as well as secondary effects, such as environmental contamination. The extent of these secondary effects is situationally dependent and difficult to quantify.

4.4.2 Environmental Consequences

Construction Safety. Short-term, minor adverse effects would be expected. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction

contractors performing work at Pittsburgh IAP-ARS 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 to activities at the base. Proposed construction projects would enable the 911 AW to meet future mission objectives at the base, and conduct or meet mission requirements in a safe operating environment.

Fire Hazards and Public Safety. No impacts regarding fire hazards or public safety are expected to occur on base from construction projects planned as part of the Proposed Action.

4.5 Geological Resources

4.5.1 Significance 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:

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

4.5.2 Environmental Consequences

Under the Proposed Action, construction activities, such as grading, excavating, and re-contouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would 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 on soils at the base would not be significant.

The Proposed Action would not cause or create significant changes to the topography of Pittsburgh IAP-ARS or the surrounding area and all permitting requirements for erosion and sediment control would be met. Therefore, no significant impact on regional or local topography or physiographic features would result from implementation of the Proposed Action.

4.6 Water Resources

4.6.1 Significance 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: 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; or 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 significant if such an action is proposed in an area with a high probability of flooding.

4.6.2 Environmental Consequences

Implementation of the Proposed Action is expected to have no adverse effects on water quality. The Proposed Action would not cumulatively increase the impervious surface area and runoff on the base. Adherence to proper engineering practices and applicable codes and ordinances would reduce storm water runoff-related impacts to a level of insignificance. 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.

Construction activities would require the use of water for dust suppression. The volume of water to be used for dust control would be minimal. No runoff would be expected to result for this process. Therefore, no significant impacts to surface water are expected to result from the use of water for dust control during construction.

4.7 Biological Resources

4.7.1 Significance Criteria

This section evaluates the potential impacts to the biological resources under the Proposed Action and the No Action Alternative. The significance of impact to biological resources is based on (1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; (2) the proportion of the resource that would be affected relative to its occurrence in the region; (3) the sensitivity of the resource to proposed activities; and (4) the duration of ecological ramifications. Due to the large area under consideration associated with the Proposed Action, a habitat perspective will provide a framework for analysis of general classes of effects (i.e., removal of critical habitat, noise associated with training, human disturbance, etc.). The impacts to biological resources are significant if species or habitats of high concern are adversely affected over relatively large areas. Impacts are also considered significant if disturbances cause reductions in population size or distribution of a species of high concern.

The significance of impacts on wetland resources is proportional to the functions and values of the wetland complex. Wetlands function as habitat for plant and wildlife populations, including T&E species that depend on wetlands for their survival. Wetlands are valuable to the public for flood mitigation, storm water runoff abatement, aquifer recharge, water quality improvement, and aesthetics. On a global scale, wetlands are significant factors in the nitrogen, sulfur, methane, and carbon dioxide cycles. These parameters vary from year to year or from season to season. Quantification of wetlands functions and values, therefore, is based on the ecological quality of the site as compared with similar sites, and the comparison of the economic value of the habitat with the economic value of the proposed activity that would modify it. A significant adverse impact on wetlands would occur should either the major function or value of the wetland be significantly altered.

As a requirement under the ESA, Federal agencies are required to provide documentation that ensures that agency actions will not adversely affect the existence of any T&E species. The ESA requires that all Federal agencies avoid “taking” threatened or endangered species (which includes jeopardizing threatened or endangered species habitat). Section 7 of the ESA establishes a consultation process with USFWS that ends with USFWS concurrence or a determination of the risk of jeopardy from a Federal agency project.

4.7.2 Environmental Consequences

Pittsburgh IAP-ARS has been extensively altered over time and the project area is permanently disturbed with existing facilities and paved roads. In addition, previous surveys indicated that there are no known T&E or locally rare wildlife species or habitats on the base. Therefore, there would be no adverse effects on biological resources resulting from implementation of the Proposed Action.

4.8 Cultural Resources

4.8.1 Significance Criteria

Analysis of potential impacts to cultural resources considers various impacts. Adverse impacts may include physically altering, damaging, or destroying all or part of a resource; altering characteristics of the surrounding environment that contribute to the resource's significance; introducing visual or audible elements that are out of character with the property or alter its setting; neglecting the resource to the extent that it deteriorates or is destroyed; or the sell, transfer, or lease of the property out of agency ownership (or control) without adequate legally enforceable restrictions or conditions to ensure preservation of the property's historic significance.

4.8.2 Environmental Consequences

Pittsburgh IAP-ARS has been extensively altered over time and the project area is permanently disturbed with existing facilities and paved roads. As mentioned earlier, as part of the 1997 CRMP, a Phase I historic buildings survey failed to note the presence of either historic sites or structures on the base. Most of the grounds within the base have been disturbed by construction and grading. In addition, SHPO has reevaluated Buildings 206, 209, 216, 217, 218, and 219 from the Proposed Action for the 50 years of age significance criteria and has concurred that these facilities are not National Register eligible properties. Therefore, there would be no adverse effects on cultural resources resulting from implementation of the Proposed Action.

4.9 Socioeconomics and Environmental Justice

4.9.1 Significance Criteria

The significance of construction expenditure impacts is assessed in terms of direct effects on the local economy and related effects on other socioeconomic resources (e.g., housing). The magnitude of potential impacts can vary greatly, depending on the location of a proposed action.

For example, implementation of an action that creates ten employment positions may be unnoticed in an urban area but may have significant impacts in a rural region. If potential socioeconomic changes were to result in substantial shifts in population trends or in adverse effects on regional spending and earning patterns, they would be considered significant.

4.9.2 Environmental Consequences

Short-term, beneficial effects would be expected. Construction associated with the Proposed Action would generate temporary employment due to use of labor from the regional workforce and slight increased spending in the area due to the purchase of construction and other materials. Over the long-term, the Proposed Action would result in no change in officer, reserve officer, unit's reserve enlisted authorizations, and enlisted air reserve technician positions. No significant changes in demographics, housing, or public services would be expected, and there would be no shifts in socioeconomic patterns or trends resulting from the Proposed Action. Therefore, overall long-term socioeconomic impacts at Pittsburgh IAP-ARS would be negligible.

