



Ground-Based Midcourse Defense (GMD) Northeast Remote In-Flight Interceptor Communication System Data Terminal (IDT)

Environmental Assessment

5 May 2004

U.S. Army Space and Missile Defense Command
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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Introduction

Within the Department of Defense, the Missile Defense Agency (MDA) is responsible for developing and fielding a Ballistic Missile Defense System (BMDS). The BMDS is designed to intercept threat missiles during all phases of flight: boost, midcourse, and terminal. The Ground-Based Midcourse Defense (GMD) is an element of the midcourse defense and uses Ground-Based Interceptors (GBIs) to intercept and destroy long-range missiles during the ballistic (midcourse) phase of their flight before their reentry into the Earth's atmosphere.

The GMD Northeast Remote In-Flight Interceptor Communication System Data Terminal (IDT) is part of the GMD communication system. Remote IDT siting studies investigated several Department of Defense sites in northern New York, including Niagara Falls Air Reserve Station (ARS), Hancock Field, and Fort Drum. Several sites at Fort Drum and one each at Niagara Falls ARS and Hancock Field were identified as candidate sites. The preferred site for the remote IDT was determined to be Site 6 at Fort Drum. Sites 1 and 7 at Fort Drum and one site at Niagara Falls ARS are alternative sites carried forward for analysis in this EA. The other four sites at Fort Drum and the site at Hancock Field were considered but not carried forward for environmental analysis because they were not reasonable alternatives.

Proposed Action

The Proposed Action would be to build three IDTs and an IDT Support Facility (ISFAC) that would occupy a single site at Fort Drum or Niagara Falls ARS, New York, although only one IDT would be built initially. Construction could begin as early as spring of 2005. Power to the IDT site would be by commercial power with backup power supplied by dedicated generators. Between generator testing and operations during power outages, it is estimated that the onsite backup generators would operate for less than 500 hours per year. The IDT site would normally be manned by up to 10 personnel, which includes government and contractors. Operation of the IDTs would continue indefinitely for the life of the GMD system.

Program Activities

The proposed GMD activities at Fort Drum or Niagara Falls ARS would include:

- A cluster of three IDT buildings, the ISFAC, and backup generators would require an area of approximately 6 to 7 hectares (14.9 to 17.5 acres) including a perimeter road and perimeter fencing. Although only one IDT would be built initially, this entire area would be cleared during construction. Two 6-meter (20-foot) anemometer (wind gauge) towers would also be located at the IDT site.
- Construction of an ISFAC that would be built adjacent to the first IDT and would eventually serve all three IDTs. The estimated size for this facility would be approximately 297 square meters (3,200 square feet).
- Commercial power would be the primary source of power. A 350-kilowatt (kW) generator would be provided for backup power to the initial IDT and the ISFAC. This generator would either be connected to a natural gas line or would require a 5,678-liter (1,500-gallon) aboveground diesel fuel tank located near the generator. When the second and third IDTs are constructed, a 92.9-square-meter (1,000-square-foot)

power plant with either three 1-megawatt (MW) or four 500-kW diesel generators would be built to provide for backup power for all three IDTs and the ISFAC. It is anticipated that the 350-kW generator that was originally installed to provide backup power to the first IDT and ISFAC would be removed once the power plant is built. Two aboveground diesel fuel tanks with fuel capacities of 56,780 liters (15,000 gallons) each would supply fuel to power the backup generators, and both would be located near the IDT. One aboveground tank with a diesel fuel capacity of 2,271 liters (600 gallons) would also be required for each of the three 1-MW or four 500-kW diesel backup power generators, and would be located near the generators.

- The proposed connection between the IDTs and the point of presence (a switching station from which connections are made to various facilities that rely on fiber optic communications) would make maximum use of communication conduit, and rights-of-way if trenching is required. Power, sewer, natural gas, water, and communication routing would minimize intrusion into any environmentally sensitive and protected areas (e.g., watershed or wetlands) to the maximum extent practicable.
- The IDT antenna requires a clear line of sight (LOS) above adjacent structures or natural objects. This requirement would necessitate establishing an encroachment-free zone to ensure LOS is maintained throughout the life of the program. Beyond the IDT compound fence this would require selective clearing of trees. The total area for selective clearing would be up to an additional 7 hectares (17.5 acres).

Because the design of the IDT has not yet been completed, the final deployment facility requirements may change slightly from those described. However, such minor changes would not significantly alter the general analysis presented in this document.

No-Action Alternative

The No-action Alternative would be to not proceed with the fielding of IDTs at any of the sites considered at Fort Drum or Niagara Falls ARS. For the potential sites being considered for IDTs, the No-action Alternative would be a continuation of activities currently occurring or planned at those locations.

Methodology

To assess the potential for impacts, a list of activities necessary to accomplish the Proposed Action was developed. The affected environment at all applicable locations was then described. Next, proposed activities were analyzed within the context of the existing environment to determine the potential environmental effects of these activities.

Fourteen broad areas of environmental consideration were initially considered to provide a context for understanding the potential effects of the Proposed Action and to provide a basis for assessing the severity of potential impacts. Only eight of these areas have the potential for environmental impacts at the analyzed sites. These areas include air quality, airspace, biological resources, cultural resources, geology and soils, land use, socioeconomics, and utilities.

Areas that are not expected to be affected sufficiently at Fort Drum and Niagara Falls ARS to warrant further discussion include hazardous materials and waste, health and safety, noise,

transportation, water resources, and visual and aesthetic resources. Hazardous materials and waste—Other than minor, short-term increases from the use of potentially hazardous materials such as paints, solvents, and fuels during the production/manufacturing process of the IDT components, no adverse impacts to hazardous materials storage and handling are anticipated. These materials would be handled in accordance with the production/manufacturing site procedures. Health and safety—Construction and operation would follow local, state, service branch, and federal environmental, safety, and occupational health regulations. Noise—No sensitive noise receptors would be disturbed by the proposed intermittent and short-term activity, and noise levels are expected to be below Occupational Safety and Health Administration workplace standards. Transportation—The 50 construction and 10 operations personnel would not affect transportation. Water resources—No withdrawal of or discharge to groundwater is anticipated. No impacts are anticipated to lakes, streams, and wells. Visual and aesthetic resources—Impacts would be avoided by actions taking place in secure locations where site specific changes would not impact the overall visual setting.

Environmental Consequences of the Proposed Action

Only those activities for which a potential environmental concern was determined are described within each resource summary.

Air Quality

Facility construction and site preparation activities necessary for the Proposed Action would have a localized, minimal impact on air quality. It is anticipated that the proposed construction would not cause exceedances of the National Ambient Air Quality Standards or state standards and would not have a long-term impact to air quality in the Fort Drum or Niagara Falls ARS area. Backup generators would operate for up to 500 hours per year. It is anticipated that all emissions generated by the proposed generators would be included in current air permits at Fort Drum or Niagara Falls ARS and would not impact the regional air quality.

Airspace

No adverse impacts to air space above Fort Drum or Niagara Falls ARS are anticipated. Based on electromagnetic compatibility modeling of the IDT and coordination with the Joint Spectrum Center, Army Aviation Missile Command, Army Aeronautical Services Agency, and other cognizant activities, a no-fly area would be established at the IDT site, and would include the airspace within 213 meters (700 feet) of the IDT. At this distance, the energy produced by the maximum radiation of the IDT would be less than 200 volts per meter, a level safe for any civilian or military aircraft, fixed wing or rotorcraft. A weekly test schedule would be provided to ensure aircraft avoid the area, minimizing potential impacts to airspace.

Biological Resources

Fort Drum Site 6 requires clearing of 7 hectares (17.5 acres) of primarily forest and deciduous/brush for the IDTs and facilities and selective clearing for LOS of an additional 7 hectares (17.5 acres) of primarily forest and deciduous/brush. Sites 1 and 7 require clearing of 6.9 hectares (17 acres) of primarily landscaped and maintained areas for the IDTs and facilities. An additional 4 hectares (9.9 acres) of primarily forest and deciduous/brush is the anticipated extent of the area where selective clearance of trees would be performed in order to achieve LOS. The Niagara Falls ARS Site would require clearing of 6.9 hectares (17 acres) of primarily landscaped and maintained areas for the IDTs and facilities and no selective clearing for LOS.

At all locations, site preparation, construction, utility installation, and fencing may temporarily disturb wildlife in the immediate area. Utility and communication routing would follow existing rights-of-way where trenching would be required, which could also pose minimal impact to adjacent vegetation. No direct physical auditory impacts to wildlife are anticipated from site preparation or operational noise. The increased presence of personnel and site preparation noise may cause birds and other wildlife species to temporarily avoid areas subject to the most activity.

Cultural Resources

An archaeological survey for Fort Drum Site 6 indicates there are no known prehistoric or archaeological resources within the areas of potential ground disturbance. Sites 1 and 7 at Fort Drum are heavily disturbed from previous activities, and the likelihood of historic properties is low. An archaeological survey would be conducted if Sites 1 or 7 were selected for the IDT. At Niagara ARS, a base wide, Stage 1 archaeological survey report completed in February 2000, determined that none of the historic artifacts identified were considered culturally important and no further cultural resource investigations were recommended. For all sites, utility and communication routing would follow existing rights-of-way, where trenching would be required. Known cultural resources would be avoided.

Although complete avoidance of prehistoric and historic sites is planned, all construction activities would be monitored by Fort Drum or Niagara Falls ARS personnel. If, during the course of GMD activities, cultural items are inadvertently discovered, activities would cease in the immediate area and the Cultural Resource Manager at Fort Drum or Niagara Falls ARS would consult with the State Historic Preservation Officer and potentially affiliated Native American entities in accordance with Fort Drum or Niagara Falls ARS procedures.

Geology and Soils

Potential impacts would be similar at the Fort Drum sites and at the Niagara Falls ARS site. Site preparation activities, such as fencing and construction of the IDTs, would result in minor, short-term impacts to soils. Stormwater permits would be obtained for construction activities, and Best Management Practices to prevent soil erosion would be implemented. Where trenching would be required for utility and communication routing, it would follow existing rights-of-way, resulting in short-term soil impacts. Operational activities, such as maintenance and testing of generators, would not affect geology and soils.

Land Use

Construction of the IDT and fencing for Fort Drum Site 6 would remove approximately 7 hectares (17.5 acres) of land from the training land use category. The training lands surrounding Site 6 could continue to be used. The IDT at Site 1 at Fort Drum would remove approximately 6.9 hectares (17 acres) from the industrial land use category. This represents approximately 10 percent of the industrial land use category on Fort Drum. The land adjacent to Site 1 could continue to be used for community facilities and buffer area. The IDT for Fort Drum Site 7 would remove approximately 3.5 hectares (8.6 acres) from the buffer area land use category and 3.3 hectares (7.4 acres) from the troop housing land use category. This represents approximately 11 percent of the buffer area and 9 percent of the troop housing area. The land adjacent to Site 7 could continue to be used for troop housing, buffer area, and community facilities. At Niagara Falls ARS, construction of the IDT, fencing, and communication lines would be consistent with the existing land use. Approximately 6 hectares

(14.9 acres) would be cleared for the IDT and fencing. The surrounding lands are primarily used as administrative space. Communication lines for all sites would be installed along existing rights-of-way and would not impact land use.

Socioeconomics

It is anticipated that construction and operation of the proposed IDTs at Fort Drum or Niagara Falls ARS would result in a small but positive economic benefit to the installation and surrounding region.

Utilities

Water, wastewater, solid waste disposal, electricity, natural gas, and communication line installation would be required to support the proposed facilities. The construction and operation of the IDTs would not exceed any of the operational capabilities of the existing Fort Drum or Niagara Falls ARS water, wastewater, electricity, and natural gas systems. The potential increase in solid waste generated from the nominal increase in personnel would be minimal, and would not substantially increase demand on the capacity of existing landfills.

Cumulative Impacts

Cumulative impacts are those that result when impacts of an action are combined with the impacts of past, present, and reasonably foreseeable future actions at a location. Cumulative impacts were considered for each resource area at each site. Cumulative impacts are similar at Fort Drum and Niagara Falls ARS. Minor cumulative impacts were identified for air quality due to short term construction emissions and testing of the backup power generators. Minor cumulative impacts were identified for biology due to the loss of less than 14 hectares (35 acres) of wildlife habitat. Geology and soils would also have minor cumulative impacts from soil erosion during construction activities. A small but positive temporary economic impact to the local communities would result in a minor positive cumulative impact to socioeconomics. No cumulative impacts were identified for cultural resources, land use, or utilities at any of the potential sites.

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ACRONYMS AND ABBREVIATIONS

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AAQS	ambient air quality standards
ARS	Air Reserve Station
BMDSD	Ballistic Missile Defense System
BMP	Best Management Practice
CFR	Code of Federal Regulations
CONUS	Continental United States
CRMP	Cultural Resources Management Plan
DoD	Department of Defense
EA	Environmental Assessment
FAA	Federal Aviation Administration
GBI	Ground-Based Interceptor
GHz	gigahertz
GMD	Ground-Based Midcourse Defense
IDT	In-Flight Interceptor Communication System Data Terminal
ISFAC	IDT Support Facility
kPA	kilopascal
kV	kilovolt
kW	kilowatt
LOS	line-of-sight
MCF	thousand cubic feet
MDA	Missile Defense Agency
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
PM-10	particulate matter with a diameter less than or equal to 10 micrometers
POP	point of presence
ROI	region of influence
SHPO	State Historic Preservation Officer
USC	United States Code
VOC	volatile organic compound

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1.0
PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The following laws and regulations, and the applicable environmental regulations of the Service that implements them, direct Department of Defense (DoD) officials to consider environmental consequences when authorizing and approving federal actions:

- The National Environmental Policy Act (NEPA) of 1969 as amended (42 United States Code [USC] 4321, et seq.)
- Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508)
- DoD Instruction 4715.9, *Environmental Planning and Analysis*

Accordingly, this Environmental Assessment (EA) examines the potential for impacts to the environment as a result of the proposed construction and operation of the Ground-Based Midcourse Defense (GMD) Northeast Remote In-Flight Interceptor Communication System Data Terminals (IDTs) in the northeast United States, to support an initial operational missile defense capability.

1.2 BACKGROUND

Within the DoD, the Missile Defense Agency (MDA) is responsible for developing and fielding a Ballistic Missile Defense System (BMDS). The BMDS is designed to intercept threat missiles during all phases of flight: boost, midcourse, and terminal. The GMD is an element of the BMDS and uses Ground-Based Interceptors (GBIs) to intercept and destroy long-range missiles during the ballistic (midcourse) phase of their flight before their reentry into the Earth's atmosphere. The GMD Northeast Remote IDT is part of the GMD communication system. Remote IDT siting studies investigated several DoD sites in northern New York, including Niagara Falls Air Reserve Station (ARS), Hancock Field, and Fort Drum. Several sites at Fort Drum and one each at Niagara Falls ARS and Hancock Field were identified as candidate sites. The preferred site for the remote IDT was determined to be Site 6 at Fort Drum. Sites 1 and 7 at Fort Drum and one site at Niagara Falls ARS are alternative sites carried forward for analysis in this EA. The other four sites at Fort Drum and the site at Hancock Field were considered but not carried forward for environmental analysis because they were not reasonable alternatives.

1.3 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to construct and operate a remote IDT network that maximizes the effectiveness of the IDT in supporting the missile defense mission.

The Proposed Action is needed to provide a communications link that will help guide the GBI to its ballistic missile target. The IDTs that are the subject of this EA are required at a remote site in the northeastern United States, far from the GBI launch sites, to address particular ballistic missile threats.

1.4 DECISION(S) TO BE MADE

This EA will assist the decision maker in selecting a site in the northeast United States on which to construct the remote IDTs.

1.5 RELATED ENVIRONMENTAL DOCUMENTATION

Ballistic Missile Defense Final Programmatic Environmental Impact Statement, October. Ballistic Missile Defense Organization, 1994.

National Missile Defense Deployment Final Environmental Impact Statement, January. U.S. Army Space and Missile Defense Command, 2000.

Ground-Based Midcourse Defense Validation of Operational Concept Environmental Assessment, March. Department of Defense, 2002.

Ground-Based Midcourse Defense Extended Test Range Final Environmental Impact Statement, July. Missile Defense Agency, 2003.

Programmatic Environmental Assessment for Fort Drum, New York, February. U.S. Army, Fort Drum, 2003.

Ground-Based Midcourse Defense Initial Defensive Operations Capability at Vandenberg Air Force Base, August. U.S. Army Space and Missile Defense Command, 2003.

2.0

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The MDA is proposing to build three IDTs and an IDT Support Facility (ISFAC) that would occupy a single site at Fort Drum or Niagara Falls ARS, New York. Construction of the site could begin as early as spring 2005. Power to the IDT site would be by commercial power with backup power supplied by dedicated generators. Between generator testing and operations during power outages, it is estimated that the onsite backup generators would operate for less than 500 hours per year. The IDT site would normally be manned by up to 10 personnel, which includes government and contractors. Operation of the IDTs would continue indefinitely for the life of the GMD system. The following sections present a description of the IDT facilities and the locations being considered for fielding.

2.1 IDT CHARACTERISTICS AND FACILITY REQUIREMENTS

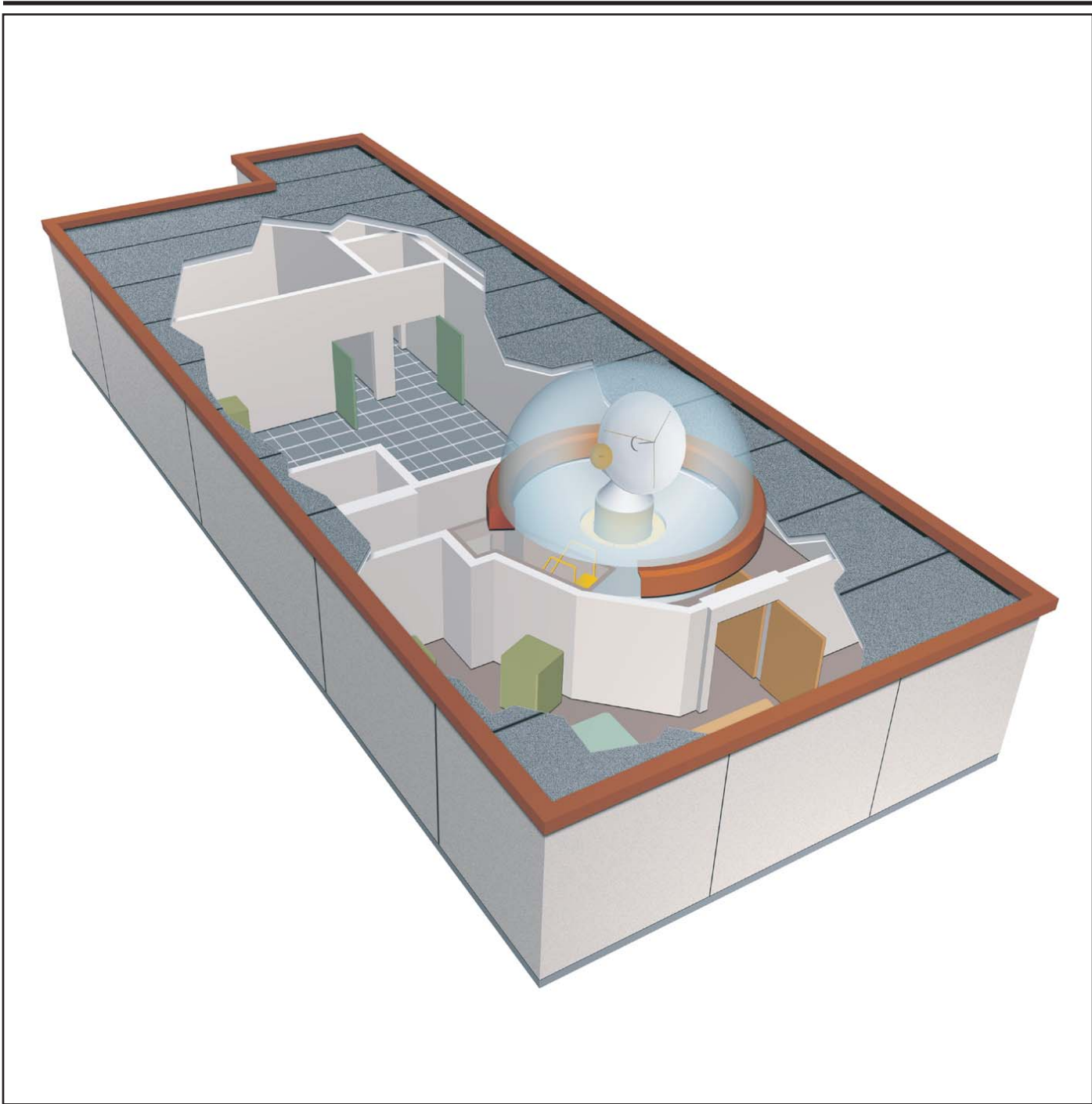
The IDTs are geographically distributed ground stations that provide communications links within the GMD system.

