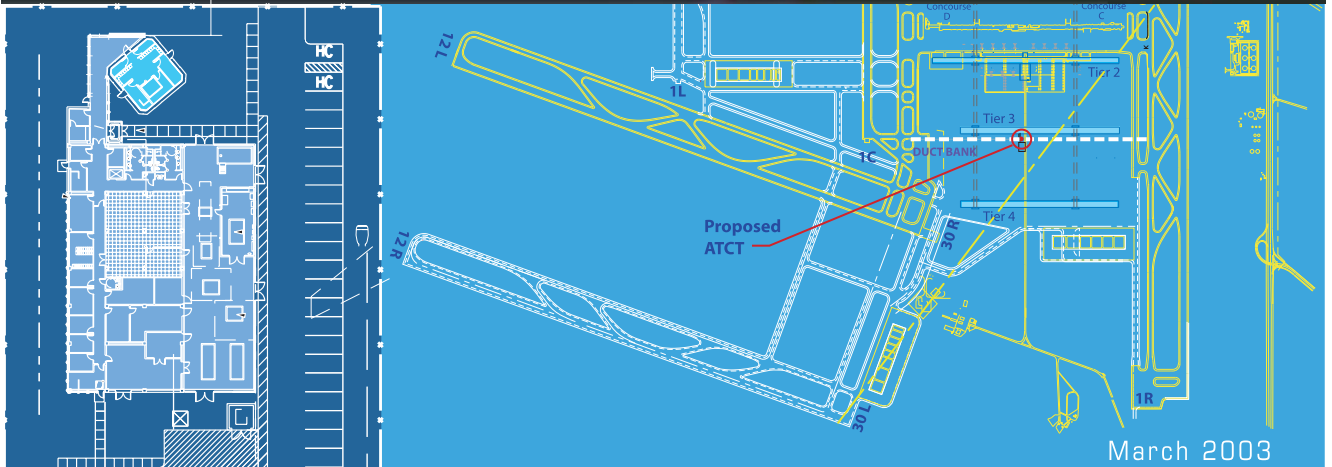


WASHINGTON DULLES INTERNATIONAL AIRPORT



PROPOSED ATCT FACILITY

FINAL ENVIRONMENTAL ASSESSMENT



This comprehensive Environmental Assessment becomes a Federal Document when evaluated and signed by the responsible FAA official.

Richard A. [Signature]
Responsible FAA Official
4/1/03
Date



Prepared for
METROPOLITAN WASHINGTON AIRPORTS AUTHORITY
by

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**FEDERAL AVIATION
ADMINISTRATION
EASTERN REGION**

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)
&
RECORD OF DECISION (ROD)**

For the

Proposed New Airport Traffic Control Tower

Located At

**Washington Dulles International Airport
Fairfax and Loudoun Counties, Virginia**

May 2003

LOCATION

Washington Dulles International Airport
Fairfax and Loudoun Counties, Virginia

INTRODUCTION AND PROPOSED FEDERAL ACTION

This Finding of No Significant Impact/Record of Decision (FONSI/ROD) sets out the Federal Aviation Administration (FAA) consideration of aviation safety factors associated with the proposed construction and operation of an Airport Traffic Control Tower (ATCT), base building, support buildings, site utilities, access road, on-site parking lot, and FAA control communications connections to airfield lights and navigational aids. In addition, the FAA considered the environmental impacts and the technical needs for each element of the project. The proposed base building will encompass approximately 16,700 square feet, the tower another 1,200 square feet and the entire site including parking will total approximately 2 acres.

An Environmental Assessment (EA) was prepared to evaluate the environmental consequences of the proposed construction and operation of the ATCT facility. The environmental review process was conducted fully in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 as amended and DOT/FAA Order 1050.1D dated 12/5/86. The Record Of Decision (ROD) was prepared in accordance with Council on Environmental Quality (CEQ) regulations, 40 CFR 1505.2. The EA has been reviewed by the FAA and is made a part of this FONSI/ROD.

PROJECT PURPOSE AND NEED

The FAA recognized the need to relocate and replace the existing ATCT. The current ATCT was commissioned in 1962 and has reached its operational and functional capacity. The present facility cannot accommodate the equipment and personnel required to efficiently control the Airport's current volume of air traffic. If the current tower remains in place, a potential for airport traffic control safety issues will exist and potentially exacerbate over time. Physically, other problems are present in the current ATCT, including: deficient mechanical appurtenances (e.g. plumbing, heating and ventilation), asbestos-containing floor tiles, and ambient light glare from increased development at the tower base. The current ATCT also does not meet Americans with Disabilities Act (ADA) requirements.