To comply with EO 12898, ethnicity and poverty status in the study area have been examined and compared to state and national statistics to determine if minority or low-income groups could potentially be disproportionately affected by the Proposed Action. The review indicates that the number of low-income residents in Allegheny County is slightly higher than the state average and lower than the national average. The review also indicates that the number of minority residents in Allegheny County is slightly lower than the state average and higher than the national average; however, it is not considered significantly higher. Therefore, the percentage of the population in the study area considered to be potentially impacted in relation to environmental justice concerns is considered low. In addition, minority or low-income populations would not be expected to be adversely or disproportionately impacted.

In addition, EO 13045 requires that Federal agencies identify and assess environmental health and safety risks that might disproportionately affect children. The Proposed Action would not likely pose any adverse or disproportionate environmental health or safety risks to children living in the vicinity of the base. The likelihood of the presence of children at the site where the Proposed Action would occur on base is considered minimal, which further limits the potential for effects. Therefore, no significant adverse impacts would be expected.

4.10 Infrastructure and Utilities

4.10.1 Significance 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 may 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.

4.10.2 Environmental Consequences

Transportation Systems. The construction and demolition phase of the Proposed Action would require delivery of materials to and removal of debris from construction sites. Construction traffic would comprise a small percentage of the total existing traffic and many of the vehicles would be driven to and kept on-site for the duration of construction and demolition, resulting in relatively few additional trips. Furthermore, potential increases in traffic volume associated with proposed construction activity would be temporary. Heavy vehicles are frequently on base roads. Therefore, the construction vehicles necessary for construction are not expected to have a heavy impact on base roads. In addition, Airlift Avenue would be closed during its demolition and realignment. This road closure would be coordinated with 911 Transportation Squadron and would be temporary in nature; therefore, no adverse impacts on transportation systems would be expected.

Electrical Power. The Proposed Action would not result in a net change in electrical power usage. Therefore, no adverse impacts to electrical power would result from the Proposed Action.

Natural Gas. The Proposed Action would not result in a net change in natural gas usage. Therefore, no adverse impacts to natural gas systems would result from the Proposed Action.

Water Supply. The Proposed Action would not result in a net change in water usage. Therefore, no adverse impacts to water supply systems would result from the Proposed Action.

Solid Waste. In considering the basis for evaluating the significance of impacts on solid waste, several items are 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 area landfill.

Solid waste generated from the proposed construction activities would consist of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Contractors are required to recycle C&D to the greatest extent possible as part of base policy, and any recycled C&D waste would be diverted from landfills. The landfill space required at the Arden Landfill or another approved landfill used by the contractor would increase minimally over the next 10 years (CY 2007 to CY 2018). Currently, Arden Landfill has the capacity to handle the additional C&D solid waste stream from the Proposed Action (Kattler 2003). Therefore, implementation of the Proposed Action at Pittsburgh IAP-ARS would not impact the solid waste management program at the base or the capacity of the Arden Landfill.

Sanitary Systems. The Proposed Action would not result in a net change in sanitary system usage. Therefore, no adverse impacts to sanitary systems would result from the Proposed Action.

4.11 Hazardous Materials and Wastes

4.11.1 Significance Criteria

Impacts to hazardous material management would be considered significant if the Federal action resulted in noncompliance with applicable Federal and PADEP regulations, or increased the amounts generated or procured beyond current Pittsburgh IAP-ARS waste management procedures and capacities. Impact to pollution prevention would be considered significant if the Federal action resulted in worker, resident, or visitor exposure to these materials, or if the action generated quantities of these materials beyond the capability of current management procedures. Impact to the ERP would be considered significant if the Federal action disturbed (or created) contaminated sites resulting in adverse effects to human health or the environment. Impacts to fuels management would be significant if the established management policies, procedures, and handling capacities could not accommodate the activities associated with the Proposed Action.

4.11.2 Environmental Consequences

Hazardous Materials. Products containing hazardous materials would be procured and used during the proposed facility construction projects. It is anticipated that the quantity of products containing hazardous materials used during the construction of the VQ facilities would be minimal and their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal and state regulations. Therefore, hazardous materials management at Pittsburgh IAP-ARS would not be impacted by the proposed construction activities.

Hazardous Wastes. 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 impact on the base's hazardous waste management program.

Pollution Prevention. It is anticipated that the Proposed Action would not impact the pollution prevention program at Pittsburgh IAP-ARS. Quantities of hazardous material and chemical purchases, off-base transport of hazardous waste, disposal of MSW, and energy consumption would continue. Operation of the new VQ facilities would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition associated with the operation of the proposed VQ facilities. The Pollution Prevention Program at Pittsburgh IAP-ARS would accommodate the Proposed Action.

Asbestos and Lead-Based Paint. Specifications for the proposed construction activities and USAF regulations prohibit the use of ACM and lead-based paints for new construction. Some of the buildings scheduled for demolition or renovation could contain ACM and lead-based paint. Sampling for asbestos and lead-based paint would occur concurrent with demolition activities and would be handled in accordance with the Pittsburgh IAP-ARS Asbestos and Lead-Paint Management Plans and USAF policy.

Environmental Restoration Program. The seven ERP sites on base have had comprehensive investigations which concluded that contamination does not pose a risk to human health or the environment. Therefore, there would be no adverse impact from ERP contamination during construction of the proposed VQ facilities. Figure 4-1 shows the location of these ERP sites and the proposed location of construction projects on Pittsburgh IAP-ARS.