2.1.1 CONSTRUCTION

A cluster of three IDT buildings, the ISFAC, and backup generators would require an area of approximately 6 to 7 hectares (14.9 to 17.5 acres) including a perimeter road and perimeter fencing. Although only one IDT would be built initially this entire area would be cleared during construction. Table 2-1 lists the facilities required for the IDT cluster site.

Each IDT would be contained in a building that is approximately 350 square meters (3,770 square feet) with a radome mounted on one end (figure 2-1). Two 6-meter (20-foot) anemometer (wind gauge) towers would also be located at each IDT site. The IDTs would be built on a concrete foundation with a hardened aggregate surface of 9 meters (30 feet) surrounding each IDT building. This area would provide parking space for two utility vehicles and access for other equipment.

An ISFAC would be built adjacent to the first IDT and would eventually serve all three IDTs. This facility would be inside the IDT secure area and would be used for storage and provide administrative/workspace for technicians. The ISFAC would require communications and utility hookups, including electrical power, natural gas, water, and sewer. The estimated size for this facility would be approximately 297 square meters (3,200 square feet). An all-weather road would be constructed from the nearest existing service road to the IDT site. Because the design of the IDTs has not been completed, the final deployment facility requirements may change slightly from those described. However, such minor changes would not significantly alter the general analysis presented in this document.



EXPLANATION

**Conceptual Design of
In-Flight Interceptor
Communication
System Data Terminal**

Unknown Scale

Figure 2-1

Table 2-1: Facility Requirements for IDT Cluster Site

Facility	Facility Requirements	Function
IDT Structures (3)	Each IDT facility is approximately 350 square meters (3,770 square feet) with a radome mounted on one end; two 6-meter (20-foot) anemometer towers would be located at each IDT site	Transmitter/receiver to in-flight GBIs
Equipment Shelter/Backup Power Generator (1)	Shelter for the 350-kilowatt natural gas (or diesel) powered backup generator ^(a)	Single IDT backup electrical power generation
Power Generation Facility (1)	92.9-square-meter (1,000-square-foot) power plant with either three 1-megawatt or four 500-kilowatt diesel generators	Backup electrical power generation for three IDTs
Perimeter Fence	Perimeter fence and perimeter road	Access control
ISFAC (1)	Approximately 297 square meters (3,200 square feet)	Storage and administration area

IDT = In-Flight Interceptor Communication System Data Terminal

GBI = Ground-Based Interceptor

ISFAC = In-Flight Interceptor Communication System Data Terminal Support Facility

(a) The 350-kilowatt backup generator for the initially constructed IDT and ISFAC would be removed when the power plant is built.

The IDT antenna requires a clear line of sight (LOS) above adjacent structures or natural objects. This requirement would necessitate establishing an encroachment-free zone to ensure LOS is maintained throughout the life of the program. Beyond the IDT compound fence this would require selective clearing of trees. This clearing would include up to 7 hectares (17.5 acres) in addition to the 7 hectares (17.5 acres) required for the IDT site.

Construction of the initial IDT would require approximately 50 personnel for 18 months. In addition, administrative space for up to 25 personnel may be required during the construction period in order to provide oversight for construction personnel. The administration offices would either be located on base in trailers at a previously disturbed site or the IDT site; off base in an existing office complex; or in existing office space on base, if it became available.

2.1.2 OPERATION

The IDT operations would require up to 929 square meters (10,000 square feet) of warehouse space in an existing facility either on post or in close proximity. No new construction is planned. Currently, no excess warehouse space is available at Fort Drum or Niagara Falls ARS. However, if an onsite space becomes available this warehouse function could be located on site in an existing facility.

Commercial power would be the primary source of power. A 350-kilowatt (kW) generator would be provided for backup power to the initially constructed IDT. This generator would either be connected to a natural gas line or would require a 5,678 liter (1,500 gallon) aboveground diesel fuel tank, located near the generator.

When the second and third IDTs are constructed, a 92.9-square-meter (1,000-square-foot) power plant with either three 1-megawatt (MW) or four 500-kW diesel generators would be built to provide for backup power for all three IDTs and the ISFAC. Two external aboveground diesel fuel tanks with fuel capacities of 56,780 liters (15,000 gallons) would supply fuel to the mission power backup generators, and both would be located near the IDT. One aboveground tank with a fuel capacity of 2,271 liters (600 gallons) would also be required for each of the three 1-MW or four 500-kW diesel backup power generators, and would be located near the generators. It is anticipated that the 350-kW generator to be initially installed to provide backup power to the first IDT and ISFAC would be removed once the power plant is built.

The IDTs and associated communications circuits would be connected to the GMD Continental United States (CONUS) communications ring through the installation's point of presence (POP). The POP is essentially a switching station from which connections are made to the various facilities on the installation that rely on fiber optic communications. The proposed new connection between the IDTs and the POP would make maximum use of existing communications conduit and rights-of-way if trenching is required. Power, sewer, natural gas, water, and communication routing would minimize intrusion into any environmentally sensitive and protected areas (e.g., watershed or wetlands) to the maximum extent practicable.

Existing fiber optic cable networks and facilities are being utilized for the GMD CONUS communications ring. If modifications or additions to the existing fiber optic cable networks and facilities are required due to future GMD program requirements, then additional environmental reviews would be conducted and appropriate environmental documentation completed.

Based on electromagnetic compatibility modeling of the IDT, a no-fly area would be established at the IDT site, and would include the airspace within 213 meters (700 feet) of the IDT. A ground safety zone would not be required around the site as the IDT energy is transmitted upward, above any structures at the IDT sites.

2.2 IDT HAZARDOUS MATERIALS

Some hazardous/controlled materials would be used during the production/manufacturing process of the IDT components such as solvents, primers, paints, adhesives, and resins. These materials would be handled in accordance with the production/manufacturing site procedures.

Other than occasional maintenance of the diesel (or natural gas)-powered backup generators and the use of aboveground storage tanks for diesel fuel, no hazardous materials or waste would be stored or generated at the IDT site. One piece of equipment used on the system contains small amounts of beryllium. Should maintenance be required, the equipment containing the beryllium would be removed as a unit and a new unit would be brought on site. The unit requiring maintenance would be returned to the manufacturer.

2.3 PREFERRED SITE

Based on IDT siting studies, Site 6 (Memorial Heights) at Fort Drum was determined to be the preferred site for the remote IDT cluster (figure 2-2). The site is along a ridgeline near the eastern end of the cantonment (troop quarters) area of the installation. The site has sufficient space for placement of the IDT facility. The IDT site would include approximately 7 hectares (17.5 acres) of cleared area within the perimeter road (figure 2-3). Beyond the perimeter road, only selective clearing of trees would be required in order to achieve LOS. At Site 6 this area would include approximately 7 hectares (17.5 acres).

The proximity of this site to the main installation provides easy connection to utility and communication lines. Communications routing would make maximum use of existing communications conduit. Power, sewer, natural gas, water, and communications routing would follow existing rights-of-way where trenching is required.

2.4 ALTERNATIVE SITES TO THE PREFERRED SITE

During the IDT siting study, several alternate sites for IDT cluster fielding were also identified and are addressed briefly in the following paragraphs. Although the sites examined in this subsection did not rate as high as the preferred site during the site selection process, they are nonetheless viable sites that could possibly be used for the IDT.

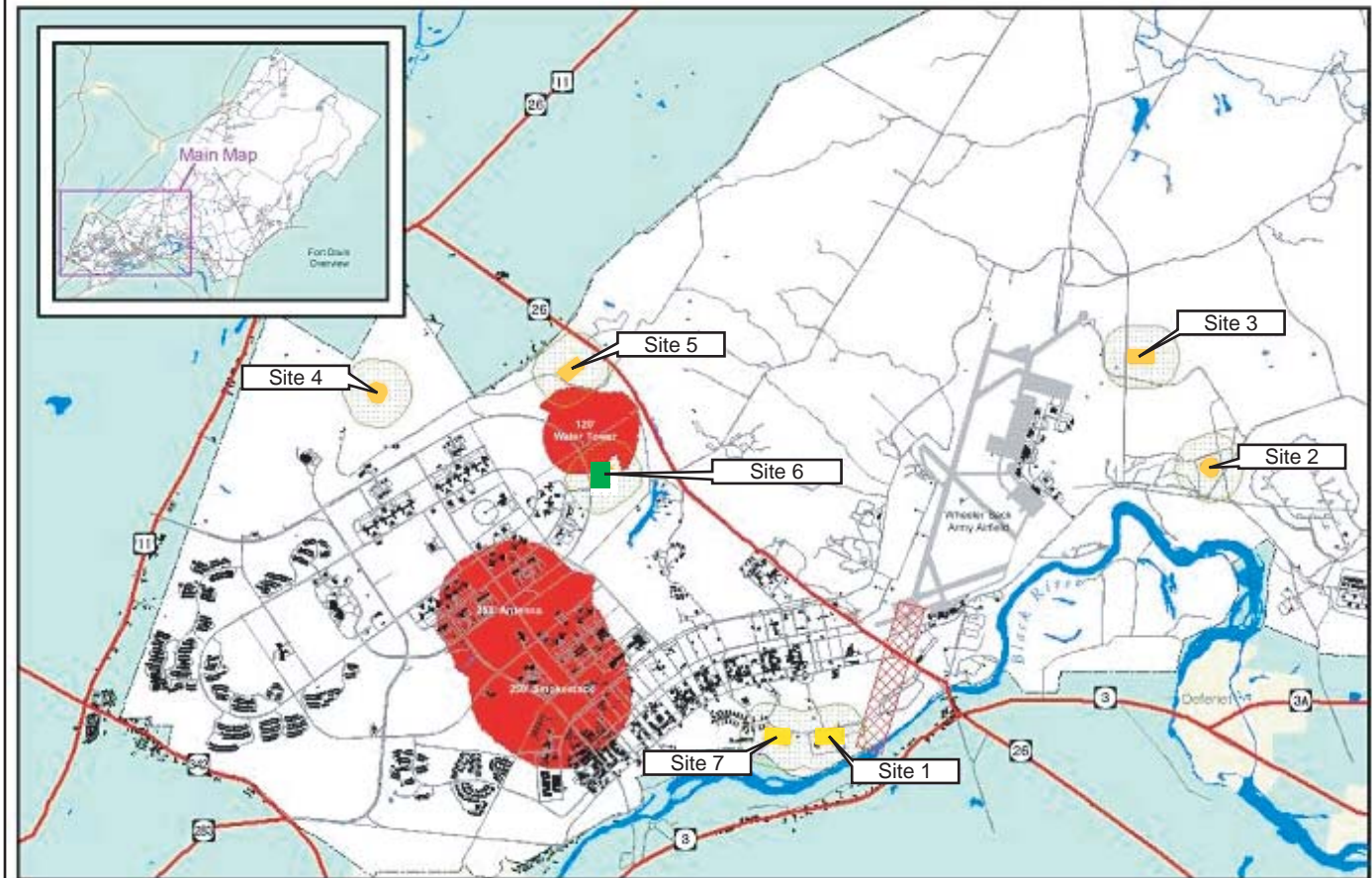
2.4.1 NIAGARA FALLS AIR RESERVE STATION, NEW YORK

This site was also determined to be a viable candidate site. Niagara Falls ARS is collocated with Niagara Falls International Airport. The 12.4-hectare (30.7-acre) IDT candidate parcel has sufficient space for placement of the 6-hectare (14.9-acre) facility; however, due to the parcel configuration, there is no flexibility for site layout or expansion (see figure 2-4). Niagara Falls ARS has excellent LOS with no tree clearing necessary as this is a previously disturbed site with no trees. This site is on the Niagara Falls ARS boundary and is adjacent to a busy public road.

The location of this site within the main cantonment area of Niagara Falls ARS provides easy connection to utility and communications lines. Communications routing would make maximum use of existing communications conduit. Power, sewer, natural gas, water, and communications routing would follow existing rights-of-way where trenching is required.

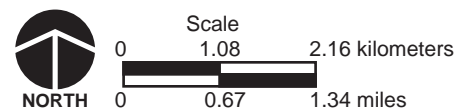
2.4.2 ALTERNATE FORT DRUM IDT SITES

Site 1 (Old Hospital Site) (figure 2-5) is adjacent to the old cantonment area of Fort Drum along Dunn Avenue. It is the site of a former World War II-era hospital, which was torn down several years ago. The proximity of this 6.9-hectare (17-acre) site to the main installation provides convenient access to utilities and communications lines. Communications routing would make maximum use of existing communications conduit. Power, sewer, natural gas, water, and communications routing would follow existing rights-of-way where trenching is required. Beyond the perimeter road, only selective clearing of trees south of Dunn Avenue and the removal of several utility poles would be required in order to achieve LOS.



EXPLANATION

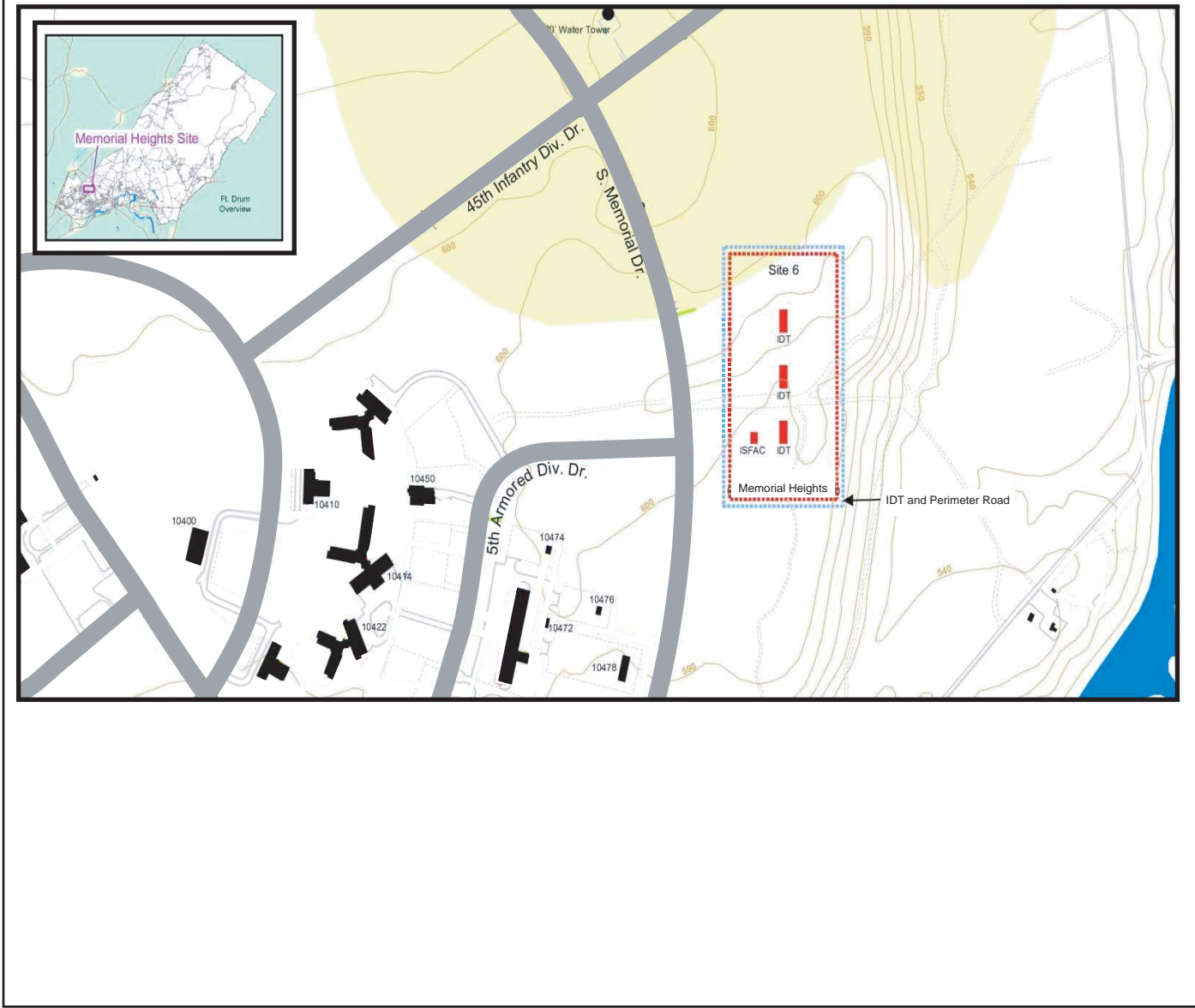
- Preferred IDT Site
- Alternative IDT Site
- Site not carried forward
- Line of sight obstruction zones
- IDT Site Proximity



Candidate Sites for IDT Cluster at Fort Drum

Fort Drum, New York

Figure 2-2

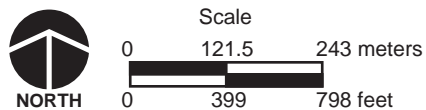


EXPLANATION

- Buildings
- Candidate IDT Structure
- Candidate IDT Site Fence
- 9-meter (30-foot) Buffer Zone and Perimeter Road
- Possible LOS Blockage from Water Tower
- Manholes

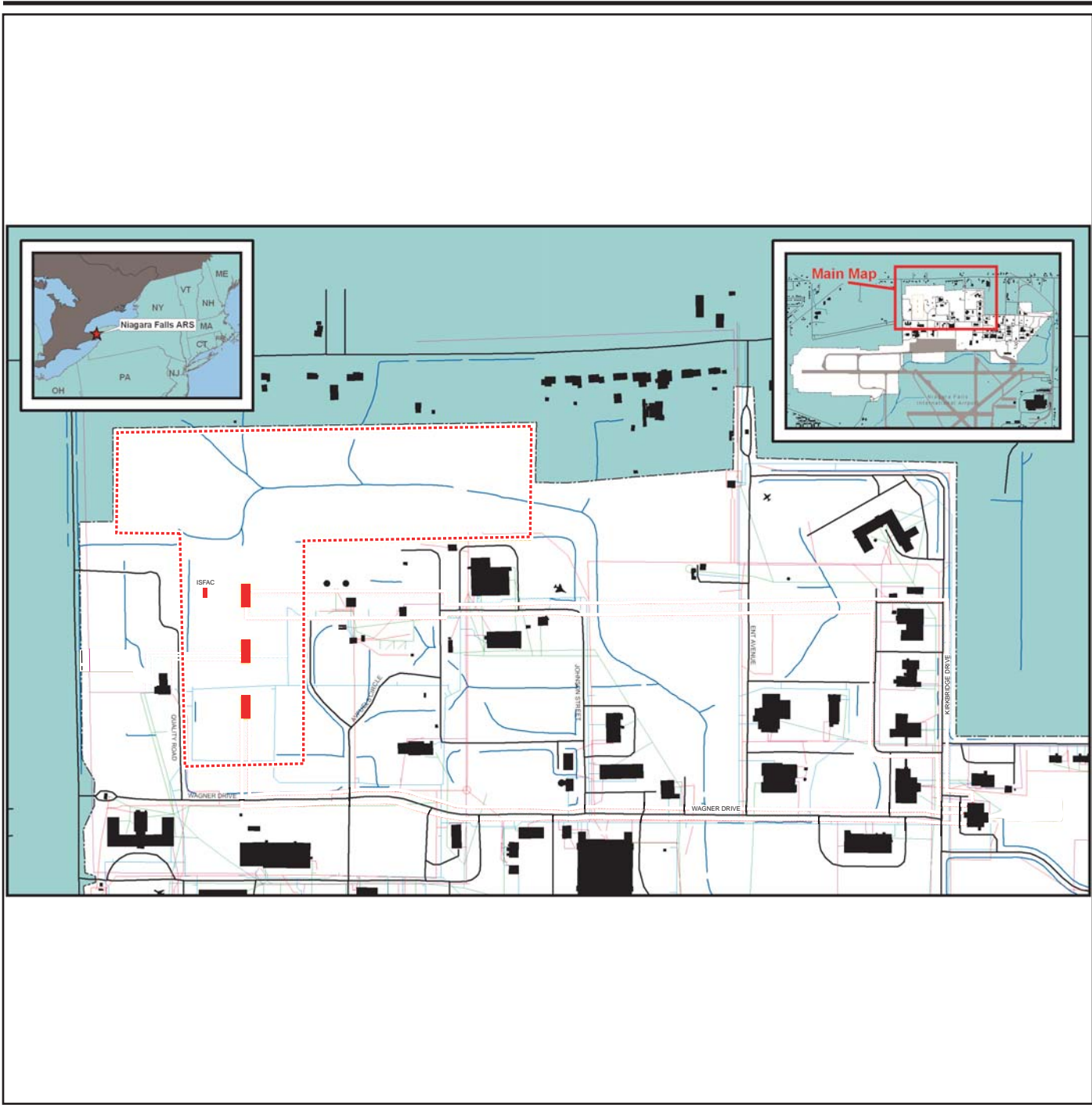
- Roads
- Unpaved Roads/Trails
- Elevation Contour Interval = 10 feet