The proposed project is intended to resolve the deficiencies of the existing ATCT. The new ATCT would facilitate the installation of more modern and required air traffic control equipment, enhance visibility of controlled surfaces improve the flow of information between aircraft and the ATCT, and provide adequate space and an enhanced indoor environmental for FAA personnel working in the tower. Thus, the proposed action would provide a modern, operationally efficient ATCT that would insure the safeties of airport traffic control. The new ATCT would also meet the building codes and OSHA standards.

ALTERNATIVES

Modification of the existing tower was not considered viable because of space limitations and because physical expansion was contrary to historic preservation requirements. Therefore, the Metropolitan Washington Airports Authority (the Authority) commissioned an Airport Traffic Control Tower (ATCT) Siting Study to determine what site and height for a new ATCT were optimal. The ATCT siting study was accomplished in accordance with FAA Order 6480.4 "Airport Traffic Control Tower Siting Criteria". The Study considered criteria including maximum visibility of airborne traffic patterns, complete visibility of airport surfaces utilized for movement of aircraft, and depth perception to all surfaces to be controlled. The Study also examined the tower requirements considering future airfield and terminal development. Ranges of possible tower locations were considered. Originally nine sites were investigated. The Authority and the FAA determined that Site 1 best satisfied the siting criteria, and that Site 1 was the preferred site for the Proposed ATCT. Thus, the Proposed Action was to build and operate a new ATCT at the Site 1 location.

Based on the Site 1 Proposed ATCT location, alternative communication ductbank and utility corridor locations were analyzed. In general the communications ductbank and utility corridor locations were screened using three criteria: avoid future utilities that will service a future Tier 3 concourse, minimize wetland impacts, and connect to existing facilities. Based on these criteria the most favorable communication ductbank and utility corridor locations were included in the Proposed Action.

IMPACT ANALYSIS

The FAA has required an EA for the proposed ATCT and associated facilities as a reasonably foreseeable future development option. Such assessment was accomplished. Based on the analysis and necessary mitigation, any impacts associated with this development are not expected to have any significant adverse impacts on or in the vicinity of the airport.

The attached EA addresses the effects of the proposed project on the human and natural environment, and is made a part of this Finding/Decision. The results of the analysis are summarized as follows:

CONSTRUCTION IMPACTS

Specific effects during construction which may create adverse environmental impacts include: noise from construction equipment, noise and dust from delivery of materials and excavation equipment, air pollution from burning debris, and water pollution from erosion. Construction impacts are typically of short duration, associated with actual construction activities, and can be mitigated during the construction period with careful planning and standard erosion and sediment controls.

CUMULATIVE IMPACTS

The only cumulative impact area of concern was a potential impact to air quality due to the level of emissions from the construction of the Tier 2 development (a new Midfield Concourse known as Tier 2, and an Automated People Mover System, as well as utility and other support facilities) that may overlap construction of the ATCT. The combined construction equipment emissions from the two projects will not exceed the budgets for nitrogen oxides (NO_x) and volatile organic compounds (VOC) included in the State Implementation Plan (SIP) for IAD.

HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES

Formal consultation with the Virginia State Historic Preservation Officer (SHPO) regarding the nature of the effects of the proposed ATCT and related improvements on cultural, historical, and archaeological resources at Washington Dulles International Airport (IAD) was completed. The Virginia SHPO has concurred with the terms in a Conditional Determination of No Adverse Effect. The conditions include:

- If the final design of the proposed ATCT and related improvements involve ground disturbance in locations other than the midfield area between the two existing runways, the Authority will conduct an archaeological assessment and provide the Virginia SHPO with the results.
- The results of the visual viewshed analysis contained within the EA will be presented to the Virginia SHPO. (Please note the results of the viewshed analysis have been presented to the Virginia SHPO as of the writing of this FONSI/ROD).
- Summary design documentation for the proposed ATCT will be made available to the Virginia SHPO for their review and comment. The SHPO has already seen and considered the 30% architectural drawings, which assisted in their granting of a Conditional Determination of No Adverse Effect. Should the final design include significant new design elements, the Authority will enter into additional agency consultation to assess these effects.
- The existing ATCT will be decommissioned. However, the existing ATCT structure itself will remain in place due to its historical significance. There are no plans to use the decommissioned tower for other purposes due to limiting conditions associated with means of egress and ADA requirements. The Authority will continue to maintain the decommissioned ATCT.
- Airport Surface Detection Equipment (ASDE) radar is located on top of the existing tower. When the existing ATCT is decommissioned, the original architectural design of the tower with the radar enclosure must be restored to comply with prior agreements under Section 106 of the National Historic Preservation Act.