4.12 No Action Alternative

Under the No Action Alternative, existing conditions would remain as is and the proposed project would not occur. If the No Action Alternative were carried forward there would be no change in or effects on air quality, noise, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes at Pittsburgh IAP-ARS. However, under the No Action Alternative, existing VQ facilities on Pittsburgh IAP-ARS would remain out of compliance with

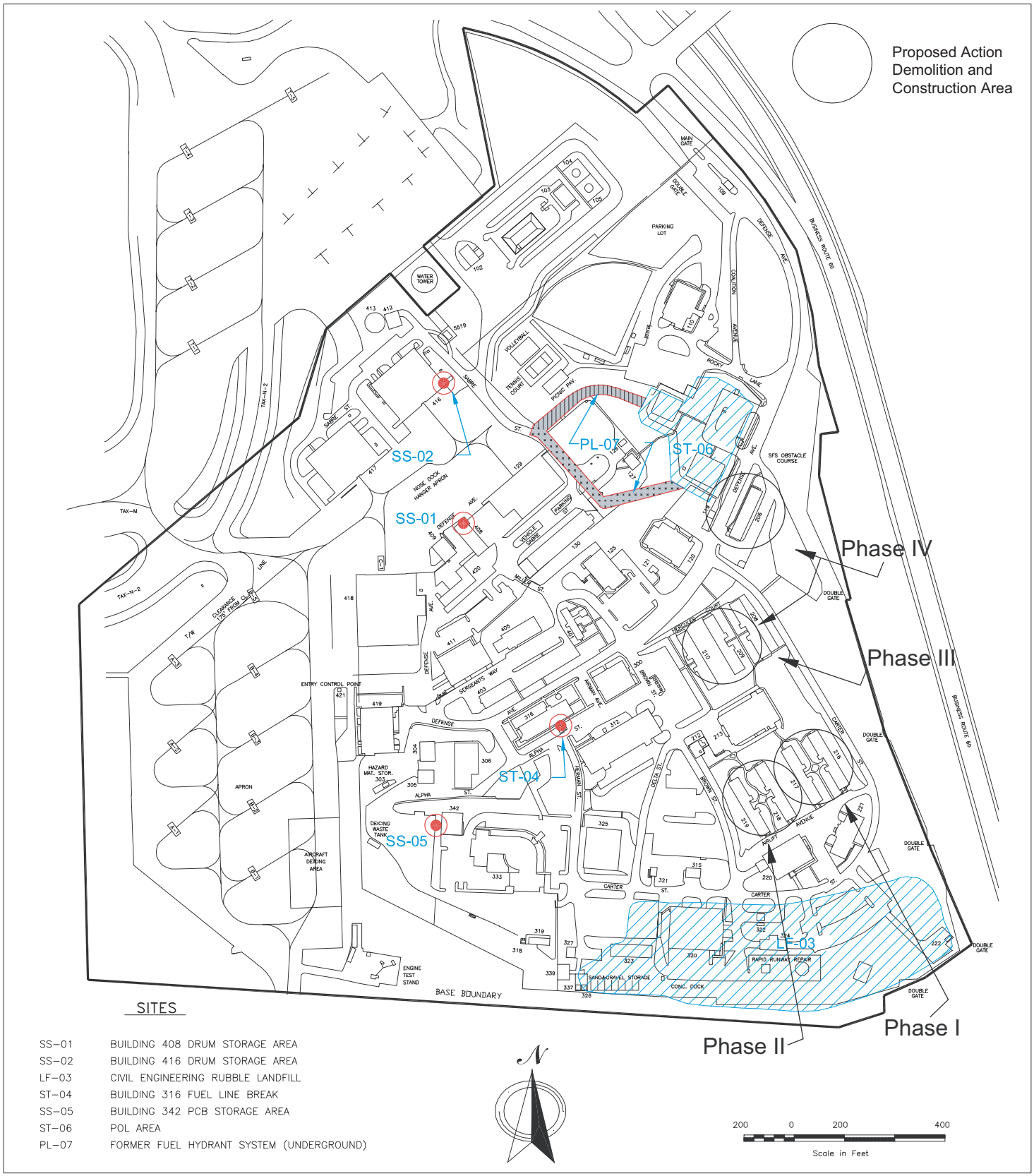

Figure 4-1. Environmental Restoration Program Sites at Pittsburgh IAP-ARS

USAF space and lodging standards. Implementation of the No Action Alternative would require USAF members and their families to continue staying in outdated, sub-standard facilities. In addition, the continued use of existing VQ facilities could impact morale and productivity from visiting reservists and TDY civilian employees.

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.

There may be other actions ongoing during the Proposed Action; however, none are known at this time. However, during the period in which the VQ facilities are under construction, there would undoubtedly be additional projects accomplished. In addition, at any given time, there may be multiple facility projects of various size and scope being executed.

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 means would also reduce potential impacts related to these characteristics. Although unavoidable, impacts on soils at the base is not considered significant.

Hazardous Materials and Wastes. 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 Pittsburgh IAP-ARS. Construction of the new VQ facilities would not result in any significant or incompatible land use changes on or off-base. The proposed VQ facilities have been sited according to existing land use zones. Consequently, construction of the new VQ facilities 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 the Short-term Use of the Environment 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 5 years. Long-term uses of man's environment include those impacts occurring over a period of more than 5 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 Pittsburgh IAP-ARS or in the surrounding area. Development of the Proposed Action or No Action Alternative would not represent a significant loss of open space. The sites are designated for Housing and are not planned for use as open space. Therefore, it is anticipated that neither the Proposed Action nor the No Action Alternative would result in any cumulative land use or aesthetic impacts. Long-term productivity of this site would be increased by the development of the Proposed Action.

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 utilized 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.

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.

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USAF 1999	U.S. Air Force (USAF). 1999. *Air Installation Compatible Use Zone (AICUZ) Handbook, Air Force Handbook 32-7084, Base Comprehensive Planning, Headquarters, US Air Force Directorate of Logistics and Engineering, Bolling Air Force Base, Washington D.C., and Headquarters, US Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas.* March 1999.