**Preferred IDT Site
Memorial Heights
Candidate Site 6**



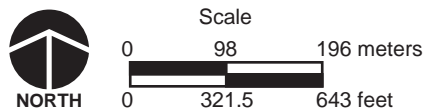
Fort Drum, New York

Figure 2-3



EXPLANATION

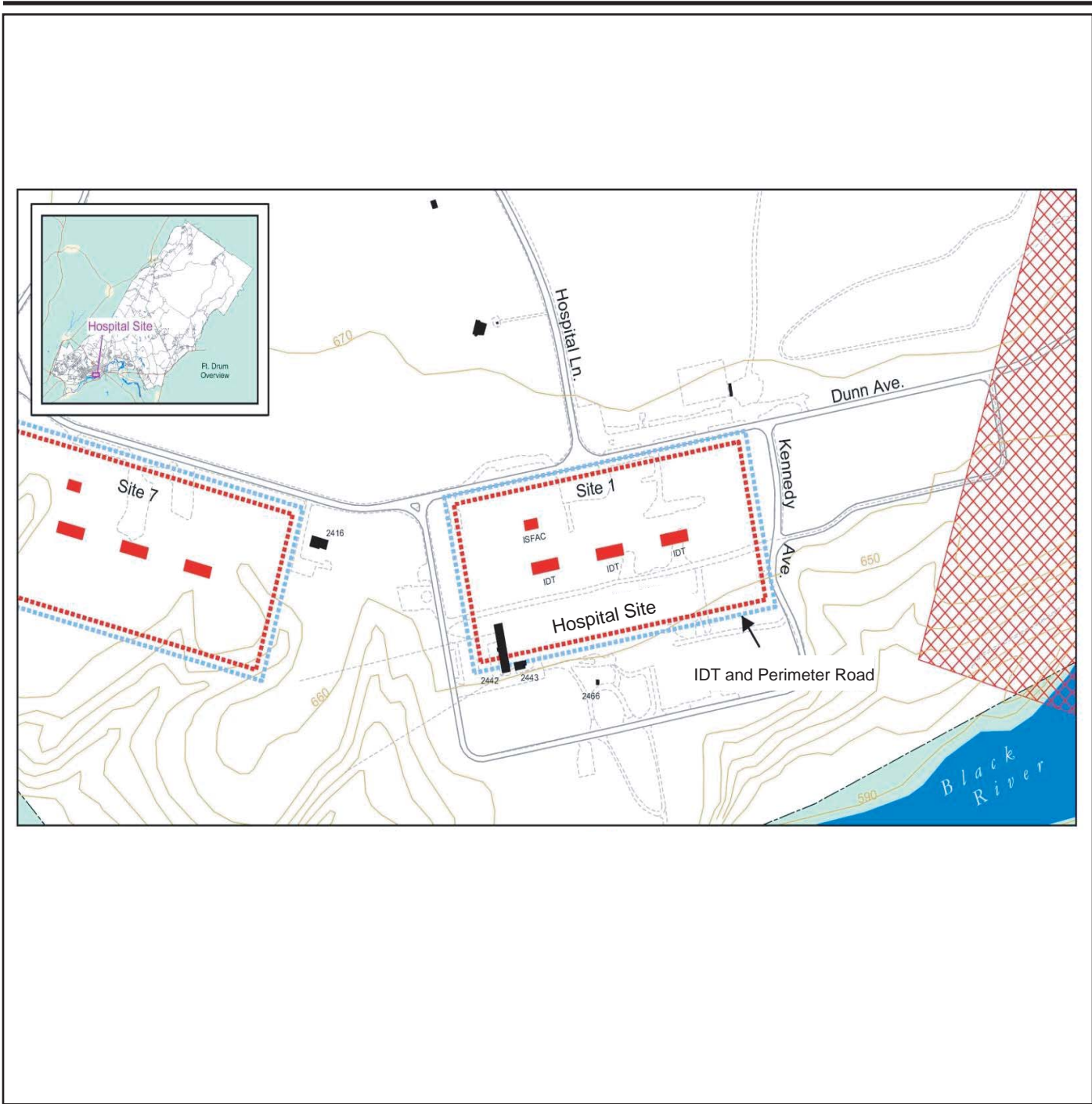
- Proposed IDT
- Buildings
- Runway
- Water Bodies
- Installation Boundary
- Road
- ++ Railroad
- Drainage
- Proposed IDT Site Boundary









**Proposed IDT Site
Niagara Falls Air Reserve Station**



Niagara Falls Air Reserve Station,
New York

Figure 2-4

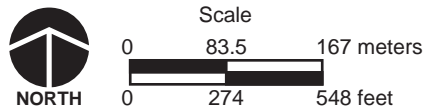


EXPLANATION

-  Buildings
-  Candidate IDT Structure
-  Candidate IDT Site Fence
-  9-meter (30-foot) Buffer Zone and Perimeter Road
-  Runway Clear Zone
-  Installation Boundary

-  Roads
-  Unpaved Roads/Trails
- Elevation Contour Interval = 10 feet

**Alternative IDT Site
Hospital Site
Candidate Site 1**



Fort Drum, New York

Figure 2-5

Site 7 (Parade Field Site) (figure 2-6) at Fort Drum is adjacent to Site 1. This 6.9-hectare (17-acre) site is also located along Dunn Avenue and is across from the post parade field. Connections to utilities and communications lines would be as discussed above for Site 1. Site 7 is currently used for parking during special events at the parade field. Beyond the perimeter road, only selective clearing of trees south of Dunn Avenue would be required in order to achieve LOS.

2.5 ALTERNATIVE IDT SITES CONSIDERED BUT NOT CARRIED FORWARD FOR ANALYSIS

Four other sites at Fort Drum and one at Hancock Field were considered but not carried forward for analysis because they were not reasonable alternatives.

2.5.1 ALTERNATIVE SITES AT FORT DRUM, NEW YORK

Locations for the Fort Drum sites not carried forward are shown in figure 2-2, and each site is briefly described below.

Site 2 (Ammunition Supply Point Site) and Site 3 (Hot Pad Site)

Sites 2 and 3 would have operational conflicts with new missions at Fort Drum. An aerial training site is being planned near these two candidate sites. Because of constant low-level flights in this area and the danger of collisions with the IDT radomes and anemometer towers, these sites were considered but not carried forward for analysis. Additionally, new training flight paths with helicopter sling loads also make these sites less desirable.

Site 4 (Hilltop Site)

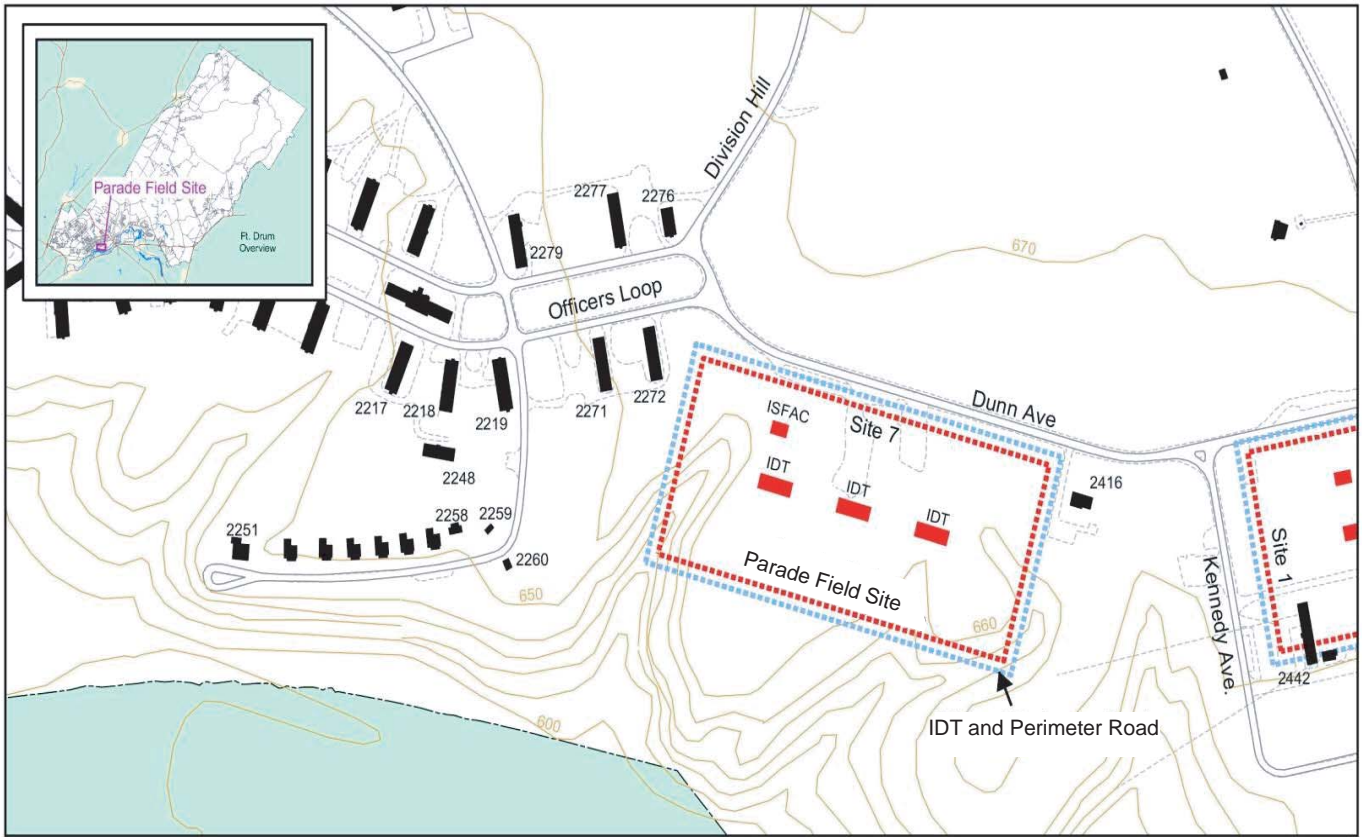
This site is the most remote of the sites investigated. Although the hilltop would provide good LOS, the inaccessibility of the site would require extensive road building and trenching for utilities and fiber optic cables.

Site 5 (Asphalt Plant Site)






This site is at the location of an old asphalt plant. It was not carried forward for analysis because it lies adjacent to the post boundary and a heavily traveled civilian road. This layout would complicate implementation of the requirements for the IDT. Additionally, extensive road building, some through wetland areas, would be required to enable proper access to the site. Some wetlands could potentially require draining and filling to use this site.



2.5.2 HANCOCK FIELD, NEW YORK

This site was also evaluated in the siting study and determined to be a viable candidate, but it was not carried forward due to operational conflicts. Hancock Field is an Air National Guard Base that is collocated with Syracuse International Airport. Space is extremely limited at this installation. The candidate area at Hancock Field has enough acreage but is surrounded by existing structures, and the preferred linear arrangement of the IDT cluster would not be possible here. The area is also subject to flooding during part of the year.

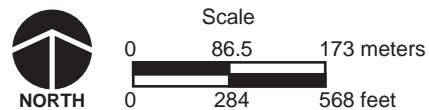


EXPLANATION

-  Buildings
-  Candidate IDT Structure
-  Candidate IDT Site Fence
-  9-meter (30-foot) Buffer Zone and Perimeter Road
-  Installation Boundary

-  Roads
-  Unpaved Roads/Trails
- Elevation Contour Interval = 10 feet

**Alternative IDT Site
Parade Field Site
Candidate Site 7**



Fort Drum, New York

Figure 2-6

2.6 NO-ACTION ALTERNATIVE

The No-action Alternative would be to not proceed with the fielding of IDTs at any of the sites considered at Fort Drum or Niagara Falls ARS. For the potential sites being considered for IDTs, the No-action Alternative would be a continuation of activities currently occurring or planned at those locations.

3.0

AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

This section describes the environmental characteristics that may be affected by the Proposed Action. The information provided serves as a baseline from which to identify and evaluate environmental changes resulting from the construction and operation of the components of the proposed IDT at Fort Drum or Niagara Falls ARS. To provide a baseline point of reference for understanding any potential impacts, the affected environment is briefly described; components of greater concern are described in greater detail.

Available reference materials, including EAs and base master plans, were acquired to assist in the description of the affected environment. To fill data gaps (questions that could not be answered from the literature) and to verify and update available information, installation and facility personnel and private individuals were contacted.

Environmental Resources

Fourteen broad areas of environmental consideration were initially considered to provide a context for understanding the potential effects of the Proposed Action and to provide a basis for assessing the severity of potential impacts. Only eight of these areas have the potential for environmental impacts. These areas include air quality, airspace, biological resources, cultural resources, geology and soils, land use, socioeconomics, and utilities. The areas were analyzed as applicable for each proposed location or activity.

Areas that are not expected to be affected sufficiently at Fort Drum and Niagara Falls ARS to warrant further discussion include hazardous materials and waste, health and safety, noise, transportation, water resources, and visual and aesthetic resources. Hazardous materials and waste—Other than minor, short-term increases from the use of potentially hazardous materials such as paints, solvents, and fuels during the production/manufacturing process of the IDT components, no adverse impacts from hazardous materials storage and handling are anticipated. These materials would be handled in accordance with the production/manufacturing site procedures. Health and safety—Construction and operation would follow local, state, service branch, and federal environmental, safety, and occupational health regulations. Noise—No sensitive noise receptors would be disturbed by the proposed intermittent and short-term activity, and noise levels are expected to be below Occupational Safety and Health Administration workplace standards. Transportation—The 50 construction and 10 operations personnel would not affect transportation. Water resources—No withdrawal of or discharge to groundwater is anticipated. No impacts are anticipated to lakes, streams, and wells. Visual and aesthetic resources—Impacts would be avoided by actions taking place in secure locations where site specific changes would not impact the overall visual setting.

3.1 FORT DRUM

Fort Drum is located in Jefferson and Lewis Counties, New York, approximately 16 kilometers (10 miles) northeast of the City of Watertown in northern New York State within the Great Lakes drainage basin. Fort Drum occupies approximately 43,408 hectares (107,265 acres) and has had training as its mission ever since it was activated in 1941. The mission at Fort Drum is to provide base operations support for forces training, mobilization, and deployment and to provide installation services for military and civilians. Fort Drum has over 24,231 hectares (60,000 acres) of usable maneuver training land, as well as 37 ranges that support a variety of weapons systems including small arms, artillery, armor, and fixed and rotary wing weapons.

3.1.1 AIR QUALITY

Air quality in a given location is described by the concentrations of various pollutants in the atmosphere, expressed in units of parts per million or micrograms per cubic meter. Pollutant concentrations are determined by the type and amount of pollutants emitted into the atmosphere; the physical characteristics, including size and topography of the air basin; and meteorological conditions related to prevailing climate. The significance of a pollutant concentration is determined by comparison with national ambient air quality standards (NAAQS) and state ambient air quality standards (AAQS) that establish limits on the maximum allowable concentrations of seven pollutants (carbon monoxide, lead, oxides of nitrogen, ozone, particulate matter with a diameter less than or equal to 10 micrometers [PM-10], particulate matter with a diameter less than or equal to 2.5 micrometers, and sulfur dioxide) to protect public health and welfare. The NAAQS and New York state AAQS are included in table 3-1.

The federal laws and regulations also define a group of pollutants called hazardous air pollutants, toxic air contaminants, or air toxics. These pollutants are regulated by the National Emissions Standards for Hazardous Air Pollutants section of the Clean Air Act. Exposure to these pollutants can cause or contribute to cancer, birth defects, genetic damage, and other adverse health effects. The source and effects are generally local rather than regional. Evaluation is based on case studies, not standards for ambient concentration. Examples of air toxics include benzene, asbestos, and carbon tetrachloride.

Region of Influence

Identifying the region of influence (ROI) for air quality assessment requires knowledge of the pollutant types, source emissions rates and release parameters, proximity relationships of project emission sources to other emission sources, and local and regional meteorological conditions. For inert pollutants (all pollutants other than ozone and its precursors, nitrogen oxide and reactive organic compounds), the ROI is generally limited to an area extending no more than a few tens of miles downwind from the source. The ROI for ozone may extend much further downwind than the ROI for inert pollutants; for this air quality analysis, the ROI would be Jefferson County, New York. Wind velocities on Fort Drum are moderate, averaging 13 kilometers per hour (7 knots) over the past 10 years.

Table 3-1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	New York State Standard	National Primary Standard	National Secondary Standard
Carbon Monoxide	8-hour	10 mg/m ³ (9 ppm)	10 mg/m ³ (9 ppm)	None
	1-hour	40 mg/m ³ (35 ppm)	40 mg/m ³ (35 ppm)	None
Nitrogen Dioxide	Annual ⁽¹⁾	94 µg/m ³ (0.05 ppm)	100 µg/m ³ (0.053 ppm)	Same as Primary
	1-hour	None	None	None
Ozone	8-hour ⁽²⁾	None	157 µg/m ³ (0.08 ppm) ⁽¹⁾	Same as Primary
	1-hour	235 µg/m ³ (0.12 ppm)	235 µg/m ³ (0.12 ppm)	Same as Primary
Lead	30-day average	None	None	None
	Quarterly ⁽¹⁾	None	1.5 µg/m ³	Same as Primary
PM-2.5	Annual ⁽³⁾	None	15 µg/m ³	Same as Primary
	24-hour ⁽⁴⁾	None	65 µg/m ³	Same as Primary
PM-10	Annual (arithmetic mean)	None	50 µg/m ³	Same as Primary
	24-hour ⁽⁵⁾	None	150 µg/m ³	Same as Primary
	Annual (geometric mean)	None	None	None
Sulfur Dioxide	Annual ⁽¹⁾	80 µg/m ³ (0.03 ppm)	80 µg/m ³ (0.03 ppm)	None
	24-hour	365 µg/m ³ (0.14 ppm)	365 µg/m ³ (0.14 ppm)	None
	3-hour	1,300 µg/m ³ (0.5 ppm)	None	1,300 µg/m ³ (0.5 ppm)
Hydrocarbons (non-methane)	8-hour	None	None	None

Source: New York State Department of Environmental Conservation, Division of Air Resources, 2004

⁽¹⁾ Calculated as the arithmetic mean

⁽²⁾ Calculated as the 3-year average of the fourth highest daily maximum 8-hour ozone concentration

⁽³⁾ Calculated as the 3-year average of the arithmetic means

⁽⁴⁾ Calculated as the 98th percentile of 24-hour PM-2.5 concentration in a year (averaged over 3 years) at the population-oriented monitoring site with the highest measured values in the area

⁽⁵⁾ Calculated as the 99th percentile of 24-hour PM-10 concentrations in a year (averaged over 3 years)

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

PM-2.5 = fine particulate matter equal to or less than 2.5 microns in size

PM-10 = particulate matter equal to or less than 10 microns in size (also called respirable particulate and suspended particulate)

ppm = parts per million

Affected Environment

Climate

Fort Drum has a primarily humid, continental climate with relatively long, cold winters and short, warm and often humid summers. Two air masses provide the dominant continental characteristics of the local climate. Masses of cool, dry air frequently arrive from the north-northwest. In contrast, winds from the south-southwest often transport warm, humid air that has been collected by the Gulf of Mexico and adjacent subtropical waters.