The National Capital Planning Commission (NCPC) also commented on the preliminary and final site and building plans. In a March 18, 2003 letter from the NCPC to the Metropolitan Washington Airport Authority, the NCPC recommends that “the Authority

(MWAA) fully maintain the vacated ATCT and carefully consider the potential reuse of that terminal area...The intent of the recommendation is that the ATCT structure of the Main terminal be fully sustained and operated as active space.”

LIGHT EMISSIONS AND VISUAL IMPACTS

Because of the physical size and lighting requirements of the proposed ATCT, light emissions and visual impacts may occur.

The proposed construction will take place within the existing configuration of the airport, away from residences. Also, the existing buffer zone of vegetation around the Airport will protect any surrounding communities from light interference during and after construction.

In terms of visual impacts, the proposed location for the ATCT (Site 1) is in the vicinity of a proposed Dulles Historic District, which will include all airport portions of the original 1958 Saarinen Master Plan. These areas include the existing runways, the Dulles access highway, and the existing terminal areas. Also, the proposed ATCT location is within 2.25 miles of the Sully Plantation Historic District. A view-shed analysis was completed for the EA and it was concluded that the proposed ATCT would have minimal impact on the proposed Dulles historic district. It was also concluded that the proposed ATCT will be barely visible from the Sully Plantation, but will not impact the natural setting of the Sully Plantation.

Careful consideration will be given to the design of the ATCT as to minimize visual effects. A formal consultation with the SHPO has occurred regarding any potential visual impacts to historical, architectural, archaeological, and cultural resources. The SHPO concurred with a Conditional Determination of No Adverse effect. The National Capital Planning Commission (NCPC) was also given an opportunity to provide comments regarding the planned ATCT. In the March 18, 2003 letter from the NCPC to the Metropolitan Washington Airport Authority, the NCPC provided “favorable comment to the preliminary and final site and building plans”.

WATER QUALITY

Effects to water quality include an increase in stormwater runoff from increased impervious surface area. These effects will be managed using BMPs and stormwater detention ponds.

WETLAND IMPACTS

Wetlands will be altered as a result of the construction of the ATCT and associated facilities. The Joint Permit Application (JPA) submitted to the Virginia Department of Environmental Quality (DEQ), US Army Corps of Engineers (USACE), and other regulatory agencies has been approved. The future loss of wetlands was mitigated through a wetland banking program that will result in no net loss of wetlands. Additional

temporary wetland impacts due to communication ductbanks and utility corridors are permitted per Nationwide Permit 12, Utility Line Activities. Approximately 1100 feet of utility lines will be located in the waters of the U.S.; therefore, the District Engineer will be notified by a preconstruction notification. Permission to impact these wetlands will be acquired prior to initiation of construction activities.

OTHER IMPACT CATEGORIES

The potential impacts of the proposed federal action on air quality, coastal resources, compatible land use, DOT Section 303(c) (formerly Section 4(f)) lands, electronic emissions, farmlands, fish/wildlife and plants, floodplains, hazardous materials and solid waste, natural resources and energy supply, noise, secondary impacts, socioeconomic impacts/environmental justice and, wild and scenic rivers have been reviewed. It is the FAA's finding that the proposed action, with mitigation measures noted below, would not have any significant effect on any of the noted categories. Detailed assessment of these categories may be found in the appropriate sections of the EA.

PUBLIC/AGENCY INVOLVEMENT

Chapter 5 of the EA contains a list of the various federal, state, and local agencies contacted to review the proposed project. Response letters from those organizations can be found in Appendix D. Comments from these agencies have been incorporated into the EA. In addition, the EA was made available for public review by placing copies of the document in seven public libraries and advertising these locations in two newspapers. No comments were received as a result of the public review.

MITIGATION MEASURES

Because the Proposed action does not involve any long-term significant environmental impacts, mitigation measures are unnecessary for most resources. As discussed above, there may be some minor and/or temporary impacts. However, these impacts would be minimized through the implementation of the already identified mitigation measures including sediment and erosion control devices.