APPENDIX A

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE LIST

APPENDIX A
INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING CORRESPONDENCE LIST

Mr. Horst Greczmiel
Council on Environmental Quality (CEQ)
360 Old Executive Office Building, NW
Washington, DC 20501

Dr. Willie Taylor
U.S. Department of the Interior
Office of Environmental Policy and Compliance
Main Interior Building, MS 2340
1849 C Street, NW
Washington, DC 20240

Ms. Andree DuVarney
National Environmental Coordinator
Natural Resource Conservation Service (NRCS)
U.S. Department of Agriculture
14th and Independence Ave., SW
PO Box 2890
Washington, DC 20013

Mr. Rhey Solomon
Director, NEPA Staff
Forest Service
U.S. Department of Agriculture
PO Box 96090
Washington, DC 20090-6090

Mr. Richard Sanderson
Director, Office of Federal Activities
U.S. Environmental Protection Agency (USEPA)
Federal Agency Liaison Division, 2251-A
401 M Street, SW
Washington, DC 20460

U.S. Army Corps of Engineers (USACE)
Office of Environmental Policy (CECW-AR-E)
7701 Telegraph Road
Alexandria, VA 22315-3861

Mr. Don Klima
Director, Office of Planning and Review
ACHP
1100 Pennsylvania Ave., NW #809
The Old Post Office Building
Washington, DC 20004

U.S. Department of Interior
Office of Environmental Policy and Compliance
Room 2024 (Mail Stop 2340)
1849 C Street, NW
Washington DC 20240

Ms. Laury Zicari
USFWS Regional Office
Federal Projects Coordinator
300 Westgate Center Drive
Hadley, MA 01035-9589

Mr. Bill Arguto
USEPA - Region 3
Environmental Review Coordinator
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. Joseph Sieber
Office of Policy and Communications
PADEP
PO BOX 2063
Harrisburg, PA 17105-2063

Pennsylvania Historical & Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093

Mr. Gene Ricciardi
City Council President
City County Building
Suite 510/Floor 5414 Grant Street
Pittsburgh, PA 15219

Mr. Jim Roddey
Office of the County Chief Executive
101 County Courthouse
436 Grant Street
Pittsburgh, PA 15219

Mr. T. Mark Mustio
Chairman, Board of Supervisors
Moon Township Municipal Building
1000 Beaver Grade Road
Moon Township, PA 15108

July 10, 2003

Name

Address
City, State, ZIP

Dear Name

The Air Force Reserve Command is preparing an Environmental Assessment (EA) of the Proposed Visiting Quarters Facilities at Pittsburgh International Airport-Air Reserve Station, Pennsylvania. The Description of Proposed Action and Alternatives (DOPAA) is included with this correspondence as Attachment 1.

The environmental impact analysis process for this proposal is being conducted by the Air Force Reserve Command 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 DOPAA 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 July 25, 2003. Also enclosed is a listing of those Federal, state, and local agencies that have been contacted (see Attachment 2). 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 concerning or comments on the proposal to our consultant, engineering-environmental Management, Inc. (e^2M). The point-of-contact at e^2M is Mr. Sean McCain. He can be reached at (916) 361-6600. Please forward your written comments to Mr. McCain, in care of e^2M, Inc., 3358 Mather Field Road, Rancho Cordova, CA 95670. Thank you for your assistance.

Sincerely,
engineering-environmental Management, Inc.

Sean A. McCain
Project Manager

Attachments:
1. Description of Proposed Action and Alternatives (DOPAA)
2. Distribution List

3358 Mather Field Road, Rancho Cordova, California 95670 • (916) 361-6600 • Fax (916) 361-6606
DENVER • JACKSONVILLE • PHILADELPHIA • SACRAMENTO • SAN ANTONIO • SAN DIEGO • TULSA • WASHINGTON, DC

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850

August 1, 2003

Sean A. McCain
Project Manager
Engineering-Environmental Management, Inc.
3358 Mather Field Road
Rancho Cordova, CA 95670

Dear Mr. McCain:

This responds to your letter of July 10, 2003, requesting information about federally listed and proposed endangered and threatened species within the area affected by the proposed visiting quarters facilities at Pittsburgh International Airport - Air Reserve Station, Pennsylvania. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

Except for occasional transient species, no federally listed or proposed threatened or endangered species under our jurisdiction are known to occur within the project impact area. Therefore, no biological assessment nor further consultation under the Endangered Species Act are required with the Fish and Wildlife Service. This determination is valid for two years from the date of this letter. If the proposed project has not been fully implemented prior to this, an additional review by this office will be necessary. Also, should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of certain federal status species in Pennsylvania is enclosed for your information.

This response relates only to endangered or threatened species under our jurisdiction based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities.

Requests for information regarding State-listed endangered or threatened species should be directed to the Pennsylvania Game Commission (birds and mammals), the Pennsylvania Fish and Boat Commission (fish, reptiles, amphibians and aquatic invertebrates), and the Pennsylvania Department of Conservation and Natural Resources (plants).

Please contact Carole Copeyon of my staff at 814-234-4090 if you have any questions or require further assistance.

Sincerely,

David Densmore
Supervisor

Enclosure

Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

Sept. 4, 2003

Sean A. McCain
Engineering-Environmental Management, Inc.
3358 Mather Field Road
Rancho Cordova, CA 95670

TO EXPEDITE REVIEW USE BHP REFERENCE NUMBER

Re: ER 03-2179-003-B
DOD: Environmental Assessment of Proposed Visiting Quarters Facilities at the Pittsburgh International Airport-Air Reserve Station, Moon Township, Allegheny County, Pennsylvania

Dear Mr. McCain:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999. These requirements include consideration of the project's potential effect upon both historic and archaeological resources.

We have re-evaluated the National Register eligibility of the Air Reserve Station at the Pittsburgh International Airport since the initial review occurred before most of the buildings were 50 years of age. We continue to concur with the previous findings that the Air-Reserve Station, Moon Township, Allegheny County is not eligible for the National Register of Historic Places. Therefore, we concur with the findings of the agency that there are no National Register eligible or listed historic or archaeological properties in the area of this proposed project. Therefore, your responsibility for consultation with the State Historic Preservation Office for this project is complete. Should you become aware, from any source, that historic or archaeological properties are located at or near the project site, please notify the Bureau for Historic Preservation at (717) 783-8946.