Lake Ontario significantly influences the local climate each year from late autumn through winter. When cold air flows over the warmer lake, the air is quickly saturated and produces cloudiness and snow squalls. Average annual precipitation is 104 centimeters (41 inches) per year, which includes an average snowfall of 277 centimeters (109 inches) per year.

Regional Air Quality

Upstate New York, including Fort Drum, has been designated as being in marginal nonattainment for ozone by the U.S. Environmental Protection Agency, due in part to its location within the Ozone Transport Region. All other criteria pollutants are in attainment. (Parsons Engineering Science, 2002) Table 3-2 lists the annual emissions for Jefferson County for 1996.

**Table 3-2: Annual Jefferson County Emissions
(metric tons per year [tons per year])**

	Volatile Organic Compound	Nitrogen Dioxide	Carbon Monoxide	Sulfur Dioxide	PM-10
Jefferson County	7,306 (8,053)	7,840 (8,642)	35,242 (38,848)	3,623 (3,994)	7,445 (8,207)

Source: U.S. Environmental Protection Agency, 2004

PM-10 = particulate matter with a diameter less than or equal to 10 micrometers

Existing Emission Sources

Based on the Clean Air Act, a major source is defined as a source that emits more than 90.7 metric tons (100 tons) per year of criteria pollutants (ozone, carbon monoxide, nitrogen dioxide, sulfur oxides, particulate matter, and lead). Actual emissions from stationary sources at Fort Drum fall below this threshold value. Fort Drum is also below the air emissions threshold requiring a Title V permit. Current Fort Drum emissions are permitted by the New York State Department of Environmental Conservation under a Synthetic Minor Air Permit. (Parsons Engineering Science, 2002)

3.1.2 AIRSPACE

Airspace, or that space that lies above a nation and comes under its jurisdiction, is generally viewed as being unlimited. However, it is a finite resource that can be defined vertically and horizontally, as well as temporally, when describing its use for aviation purposes. The time dimension is a very important factor in airspace management and air traffic control. Under the Federal Aviation Act of 1958, as amended (42 USC 1301 et seq.), the Federal Aviation Administration (FAA) is charged with the safe and efficient use of our nation's airspace and has established certain criteria and limits to its use. Certain types of uses include restricted use airspace, warning areas, and control area extensions.

Regulations governing visual flight that enable the pilot to fly with visual reference to the ground are called visual flight rules. Instrument routes are flown exclusively using instrument flight rules without visual reference to the ground.

Restricted use airspaces are used by military testing or flight training and are not usually accessed by civilian or commercial aircraft.

Region of Influence

The ROI for airspace is limited to the airspace within approximately 213 meters (700 feet) of the proposed IDTs.

Affected Environment

Aircraft operations supporting Fort Drum activities are conducted at Wheeler-Sack Army Airfield located immediately east of the cantonment area and the ROI. Helicopters assigned to and operating from the airfield belong to the 10th Aviation Brigade. Helicopters typically fly one of three corridors at 213 meters (700 feet) above ground level to transition between the airfield and the Fort Drum range to the northeast. (Parsons Engineering Science, 2002) Specific aircraft operations have not been identified within the ROI, however, helicopters are sometimes used within the training areas that include the ROI.

3.1.3 BIOLOGICAL RESOURCES

Native or naturalized vegetation, wildlife, and the habitats in which they occur are collectively referred to as biological resources. Existing information on plant and animal species and habitat types in the vicinity of the proposed sites was reviewed, with special emphasis on the presence of any species listed as threatened or endangered by federal or state agencies, to assess their sensitivity to the effects of the Proposed Action. For the purpose of discussion, biological resources have been divided into the areas of vegetation, wildlife, threatened and endangered species, and environmentally sensitive habitat.

Region of Influence

The ROI for biological resources includes the area within and adjacent to Sites 1, 6, and 7 at Fort Drum that could be affected by the Proposed Action.

Affected Environment

Vegetation

Upland areas comprise 86 percent of the installation. Upland types that exist at Fort Drum include forested uplands, open uplands, and terrestrial cultural (developed areas with green spaces).

The three major vegetation types on Fort Drum are grasslands and shrublands, forests and woodlands, and palustrine systems (non-tidal, perennial wetlands). Grasslands vegetation is dominated by common hairgrass, stiff-leaved aster, poverty oat grass, sedge, timothy, Canada bluegrass, old-field cinquefoil, vetch, rough-leaved goldenrod, and meadowsweet. Common species located in forests and woodlands are white pine, hemlock, red maple, red and white oak, sugar maple, aspen, and black cherry. Forested wetlands species include red maple, alder, and American elm. Fort Drum has 23 known state-listed rare plant species as determined by the New York Natural Heritage Program. Table 3-3 lists these species and their status as state-listed threatened or endangered species. (Department of the Army, Fort Drum Public Works, Environmental Division, 2001)

Table 3-3: State Listed or Rare Species on Fort Drum

Scientific Name	Common Name	State Status
Plants		
<i>Arethusa bulbosa</i>	Dragon's mouth	T
<i>Armoracia lacustris</i>	Lake cress	
<i>Aster borealis</i>	Rush aster	T
<i>Aster firmus</i>	Shining aster	
<i>Aster ontarionis</i>	Ontario aster	
<i>Bidens beckii</i>	Water marigold	
<i>Carex argyrantha</i>	Hay sedge	
<i>Carex cryptolepis</i>	Northeastern sedge	
<i>Carex houghtonii</i>	Houghton's sedge	T
<i>Carex lupuliformis</i>	False hopsedge	
<i>Ceratophyllum echinatum</i>	Prickly hornwort	
<i>Cynoglossum virginianum</i>	Wild comfrey	E
<i>Cyperus houghtonii</i>	Houghton's flatsedge	
<i>Cyperus schweinitzii</i>	Schweinitz's flatsedge	
<i>Hippuris vulgaris</i>	Common Mare's-tail	E
<i>Lycopodium complanatum</i>	Northern running-pine	E
<i>Panicum boreale</i>	Northern panicgrass	
<i>Podostemum ceratophyllum</i>	Riverweed	T
<i>Potamogeton hillii</i>	Hill's pondweed	T
<i>Salix pyrifolia</i>	Balsam willow	T
<i>Sparganium natans</i>	Small bur-reed	T
<i>Ulmus thomasi</i>	Cork elm	T
<i>Utricularia geminiscapa</i>	Hiddenfruit bladderwort	T
Wildlife		
<i>Ammodramus henslowii</i>	Henslow sparrow	T
<i>Asio flammeus</i>	Short-eared owl	E
<i>Bartramia longicauda</i>	Upland sandpiper	T
<i>Circus cyaneus</i>	Northern harrier	T
<i>Cistothorus platensis</i>	Sedge wren	T
<i>Emydoidea blandingii</i>	Blanding's turtle	T
<i>Falco peregrinus</i>	Peregrine falcon	E
<i>Haliaeetus leucocephalus</i>	Bald eagle	T
<i>Ixobrychus exilis</i>	Least bittern	T
<i>Podilymbus podiceps</i>	Pied-billed grebe	T

Source: Department of the Army, Fort Drum Public Works, Environmental Division, 2001

T = Threatened

E = Endangered

Wildlife

About one-third of the mammal species occurring on Fort Drum use open upland habitats for food sources and/or shelter at some point in their life cycle. Typical upland habitat-associated mammals include the red fox, striped skunk, white-tailed deer, eastern cottontail, meadow vole, white-footed mouse, deer mouse, and woodchuck.

Since woodland/forests occupy more than half of the installation, they are very important to wildlife populations. Most mammals found on Fort Drum use woodlands or forests to some extent. Some mammals typically found in forests include the coyote, red fox, bobcat, striped skunk, short-tailed weasel, long-tailed weasel, black bear, white-tailed deer, little brown bat, smokey shrew, hairy-tailed mole, opossum, porcupine, white-footed mouse, deer mouse, northern flying squirrel, southern flying squirrel, gray squirrel, and eastern chipmunk.

Birds typically found in open uplands of Fort Drum include the upland sandpiper, northern harrier, Savannah sparrow, bobolink, nighthawk, horned lark, bluebird, Vesper sparrow, and grasshopper sparrow. Birds typically found in woodland or forest habitat on Fort Drum include hermit thrush, red-breasted nuthatch, Blackburnian warbler, wood thrush, red-eyed vireo, ovenbird, and purple finch. (Department of the Army, Fort Drum Public Works, Environmental Division, 2001)

Twenty-eight state-listed rare animal species occur on Fort Drum. There are 10 state-listed threatened or endangered wildlife species on Fort Drum as listed in table 3-3. Surveys specifically for state-listed species have not been performed. While Fort Drum is not required to afford state-listed species any special protection, it is Army policy to consider such species whenever possible in all management decisions. (Department of the Army, Fort Drum Public Works, Environmental Division, 2001)

Threatened and Endangered Species

A survey of federal and state rare species was conducted on Fort Drum during 1991 and 1992. The survey located and identified rare species of fish, wildlife, and plants on the installation with assistance from Fort Drum natural resources personnel. There are no known resident federally listed, threatened, or endangered species found on Fort Drum.

The bald eagle (*Haliaeetus leucocephalus*) and the peregrine falcon (*Falco peregrinus*) were the only federally listed animals documented on the installation. Documented sightings of these birds are believed to be of migrating individuals and not of breeding or resident populations. The peregrine falcon has been federally delisted, and the bald eagle has been removed from the list of federal threatened species. The peregrine falcon remains state listed as endangered, and the bald eagle remains state listed as threatened. In 1999 Fort Drum was surveyed to determine the presence/absence of the federally endangered Indiana bat (*Myotis sodalis*) and other bat species during the summer foraging period. Seventy-one bats, consisting of five species, were mist netted. No Indiana bats were captured. However, the Glen Parks Caves, located 12.9 kilometers (8 miles) southwest of Fort Drum, are Indiana bat Priority II hibernaculum, and bats hibernating there may use Fort Drum during fall swarming and spring staging (BHE Environmental, Inc., 1999).

Environmentally Sensitive Habitat

Wetlands make up approximately 19 percent of land on Fort Drum, including the main impact area, and have been identified by four sources: the National Wetland Inventory in 1981 (5,702 hectares [14,089 acres], including open waters); New York State Wetland Survey in 1986 (2,443 hectares [6,036 acres], which did not include any wetlands below 5.1 hectares [12.5 acres]); vegetation/land cover mapping by Coastal Environmental Services in 1992 (5,144 hectares [12,711 acres]); and the Geonex Corporation in 1996 (6,383 hectares [15,772 acres]) (Department of the Army, Fort Drum Public Works, Environmental Division 2001).

Despite differences in areas of wetland distribution identified in these sources it is clear that wetlands occupy a relatively large amount of Fort Drum. Wetland types found in all areas of the installation include forested wetlands, freshwater marshes, riparian areas, scrub-shrub wetlands, and wet meadows. Wetland boundaries change frequently due to changing hydrology caused by natural succession and beaver activity. Increased beaver activity in recent years has increased the total wetland acreage on Fort Drum. Fort Drum has constructed approximately 28 hectares (70 acres) of compensatory wetlands to mitigate impacts associated with prior construction. The success of these compensatory wetlands appears promising. The sites are under a long-term monitoring program as required by Section 404, Special Conditions. (Department of the Army, Fort Drum Public Works, Environmental Division, 2001)

3.1.4 CULTURAL RESOURCES

Cultural resources include prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. For ease of discussion, cultural resources have been divided into archaeological resources (prehistoric and historic), historic buildings and structures, native populations/traditional resources (e.g., Native American sacred or ceremonial sites), and paleontological resources.

Numerous laws and regulations require that possible effects to cultural resources be considered during the planning and execution of federal undertakings. These laws and regulations stipulate a process of compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Officer [SHPO], the Advisory Council on Historic Preservation). In addition to NEPA, the primary laws that pertain to the treatment of cultural resources during environmental analysis are the National Historic Preservation Act (especially Sections 106 and 110), the Archaeological Resources Protection Act, the Antiquities Act of 1906, the American Indian Religious Freedom Act, and the Native American Graves Protection and Repatriation Act.

Fort Drum has completed a Cultural Resources Management Plan and uses a geographic information system to help identify and monitor archaeologically sensitive areas.

Region of Influence

For the purposes of this analysis, the term ROI is synonymous with the “area of potential effect” as defined under cultural resources regulations, 36 CFR 15 part 800.16 (d). In general, the ROI for cultural resources at each location encompasses areas requiring ground disturbance (e.g., areas of new facility/utility construction) and all buildings or structures requiring modification, renovation, demolition, or abandonment. The currently defined ROI for Fort Drum includes

construction sites and any other areas where ground disturbance could occur (e.g., utility corridors).

Affected Environment

Archaeological Resources

An extensive archaeological program of surveys, evaluation, and treatment has been conducted at Fort Drum for more than 20 years. To date these efforts have resulted in the identification of more than 1,300 archaeological sites and more than 1,100 historic sites. Prior to the initiation of Section 106 and 110 compliance efforts at Fort Drum in 1983, only six prehistoric archaeological sites were known to the installation. (Parsons Engineering Science, 2002)

As of October 2001, approximately 36,806 hectares (90,950 acres), or 85 percent of the total acreage at Fort Drum, was considered surveyed for archaeological resources. Currently, 286 hectares (707 acres), containing 81 archaeological sites, are either protected until further evaluation or are located within the National Register Archaeological Districts of LeRaysville, Alpina, Sterlingville, Wood's Mills, Lewisburg, or the LeRay Mansion Historic District. Boundaries for these districts have been determined, and the districts have been declared protected areas. (Parsons Engineering Science, 2002)

The majority of the prehistoric archaeological sites on Fort Drum consist of small lithic scatters. A number of Fort Drum prehistoric sites have been evaluated and found significant. To date, surveys at Fort Drum have identified more than 220 prehistoric sites, of which at least 30 are considered eligible or potentially eligible for the National Register; however, none have been identified within the ROI.

Historic Resources

Fort Drum has relatively few significant (or potentially significant) historic architectural resources remaining. Most of the World War II buildings that remain at Fort Drum have been designated as temporary structures which are required by the Military Construction Authorization Bill of 1983 to be demolished. However, in 1986, in compliance with Section 106 of the National Historic Preservation Act, the DoD entered into a Memorandum of Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers to document these World War II temporary buildings on military installations, including Fort Drum. No further mitigation measures are required for the demolition of temporary World War II buildings on Fort Drum. (Parsons Engineering Science, 2002)

Historic architectural properties at Fort Drum include the LeRay Mansion Historic District, which is significant under the National Register of Historic Places Criterion B (for its association with James LeRay) and Criterion C (for its distinctive architecture representing the work of the master). In addition to the mansion house, the LeRay Mansion Historic District contains four contributing structures (a tenant house, chapel, land office, and servants quarters), one grave, and a historic landscape. (Parsons Engineering Science, 2002) This historic district is located approximately 0.8 kilometer (0.5 mile) from Sites 1, 6, and 7.

Native American Consultation

Fort Drum is in active consultation with the St. Regis Mohawk Tribe and the Oneida Indian Nation. Other federally recognized tribes with potential cultural affiliations to the region have

been invited to consult with Fort Drum as well. Fort Drum is in the process of finalizing signatures to an agreement document between Fort Drum and the Oneida Indian Nation concerning inadvertent discovery of Native American human remains. (Parsons Engineering Science, 2002)

3.1.5 GEOLOGY AND SOILS

Geology and soils include those aspects of the natural environment related to the earth, which may affect or be affected by the Proposed Action. These features include physiography, geologic units and their structure, the presence/availability of mineral resources, soil condition and capabilities, and the potential for natural hazards.

Region of Influence

The ROI for geology and soils includes the area within and adjacent to the sites at Fort Drum that could be affected by the Proposed Action.

Geology and Physiography

Fort Drum is underlain by a variety of metamorphic, igneous, and sedimentary bedrock ranging from Precambrian to Middle Ordovician. The oldest metamorphic rocks belong to the Grenville Complex and consist mainly of metamorphosed Precambrian quartzite, gneiss, schist, and marble. These rocks stretch in a wide northeast-southwest band across Fort Drum and border the igneous Adirondack massif and associated foothills to the east.

The southwesternmost area of Fort Drum is located in the Lake Erie–Ontario Lowlands physiographic province. These lowlands are characterized by low relief (0 to 3 percent slopes) and are made up of sand plains, drumlin fields, swamps, and disrupted drainage patterns resulting from continental glaciation.

Soils

Soils within the ROI are generally developed from glacial deposits. Natural fertility of most of these soils is low, and organic soils are rare.

The primary soils at the IDT sites are Plainfield sands. These sands are dark brown to yellowish-brown and are underlain by a yellowish-brown sand substratum. The soil has high permeability and low water holding capacity. In areas without vegetation, wind erosion is possible.

3.1.6 LAND USE

Land use can be defined as the human use of land resources for various purposes including economic production, natural resources protection, or institutional uses. Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable or protect specially designated or environmentally sensitive uses. Potential issues typically stem from encroachment of one land use or activity on another, or an incompatibility between adjacent land uses that leads to encroachment.

Region of Influence

For the purpose of this analysis, the ROI is assumed to include the area within and adjacent to the sites at Fort Drum that could be affected by the Proposed Action.

Affected Environment

Land uses at Fort Drum include Headquarters and Administration, troop housing, troop maintenance, industrial, community facilities, medical facilities, operations, family housing, training areas, and buffer and recreation. All of these uses, and the proposed sites, are located within the cantonment area. Land outside of the cantonment area and outside the airfield consists of training and operations.

Many overlapping land uses occur on Fort Drum. The cantonment area is open to limited hunting, fishing, and other outdoor recreation activities. Many training areas include forests that are managed for commercial forest products. Fort Drum's future land use is guided by a post wide Master Plan, which defines future land use. Site 1 is designated in the Master Plan as an industrial area, Site 6 is designated as a training area, and Site 7 is designated as troop housing and buffer area. Because of overlapping uses, coordination between the Command, Combat Readiness Training Division, and Natural/Cultural Resources Branch on Fort Drum is extremely important.

3.1.7 SOCIOECONOMICS

Socioeconomics describes a community by examining its social and economic characteristics. Several demographic variables are analyzed in order to characterize the community, including the means and amount of employment, and income creation. In addition, socioeconomics analyzes the allocation of the assets of the community, such as its schools and housing.

Region of Influence

For the purpose of this analysis, the ROI is assumed to include Fort Drum and Jefferson, Lewis, and St. Lawrence Counties.

Affected Environment

Fort Drum provides a significant contribution to the economy of Jefferson, Lewis, and St. Lawrence Counties. Fort Drum's total dollar impact on the surrounding area exceeded \$519.8 million in fiscal year 2002. Included in this amount are expenditures for payroll, off-post housing, construction and service contracts, direct medical expenses, contribution to local charities, tuition assistance, and estimated contractor payrolls associated with new construction at Fort Drum (U.S. Army, Fort Drum, 2002a).

Total payroll at Fort Drum exceeded \$394.2 million in fiscal year 2002. The military payroll portion totaled over \$313.1 million, while the civilian payroll was over \$81.1 million. Fort Drum awarded 262 construction contracts worth \$23.6 million in construction contracts to companies in Jefferson, Lewis, and St. Lawrence Counties during fiscal year 2002 (U.S. Army, Fort Drum, 2002a).

Fort Drum employed approximately 14,310 persons in fiscal year 2002. Post employment consisted of approximately 11,816 military employees (82.6 percent) and 2,494 civilian employees (17.4 percent) (U.S. Army, Fort Drum, 2002a).

Approximately 3,500 children of Fort Drum military personnel are attending elementary through high school in the local area. The enrollment by school district is as follows: City of Watertown, 785; Indian River, 969 from military personnel living on Fort Drum and 806 from military personnel living off Fort Drum; Carthage, 616; 1000 Islands, 121; Lowville, 65; Copenhagen, 30; and Gouverneur, 108 (U.S. Army, Fort Drum, 2002b).

The Army Family Housing office runs the Family Housing Program at Fort Drum. Army Family Housing controls almost 2,300 Army-owned family housing units located on-post. Army Family Housing also oversees the Army Community Housing Program, which provides off-post housing for Army families. Army Community Housing units were contractor-built and are contractor-operated and maintained. Approximately, 2,000 Army Community Housing units are occupied in 10 different communities surrounding Fort Drum.