POLICY CONSIDERATIONS

Inconsideration of alternatives, the FAA has been mindful of its statutory mandates to (1) ensure that safety is given the highest priority in providing for a safe and efficient airway system (49 U.S.C 44501 (b)(4)(A)), and (2) to make long range plans and policy for the orderly serve the interests of, civil aeronautics and the national defense (49 U.S.C 44501(a)). FAA's policy is to provide precision air traffic control systems at all airports meeting established criteria to provide enhance safety and state of the art technology in airport operations. Installation of the ATCT facility would enable the FAA to provide this improvement.

AGENCY ACTIONS

The FAA recognizes its responsibility to enhance, develop and improve the safety, efficiency, and utility of the national air transportation system, including the establishment of airport traffic and navigational facilities at and around airports. The FAA's actions involved in this proposal include the following:

- a. Pursuant to 49 U.S.C. 40103 (b) (1), the FAA must ensure the safe and efficient use of navigable airspace. The constructions of the ATCT facilities are designed to meet this requirement.
- b. Pursuant to 49 U.S.C. 44502, the FAA is authorized to establish and improve air navigational facilities wherever necessary. The constructions of the ATCT facilities are designed to meet these criteria.

AGENCY FINDINGS


- a. This project will enhance safety and improve airport operations for the use of the proposed new ATCT.
- b. In establishing this facility, the FAA is committed to minimizing any possible impact on the surrounding communities by locating the facility near the existing airport facilities and away from residential areas.
- c. Based on the EA prepared for this project, a FONSI/ROD was issued. Both the EA report and the FONSI/ROD are hereby incorporated into this decision. After careful and thorough consideration of the facts contained in the FONSI/ROD and in the attached EA, the undersigned concurs that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in section 101 (a) of the National Environmental Policy Act (NEPA) 42 U.S.C §4331(a) and that it will not significantly affect the quality of the human environment or otherwise include and condition requiring consultation pursuant to section 102(2)(C) of NEPA, 42 U.S.C §4332(2)(c). Further environmental study is not required.

DECISIONS AND ORDERS

Recognizing these responsibilities, we have carefully considered these objectives in relation to aeronautical and environmental factors at Washington Dulles International Airport, and utilized the environmental process to make a more informed decision. After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed federal action ensures the safe and efficient use of navigable airspace consistent with the responsibility and authority granted to the Administrator pursuant to 49 U.S.C. 40103 (Part A). The undersigned further finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 (a) of the National Environmental Policy Act (NEPA) and that it will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102 (2) (C) of NEPA. Based on the

above analysis, the FAA determined that Alternative 1, construction of new ATCT facilities for Washington Dulles International Airport, is both technically and environmentally, the preferred alternative.

Having carefully considered the aviation safety and operational objectives of the proposed action, as well as being properly advised as to the anticipated environmental impacts of the proposal, under the authority delegated to me by the Administrator of the FAA, I find that the project is reasonably supported, and I, therefore, direct this action to be implemented.

Approved: 
Arlene B. Feldman
Regional Administrator
FAA Eastern Region

Date: 5/14/03

Disapproved: _____
Arlene B. Feldman
Regional Administrator
FAA Eastern Region

Date: _____

This decision is taken pursuant to 49 U.S.C. 40101 et seq. (Part A) and constitutes a final order of the Administrator that is subject to review by the Court of Appeals of the United States in accordance with the provisions of 49 U.S.C Section 46110.

PUBLIC NOTICE OF AVAILABILITY

ENVIRONMENTAL ASSESSMENT AND FONSI/ROD WASHINGTON DULLES INTERNATIONAL AIRPORT AIR TRAFFIC CONTROL TOWER

Notice is hereby given that the Federal Aviation Administration (FAA) has prepared an Environmental Assessment (EA) and Finding of No Significant Impact/Record of Decision (FONSI/ROD) for the proposed relocation and construction of a new Air Traffic Control Tower (ATCT) to serve the Washington Dulles International Airport in Chantilly, Virginia. The EA has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended, and Council on Environmental Quality (CEQ) Regulations.