Sincerely,

Jean H. Cutler
Bureau Director

JHC/smz

Pennsylvania Department of Environmental Protection

400 Waterfront Drive
Pittsburgh, PA 15222-4745
September 11, 2003

Southwest Regional Office

412-442-4189
Fax 412-442-4194

Mr. Sean McCain
e2M Engineering-Environmental Management, Inc.
3358 Mather Field Road
Rancho Cordova, CA 95670

Re: Environmental Assessment Project
Visiting Quarters - PIA-Air Reserve Station
Moon Township
Allegheny County

Dear Mr. McCain:

The Department of Environmental Protection's (DEP) regional program staff have reviewed the above project for environmental regulatory and policy requirements, and submit the following comments for your attention:

General

1. It is recommended that the applicant contact the Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation, Box 1026, Harrisburg, PA 17108-1026, telephone number 717-787-8947, to determine if the project will pass through or otherwise impact historic or archaeological sites. Any review comments by the commission should be included with the appropriate DEP permit applications.

2. The Pennsylvania Natural Diversity Inventory List (PNDI) should be cross-checked against the site location to determine if any resources of special concern are located within the project area.

3. Any utility company with transmission lines within the project area should be contacted at least 30 days prior to work start by the contractor. It is further recommended that the applicant or contractor call 1-800-242-1776 before beginning any excavation.

4. Please be advised that the Southwest Regional Office of DEP lacks available staff time to perform an extensive file review for the above project. You may make arrangements to have your staff review the appropriate files by contacting File Clerk Edward Duval, at this address and telephone number.

Air Quality

5. Please be advised that all asbestos abatement procedures must conform to the requirements of the National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 61, Subpart M. Any contractor removing asbestos must be licensed by the Pennsylvania Department of Labor and Industry. Removal of asbestos materials must take place prior to general demolition and also requires at least ten (10) days advance notification to the following individuals:

   Allegheny County Health Department
   Building #7, 301 39th Street
   Room 221
   Pittsburgh, PA 15201-1891
   412-578-8133

6. Demolition waste cannot be burned.

7. Fugitive dust emissions must be controlled according to 25 Pa. Code Section 123.1.

Environmental Cleanup

8. If you plan to seek environmental liability protection under Act 2 or approved-use authorization by the Department, a historical records search should be performed to determine all previous industrial operations conducted on this site. Contaminant testing should be comprehensive enough to indicate all previous sources of contamination. Off-site migration of contaminants through air, soil, or groundwater should be thoroughly addressed. If you encounter contaminated soil during excavation contact the Southwest Region's Waste Management representative at 412-442-4125, and Environmental Cleanup Program representative at 412-442-4091, for proper management.

9. If above or below-ground storage tanks are to be removed, contact the Department's Storage Tank Program representative at 412-442-4091.

Oil and Gas

10. A review of DEP records indicates no permitted oil or gas well on-site; should an oil or gas well be uncovered during construction, please call DEP's Oil and Gas Program representative at 412-442-4000.

Soils and Waterways - Phone 412-442-4315

11. Work in and along streams and wetlands is likely to require a Water Obstruction and Encroachment Permit from the Soils and Waterways Section. The area regulated is the stream and any area within the 100-year flood boundaries of any Federal Flood Insurance Study or 50 feet from the top of each stream bank if no flood insurance study exists. All wetland impacts are regulated. Please contact the Soils and Waterways representative at this address.

12. The following table outlines the requirements for (1) Erosion and Sedimentation (E&S) control plans, (2) National Pollutant Discharge Elimination System (NPDES) Permits for Storm Water (SW) Associated With Construction Activities be it either a General Permit (PAG-2) or an individual permit, and (3) Post Construction Storm Water Management Plans (PCSMP) as required by the U.S. EPA's NPDES Phase II Storm Water Program.

When required the NPDES permit will typically be General Permit PAG-2 unless the project is located in a High Quality (HQ) or Exceptional Value (EV) Watershed as classified in DEP's Chapter 93 Regulations. If located in a HQ or EV Watershed an individual permit will be required.

For specific guidance on your project please contact the County Conservation District Office for the county in which your project is located. The Conservation District will approve all E&S plans, review and approve all general permits PAG-2 and review all individual permits in HQ & EV Watersheds. Individual permits, however, will be issued by DEP's Regional Office.

PAG-2 and NPDES Phase II Requirements For Construction Activities

Disturbed Area	Written E&S Plan	Approved E&S Plan	NPDES SW Construction Permit	PCSMP
0-5000 sq. ft.	Yes	No	No	N/A
5000 sq. ft. to less than 1 acre	Yes	Not required but may be a municipal requirement	No	N/A
1 to <5 acres w/o point source to surface waters	Yes	Not required but may be a municipal requirement	No	N/A
1 to <5 acres with point source to surface waters	Yes	Not required but may be a municipal requirement	Yes	Yes
5 or more acres	Yes	Required	Yes	Yes

If the permitted activity is in an MS4 municipality, the municipality must approve the PCSM plan. The applicant should send the PCSM plan to the MS4 municipality along with the municipal notification. Even where the approval of the PCSM plan is not required, the permittee must develop and implement the PCSM and will certify that the BMPs were implemented in accordance with the PCSM plan when the Notice of Termination (NOT) is submitted.

A point source is a discharge from the disturbed area or the erosion control facilities through a pipe, ditch, swale or stream. Being without a point source typically applies only to sites with sheet flow discharges or complete infiltration.

Waste Management - Phone 412-442-4125

13. Solid waste, including construction/demolition waste and asbestos generated by this project must be disposed at an approved facility. For further information call 412-442-4127.

Water Supply Management - 412-442-4217

14. Abandonment, removal, or plugging of water lines must be coordinated with the owner of the main lines.

Water Management - Phone 412-442-4038

15. Removal and/or abandonment of septic systems should be coordinated with the municipal Sewage Enforcement Officer.

16. If the project represents a sewage increase of 800 gallons or more to an existing on-lot system, or to an existing public sewage system, an Act 537 revision to the local municipality's official sewage plan may be necessary. Please note that such sewage planning approval must be obtained prior to the issuance of a building permit by the local municipality; allow 60-90 days lead time for processing. Please contact your nearest local DEP Field Office or call 412-442-4038.