3.1.8 UTILITIES

Utilities address those facilities and systems that provide water, wastewater treatment, the collection and disposal of solid waste, and power. The utility systems addressed in this analysis include the facilities and infrastructure used for:

- Potable water pumping, treatment, storage, and distribution
- Wastewater collection and treatment
- Solid waste collection and disposal
- Energy generation and distribution, including the provision of electricity and natural gas

Region of Influence

The ROI for utilities includes the area within and adjacent to the sites at Fort Drum that could be affected by the Proposed Action.

Water

The City of Watertown water plant supplies potable water to Fort Drum by means of a transmission system operated by the Development Authority of the North Country. In addition, the installation operates a well field consisting of 11 wells near the airfield.

The Watertown plant was expanded to a capacity of 56.8 million liters (15 million gallons) per day when the 10th Mountain Division Light Infantry was posted at Fort Drum. Prior to this, the installation used the well field exclusively for water supply. Area demand on the Watertown plant is about 28.4 million liters (7.5 million gallons) per day, with Fort Drum averaging 5.17 million liters (1.37 million gallons) per day from the plant during fiscal year 2000. Contractually, Fort Drum is required to purchase at least 5.7 million liters (1.5 million gallons) per day from the Development Authority of the North Country. The Development Authority of the North Country can supply up to 15 million liters (4 million gallons) per day through its 50.8-centimeter (20-inch) transmission main to the installation (Parsons Engineering Science, 1997).

Groundwater supply wells at Fort Drum are located generally north of the cantonment area and Wheeler-Sack Airfield. Nominal well capacities range from 200.6 liters (53 gallons) per minute to 1,665.6 liters (440 gallons) per minute, with a total combined well capacity of up to 8,759 liters (2,314 gallons) per minute. This equates to a flow of about 12.5 million liters (3.3 million gallons) per day. The chlorination plant at the well field is limited to a maximum throughput of 8.7 million liters (2.3 million gallons) per day. Fort Drum used an average of 1.3 million liters (0.34 million gallons) per day from the well field in fiscal year 2000. The New York Department of Environmental Conservation regulates the Fort Drum groundwater supply wells and drinking water treatment/distribution. (Parsons Engineering Science, 1997)

Wastewater

Approximately 99 percent of the sewer lines on post are separate sanitary or storm sewers. All sanitary wastewater collected on Fort Drum is sent to the wastewater treatment plant owned and operated by the City of Watertown. The transmission lines are owned and operated by the Development Authority of the North Country in Watertown. The installation's sanitary wastewater is routed through three connections: the North Gate pump station (30.3 million liters [8 million gallons] per day capacity), the former Fort Drum wastewater treatment plant (now used only as a wet well for pumping to a gravity sewer), and a gravity connection at State Route 283.

In fiscal year 2000, wastewater flow from the post averaged 6.1 million liters (1.6 million gallons) per day and rarely exceeded 9.5 million liters (2.5 million gallons) per day. The capacity of the existing collection system and off-post connections is ample. The rated capacity of the Watertown wastewater treatment plant is 50.7 million liters (13.4 million gallons) per day, and usage averages 36 million liters (9.5 million gallons) per day (Parsons Engineering Science, 1997).

Solid Waste

Approximately 4.5 million kilograms (10 million pounds) of solid waste are produced annually at Fort Drum. Fort Drum requires its solid waste generators to separate recyclables. Fort Drum's average per capita rate of non-recycled waste generation is approximately 1.5 kilograms (3.3 pounds) per day, which is in the low end of the standard range for residential and commercial activities of 0.9 to 2.3 kilograms (2 to 5 pounds) per day. Solid waste is collected at Fort Drum by the Refuse and Recycle group. Non-recyclable waste is picked up at the curb in residential areas or from dumpsters by packer trucks. Packer trucks dump their individual loads at an on-post transfer site where refuse is loaded onto a tractor-trailer for transport to the Jefferson County Transfer Station in the Town of Pamela. (Parsons Engineering Science, 2002)

From the Jefferson County Transfer Station, solid waste is hauled to the Town of Rodman Landfill, which is located approximately 24 kilometers (15 miles) south of Watertown. Solid waste refuse from Fort Drum accounts for approximately 3 percent of the total refuse received by the Town of Rodman Landfill.

Electricity

Electrical service to Fort Drum is provided by the Niagara Mohawk Power Corporation. There are two major substations to the cantonment areas, with capacities of 13.2 MW and 15 MW.

These substations are configured to allow for future expansion, if required. The average monthly demand in fiscal year 1998 was 13.9 MW.

Natural Gas

Fort Drum purchases natural gas from the Niagara Mohawk distribution system. There are two active connections to the Niagara Mohawk system: a 20-centimeter (8-inch) pipeline and a 30.5-centimeter (12-inch) pipeline. The majority of the natural gas passes through the 30.5-centimeter (12-inch) connection and is reduced from a distribution pressure of 310 kilopascals (kPa) (45 pounds per square inch) to 103 kPa (15 pounds per square inch) for on-post use.

3.2 NIAGARA FALLS AIR RESERVE STATION

The Niagara Falls ARS is home to the 914th Airlift Wing of the Air Force Reserve and the 107th Air Refueling Wing of the New York Air National Guard. Niagara Falls ARS is located approximately 10 kilometers (6 miles) east of the City of Niagara Falls and 32 kilometers (20 miles) north of Buffalo, New York. The installation occupies approximately 400 hectares (985 acres) of the northern portion of the Niagara Falls International Airport in Niagara County, New York.

Lake Ontario is located approximately 19 kilometers (12 miles) north of the base and Lake Erie is approximately 24 kilometers (15 miles) south. On base, Cayuga Creek flows from east to west along the southern boundary of the installation; an unnamed tributary of the creek serves as a natural boundary separating the facilities of the Air Force Reserve and the Air National Guard. Civilian communities adjacent to the base include the towns of Lockport, Wheatfield, North Tonawanda, Tonawanda, and Amherst.

3.2.1 AIR QUALITY

Section 3.1.1 includes a general description of air quality.

Region of Influence

For inert pollutants (all pollutants other than ozone and its precursors, nitrogen oxide and reactive organic compounds), the ROI is generally limited to an area extending no more than a few tens of miles downwind from the source. The ROI for ozone may extend much further downwind than the ROI for inert pollutants; for this air quality analysis, the ROI would be Niagara County, New York.

Affected Environment

Climate

The climate of Niagara Falls ARS is influenced by two large bodies of water in the region: Lake Ontario and Lake Erie. The average annual temperature is 8.6 degrees Celsius (47.6 degrees Fahrenheit). The area experiences pleasantly warm summers and long, cold winters.

Regional Air Quality

Table 3-4 lists Niagara County emissions for 1996. Niagara County has been designated as being marginally in nonattainment for ozone by the U.S. Environmental Protection Agency, due to its location within an ozone transport region.

**Table 3-4: Annual Niagara County Emissions
(metric tons per year [tons per year])**

	Volatile Organic Compound	Nitrogen Dioxide	Carbon Monoxide	Sulfur Dioxide	PM-10
Niagara County	14,090 (15,532)	33,801 (37,259)	69,045 (76,109)	34,155 (37,649)	11,495 (12,671)

Source: U.S. Environmental Protection Agency, 2003

PM-10 = particulate matter with a diameter less than or equal to 10 micrometers

Existing Emission Sources

A revision and update of the air emissions inventory for Niagara Falls ARS originally prepared for calendar year 1994 was completed in June 1997. As documented in the report, air pollutants, including hazardous air pollutants, nitrogen oxides, volatile organic compounds (VOCs), carbon monoxide, particulate matter, sulfur oxides, and lead, are potential emissions. These emissions result from fuel handling and storage, stationary sources, use of solvents and degreasing agents, and other activities associated with the repair and maintenance of aircraft and vehicles. The report's analysis concluded that the base's potential to emit did not exceed pollutant emission thresholds, and that a Title V Federal permit was not required. The report did note, however, that certain VOC sources may be regulated in the future under state emission standards if air quality in the region does not improve or if national standards become more stringent. (Niagara Falls Air Reserve Station, 1998) Niagara Falls ARS currently maintains a minor source registration with the New York State Department of Environmental Conservation. (Marien, 2004)

3.2.2 AIRSPACE

Section 3.1.2 includes a general description of airspace.

Region of Influence

The ROI for airspace is limited to the airspace within approximately 213 meters (700 feet) of the proposed IDTs.

Affected Environment

Generally, Air Force (Department of Defense) safety criteria do not apply at Niagara Falls ARS because the airfield is owned and maintained by the Niagara Frontier Transportation Authority. However, FAA regulations do exist to promote the safe operation of aircraft. Current FAA airfield safety clearance criteria for operational areas include the runway protection zone, the runway object free zone, and the apron clearance line. (Niagara Falls Air Reserve Station, 1998) These areas are all located outside the ROI.

3.2.3 BIOLOGICAL RESOURCES

Section 3.1.3 includes a general description of biological resources.

Region of Influence

The ROI for biological resources includes the area within and adjacent to the site at Niagara Falls ARS that could be affected by the Proposed Action.

Affected Environment

Vegetation

Most of the installation is urbanized and the original vegetation has been removed or significantly altered by development, construction, landscaping or other development. There are five habitat types located on Niagara Falls ARS; however, due to periodic mowing, the majority of the site is best characterized as successional field. This community is dominated by herbaceous/grassland species with low woody shrub growth in some areas. The plants found on Niagara Falls ARS are typical of these habitats. Dominant plant species within this community include redtop, bluegrass, red fescue, birdsfoot trefoil, Queen Ann's lace, and Canada goldenrod. The vegetative cover consists primarily of turf grasses, with some shrubs and isolated trees used as landscaping. Coniferous and deciduous tree species used for landscaping include blue spruce, maple, Scotch pine, and ash. Other species exist in limited numbers. (Niagara Falls Air Reserve Station, 1998)

Wildlife

The predominate habitat on Niagara Falls ARS is grasslands which support numerous ground-nesting birds. Common bird species inhabiting Niagara Falls ARS throughout most of the year include red-wing blackbird, European starling, gulls, eastern meadowlark, song sparrow, and savannah sparrow. In the winter months, mallards, black ducks, and Canada geese are also common. The reptiles and amphibians on base consist primarily of wood frogs, northern leopard frogs, garter snakes, painted turtles, and snapping turtles. Whitetail deer and coyote appear to be the most common large mammals on base, with the meadow vole dominating the airfield grasses. Two state-listed species, the Upland sandpiper and the Northern harrier, have been documented as occurring on base. (Niagara Falls Air Reserve Station, 1998)

Threatened and Endangered Species

No federally listed species are known to inhabit Niagara Falls ARS and there is no critical habitat on base. However, several transient species may use the base for roosting or foraging. (Niagara Falls Air Reserve Station, 1998)

Environmentally Sensitive Habitat

A limited amount of wetlands habitat supports freshwater wading birds. The fisheries habitat consists of Cayuga Creek and its tributaries. An installation-wide, ground level wetlands survey and delineation was performed on Niagara Falls ARS in July 1997. Twelve jurisdictional wetlands totaling approximately 15 hectares (38 acres) were identified and field confirmed by the Buffalo District, U.S. Army Corps of Engineers. An emergent marsh/shrub wetland covering 29.1 hectares (72 acres) located west of the main runway was delineated by the New York State Department of Environmental Conservation in 1992. A small portion of this wetland is

located on Niagara Falls ARS property. Currently, the base has a permit from New York State Department of Environmental Conservation allowing it to remove emergent trees and brush and to periodically mow approximately 1.6 hectares (4 acres) of the wetland and its 30.5-meter (100-foot) buffer zone (Niagara Falls Air Reserve Station, 1998).

3.2.4 CULTURAL RESOURCES

Section 3.1.4 includes a general description of cultural resources.

Region of Influence

For the purposes of this analysis, the term ROI is synonymous with the “area of potential effect” as defined under cultural resources regulations, 36 CFR 15 part 800.16 (d). In general, the ROI for cultural resources at each location encompasses areas requiring ground disturbance (e.g., areas of new facility/utility construction) and all buildings or structures requiring modification, renovation, demolition, or abandonment. The currently defined ROI for Niagara Falls ARS includes construction sites and any other areas where ground disturbance could occur (e.g., utility corridors).

Affected Environment

The Niagara Falls ARS Cultural Resources Management Plan (CRMP) was prepared in July 1996 to provide for management of cultural resources on the base. The plan includes the following: installation description, mission goals and objectives, responsibilities for implementing cultural resource requirements, prehistoric and historic overviews, areas of concern, need for additional work, legislative requirements, and standard operating procedures for avoiding adverse impacts from project activities.

A base wide, Stage 1 archaeological survey report completed in February 2000 determined that none of the historic artifacts identified were considered culturally important. No further cultural resource investigations were recommended for the Niagara Falls ARS property (Niagara Falls Air Reserve Station, 914th Airlift Wing/LGC, 2000). In addition, Niagara Falls ARS does not have recorded historical or traditional resources to date. However, a Cold War architectural survey and an inventory of Native American traditional resources have not been performed. Procedures for performing these surveys as well as recommendations on methods and locations of surveys are included in the CRMP.

While it is unlikely that a cultural resource will be discovered on base, it is important that base personnel and contractors take appropriate measures to prevent inadvertent disturbance or destruction of artifacts, archaeological sites or historical findings. The CRMP recommends that a survey be completed to identify such resources and an annual update of the plan. The CRMP also provides protective and reporting measures in the event that culturally significant sites are identified on base.

3.2.5 GEOLOGY AND SOILS

Section 3.1.5 includes a general description of geology and soils.

Region of Influence

The ROI for geology and soils includes the area within and adjacent to the sites at Niagara Falls ARS that could be affected by the Proposed Action.

Geology and Physiography

Niagara Falls ARS is situated in the Niagarian Provincial series, in the eastern lake section of the Central Lowland physiographic province. Bedrock strata in the area are composed of Lockport Dolostone from the Middle Silurian age, approximately 43 meters (140 feet) thick in the vicinity of the installation. These formations consist primarily of gray to brownish-gray, fine to coarse grained dolostone with a light gray limestone at the base. The topography of the Niagara Falls region is characterized as being fairly flat with elevations ranging between 178 to 183 meters (585 to 600 feet) above mean sea level. The established elevation of the base is 180 meters (590 feet). Elevations are within the range for the region; the higher elevations on base occur at the eastern and western boundary, dropping to the lowest elevations, which are typically adjacent to Cayuga Creek or its tributaries. (Niagara Falls Air Reserve Station, 1998)

Soils

Niagara Falls ARS possesses naturally occurring soils that are classified as Wisconsin-age glacial till, Lacustrine deposits and Holocene fluvial deposits. In 1972, Soil Conservation Service characterized the soils on base as either the Lakemont silty clay loam or the Odessa silty clay loam. These soils have moderate to fine textures, poor permeability, and poor to very poor drainage. The seasonal high water table in the spring and other excessively wet periods is at or within 0.3 meter (1 foot) of the surface and bedrock is located 2 meters (6 feet) or more below the surface. (Niagara Falls Air Reserve Station, 1998)

3.2.6 LAND USE

Section 3.1.6 includes a general description of land use.

Region of Influence

For the purpose of this analysis, the ROI is assumed to include Niagara ARS.

Affected Environment

Niagara Falls ARS's developed area consists of a heterogeneous land use pattern. The airfield is the dominant land use feature; it distinctly provides the southern boundary for the base. The airfield is bordered to the north by a mixture of industrial, aircraft operations and maintenance; and small open space land uses. Since the eastern and western halves of the base are devoted to the facilities of the 914th Airlift Wing and the 107th Air Refueling Wing, respectively, many land uses are duplicated or dispersed, rather than consolidated. For example, there are two clearly defined operational areas, and two distinct industrial complexes. Administrative uses are more scattered, with the largest concentration clustered in the center of the base in the vicinity of Kirkbridge Drive and Wagner Drive. The installation's outdoor recreation facilities are

consolidated and centrally located. Their siting, which is adjacent to the 100-year flood plain, is ideal for these types of facilities. The large amount of open space on the installation reflects the presence of the 100-year flood plain as well as the demolition of the ammunition storage area, formerly located in the northwest corner of the base (Niagara Falls Air Reserve Station, 1998).

Although there is no immediate mission requirement, several developable areas now in open space were reserved for future administrative or training buildings to emphasize Niagara Falls ARS's capability to absorb additional Air Force Reserve training missions or tenant units.

3.2.7 SOCIOECONOMICS

Section 3.1.7 includes a general description of socioeconomics.

Region of Influence

For the purpose of this analysis, the ROI is assumed to include Niagara Falls ARS and Niagara and Erie Counties.

Affected Environment

Niagara Falls ARS provides a significant contribution to the economy of Niagara and Erie Counties. Niagara's total dollar impact on the surrounding area exceeded \$100 million in fiscal year 2002. Included in this amount are expenditures for payroll, off-post housing, construction and service contracts, direct medical expenses, contribution to local charities, tuition assistance, and estimated contractor payrolls associated with new construction at Niagara Falls ARS (U.S. Air Force Reserve, 2004).

Total combined annual payroll at Niagara Falls ARS exceeded \$46 million in fiscal year 2002. According to the Niagara Falls Chamber of Commerce, Niagara Falls ARS station is Niagara County's second largest employer. Niagara Falls ARS employment consists of approximately 3,000 persons. Annual expenditures for construction, services, and procurements of materials, equipment, and supplies exceed \$15 million (U.S. Air Force Reserve, 2004).

Niagara Falls ARS base population included approximately 1,669 personnel in 1998. The 914th Airlift Wing has 1,117 assigned Air Force Reservists, including 397 full-time personnel. The 107th Air Refueling Wing has 552 assigned personnel, including approximately 278 full-time personnel.

As Niagara Falls ARS does not have family housing on base, a count of the children of Niagara Falls ARS personnel attending elementary through high school in the local area is not maintained.

3.2.8 UTILITIES

Section 3.1.8 includes a general description of utilities.

Region of Influence

For the purpose of this analysis, the ROI is assumed to include Niagara Falls ARS.

Water

Niagara Falls ARS obtains its potable water by purchase from the City of Niagara Falls, which is owned and operated by the city. Niagara Falls ARS also maintains a backup system with the Town of Wheatfield. Niagara Falls ARS has no potable water wells on post. The potable water is delivered to Niagara Falls ARS via one 25.4-centimeter (10-inch) main. This main supplies Niagara Falls ARS with potable water through Building 729 where it is metered. The potable water is then delivered to the remainder of the base distribution system through 25.4- to 30.5-centimeter (10- to 12-inch) mains. The water supply is delivered at approximately 413.7 kPa (60 pounds per square inch). Due to Niagara Falls ARS location on the City of Niagara Falls potable water distribution network, water pressure must be supplemented by the base. The base's potable water system is also used for fire protection and suppression. Fire suppression is augmented by a 567,811-liter (150,000-gallon) ground level reservoir and three diesel pumps at Building 828 (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003).

Niagara Falls ARS consumption of potable water averages approximately 6.51 million liters (1.72 million gallons) per month. Niagara Falls ARS stations Bioenvironmental Engineering Office periodically conducts complete water sampling tests to ensure that high quality potable water is continuously supplied. Water lines that are deficient will be replaced as required. The New York Department of Environmental Conservation regulates the City of Niagara Falls drinking water treatment/distribution (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003).

Wastewater

Wastewater generated at the base is disposed of through Niagara County Sewer District No. 1's sanitary sewer lines and sewage treatment facility. Niagara Falls ARS's wastewater is carried off base via one 20-centimeter (8-inch) force main. Because the 914th Airlift Wing and 107th Air Refueling Wing systems are tied together, all wastewater is delivered off base with this line. Sewage flows are metered at Building 731 prior to entering the District's sanitary sewer system. All wastewater is delivered to the District's wastewater treatment plant, where it is treated and discharged. Niagara Falls ARS does not use septic systems for the treatment and disposal of wastewater (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003).

Industrial wastewater is also disposed of through the sanitary sewer system. Industrial wastes are treated through oil/water separators and grease traps designed to remove hazardous or non-biodegradable compounds from wastewater, which subsequently discharge directly to the sanitary sewer system for additional treatment. These separators are located in buildings and other areas throughout the base. The on-base collector system consists of gravity flow and force mains of various construction materials, including vitrified clay, and polyvinylchloride. The system was originally installed in the 1950s, and the age of system lines vary with the area of

the base. The system consists predominantly of gravity flow mains, and the base terrain and slopes provide for adequate flow. There are two lift stations within the base boundaries (Buildings 815 and 731); these locations host one force main each, all other lines are gravity flow. Building 815 will require upgrading and has been scheduled for replacement in the future. Infiltration can still be a problem when heavy rains occur; however, this infiltration problem is not severe enough to be a restriction to future base development. The base's sanitary sewer system has no capacity constraints at this time. The Niagara Falls Sewer District's sanitary sewer collection system and sewage treatment plant are adequate to meet the wastewater treatment requirements of Niagara Falls ARS (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003).