The EA analyzes the environmental consequences that may result from relocation and construction of the proposed ATCT; it includes measures to reduce or prevent environmental consequences and compares the proposed action and alternatives in terms of mission effectiveness and the level of environmental effect. The Finding of No Significant Impact/Record of Decision (FONSI/ROD) sets forth the FAA determination of aviation safety and environmental factors regarding the project, and the FAA's decision regarding these factors.

The EA is available now for public review at the following locations: Eastern Loudoun Regional Library (21030 Whitfield Place Sterling, VA), Rust Library (380 Old Waterford Road Leesburg, VA), Centreville Regional Library (14200 St. Germaine Drive Centreville, VA), Chantilly Regional Library (4000 Stringfellow Road Chantilly, VA), Fairfax City Regional Library (3915 Chain Bridge Road Fairfax, VA), Reston Regional Library (11925 Bowman Towne Drive Reston, VA), and Tysons-Pimmit Regional Library (7584 Leesburg Pike Falls Church, VA).

The EA can also be reviewed at www.mwaa.com.

For additional information, please contact:

Claire Wang, ANI 230
Federal Aviation Administration
1 Aviation Plaza
Jamaica, NY 11434

(718) 553-4839

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EXECUTIVE SUMMARY

The Metropolitan Washington Airports Authority (the Authority) is proposing to construct a new Airport Traffic Control Tower (ATCT) at Washington Dulles International Airport (IAD). The location of the Airport is shown in **Figure ES-1** and the location of the proposed ATCT is shown in **Figure ES-2**. The purpose of this Environmental Assessment (EA) is to evaluate existing conditions and environmental effects for a new ATCT. The Proposed Action includes the site development, site utilities, access roads, the actual tower and base building, support buildings, and all necessary Federal Aviation Administration (FAA) control communications connections to airfield lights and navigational aids (NAVAIDS). The layout plan for the proposed ATCT is depicted in **Figure ES-3** and a rendering of the proposed ATCT is shown in **Figure ES-4**.

In this EA, the environmental consequences or effects of the Proposed Action and No Action alternatives were evaluated. The following impact categories were evaluated: Air Quality; Coastal Resources; Compatible Land Use; Community Involvement; Construction Impacts; Cumulative Impacts; Department of Transportation Act Section 303(c) (formerly Section 4(f)); Electronic Emissions; Farmland; Fish, Wildlife and Plants; Floodplains and Floodways; Hazardous Materials and Solid Waste; Historical, Architectural, Archeological and Cultural Resources; Light Emissions and Visual Impacts; Natural Resources and Energy Supply; Noise; Secondary (Induced) Impacts; Socioeconomic Impacts; Water Quality; and Wetlands and Wild and Scenic Rivers.

This EA has been prepared to ensure compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, the regulations of the President's Council on Environmental Quality (CEQ) for NEPA compliance, and Federal Aviation Administration (FAA) Orders 1050.1D (*Policies and Procedures for Considering Environmental Impacts*) and 5050.4A (*Airport Environmental Handbook*).

ES.1 Need for Proposed Action. The present day Airport Traffic Control Tower (ATCT) at Washington Dulles International Airport (IAD) cannot accommodate the personnel or equipment required to efficiently control the Airport's current volume of air traffic. To safely serve the increased air traffic, more controllers and equipment are required and thus a larger facility is necessary. Also, needed technological advances available today can not be accommodated in the limited space of the existing tower cab.

ES.2 Environmental Consequences of the Proposed Action. A summary of environmental effects is provided in **Table ES.1**.

Overall, implementation of the proposed ATCT development at IAD is not expected to have a significant impact on the environment. Implementation of the Proposed Action is not expected to negatively affect: Air Quality; Coastal Resources; Compatible Land Use; Community Involvement; Department of Transportation Act Section 303(c) (formerly Section 4(f)); Electronic Emissions; Farmland; Fish, Wildlife and Plants; Floodplains and Floodways; Hazardous Materials and Solid Waste; Natural Resources and Energy Supply; Noise; Secondary (Induced) Impacts; Socioeconomic Impacts; Water Quality; Wetlands and Wild and Scenic Rivers.

Some effects to Historical, Architectural, Archeological and Cultural Resources, Light Emissions and Visual Impacts, Water Quality, and Wetlands are expected as a result of the Proposed Action. These environmental consequences, however, will be minor in nature, will be minimized through best management practices (BMPs), or will be mitigated. The environmental consequences are summarized below.