17. Wastewater Discharges - Any discharge to a waterway or the ground surface requires either an NPDES discharge permit, Water Quality Management Part II Permit or temporary discharge approval. Temporary discharge approvals must meet the current guidelines. If treatment facilities are needed to meet the effluent limitations imposed by the NPDES permit, a Part II permit is required for the construction of those treatment facilities. Contact DEP's Water Management Program representative at 412-442-4038.

18. Projects involving interceptor sewers or public sewage pump stations require a Water Quality Management Part II Permit for the construction of those facilities. Contact the DEP's Water Management Program representative at 412-442-4038.

Should you have any questions or if the project is significantly modified in the future, please contact this office at the telephone number listed above.

Sincerely,

David F. Janco

David F. Janco
Acting Assistant Regional Director
Southwest Regional Office

The Draft Finding of No Significant Impact (FONSI) and Environmental Assessment (EA) were made available for public review from October 22 through November 20, 2003. The below Notice of Availability was published in the *Moon Star Record* on October 22, 2003.

PUBLIC NOTICE

Notice of Availability
Draft Finding of No Significant Impact for the Environmental Assessment of Proposed Visiting Quarters Facilities at Pittsburgh International Airport-Air Reserve Station, PA

Pittsburgh IAP-ARS, Pennsylvania – An Environmental Assessment (EA) of Proposed Visiting Quarters Facilities at Pittsburgh International Airport-Air Reserve Station, Pennsylvania has been prepared. The 911th Airlift Wing (AW) is proposing to issue a Finding of No Significant Impact (FONSI) based on this EA. The analysis considered potential effects of the Proposed Action and the No Action Alternative on eleven resource areas: air quality, noise, land use, safety, geological resources, water resources, biological resources, cultural resources, socioeconomics and environmental justice, infrastructure and utilities, and hazardous materials and wastes. 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 at the Moon Township Library, 7100 Beaver Grade Road, Moon Township, PA 15108 (412) 269-0334.

Public comments on the Draft FONSI and EA will be accepted through November 20, 2003.

Written comments and inquiries on the FONSI and EA should be directed to Ms. Francine Vollmer, 911 AW/MSG/CEV, Pittsburgh IAP-ARS, 1100 Herman Ave, Coraopolis, PA 15108-4421.

In addition, the following Privacy Advisory was published as part of the Cover Sheet to the Draft EA:

Privacy Advisory

Your comments on this EA are requested. Letters or other written comments provided may be published in the EA. Comments will normally be addressed in the EA and made available to the public. Any personal information provided will be used only to identify your desire to make a statement during the public comment period or to fulfill requests for copies of the EA or associated documents. Private addresses will be compiled to develop a mailing list for those requesting copies of the EA. However, only the names of the individuals making comments and specific comments will be disclosed; personal home addresses and phone numbers will not be published in the EA.

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APPENDIX B

CLEAN AIR ACT - GENERAL CONFORMITY EMISSION CALCULATIONS

Appendix B - Clean Air Act - General Conformity Analysis

Emissions Estimates for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA - Constructior

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)	HC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2007	Combustion	13.95	5.05	12.81	0.68	1.05
	Fugitive Dust					1.93
	TOTAL CY2007	13.95	5.05	12.81	0.68	2.98

		NOx (ton)	HC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2012	Combustion	12.64	4.69	11.61	0.61	0.95
	Fugitive Dust					1.75
	TOTAL CY2012	12.64	4.69	11.61	0.61	2.70

		NOx (ton)	HC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2015	Combustion	9.98	3.93	9.17	0.48	0.75
	Fugitive Dust					1.38
	TOTAL CY2015	9.98	3.93	9.17	0.48	2.13

		NOx (ton)	HC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2018	Combustion	9.72	3.86	8.92	0.47	0.73
	Fugitive Dust					1.34
	TOTAL CY2018	9.72	3.86	8.92	0.47	2.08

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA
Includes:

100% of Demolition of Building 216	12971 ft2
100% of Demolition of Building 217	12971 ft2
100% of Demolition of Airlift Avenue	0 ft2
100% Construction of New VQ Facility	42065 ft2

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

User Inputs:

Total Building Area:	68,006	ft^2	(Demolition of Buildings 216 & 217 and Airlift Avenue)
Total Paved Area:	0	ft^2	(None)
Total Disturbed Area:	1.56	acres	(Demolition of Buildings 216 & 217 and Airlift Avenue; and constructon of new VQ Facility)
Construction Duration:	1.0	years	(assumed)
Annual Construction Activity:	230	days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	ROG	NOx	SO2	CO	PM10
Emissions, lbs/day	43.95	121.30	5.87	111.43	9.14
Emissions, tons/yr	5.05	13.95	0.68	12.81	1.05

Calculation of Unmitigated Emissions

Summary of Input Parameters

	ROG	NOx	SO2	CO	PM10
Total new acres disturbed:	1.56	1.56	1.56	1.56	1.56
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft^2:	68,006	68,006	68,006	68,006	68,006
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.56	1.56	1.56	1.56	1.56
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft^2 in 1 yr:	68,006	68,006	68,006	68,006	68,006

Annual Emissions by Source (lbs/day)

	ROG	NOx	SO2	CO	PM10
Grading Equipment	0.4	2.5	0.2	0.5	0.4
Asphalt Paving	0.0	0.0	0.0	0.0	0.0
Stationary Equipment	11.4	9.3	0.6	2.0	0.5
Mobile Equipment	10.9	109.5	5.1	108.9	8.2
Architectural Coatings (Non-Res)	21.3	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	**43.9**	**121.3**	**5.9**	**111.4**	**9.1**

Emission Factors

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

	SMAQMD Emission Factor				
Source	ROG	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 Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction Fugitive Dust Emissions