Solid Waste

Niagara Falls ARS's solid waste is collected and disposed of by a waste hauling and disposal contractor. According to the 914th Airlift Wing's Solid Waste Management Plan, the base's refuse is collected in four-, six- and eight-cubic yard dumpsters. Dumpsters which collect significant quantities of food waste are emptied twice per week; all others are emptied once per week. The collected waste is hauled off base and disposed of in a landfill operated by a contractor. The base also operates one 23-cubic-meter (30-cubic-yard) dumpster for construction and demolition debris. In addition, the 107th Air Refueling Wing maintains its own dumpster for such debris. This material is also hauled off base and disposed of in an off-post landfill operated by the City of Niagara Falls. There are no active landfills at the installation (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003).

Electricity

In 1997 the station upgraded the electrical system from 4.8 kilovolts (kV) to 13.2 kV and completely replaced the old overhead system. The Niagara Mohawk Power Corporation supplies electrical power to Niagara Falls ARS through two incoming electrical supply lines. These 13.2-kV supply lines travel into the 107th Air Refueling Wing side from Tuscarora Road and the 914th Airlift Wing side through the main gate. The primary electrical line comes into Building 891 for metering while two circuits in this building route power to the base. The looped system consists of aboveground mounted power lines and underground copper laterals. The 107th Air Refueling Wing and the 914th Airlift Wing electrical distribution systems are separated by a switch that is maintained by Niagara Mohawk for the safety of those off base on the same circuit. Mission-critical facilities are equipped with emergency generators in the event of unplanned commercial power outages. These generators are usually started by automatic transfer switches (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003). Niagara Mohawk currently owns and maintains all off-base equipment.

In fiscal year 2002, the annual electric usage at Niagara Falls ARS was 9,394 MW. The average monthly usage was 782,858 kW; the maximum occurred August 2002 with 896,000 kW, and the minimum occurred October 2001 with 682,500 kW. (Defense Energy Support Center, 2003)

Natural Gas

The National Fuel Gas Company supplies natural gas to the Niagara Falls ARS. The 914th Airlift Wing and the 107th Air Refueling Wing maintain separate natural gas systems and two active connections: a 20-centimeter (8-inch) pipeline and a 30.5-centimeter (12-inch) pipeline. The majority of the natural gas passes through the 30.5-centimeter (12-inch) connection and is reduced from a distribution pressure of 310 kPa (45 pounds per square inch) to 103.5 kPa (15 pounds per square inch) for on-post use (Niagara Falls Air Reserve Station, 1998; Defense Energy Support Center, 2003).

In fiscal year 2002, the annual natural gas usage was 41,667 thousand cubic feet (MCF). The average monthly usage is 3,472 MCF with the peak month occurring in January with 9,287 MCF and the lowest usage in July with 278 MCF. (Defense Energy Support Center, 2003)

4.0

ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

To assess the potential for and significance of environmental impacts from the proposed program, a list of activities was developed (chapter 2.0) and the environmental setting was described, with emphasis on any special environmental sensitivities (chapter 3.0). Program activities were then compared with the potentially affected environmental components to determine the environmental impacts of the proposed IDTs, ISFAC, fencing, and communication lines at Fort Drum or Niagara Falls ARS.

This chapter describes the potential environmental consequences of the proposed activities by comparing them with the potentially affected environmental components. Sections 4.1 through 4.2 discuss the potential environmental consequences of these activities. Potential impacts are discussed in terms of construction, operation, and cumulative impacts. The amount of detail presented in each section is proportional to the potential for impacts. Sections 4.3 through 4.11 discuss the following with regard to proposed IDTs at Fort Drum or Niagara Falls ARS activities: environmental effects of the No-action Alternative; adverse environmental effects that cannot be avoided; conflicts with federal, state, and local land use plans, policies, and controls for the area concerned; energy requirements and conservation potential; irreversible or irretrievable commitment of resources; relationship between short-term use of the human environment and the maintenance and enhancement of long-term productivity; natural or depletable resource requirements and conservation potential; and Federal Actions to Protection of Children from Environmental Health Risks and Safety Risks (Executive Order 13045).

As discussed in chapter 2.0, the proposed GMD activities at Fort Drum or Niagara Falls ARS would include:

- A cluster of three IDT buildings, the ISFAC, and backup generators would require an area of approximately 6 to 7 hectares (14.9 to 17.5 acres) including a perimeter road and perimeter fencing. Although only one IDT would be built initially, this entire area would be cleared during construction. Two 6-meter (20-foot) anemometer (wind gauge) towers would also be located at the IDT site.
- Construction of an ISFAC that would be built adjacent to the first IDT and would eventually serve all three IDTs. The estimated size for this facility would be approximately 297 square meters (3,200 square feet).
- Commercial power would be the primary source of power. A 350-kW generator would be provided for backup power to the initial IDT and the ISFAC. This generator would either be connected to a natural gas line or would require a 5,678-liter (1,500-gallon) aboveground diesel fuel tank, located near the generator. When the second and third IDTs are constructed, a 92.9-square-meter (1,000-square-foot) power plant with either three 1-MW or four 500-kW diesel generators would be built to provide for backup power for all three IDTs and the ISFAC. It is anticipated that the 350-kW generator that was originally installed to provide backup power to the first IDT and ISFAC would be removed once the power plant is built. Two aboveground diesel fuel tanks with fuel capacities of 56,780 liters (15,000 gallons) each would supply fuel to power the backup generators, and both would be located near the IDT. One aboveground tank with a diesel fuel capacity of 2,271 liters (600 gallons) would also be required for each of the three 1-MW or four 500-kW diesel backup power generators, and would be located near the generators.

- The proposed connection between the IDTs and the POP would make maximum use of communication conduit and rights-of-way, if trenching is required. Power, sewer, natural gas, water, and communication routing would minimize intrusion into any environmentally sensitive and protected areas (e.g., watershed or wetlands) to the maximum extent practical.
- The IDT antenna requires a clear LOS above adjacent structures or natural objects. This requirement would necessitate establishing an encroachment-free zone to ensure LOS is maintained throughout the life of the program. Beyond the IDT compound fence this would require selective clearing of trees. The total area for selective clearing would be up to 7 hectares (17.5 acres).

These activities are analyzed below by applicable resource. Resources that have a potential for impacts were considered in the analysis to provide the decisionmakers with sufficient evidence and analysis for evaluation of potential effects of the action.

The final designs and layouts have not been completed; therefore, minor changes to the requirements and site layout are possible. If changes are made, final plans will be compared to this EA to ensure that no additional environmental effects are introduced.

4.1 FORT DRUM

4.1.1 AIR QUALITY

This section addresses potential environmental impacts caused by changes to the air quality environment due to the proposed construction and operation of the IDT on Fort Drum.

Construction

It is estimated that the proposed IDT facilities and fencing could require up to 7 hectares (17.5 acres). The proposed construction would cause temporary localized increases in air emissions. Emissions associated with construction activities include fugitive dust from ground disturbance, combustion byproducts from construction equipment and vehicles, and emissions from solvents and architectural coatings. Ground disturbance would generate dust (PM-10) in the immediate vicinity of the construction. The levels of dust generated would change through time depending on the level of activity, the weather, and the condition of the ground. Although the construction would cause an increase in air pollutants, the impact would be both temporary and localized. Once construction ceases, air quality would return to its former levels. Construction would be conducted in accordance with applicable regulations and permit requirements. If required, air emission sources would be inventoried and an air quality construction permit would be acquired. It is anticipated that the proposed construction would not cause exceedances of the NAAQS or state standards and would not have a long-term impact to air quality in the area.

The implementation of standard dust suppression techniques and a vehicle maintenance program would minimize fugitive dust and vehicle exhaust emissions and would help to maintain the area's current air quality.

Operations

Operation and maintenance of the IDT would include the use of oils and lubricants. Commercial power would be the primary source of power. A dedicated natural gas or diesel 350-kW generator would be used initially as backup power for the first IDT and ISFAC. Once all IDTs have been completed, either three 1-MW or four 500-kW diesel generators would be used as backup power for the IDTs and ISFAC. These generators would operate for up to 500 hours per year. Table 4-1 lists the possible emissions associated with the use of these generators. Appendix C contains a conformity analysis detailing the anticipated emissions associated with the proposed generators.

Table 4-1: Potential Generator Emissions for Facilities at Fort Drum

Generator	Emissions (500 hours/year)			
	Oxides of Nitrogen metric tons (tons)	Volatile Organic Compound metric tons (tons)	Carbon Monoxide metric tons (tons)	PM-10 metric tons (tons)
350-kW Diesel Generator	3.30 (3.64)	0.27 (0.29)	0.71 (0.79)	0.23 (0.26)
350-kW Natural Gas Generator	2.19 (2.42)	0.90 (0.99)	0.31 (0.34)	0.008 (0.009)
Three 1-MW Diesel Generators	28.3 (31.2)	2.31 (2.49)	6.09 (6.77)	1.97 (2.23)
Four 500-kW Diesel Generators	18.9 (20.8)	1.54 (1.66)	4.06 (4.51)	1.31 (1.49)

Source: Calculations based on emission factors from AP-42, Fifth Edition, Volume 1

kW = kilowatt

MW = megawatt

PM-10 = particulate matter with a diameter less than or equal to 10 micrometers

Fort Drum currently maintains a Synthetic Minor Source Air Permit. It is anticipated that all emissions generated by the proposed generators would be incorporated into the existing air permit and would not impact the regional air quality.

The only other operations activities would be normal maintenance and upkeep of the buildings and site including cleared areas. These activities are not expected to result in impacts to air quality.

Cumulative Impacts

Emissions from mobile sources during construction would add cumulatively to emissions from other traffic sources in the area, but these emissions would be temporary and are not anticipated to result in a measurable cumulative impact on air quality within the ROI. The implementation of standard dust suppression techniques would minimize the potential for cumulative impacts from fugitive dust.

Additional emissions from maintenance of proposed IDTs, as well as testing and use of the proposed generators as backup power, would also add cumulatively to existing stationary sources at Fort Drum. However, it is anticipated that these emission levels would be less than 0.4 percent of the emissions produced in Jefferson County and, as detailed in the conformity

analysis in appendix C, would continue to be within the limits set by the existing Synthetic Minor Source Permit.

4.1.2 AIRSPACE

This section addresses potential environmental impacts caused by changes to the airspace environment due to the proposed construction and operation of the IDT on Fort Drum.

Construction

Construction activities would have no impacts on airspace.

Operations

The *Assessment of the Potential for Radiation Hazards to Aircraft from the IDT at Fort Drum, NY* (Department of Defense, Joint Spectrum Center, 2003) determined that sufficient distance would exist between the preferred or the alternative IDT sites and Wheeler-Sack Army Airfield such that there is not a potential radiation hazard to aircraft. In addition, based on electromagnetic compatibility modeling of the IDT and coordination with the Joint Spectrum Center, Army Aviation Missile Command, Army Aeronautical Services Agency, and other cognizant activities, a no-fly area would be established at the proposed IDT site, and would include the airspace within 213 meters (700 feet) of the IDT. At this distance, the energy produced by the maximum radiation of the IDT would be less than 200 V/m, a level safe for any civilian or military aircraft, fixed wing or rotorcraft.

Additionally, this no-fly area would be below the level of aircraft that could be transiting the area. The no-fly area would only be active when the IDT is operating as part of a test. The weekly test schedule would be provided to the appropriate Wheeler-Sack Army Airfield organization. Coordination between the airfield and any training operations that could occur in the vicinity of the IDT would ensure aircraft avoid the area, minimizing potential impacts to airspace.

Cumulative Impacts

Proposed IDT operations would not result in direct or indirect impacts to airspace and therefore would not contribute to cumulative impacts to airspace.

4.1.3 BIOLOGICAL RESOURCES

This section addresses potential impacts to biological resources including vegetation, wildlife, threatened and endangered species, and environmentally sensitive habitat due to the proposed construction and operation of the IDTs on Fort Drum. Ground disturbance, habitat loss, noise from construction, and an increase in personnel during construction and operation could result in impacts to biological resources present in the area.

Construction

Vegetation

Approximately 7 hectares (17.5 acres) would be cleared for the IDTs, support facilities, and fencing at Site 6. This area is composed of forest and deciduous/high brush. An additional 7 hectares (17.5 acres) is the anticipated extent of the area where selective clearance of trees

would be performed in order to achieve LOS. No sensitive vegetation species have been identified within the proposed project area.

The clearing for the IDTs, support facilities, and fencing for Site 1 or 7, which are 6.9 hectares (17 acres) each, would be conducted primarily in landscaped and maintained areas. The native vegetation has been removed from these sites; however, a minimal amount of tree clearance would be required on Site 1. An additional 4 hectares (9.9 acres) of primarily forest and deciduous/brush is the anticipated extent of the area where selective clearance of trees would be performed in order to achieve LOS. No sensitive vegetation species have been identified as occurring on these sites or in the vicinity.

Appropriate measures, as described in the Fort Drum Integrated Natural Resources Management Plan (Department of the Army, Fort Drum Public Works, Environmental Division, 2001), would be followed as required if any sensitive plants are located during the clearing/construction process. Logging of site and the selective clearing area would be coordinated on site with Fort Drum, approximately 6 months prior to the start of construction.

The installation of communication lines would be required between the proposed IDTs and the POP and would be installed in existing conduit where possible. If required, new trenching would follow existing rights-of-way to avoid sensitive areas and approved by Fort Drum's Environmental Division. The new communications line/conduit would be buried along existing roads, or parallel to existing buried utility routes if cross country routes are required. This is anticipated to pose only minor impacts to adjacent vegetation.

Wildlife

Ground disturbance and equipment noise-related impacts could include loss of habitat, displacement of wildlife, increased stress, and disruption of daily/seasonal behavior.

Site preparation, construction, and utility piping and communication line installation may temporarily disturb wildlife in the immediate area. However, these activities would be limited in duration, and no direct physical auditory changes in wildlife are anticipated. Typically the noise at 15 meters (50 feet) from a construction site does not exceed an equivalent sound level of 90 A-weighted decibels. There are no absolute standards of short-term noise impacts for potentially noise-sensitive species. The effects of noise on wildlife vary from serious to no effect in different species and situations. Behavioral responses to noise also vary from startling to retreat from favorable habitat, due partly to the fact that wildlife can be very sensitive to sounds in some situations and very insensitive to the same sounds in other situations (Larkin, 1996).

Most of the site preparation and construction noise and human activity would be caused by truck and other heavy machinery traffic to and from the proposed IDT site and the potential short-term use of the heavy machinery during construction and communication line installation. Fence installation could obstruct movement of wildlife. The increased presence of personnel would tend to cause birds and other mobile species of wildlife to temporarily evacuate areas subject to the highest level of noise. The sites where the IDT could be built are in built-up areas, adjacent to barracks, a main road, and other structures and are already affected by artificial light to a degree. Additional similar vegetation is nearby for displaced wildlife. No long-term impacts to wildlife, including the 10 state-listed threatened or endangered wildlife species on Fort Drum, are anticipated. The Migratory Bird Treaty Act restrictive dates of April 1 to

August 15 would be avoided for tree clearing activities. While no known state-listed threatened or endangered wildlife species have been found within the proposed ROI, they would continue to be monitored on Fort Drum as part of the Land Condition Trend Analysis program as described in the Fort Drum Integrated Natural Resources Management Plan (Department of the Army, Fort Drum Public Works, Environmental Division, 2001).

Threatened and Endangered Species

No federal listed threatened or endangered species have been identified at Fort Drum, and thus no adverse impacts to threatened and endangered species are anticipated.

Environmentally Sensitive Habitat

Construction of the IDTs and communication line installation is not likely to directly impact wetlands. Potential indirect disturbance to wetlands would be minimized by implementing appropriate techniques to control runoff and other Best Management Practices (BMPs), such as stabilizing fill slopes from erosion and the use of hay bales and silt fences to filter sediment from storm water runoff from construction sites, which would minimize water quality impacts to wetlands that could occur adjacent to the site. Implementation of appropriate techniques, construction storm water pollution prevention plans, construction storm water pollution prevention permit requirements, and BMPs to control erosion and runoff would be undertaken.

Operations

The only operations activities related to the IDT would be transmission from the IDT during tests and maintenance and upkeep of the facility, cleared areas, and fencing.

Vegetation

No impacts to sensitive vegetation from mowing and upkeep of the cleared areas are anticipated during operation.

Wildlife

During normal operations, the IDT would not transmit except for a few minutes during annual testing of the equipment. Given the low power and short duration of transmission, no adverse impacts to biological resources are anticipated. Most operational impacts to wildlife from the IDT and other proposed IDT facilities would come from lighting and noise from electrical generators required at the site. However, the proposed sites where the IDTs would be located are adjacent to built up areas, a main road, and other structures and are already affected by artificial light and noise to a degree. The lighting and noise could encourage species less tolerant of these disturbances to avoid the area. Generator noise could range from 80 to 85 A-weighted decibels at up to 105 meters (344 feet). These noise levels would only occur during power outages or for less than 500 hours per year during monthly tests and maintenance activities. Impacts to wildlife are anticipated to be short-term.

Threatened and Endangered Species

No federal listed threatened or endangered species have been identified at Fort Drum, and thus no impacts to threatened and endangered species are anticipated during operation of the IDTs.

Environmentally Sensitive Habitat

No impacts to sensitive habitats are anticipated during operation of the IDTs.

Cumulative Impacts

Impacts would include increased activity during construction and the loss of a small amount of habitat at Fort Drum. Given the small amount of loss of wildlife habitat in the region of Fort Drum from past and current development, the additional loss of habitat from the Proposed Action would not result in a substantial cumulative reduction in habitat. Cumulative effects from other potential activities are considered minimal due to the small size of the projects when compared to the amount of undeveloped land remaining on Fort Drum.

4.1.4 CULTURAL RESOURCES

This section addresses the potential for impacts to cultural resources due to construction and operation of the IDT site at Fort Drum.

Potential impacts on historic properties occur through:

- Disturbance of a National Register-listed, potentially eligible, or eligible prehistoric or historic archaeological site or traditional cultural property
- Modification of or visual intrusion upon a National Register-listed, potentially eligible, or eligible historic buildings or structures
- Disturbance of a paleontological site

Construction

Archaeological Resources

An archaeological survey conducted by Fort Drum personnel on Site 6 indicated that there are no known prehistoric or historic archaeological resources within the areas of ground disturbance (see appendix B). Much of the areas of Sites 1 and 7 are heavily disturbed from previous clearing and operational activities, and the likelihood of historic properties being present is low. If Site 1 or 7 were selected for the IDT, a site specific archaeological survey would be conducted.

New communications line/conduit would be installed in routes designed to avoid sensitive areas and approved by Fort Drum. No impacts to cultural resources are anticipated from use of the areas selected for communication and utility line installation. No historic or Register-eligible properties are expected to be affected by proposed trenching activities. Installing fence posts along the fence alignments has the potential to disturb unknown cultural resources; however, no cultural resources concerns have as yet been identified. Prehistoric and historic archaeological sites, traditional cultural properties, and/or paleontological sites do have the potential to occur. Although complete avoidance of prehistoric and historic sites is planned, all construction activities would be monitored by Fort Drum personnel. If, during the course of GMD activities, cultural items are inadvertently discovered, activities would cease in the immediate area and the Cultural Resource Manager at Fort Drum would consult with the SHPO and potentially affiliated Native American entities.

Historic Resources

Historic architectural properties at Fort Drum include the LeRay Mansion Historic District, which is significant under the National Register of Historic Places Criterion B (for its association with James LeRay) and Criterion C (for its distinctive architecture representing the work of the master). The Proposed Action activities are not expected to affect any buildings within the historic district because the construction activities at Sites 1, 6, or 7 would occur over 0.8 kilometer (0.5 mile) away from the LeRay Mansion Historic District.

Native American Consultation

No traditional cultural properties have been identified within the ROI, nor have any Native American issues been identified for the Proposed Action.

Operation

Archaeological Resources, Historic Resources, Native American Consultation

Personnel would be informed of the sensitivity of cultural resources and the types of penalties that could be incurred if sites are damaged or destroyed. No impacts to cultural resources are anticipated during operation of the IDTs at Fort Drum.