- Consultation with the Virginia State Historic Preservation Officer (SHPO) has been completed regarding the nature of the effects of the proposed ATCT and related improvements on cultural, historical, and archaeological resources at IAD. The Virginia SHPO (Department of Historic Resources) has concurred with the terms in a Conditional Determination of No Adverse Effect.
- The proposed tower is to be carefully designed to minimize visual effects upon and within the IAD historic district. The IAD historic district falls within the boundaries established by the 1958 Saarinen Master Plan and encompasses the existing runways, the Dulles Access Highway and the existing terminal areas. Therefore, the Proposed Action is not expected to have an adverse visual impact on the aesthetic integrity of the historic Airport or the Sully Plantation. Consultation with the SHPO has been completed. Consultation with the National Capitol Planning Commission (NCPC) has been initiated regarding the viewshed analysis and potential visual impacts on the Main Terminal and the Dulles Airport Access Highway. No comments were received from NCPC by the close of the comment period on the Draft EA.
- Effects to water quality include an increase in stormwater runoff from increased impervious surface area. These effects will be managed using BMPs and stormwater detention ponds.
- Wetlands will be altered as a result of implementation of the Proposed Action. The Joint Permit Application (JPA) submitted to the Virginia Department of Environmental Quality (DEQ), US Army Corps of Engineers (USACE), and other regulatory agencies has been approved. The future loss of wetlands was mitigated through a wetland banking program that will result in no net loss of wetlands. Additional temporary wetland impacts due to installation of communication ductbanks and utility corridors are permitted per Nationwide Permit 12, Utility Line Activities. Approximately 1100 feet of utility lines will be located in the waters of the U.S.; therefore, the District Engineer will be notified by a preconstruction notification. Permission to impact these wetlands will be acquired prior to initiation of construction activities.

ES.3 Construction Impacts. In addition to project-related environmental effects, temporary effects associated with construction activities are expected. The majority of construction-related impacts are expected to be temporary in nature, minimized by BMPs, and limited to the IAD property. Construction activities are expected to have a short-term positive impact on socioeconomic resources due to construction-related employment opportunities. Construction activities will have potential negative effects on Noise, and Water Quality. The potential environmental consequences related to construction activities are summarized below.

- There will be a short-term, temporary increase in localized noise levels in the vicinity of the project area during construction. All construction activities will take place on the IAD property, and residential properties will not be affected.
- Impacts to water quality include an increase in runoff from construction areas and potential erosion of disturbed soils and sedimentation into streams. These effects will be managed using BMPs, erosion control measures, and stormwater detention ponds.

ES.4 Cumulative Impacts. The only cumulative impact area of concern was the air quality due to the level of emissions from the construction of the Tier 2 concourse and related development¹ that will overlap construction of the ATCT. The combined construction equipment emissions from the two projects will not exceed the budgets for nitrogen oxides (NO_x) and volatile organic compounds (VOC) included in the State Implementation Plan (SIP) for IAD (Appendix C). These budgets are 0.75 tons/day NO_x and 0.11 tons/day VOC. Fugitive emissions during construction will be controlled through the use of BMPs.

The implementation of the Proposed Action is not expected to create negative cumulative effects. The Proposed Action comprises a small portion of the current and planned development activity in the Dulles region. Although the region could experience cumulative effects to air quality, water quality (stormwater runoff from increased impervious surface area), and habitat loss due to multiple ongoing roadway and development projects, the Proposed Action accounts for a small fraction of these effects and will not, when added to the effects of the other projects, cause otherwise insignificant impacts to exceed thresholds of significance.

¹ *Planned construction of a new Midfield Concourse known as Tier 2, and an Automated People Mover System, as well as utility and other support facilities. Portions of this development are on hold at this time.*

Table ES.1

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Impact Category	Environmental Consequences
Air Quality	No Impact
Coastal Resources	No Impact
Compatible Land Use	No Impact
Community Involvement	No Impact
Construction Impacts	See Below
Cumulative Impacts	See Below
DOT Section 303 (4f)	No Impact
Electronic Emissions	No Impact
Farmlands	Not Applicable
Fish, Wildlife and Plants	No Impact
Floodplains and Floodways	No Impact
Hazardous Materials and Solid Waste	No Impact
Historic, Architectural, Archaeological, and Cultural Resources	Potential Impacts Mitigated through consultation with SHPO and NCPC
Light Emissions and Visual Impacts	Potential Impacts Mitigated through consultation with SHPO and NCPC
Natural Resources and Energy Supply	No Impact
Noise	No Impact
Secondary (Induced) Impacts	No Impact
Socioeconomic Impacts	No Impact
Water Quality	Increased runoff managed by stormwater Best Management Practices (BMPs)
Wetlands	Impact mitigated by wetland banking. Temporarily impacted wetlands will be restored.
Wild and Scenic Rivers	Not Applicable