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

User Input Parameters / Assumptions

Acres graded per year:	1.56	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	5	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:	20	%	(http://www.progressivefarmer.com/farmer/weather/soil/moisture.html)
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:	30	%	Ave. of wind speed at Pittsburgh, PA http://home.pes.com/windroses/wrgifs/94823.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:	0.17	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	2.7	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	0.28 lbs/hr	25.6 hr/acre	7.2 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.86 lbs/VMT	2.7 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 = 9.2 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 = 0.92 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	7.2 lbs/acre	1.56	NA	11	0.01
Grading	0.8 lbs/acre	1.56	NA	1	0.00
Vehicle Traffic	2.3 lbs/acre	1.56	NA	4	0.00
Erosion of Soil Piles	0.9 lbs/acre/day	1.56	90	129	0.06
Erosion of Graded Surface	26.4 lbs/acre/day	1.56	90	3,709	1.85
TOTAL				3,855	1.93

Soil Disturbance EF: 10.3 lbs/acre
Wind Erosion EF: 27.32 lbs/acre/day

Back calculate to get EF: 493.8 lbs/acre/grading day

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters
Construction area: 1.56 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 0.19 (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	1.56	2.60
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.56	0.76
022 242 5220	Excavation	Bulk, open site, common earth, 150' hau	800	cu. yd/day	0.99	1.01	0.78	0.79
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.78	0.32
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.56	0.65
TOTAL								5.12

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

(Equip)(day)/yr: 5.12
Qty Equipment: 0.19
Grading days/yr: 5.12

Round to	5 grading days/yr

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA
Includes:

100% of Demolition of Building 218	12971 ft2
100% of Demolition of Building 219	12971 ft2
100% Construction of New VQ Facility	35682 ft2

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

User Inputs:

Total Building Area:	61,623	ft^2	(Demolition of Buildings 218 & 219)
Total Paved Area:	0	ft^2	(None)
Total Disturbed Area:	1.41	acres	(Demolition of Buildings 218 & 219 and Construction of New VQ Facility)
Construction Duration:	1.0	years	(assumed)
Annual Construction Activity:	230	days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	ROG	NOx	SO2	CO	PM10
Emissions, lbs/day	40.80	109.92	5.32	100.97	8.28
Emissions, tons/yr	4.69	12.64	0.61	11.61	0.95

Calculation of Unmitigated Emissions

Summary of Input Parameters

	ROG	NOx	SO2	CO	PM10
Total new acres disturbed:	1.41	1.41	1.41	1.41	1.41
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft^2:	61,623	61,623	61,623	61,623	61,623
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.41	1.41	1.41	1.41	1.41
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft^2 in 1 yr:	61,623	61,623	61,623	61,623	61,623

Annual Emissions by Source (lbs/day)

	ROG	NOx	SO2	CO	PM10
Grading Equipment	0.4	2.3	0.2	0.5	0.4
Asphalt Paving	0.0	0.0	0.0	0.0	0.0
Stationary Equipment	10.4	8.4	0.6	1.8	0.5
Mobile Equipment	9.9	99.2	4.6	98.7	7.4
Architectural Coatings (Non-Res)	20.2	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	**40.8**	**109.9**	**5.3**	**101.0**	**8.3**

Emission Factors

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

	SMAQMD Emission Factor				
Source	ROG	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 Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction Fugitive Dust Emissions

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

User Input Parameters / Assumptions

Acres graded per year:	1.41	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	5	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:	20	%	(http://www.progressivefarmer.com/farmer/weather/soil/moisture.html)
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:	30	%	Ave. of wind speed at Pittsburgh, PA http://home.pes.com/windroses/wrgifs/94823.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:	0.17	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	28.3	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	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	0.28 lbs/hr	28.3 hr/acre	7.9 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.86 lbs/VMT	3 VMT/acre	2.6 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 = 9.2 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 = 0.92 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	7.9 lbs/acre	1.41	NA	11	0.01
Grading	0.8 lbs/acre	1.41	NA	1	0.00
Vehicle Traffic	2.6 lbs/acre	1.41	NA	4	0.00
Erosion of Soil Piles	0.9 lbs/acre/day	1.41	90	117	0.06
Erosion of Graded Surface	26.4 lbs/acre/day	1.41	90	3,361	1.68
TOTAL				3,494	1.75

Soil Disturbance EF: 11.3 lbs/acre
Wind Erosion EF: 27.32 lbs/acre/day

Back calculate to get EF: 494.0 lbs/acre/grading day

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters
Construction area 1.41 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 0.17 (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	1.41	2.36
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.41	0.69
022 242 5220	Excavation	Bulk, open site, common earth, 150' hau	800	cu. yd/day	0.99	1.01	0.71	0.71
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.71	0.29
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.41	0.59
TOTAL								4.64

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

(Equip)(day)/yr: 4.64
Qty Equipment: 0.17
Grading days/yr: 4.64

Round to	5 grading days/yr

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA
Includes:

100% of Demolition of Building 209	12971 ft2
100% Construction of New VQ Facility	35682 ft2
100% Construction of New Parking Lot	0 ft2

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

User Inputs:

Total Building Area:	48,653	ft^2	(Demolition of Building 209 and new VQ Facility)
Total Paved Area:	0	ft^2	(None)
Total Disturbed Area:	1.12	acres	(Demolition of Building 209 and constructon of new VQ Facility)
Construction Duration:	1.0	years	(assumed)
Annual Construction Activity:	230	days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	ROG	NOx	SO2	CO	PM10
Emissions, lbs/day	34.21	86.78	4.20	79.72	6.54
Emissions, tons/yr	3.93	9.98	0.48	9.17	0.75

Calculation of Unmitigated Emissions

Summary of Input Parameters

	ROG	NOx	SO2	CO	PM10
Total new acres disturbed:	1.12	1.12	1.12	1.12	1.12
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft^2:	48,653	48,653	48,653	48,653	48,653
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.12	1.12	1.12	1.12	1.12
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft^2 in 1 yr:	48,653	48,653	48,653	48,653	48,653

Annual Emissions by Source (lbs/day)