Cumulative Impacts

Proposed site preparation and operational activities, when combined with current construction and missions operations on Fort Drum, are not anticipated to result in cumulative impacts to cultural resources. An archaeological survey conducted by Fort Drum personnel on Site 6 (see appendix B) indicated that there are no known prehistoric or historic archaeological resources within the areas of ground disturbance.

4.1.5 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils due to the site modifications and preparation activities required for the Proposed Action.

Construction

The total disturbed area would be from 6.9 hectares (17 acres) to approximately 7 hectares (17.5 acres) for clearing and excavation associated with IDT construction activities. Soil erosion from the site would be a concern during construction. BMPs would be used to reduce the potential for soil erosion and minimize impacts to storm water runoff. These measures could include limiting the amount of area cleared, installing silt fences or straw bale dikes, and adding protective covering to the slopes to enhance long-term stability and reseeding with a grass mixture suitable for the area after construction ceases. A storm water pollution prevention plan and construction storm water pollution prevention permits would be acquired. If trenching for communication or utility lines is required, existing rights-of-way would be used and would have a localized, minimal impact on soils.

The contractor would submit a Notice of Intent under the “State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity” to the Fort Drum Environmental Division who would then deliver it to the New York Department of Environmental Conservation.

Impacts to geology and soils for fencing installation would be associated with disturbance to soils during pole emplacement, which would be short-term. The main issue during construction is associated with soil erosion from the site. However, BMPs would be used to reduce the potential for soil erosion.

Operations

Once construction is complete and vegetation is stabilized, no impacts to geology and soils are anticipated.

Cumulative Impacts

Minor cumulative impacts from soil erosion are anticipated as a result of the IDT construction. Construction would include measures to reduce soil erosion on the site and to limit the extent of the erosion. Once site vegetation is restored, no long-term cumulative impacts to soils would be expected. Overall, no significant cumulative impacts to geology and soils in the area are expected from construction and operation activities at Fort Drum.

4.1.6 LAND USE

This section addresses the potential impacts to regional and installation land use due to the construction and operation of the IDTs on Fort Drum.

Construction

Construction of the IDT and fencing at Site 6 would remove approximately 7 hectares (17.5 acres) of land from the training land use category. This represents approximately 1 percent of the training area within the cantonment area and 0.02 percent of the training area outside the cantonment area. The training lands surrounding Site 6 could continue to be used. The IDT at Site 1 would remove approximately 6.9 hectares (17 acres) from the industrial land use category. This represents approximately 10 percent of the industrial land use category on Fort Drum. The land adjacent to Site 1 could continue to be used for community facilities and buffer area. The IDT at Site 7 would remove approximately 3.5 hectares (8.6 acres) from the buffer area land use category and 3.3 hectares (7.4 acres) from the troop housing land use category. This represents approximately 11 percent of the buffer area and 9 percent of the troop housing area. The land adjacent to Site 7 could continue to be used for troop housing, buffer area, and community facilities. Communication lines for all sites would be installed along existing roads or utility corridors and would not impact land use. Overall, the impacts to Fort Drum would be minimal.

All of the construction areas fall within the boundaries of Fort Drum and therefore have no conflicts with adjacent land uses or zoning.

Operations

As described above, the land use at each site would change, but the adjacent land use would not be impacted by IDT operations.

Cumulative Impacts

Future projects on Fort Drum could include range upgrades, installing boundary fencing, and various cantonment projects that would not be affected by the proposed IDTs. Proposed site preparation and operational activities, when combined with current and planned construction and missions operations on Fort Drum, are not anticipated to result in cumulative impacts to land use.

4.1.7 SOCIOECONOMICS

This section addresses the potential impacts to regional socioeconomics due to construction and operation of the IDTs on Fort Drum.

Construction

Population

Construction of IDTs on Fort Drum would take approximately 18 months, employing on average 50 construction workers a year. It is expected that the majority of the construction workers would be from the local region. However, it is expected that a portion of the construction workers would move to the area on a temporary basis from outside the region.

Employment Income and Retail Impacts

The IDTs on Fort Drum construction program would generate additional income in the local economy in two ways. The first is in the form of wages earned by the construction workers. A proportion of these wages would be spent locally on lodging, food, and transportation. Second, the construction program would include a proportion of locally purchased materials. These purchases, at local stores and from local suppliers, would generate additional income and jobs within the local economy. At least half of the overall construction cost would include high value equipment manufactured and assembled at locations throughout the United States, the purchase of which would have no local economic impact.

Impacts on Housing, Education, and Health

Most construction workers who have been involved in past projects at Fort Drum have been accommodated at the base or have commuted from Watertown or other surrounding communities. Primary emergency care would be provided to the construction personnel at the health facility on Fort Drum.

Only a small number of construction worker dependents are likely to live in the ROI. There would, therefore, be only a small additional enrollment in the local school districts as a result of the construction phase of the action. The additional enrollment would not have a significant effect on the resources of the local school district.

Fiscal Impacts

The main fiscal impact arising from the construction phase would result from purchases made by personnel and their families.

Operations

Population

The operational phase of the IDTs on Fort Drum could directly employ up to 10 personnel.

Employment Income

It is estimated that up to 10 direct jobs and additional direct income would be generated per year. Additionally, some of the projects may result in new service contract awards to local vendors.

Cumulative Impacts

By spending money in the local economy, mainly via accommodation and procurement of goods and services, the personnel would represent both a potential increase in local service-based employment opportunities and a small but positive economic impact to the local community.

4.1.8 UTILITIES

This section addresses the potential for impacts to infrastructure due to the proposed construction and operation of the IDT.

Construction

Approximately 50 construction personnel would be brought to Fort Drum during the course of construction activities.

Water

The addition of 50 construction personnel and related construction activities would increase the demand for potable water. Given 189 liters (50 gallons) per day per worker, the additional demand would be 9,463 liters (2,500 gallons) per day. The City of Watertown provides potable water to Fort Drum. The City of Watertown's water plant has approximately 28.4 million liters (7.5 million gallons) per day in available capacity to handle the minimal water demands for construction activities; thus, no impacts are expected. This would include site watering and construction batch plants, as well as water for personnel.

Wastewater

Portable toilet systems would be used for construction workers during the workday.

Solid Waste

Construction activities and 50 construction personnel would not increase the demand for solid waste disposal services beyond the existing capacity of the Town of Rodman's Landfill. Currently, Fort Drum accounts for approximately 3 percent of the total refuse received by the Town of Rodman's Landfill. A small amount of construction debris would be generated during construction activities. There is adequate capacity in the Town of Rodman Landfill to handle the minimal increase in solid waste.

Electricity

The addition of 50 construction personnel and related construction activities would not measurably increase the demand for electricity provided by the Niagara Mohawk Power Corporation. There are two major substations to the cantonment areas, with capacities of 13.2 MW and 15 MW. These substations are configured to allow for future expansion, if required. The average monthly demand in fiscal year 1998 was 13.9 MW. Adequate electrical power would be available for construction activities, so there would be no adverse impacts on the electrical system.

Natural Gas

The addition of 50 construction personnel and related construction activities would not measurably increase the demand for natural gas provided from the Niagara Mohawk distribution system. The existing natural gas distribution system could be raised from 103 kPa (15 pounds per square inch) to 206 kPa (30 pounds per square inch) to increase capacity. The existing natural gas distribution system could easily support a 50 percent increase in demand. Adequate natural gas would be available for construction activities, so there would be no adverse impacts on the natural gas supply system.

Operations

Operation of GMD facilities are not expected to result in significant impacts to utilities at Fort Drum. Water, wastewater, electricity, natural gas, and solid waste demands would increase minimally for the approximately 10 personnel needed to operate the IDT facilities.

Water

The addition of up to 10 operational personnel would increase the demand for potable water. Given 189 liters (50 gallons) per day per worker, the additional demand would be 1,893 liters (500 gallons) per day. This represents less than 0.04 percent of the current Fort Drum use of 5.17 million liters (1.37 million gallons) per day during fiscal year 2000. The anticipated IDT water use requirements are much less than the excess existing capacity of the water system. Therefore, there would be no impact to installation water use from IDT operational activities.

Wastewater

The addition of up to 10 operational personnel would increase the amount of wastewater. Assuming an approximate average of 170 liters (45 gallons) per person per day of wastewater production, IDT operational activities would generate wastewater at a rate of 1,700 liters (450 gallons) per day. This represents less than 0.00335 percent of the current Watertown wastewater treatment plants capacity of 50.7 million liters (13.4 million gallons) per day. The minimal requirements of the IDT wastewater generation when added to the current wastewater discharge at Fort Drum would be much less than the existing capacity; therefore, there would be no impact to water treatment capability from operational activities.

Solid Waste

Municipal solid waste would be generated due to the addition of up to 10 operational personnel during IDT operational activities. Currently, Fort Drum accounts for approximately 3 percent of the total refuse received by the Town of Rodman Landfill. However, the amount of waste

generated by GMD activities is not expected to exceed the existing capacity at the Town of Rodman's Landfill; therefore, there would be no impact to solid waste from operational activities.

Electricity

Commercial power would be used to supply primary power to the IDT during operational activities. The anticipated IDT electrical power demand is much less than the existing capacity of the electric power supply and distribution system. Therefore, there would be no impact to the installation electric power systems from operational activities.

Natural Gas

The addition of up to 10 operational personnel and the use of natural gas for the proposed generator would increase the demand for natural gas. The minimal requirements of the IDT natural gas demand when added to the current natural gas consumption at Fort Drum would be much less than the existing capacity; therefore, there would be no impact to natural gas from operational activities.

Cumulative Impacts

The utilities requirements for construction and operation of the IDTs, when added to the existing utility demands, would not exceed any of the operational capabilities of the existing infrastructure system, and no cumulative impacts are expected.

4.2 NIAGARA FALLS AIR RESERVE STATION

4.2.1 AIR QUALITY

This section addresses potential environmental impacts caused by changes to the air quality due to the proposed construction and operation of the IDT at Niagara Falls ARS.

Construction

The proposed IDT facilities at Niagara Falls ARS would require up to 6 hectares (14.9 acres). This area would include the construction of fencing around the IDTs.

Temporary localized increases in air emissions could occur during the proposed construction. Emissions associated with construction activities include fugitive dust from ground disturbance, combustion by products from construction equipment and vehicles, and emissions from solvents and architectural coatings. Ground disturbance would generate dust (PM-10) in the immediate vicinity of construction. The levels of dust generated would change through time depending on the level of activity, the weather and the condition of the ground. Although the construction would cause an increase in air pollutants, the impact would be both temporary and localized. Once construction ceases, air quality would return to its former levels. Construction would be conducted in accordance with applicable regulations and permit requirements. If required, air emission sources would be inventoried and an air quality construction permit would be acquired. It is anticipated that the proposed construction would not cause exceedances of the NAAQS or state AAQS and would not have a long term impact to air quality in the area.

Operations

Operation and maintenance of the IDT at the Niagara Falls ARS would be similar to that described in section 4.1.1 for Fort Drum. The primary source of power for the proposed IDTs would come from commercial power; however, a dedicated 350-kW natural gas or diesel generator would be needed initially as backup power for the first IDT and ISFAC. Once assembly of all IDTs has been completed, three 1-MW or four 500-kW diesel generators would be used as backup power. Table 4-1 lists the possible emissions associated with the use of these generators for up to 500 hours per year. Appendix C contains a conformity analysis detailing the anticipated emissions associated with the proposed generators.

Niagara Falls ARS maintains a Minor Source Registration with the New York State Department of Environmental Conservation. It is anticipated that all emissions generated by the proposed generators would continue to be within the limits set by the existing Minor Source Registration and would not impact the regional air quality.

Cumulative Impacts

Emissions from mobile sources would add cumulatively to emissions from other traffic sources in the area, including air traffic; however, emissions would be temporary and are not anticipated to result in a measurable cumulative impact on air quality within the ROI. The implementation of standard dust suppression techniques would minimize the potential for cumulative impacts from fugitive dust.

Additional emissions from maintenance of proposed IDTs, as well as testing and use of the proposed generators, as backup power, would also add cumulatively to existing stationary sources at Niagara Falls ARS. However, it is anticipated that these emission levels would be less than 0.09 percent of the emissions produced in Niagara County and, as detailed in the conformity analysis in appendix C, would continue to be within the limits set by the existing Minor Source Registration.

4.2.2 AIRSPACE

This section addresses potential environmental impacts caused by changes to the airspace environment due to the proposed construction and operation of the IDT on Niagara Fall ARS.

Construction

Construction activities would have no impacts on airspace.

Operations

Based on electromagnetic compatibility modeling of the IDT and coordination with the Joint Spectrum Center, Army Aviation Missile Command, Army Aeronautical Services Agency, and other cognizant activities, a no-fly area would be established at the proposed IDT site, and would include the airspace within 213 meters (700 feet) of the IDT. At this distance, the energy produced by the maximum radiation of the IDT would be less than 200 V/m, a level safe for any civilian or military aircraft, fixed wing or rotorcraft. Additionally, this no-fly area would be below the level of aircraft that could be transiting the area. The no-fly area would only be active when the IDT is operating as part of a test. The weekly test schedule would be provided to the 914th

Airlift Wing for coordination with Niagara Airfield. This coordination would ensure aircraft avoid the area, minimizing potential impacts to airspace.

Cumulative Impacts

Proposed IDT operations would not result in direct or indirect impacts to airspace and therefore would not contribute to cumulative impacts to airspace.

4.2.3 BIOLOGICAL RESOURCES

This section addresses potential impacts to biological resources including vegetation, wildlife, threatened and endangered species, and environmentally sensitive habitat due to the proposed construction and operation of the IDTs. Ground disturbance, habitat loss, noise from construction, and an increase in personnel during construction and operation could result in impacts to biological resources present in the area.

Construction

Vegetation

The clearing for the IDTs, support facilities, and fencing would be conducted primarily in areas composed of landscaped and maintained areas. The native vegetation has been removed from the site. Approximately 6 hectares (14.9 acres) would be cleared. No sensitive vegetation species have been identified within the proposed project area. The installation of communication lines would be required between the proposed IDTs and the POP and would be installed in existing conduit where possible. New communication lines and conduit would be installed in routes designed to use existing rights-of-way, avoid sensitive areas, and would be approved by Niagara Falls ARS's Environmental Division. This is anticipated to pose only minor impacts to adjacent vegetation.

Wildlife

Ground disturbance and equipment noise-related impacts could include loss of habitat, displacement of wildlife, increased stress, and disruption of daily/seasonal behavior.

Site preparation, construction, and utility and communication line installation may temporarily disturb wildlife in the immediate area. However, these activities would be limited in duration, and no direct physical auditory changes in wildlife are anticipated. Typically the noise at 15 meters (50 feet) from a construction site does not exceed an equivalent sound level of 90 A-weighted decibels. There are no absolute standards of short-term noise impacts for potentially noise-sensitive species. The effects of noise on wildlife vary from serious to no effect in different species and situations. Behavioral responses to noise also vary from startling to retreat from favorable habitat, due partly to the fact that wildlife can be very sensitive to sounds in some situations and very insensitive to the same sounds in other situations (Larkin, 1996).

Most of the site preparation and construction noise and human activity would be caused by truck and other heavy machinery traffic to and from the proposed IDT site and the potential short-term use of the heavy machinery during construction and communication line installation. Fence installation could obstruct movement of wildlife. The increased presence of personnel would tend to cause birds and other mobile species of wildlife to temporarily evacuate areas

subject to the highest level of noise. Additional similar vegetation is nearby for displaced wildlife. No long-term impacts to wildlife are anticipated.

Threatened and Endangered Species

No federal listed threatened or endangered species have been identified at Niagara Falls ARS, and thus no impacts to threatened and endangered species are anticipated during construction of the IDTs.

Environmentally Sensitive Habitat

No impacts to sensitive habitats are anticipated during construction of the IDTs.

Operations

The only operations activities related to the IDT would be transmission of the IDT during tests and maintenance and upkeep of the facility, cleared areas, and fencing.

Vegetation

No impacts to sensitive vegetation from mowing and upkeep of the cleared areas are anticipated during operation.

Wildlife

During normal operations, the IDT would not transmit except for a few minutes during annual testing of the equipment. Given the low power and short duration of transmission, no adverse impacts to biological resources are anticipated. Most operational impacts to wildlife from the IDT and other proposed IDT facilities would come from lighting and noise from electrical generators required at the site. However, the proposed sites where the IDTs would be located are adjacent to built up areas, a main road, and other structures and are already affected by artificial light and noise to a degree. The lighting and noise could encourage species less tolerant of these disturbances to avoid the area. Generator noise could range from 80 to 85 A-weighted decibels at up to 105 meters (344 feet). These noise levels would only occur during power outages or for less than 500 hours per year during monthly tests and maintenance activities. Impacts to wildlife are anticipated to be short-term.

Threatened and Endangered Species

No federal listed threatened or endangered species have been identified at Niagara Falls ARS, and thus no impacts to threatened and endangered species are anticipated during operation of the IDTs.

Environmentally Sensitive Habitat

No impacts to sensitive habitats are anticipated during operation of the IDTs.

Cumulative Impacts

Impacts would include increased activity during construction and the loss of a small amount of habitat at Niagara Falls ARS. However, the construction would be conducted primarily in

landscaped and maintained areas where the native vegetation has already been removed, and therefore the Proposed Action would not result in a substantial cumulative impact to biological resources.

4.2.4 CULTURAL RESOURCES

This section addresses the potential for impacts to cultural resources due to construction and operation of the IDT site at Niagara Falls ARS.

Potential impacts on historic properties occur through:

- Disturbance of a National Register-listed, potentially eligible, or eligible prehistoric or historic archaeological site or traditional cultural property
- Modification of or visual intrusion upon a National Register-listed, potentially eligible, or eligible historic buildings or structures
- Disturbance of a paleontological site

Construction

Much of the proposed construction areas is disturbed from previous clearing and operational activities. New conduit and communication lines would be installed along existing rights-of-way designed to avoid sensitive areas and approved by Niagara Falls ARS. Installing fence posts along the fence alignments has the potential to disturb unknown cultural resources.

Results from a Stage 1 Cultural Resource Investigation indicated that none of the historic (modern) artifacts identified were considered to be culturally important. The report also states that no further cultural resource investigations are recommended for the proposed Niagara Falls ARS property. (Niagara Falls Air Reserve Station, 914th Airlift Wing/LGC, 2000)

Although complete avoidance of prehistoric and historic sites is planned, all construction activities would be monitored by Niagara Falls ARS personnel. If during the course of GMD activities, cultural items are inadvertently discovered, activities would cease in the immediate area and the Cultural Resource Manager at Niagara Falls ARS would consult with the SHPO and potentially affiliated Native American entities.

Operation

No impacts to cultural resources are anticipated during operation of the IDTs at Niagara Falls ARS.

Cumulative Impacts

Proposed site preparation and operational activities, when combined with current construction and missions operations on Niagara Falls ARS, are not anticipated to result in cumulative impacts to cultural resources.

4.2.5 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils due to the site modifications and preparation activities required for the Proposed Action.

Construction

The total disturbed area would be approximately 6 hectares (14.9 acres) for clearing and excavation associated with IDT construction activities. Soil erosion from the site would be a minor concern during construction. The poor permeability and poor drainage characteristics of the soils at the IDT site would require additional consideration in the design of the IDT and support facilities.

The contractor would submit a Notice of Intent under the “State Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity” to the Niagara Falls ARS Environmental Office who would then deliver it to the New York Department of Environmental Conservation. Communication line and utility trenching, if required, would occur along the shoulder of existing roads or along existing buried utility routes, and the surface would be re-covered. Installation of new communication or utility lines would have a localized, minimal impact on soils.

Impacts to geology and soils for fencing installation would be associated with disturbance to soils during pole emplacement, which would be short-term. BMPs would be used to reduce the potential for soil erosion.

Operations

Once construction is complete and vegetation is stabilized, no impacts to geology and soils are anticipated.

Cumulative Impacts

Minor cumulative impacts from soil erosion are anticipated as a result of the IDT construction. Construction would include measures to reduce soil erosion on the site and to limit the extent of the erosion. Once site vegetation is restored, no long-term cumulative impacts to soils would be expected. Overall, no significant cumulative impacts to geology and soils in the area are expected from construction and operation activities at Niagara Falls ARS.