Figure ES-1

IAD General Location Map

WASHINGTON DULLES INTERNATIONAL AIRPORT

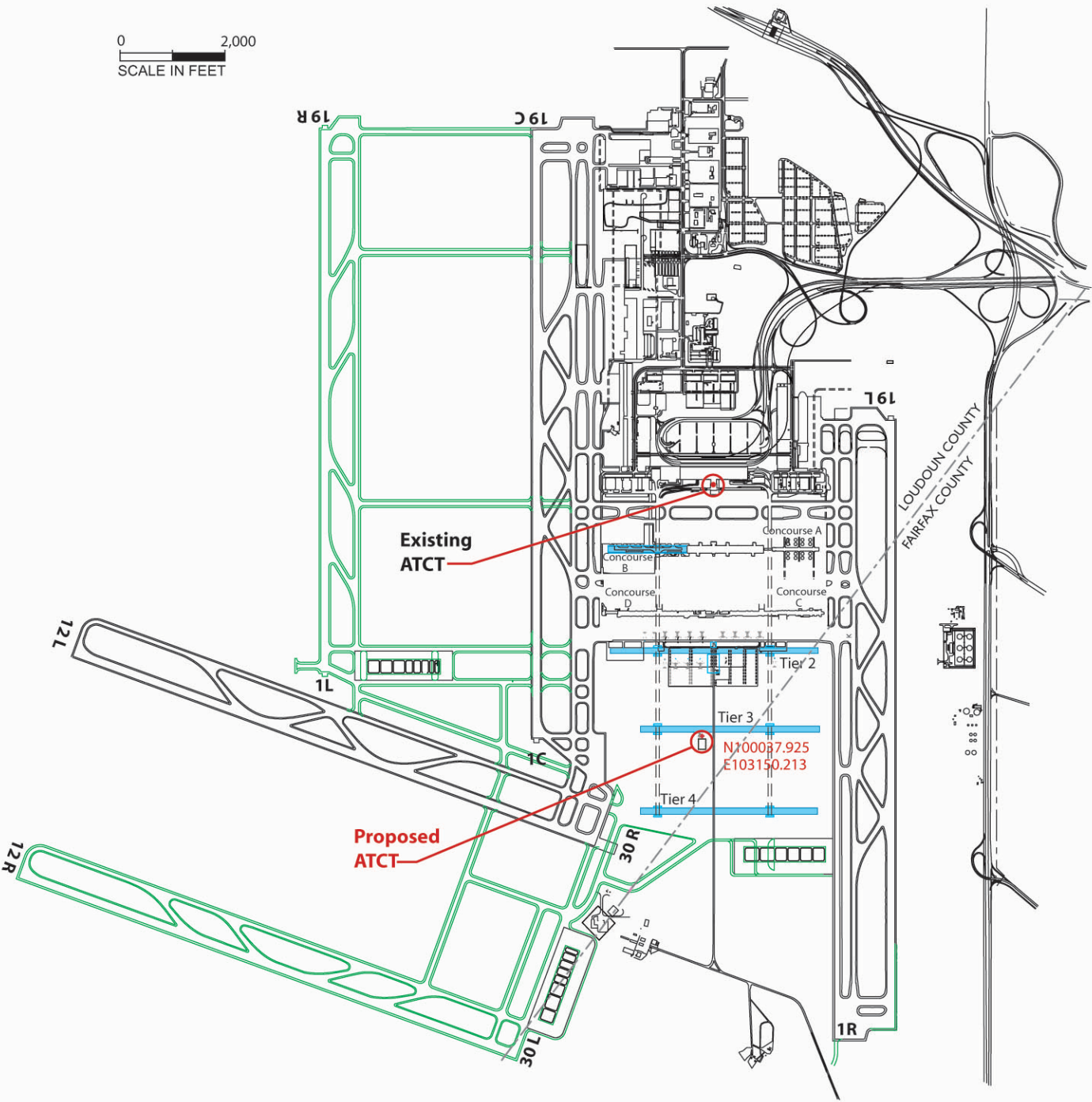


Figure ES-2

Location of Proposed ATCT

WASHINGTON DULLES INTERNATIONAL AIRPORT

0 2,000