	ROG	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	8.2	6.7	0.4	1.4	0.4
Mobile Equipment	7.8	78.3	3.6	77.9	5.8
Architectural Coatings (Non-Res)	18.0	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	**34.2**	**86.8**	**4.2**	**79.7**	**6.5**

Emission Factors

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

	SMAQMD Emission Factor				
Source	ROG	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 Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction Fugitive Dust Emissions

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

User Input Parameters / Assumptions

Acres graded per year:	1.12	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	5	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:	20	%	(http://www.progressivefarmer.com/farmer/weather/soil/moisture.html)
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:	30	%	Ave. of wind speed at Pittsburgh, PA http://home.pes.com/windroses/wrgifs/94823.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:	0.17	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	35.8	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	3.8	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	0.28 lbs/hr	35.8 hr/acre	10 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.86 lbs/VMT	3.8 VMT/acre	3.3 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 = 9.2 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 = 0.92 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	10	lbs/acre	1.12	NA	11	0.01
Grading	0.8	lbs/acre	1.12	NA	1	0.00
Vehicle Traffic	3.3	lbs/acre	1.12	NA	4	0.00
Erosion of Soil Piles	0.9	lbs/acre/day	1.12	90	92	0.05
Erosion of Graded Surface	26.4	lbs/acre/day	1.12	90	2,654	1.33
TOTAL					2,762	1.38

Soil Disturbance EF: 14.1 lbs/acre
Wind Erosion EF: 27.32 lbs/acre/day

Back calculate to get EF: 494.6 lbs/acre/grading day

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters
Construction area 1.12 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 0.13 (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	1.12	1.86
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.12	0.55
022 242 5220	Excavation	Bulk, open site, common earth, 150' hau	800	cu. yd/day	0.99	1.01	0.56	0.56
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.56	0.23
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.12	0.46
TOTAL								3.66

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

(Equip)(day)/yr: 3.66
Qty Equipment: 0.13
Grading days/yr: 3.66

Round to	4 grading days/yr

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA
Includes:

100% of Demolition of Building 206	12099 ft2
100% Construction of New VQ Facility	35263 ft2
100% Construction of New Parking Lot	0 ft2

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

User Inputs:

Total Building Area:	47,362	ft^2	(Demolition of Building 206 and new VQ Facility)
Total Paved Area:	0	ft^2	(None)
Total Disturbed Area:	1.09	acres	(Demolition of Building 206 and constructon of new VQ Facility)
Construction Duration:	1.0	years	(assumed)
Annual Construction Activity:	230	days/yr	(assumed)

Results:[Average per Year Over the Construction Period]

	ROG	NOx	SO2	CO	PM10
Emissions, lbs/day	33.54	84.48	4.09	77.61	6.37
Emissions, tons/yr	3.86	9.72	0.47	8.92	0.73

Calculation of Unmitigated Emissions

Summary of Input Parameters

	ROG	NOx	SO2	CO	PM10
Total new acres disturbed:	1.09	1.09	1.09	1.09	1.09
Total new acres paved:	0.00	0.00	0.00	0.00	0.00
Total new building space, ft^2:	47,362	47,362	47,362	47,362	47,362
Total years:	1.00	1.00	1.00	1.00	1.00
Area graded, acres in 1 yr:	1.09	1.09	1.09	1.09	1.09
Area paved, acres in 1 yr:	0.00	0.00	0.00	0.00	0.00
Building space, ft^2 in 1 yr:	47,362	47,362	47,362	47,362	47,362

Annual Emissions by Source (lbs/day)

	ROG	NOx	SO2	CO	PM10
Grading Equipment	0.3	1.7	0.1	0.4	0.3
Asphalt Paving	0.0	0.0	0.0	0.0	0.0
Stationary Equipment	8.0	6.5	0.4	1.4	0.4
Mobile Equipment	7.6	76.3	3.5	75.8	5.7
Architectural Coatings (Non-Res)	17.7	0.0	0.0	0.0	0.0
Total Emissions (lbs/day):	**33.5**	**84.5**	**4.1**	**77.6**	**6.4**

Emission Factors

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

	SMAQMD Emission Factor				
Source	ROG	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 Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction Fugitive Dust Emissions

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

User Input Parameters / Assumptions

Acres graded per year:	1.09	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	5	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:	20	%	(http://www.progressivefarmer.com/farmer/weather/soil/moisture.html)
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:	30	%	Ave. of wind speed at Pittsburgh, PA http://home.pes.com/windroses/wrgifs/94823.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:	0.17	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	36.8	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	3.9	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	0.28 lbs/hr	36.8 hr/acre	10.3 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.8 lbs/acre
Vehicle Traffic	0.86 lbs/VMT	3.9 VMT/acre	3.4 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 = 9.2 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 = 0.92 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	10.3 lbs/acre	1.09	NA	11	0.01
Grading	0.8 lbs/acre	1.09	NA	1	0.00
Vehicle Traffic	3.4 lbs/acre	1.09	NA	4	0.00
Erosion of Soil Piles	0.9 lbs/acre/day	1.09	90	90	0.05
Erosion of Graded Surface	26.4 lbs/acre/day	1.09	90	2,583	1.29
TOTAL				2,689	1.34

Soil Disturbance EF: 14.5 lbs/acre
Wind Erosion EF: 27.32 lbs/acre/day

Back calculate to get EF: 494.7 lbs/acre/grading day

Proposed Construction and Demolition Projects for EA of Proposed Visiting Quarters Facilties at Pittsburgh IAP-ARS, PA

Construction (Grading) Schedule

Estimate of time required to grade a specified area.

Input Parameters
Construction area 1.09 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 0.13 (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	1.09	1.81
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.09	0.53
022 242 5220	Excavation	Bulk, open site, common earth, 150' hau	800	cu. yd/day	0.99	1.01	0.54	0.55
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.54	0.22
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.09	0.45
TOTAL								3.57

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

(Equip)(day)/yr: 3.57
Qty Equipment: 0.13
Grading days/yr: 3.57

Round to	4	grading days/yr