4.2.6 LAND USE

This section addresses the potential impacts to regional and installation land use due to the construction and operation of the IDTs on Niagara Falls ARS.

Construction

Construction of the IDT, fencing, and communication lines would be consistent with the existing land use at Niagara Falls ARS. Approximately 6 hectares (14.9 acres) would be cleared for the IDT and fencing. The surrounding lands are primarily used as administrative space. Communication lines would be installed along existing roads or utility corridors and would not impact land use. Overall, the impacts to Niagara Falls ARS would be minimal.

All of the construction areas fall within the boundaries of Niagara Falls ARS and therefore have no conflicts with adjacent land uses or zoning.

Operations

Operations of the IDT would not affect any of the existing facilities at Niagara Falls ARS. The fencing would not affect any of the existing facilities at Niagara Falls ARS or any of the surrounding land uses. In most areas, the fencing would be buffered from the public by trees, which would minimize the potential visual impacts.

Cumulative Impacts

Proposed site preparation and operational activities, when combined with current construction and missions operations on Niagara Falls ARS, are not anticipated to result in cumulative impacts to land use. The IDT site was reserved for GMD activities in the future based on past site visits by GMD personnel to Niagara Falls ARS on the base's future Master Plan Map.

4.2.7 SOCIOECONOMICS

This section addresses the potential impacts to regional socioeconomics due to construction and operation of the IDTs on Niagara Falls ARS.

Construction

Population

Construction of IDTs on Niagara Falls ARS would take approximately 18 months, employing on average 50 construction workers a year. It is expected that the majority of the construction workers would be from the local region. However, it is expected that a portion of the construction workers would move to the area on a temporary basis from outside the region.

Employment Income and Retail Impacts

The IDTs on Niagara Falls ARS construction program would generate additional income in the local economy in two ways. The first is in the form of wages earned by the construction workers. A proportion of these wages would be spent locally on lodging, food, and transportation. Second, the construction program would include a proportion of locally purchased materials. These purchases, at local stores and from local suppliers, would generate additional income and jobs within the local economy. At least half of the overall construction cost would include high value equipment, manufactured and assembled at locations throughout the United States, the purchase of which would have no local economic impact.

Impacts on Housing, Education, and Health

Most construction workers who have been involved in past projects at Niagara Falls ARS have been accommodated at the base or have commuted from the city of Niagara Falls or other surrounding communities. Primary emergency care would be provided to the construction personnel at the health facility on Niagara Falls ARS.

Only a small number of construction worker dependents are likely to live in the ROI. There would, therefore, be only a small additional enrollment in the local school districts as a result of

the construction phase of the action. The additional enrollment would not have a significant effect on the resources of the local school district.

Fiscal Impacts

The main fiscal impact arising from the construction phase would result from purchases made by personnel and their families.

Operations

Population

The operational phase of the IDTs on Niagara Falls ARS could directly employ up to 10 personnel.

Employment Income

It is estimated that up to 10 direct jobs and additional direct income would be generated per year. Additionally, some of the projects may result in new service contract awards to local vendors.

Cumulative Impacts

By spending money in the local economy, mainly via accommodation and procurement of goods and services, the personnel would represent both a potential increase in local service-based employment opportunities and a small but positive economic impact to the local community.

4.2.8 UTILITIES

This section addresses the potential for impacts to infrastructure due to the proposed construction and operation of the IDT.

Construction

Water

The addition of 50 construction personnel and related construction activities would increase the demand for potable water. Given 189 liters (50 gallons) per day per worker, the additional demand would be 9,463 liters (2,500 gallons) per day. The City of Niagara Falls provides potable water to Niagara Falls ARS. The City of Niagara Falls water plant has available capacity to handle the minimal water demands for construction activities; thus, no impacts are expected. This would include site watering and construction batch plants, as well as water for personnel.

Wastewater

Portable toilet systems would be used for construction workers during the workday.

Solid Waste

Construction activities and 50 construction personnel would not increase the demand for solid waste disposal services beyond the existing capacity of the City of Niagara Falls. A small amount of construction debris would be generated during construction activities. There is

adequate capacity in the City of Niagara Falls Landfill to handle the minimal increase in solid waste.

Electricity

The addition of 50 construction personnel and related construction activities would not measurably increase the demand for electricity provided by the Niagara Mohawk Power Corporation. There are two major substations to the cantonment areas, with capacities of 13.2 MW and 15 MW. These substations are configured to allow for future expansion, if required. The average monthly demand in fiscal year 2002 was 782.8 MW. Adequate electrical power would be available for construction activities, so there would be no adverse impacts on the electrical system.

Natural Gas

The addition of 50 construction personnel and related construction activities would not measurably increase the demand for natural gas provided by the National Fuel Gas Company. Adequate natural gas would be available for construction activities, so there would be no adverse impacts on the natural gas supply system.

Operations

Operation of GMD facilities is not expected to result in significant impacts to utilities at Niagara Falls ARS. Water, wastewater, electricity, natural gas, and solid waste demands would increase minimally for the approximately 10 personnel needed to operate the IDT facilities.

Water

The addition of up to 10 operational personnel would increase the demand for potable water. Given 189 liters (50 gallons) per day per worker, the additional demand would be approximately 56,781 liters (15,000 gallons) per month. This represents less than 0.9 percent of the current Niagara Falls ARS use of 6.51 million liters (1.72 million gallons) per month during fiscal year 2002. The anticipated IDT water use requirements are much less than the excess existing capacity of the water system. Therefore, there would be no impact to installation water use from IDT operational activities.

Wastewater

The addition of up to 10 operational personnel would increase the amount of wastewater. Assuming an approximate average of 170 liters (45 gallons) per person per day of wastewater production, IDT operational activities would generate wastewater at a rate of 1,700 liters (450 gallons) per day. The minimal requirements of the IDT wastewater generation when added to the current wastewater discharge at Niagara Falls ARS would be much less than the existing capacity; therefore, there would be no impact to wastewater treatment capacity from operational activities.

Solid Waste

Municipal solid waste would be generated due to the addition of up to 10 operational personnel during IDT operational activities. Currently, Niagara Falls ARS accounts for a minimal percentage of the total refuse received by the City of Niagara Falls Landfill. However, the

amount of waste generated by GMD activities is not expected to exceed the existing capacity at the City of Niagara Falls Landfill; therefore, there would be no impact to solid waste from operational activities.

Electricity

Commercial power supplier would be used to supply primary power to the IDT during operational activities. The anticipated IDT electrical power demand is much less than the existing capacity of the electric power supply and distribution system. Therefore, there would be no impact to the installation electric power systems from operational activities.

Natural Gas

The addition of up to 10 operational personnel and the use of natural gas for the proposed generator would increase the demand for natural gas. The minimal requirements of the IDT natural gas demand when added to the current natural gas consumption at Niagara Falls ARS would be much less than the existing capacity; therefore, there would be no impact to natural gas from operational activities.

Cumulative Impacts

The utilities requirements for construction and operation of the IDTs, when added to the existing utility demands, would not exceed any of the operational capabilities of the existing infrastructure system, and no cumulative impacts are expected.

4.3 ENVIRONMENTAL EFFECTS OF THE NO-ACTION ALTERNATIVE

If the No-action Alternative is selected, no environmental consequences associated with the proposed IDT at Fort Drum or Niagara Falls ARS would occur. For the potential sites being considered for IDTs, the No-action Alternative would be a continuation of activities such as intermittent troop training and exercises currently occurring on Sites 1, 6, and 7 at Fort Drum, and vacant land at Niagara Falls ARS. Present activities would continue with no change in current operations.

4.4 ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Adverse environmental effects that cannot be avoided include the release of small amounts of pollutants into the atmosphere; minor noise impacts on wildlife; the removal of vegetation from construction sites; minor increased generation of hazardous materials; and increased noise levels at program-related sites. However, through implementation of the program actions described within this document, these effects would be minimized. No significant individual or cumulative adverse environmental impacts are anticipated to result from the Proposed Action.

4.5 CONFLICTS WITH FEDERAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AREA CONCERNED

All of the proposed program activities would take place in existing facilities or locations on a DoD installation dedicated to training and testing activities. GMD activities would alter the land use of the sites, which were in the past or currently are used to support training and testing activities. Utilizing a site for the IDT removes that site from availability for testing or training in the future. However, the area to be disturbed is small, and potential new training and testing areas within the installation boundaries could be developed. No conflicts with land use plans, policies, and controls are anticipated.

4.6 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

Anticipated energy requirements of the proposed IDTs at Fort Drum or Niagara Falls ARS would be well within the energy supply capacity of all facilities. Energy requirements would be subject to any established energy conservation practices at each facility.

4.7 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Action would result in no loss of threatened or endangered species and no loss of cultural resources, such as archaeological or historic sites. At Site 6 at Fort Drum, there would be a loss of forested habitat of approximately 7 hectares (17.5 acres). This is the anticipated extent of clearance required for natural objects such as trees outside the fenced IDT compound in order to achieve LOS. However, the value of that habitat may have been previously compromised by training activities, and additional similar habitat is available nearby. Moreover, there would be no changes in land use or preclusion of development of underground mineral resources that were not already precluded.

The amount of materials required for any program-related activities and energy used during the project would be small. Although the proposed activities would result in some irreversible or irretrievable commitment of resources such as various metallic materials, minerals, and labor, this commitment of resources is not significantly different from that necessary for many other defense research and development programs carried out over the past several years. Proposed activities would not commit natural resources in significant quantities.

4.8 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Proposed IDTs at Fort Drum or Niagara Falls ARS would take advantage of existing infrastructure where possible. The proposed use of these locations does not substantially alter

the uses of the sites. All of the proposed construction would occur in areas that have already been set aside for military activities. As analyzed in this EA, use of the sites would not result in the loss of any sensitive environmental resources. Once the construction of facilities is completed, no impacts to the long-term productivity of the environment are anticipated.

4.9 NATURAL OR DEPLETABLE RESOURCE REQUIREMENTS AND CONSERVATION POTENTIAL

Other than various structural materials and fuels, the program would require no significant natural or depletable resources. Fort Drum plans to salvage timber from the site prior to construction.

4.10 FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS (EXECUTIVE ORDER 12898)

Proposed activities would be conducted in a manner that would not substantially affect human health and the environment. This EA has identified no effects that would result in disproportionately high or adverse effect on minority and low-income populations in the area.

4.11 FEDERAL ACTIONS TO ADDRESS PROTECTION OF CHILDREN FROM ENVIRONMENTAL HEALTH RISKS AND SAFETY RISKS (EXECUTIVE ORDER 13045, AS AMENDED BY EXECUTIVE ORDER 13229)

This EA has not identified any environmental health and safety risks that may disproportionately affect children, in compliance with Executive Order 13045, as amended by Executive Order 13229.

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APPENDIX A
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CONTRACTOR

Boeing/Prime (Mr. Scotty Bragwell, Ms. Tina Lemmond)

Teledyne Solutions, Inc. (Mr. Chad Cole, Mr. Mark Hubbs)

LIBRARIES

Robert C. McEwen Library
Attention: Mrs. Marion Vance
Fort Drum, New York

Gouverneur Public Library
Attention: Ms. Charlotte Garofolo
Gouverneur, New York

Flower Memorial Library
Attention: Mrs. Anne Schwartz
Watertown, New York

Lowville Free Library
Attention: Ms. Sally Brown
Lowville, New York

Niagara Falls Public Library
Earl W. Brydges Building
Niagara Falls, New York

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APPENDIX B
CORRESPONDENCE



United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, NY 13045



January 13, 2004

Mr. Jim Haynes
Chief, Environmental Division
Public Works
Department of the Army
85 First Street W
Fort Drum, NY 13602-5097

Attention: Raymond Rainbolt, AFZS-PW-E

Dear Mr. Haynes:

This responds to your letter of December 18, 2003, requesting an annual update on the presence of Federally listed or proposed endangered or threatened species on Fort Drum in the Towns of Antwerp, Champion, Diana, LeRay, Philadelphia, and Rutland, Jefferson County, New York.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. In addition, no habitat in the project impact area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Therefore, no further Endangered Species Act coordination or consultation with the U.S. Fish and Wildlife Service (Service) is required. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally listed and proposed endangered and threatened species in New York* is available for your information.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the Endangered Species Act. This response does not preclude additional Service comments under other legislation.

Because additional information on listed or proposed species may become available in the future and additional species may be listed, the Service recommends that this determination be reviewed on an annual basis. Therefore, you should contact this office regarding this determination within one year from the date of this letter. Additionally, since the U.S. Army Corps of Engineers (Corps) is required to comply with Section 7 of the Endangered Species Act

under their regulatory program, we are providing the Buffalo and New York Districts a copy of this letter.

In the event you are not already aware, the Service would like to advise you that the bald eagle (*Haliaeetus leucocephalus*), a Federally listed threatened species, is found within approximately 17 miles, and the Indiana bat (*Myotis sodalis*), a Federally listed endangered species, is found within approximately 7 miles of your installation. Please contact us should you find evidence of them occurring on your installation.

For additional information on fish and wildlife resources or State-listed species, we suggest you contact the appropriate New York State Department of Environmental Conservation regional office(s),* and:

New York State Department of Environmental Conservation
New York Natural Heritage Program Information Services
625 Broadway
Albany, NY 12233-4757
(518) 402-8935

Since wetlands may be present, you are advised that National Wetlands Inventory (NWI) maps may or may not be available for the project area. However, while the NWI maps are reasonably accurate, they should not be used in lieu of field surveys for determining the presence of wetlands or delineating wetland boundaries for Federal regulatory purposes. Copies of specific NWI maps can be obtained from:

Cornell Institute for Resource Information Systems
302 Rice Hall
Cornell University
Ithaca, NY 14853
(607) 255-4864

Work in certain waters and wetlands of the United States may require a permit from the Corps. If a permit is required, in reviewing the application pursuant to the Fish and Wildlife Coordination Act, the Service may concur, with or without stipulations, or recommend denial of the permit depending upon the potential adverse impacts on fish and wildlife resources associated with project implementation. The need for a Corps permit may be determined by contacting the appropriate Corps office(s) as shown on the enclosed map.

If you require additional information please contact Michael Stoll at (607) 753-9334.

Sincerely,



Mark W. Clay

Acting For

David A. Stilwell
Field Supervisor

*Additional information referred to above may be found on our website at:
<http://nyfo.fws.gov/es/esdesc.htm>.

cc: NYSDEC, Watertown, NY (Environmental Permits)
NYSDEC, Albany, NY (Natural Heritage Program)
COE, Buffalo and New York, NY



DEPARTMENT OF THE ARMY
HEADQUARTERS, 10TH MOUNTAIN DIVISION (LIGHT INFANTRY) AND FORT DRUM
FORT DRUM, NEW YORK 13602-5000

REPLY TO
ATTENTION OF

AFZS-PW
Cultural Resources

10 Sept 03

MEMORANDUM FOR: Cait Schadock, NEPA Coordinator

SUBJECT: Proposed Ground Based Missile Defense Site (Site #6)

1. The proposed missile defense site footprint southwest of the 45th Infantry gate has been surveyed for cultural resources.
2. There were no intact cultural features or artifacts found during the course of the survey. The site is also outside of the view shed of the historic district.
3. Construction of the proposed missile defense site will have no effect on cultural resources at Fort Drum.
4. POC for this action is Dr. Laurie Rush, Cultural Resources Program Manager (315) 772-4165.

A handwritten signature in black ink, reading "Laurie W. Rush", is positioned above the typed name and title.

LAURIE RUSH
Manager
PW, Cultural Resources

APPENDIX C
DETERMINATION OF NON-APPLICABILITY

APPENDIX C

DETERMINATION OF NON-APPLICABILITY

Determination of Non-Applicability

Ground-Based Midcourse Defense Northeast Region

In-Flight Interceptor Communication System Data Terminal

Environmental Assessment

Fort Drum and Niagara Falls Air Reserve Station, New York

The Clean Air Act (CAA), as amended in 1990, specifies in section 176(a) that no department, agency, or instrumentality of the Federal Government shall engage in any way, or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan after it has been approved or promulgated under Section 110 of this title. Conformity is defined in section 176(c) of the CAA as conformity to the State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieving expeditious attainment of such standards. These activities would not:

- Cause or contribute to any new violation of any standard in any area
- Increase the frequency or severity of any existing violation of any standard in any area
- Delay timely attainment of any standard or any required interim emission reduction or other mile stones in any area

Air quality in the area of Fort Drum and Niagara Falls Air Reserve Station (ARS) is under the jurisdiction of the New York State Department of Environmental Conservation. Upstate New York, including Fort Drum and Niagara Falls ARS, has been designated as being in marginally nonattainment for ozone, due in part to it's location within the Ozone Transport Region.

Potential emissions from proposed activities at either Fort Drum or Niagara Falls ARS were calculated and determined to be less than the federal *de minimis* (minimal) levels established in 40 Code of Federal Regulations (CFR) 51.853(b)(1). These levels are also anticipated to fall within the existing permits at both locations, a Synthetic Minor Source Air Permit at Fort Drum and a Minor Source Registration at Niagara Falls ARS.

Introduction

The analysis below is divided into two sections. Section one describes the methodologies used to project potential generator emissions. Section two addresses the federal *de minimis* thresholds.

Generator Emissions Methodology and Calculations

The Proposed Action includes the use of commercial power as the primary source of power, however a 350-kilowatt (kW) natural gas (or diesel) generator would be provided for backup power to the initially constructed In-Flight Interceptor Communication System Data Terminal (IDT) and the IDT Support Facility (ISFAC). When the second and third IDTs are constructed, a power plant with either three 1-megawatt (MW) or four 500-kW diesel generators would be used to provide backup power for all three IDTs and the ISFAC. It is anticipated that the 350-kW generator would be removed once the power plant is in place.

Projected generator emission factors were based on AP-42, Fifth Edition, Volume 1. Table C-1 lists the anticipated oxides of nitrogen, volatile organic compounds, carbon monoxide, and particulate matter (with a diameter less than or equal to 10 micrometers) emissions associated with each of the proposed generators.

Table C-1: Potential Generator Emissions for Facilities at Fort Drum

Generator	Emissions (500 hours/year)			
	Oxides of Nitrogen metric tons (tons)	Volatile Organic Compound metric tons (tons)	Carbon Monoxide metric tons (tons)	PM-10 metric tons (tons)
350-kW Diesel Generator	3.30 (3.64)	0.27 (0.29)	0.71 (0.79)	0.23 (0.26)
350-kW Natural Gas Generator	2.19 (2.42)	0.90 (0.99)	0.31 (0.34)	0.008 (0.009)
Three 1-MW Diesel Generators	28.3 (31.2)	2.31 (2.49)	6.09 (6.77)	1.97 (2.23)
Four 500-kW Diesel Generators	18.9 (20.8)	1.54 (1.66)	4.06 (4.51)	1.31 (1.49)

Source: Calculations based on emission factors from AP-42, Fifth Edition, Volume 1

kW = kilowatt

MW = megawatt

PM-10 = particulate matter with a diameter less than or equal to 10 micrometers

***De Minimis* Thresholds**

The *de minimis* thresholds are federal limits listed in the 40 CFR 51.583(b)(1). If any of the project emissions would exceed these values, a conformity determination would be required. Table C-2 defines the *de minimis* thresholds for the emissions calculated for 500 hours of operation of three 1-MW diesel generators. Three 1-MW diesel generators were selected for comparison as they are the largest oxides of nitrogen emitters proposed for operation at any one time.

Table C-2: *De Minimis* Threshold and Potential Project Emissions

Criteria Pollutant	<i>De Minimis</i> Threshold	Calculated Emissions (per year) metric tons (tons)
Volatile Organic Compound	45.4 metric tons (50 tons) per year in federal serious non-attainment area	2.31 (2.49)
Oxides of Nitrogen	45.4 metric tons (50 tons) per year in federal serious non-attainment area	28.3 (31.2)
Carbon Monoxide	90.7 metric tons (100 tons) per year in all federal non-attainment areas	6.09 (6.77)
PM-10	90.7 metric tons (100 tons) per year in federal moderate non-attainment area	1.97 (2.23)

Source: 40 CFR 51.853(a)

Calculations based on emission factors from AP-42, Fifth Edition, Volume 1

In conclusion, the estimated emissions due to the Proposed Action generators would not exceed the *de minimis* thresholds. Therefore, it should be ruled that the Proposed Action is exempt from the requirement for a Conformity Determination due to non-applicability as defined in 40 CFR 51.853(c)(1).

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