SCALE IN FEET

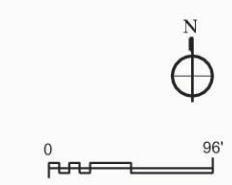
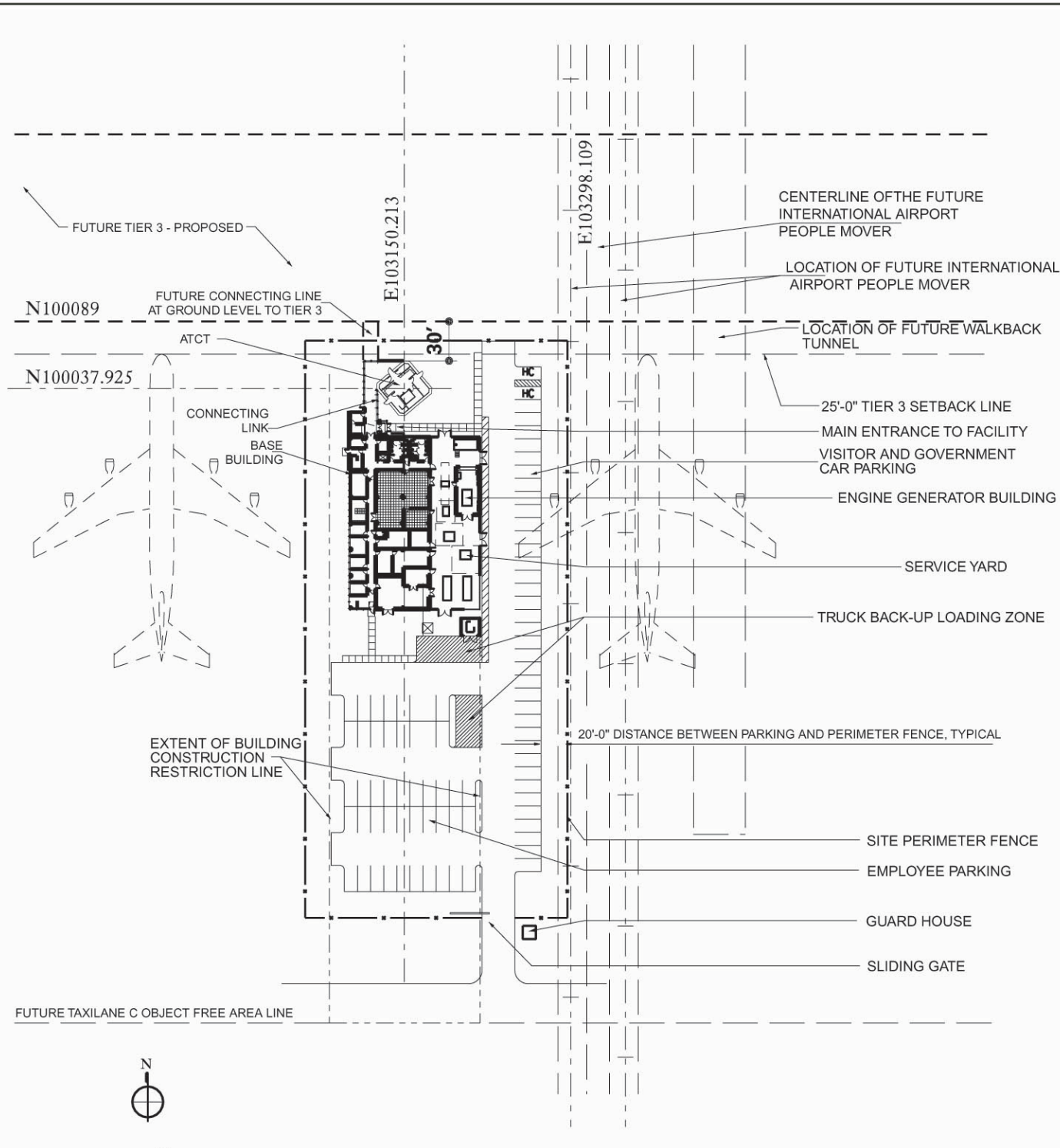


- Existing Airport Facilities
- Planned Future Runway System Improvements
- Planned Future Buildings

Figure ES-3

Proposed ATCT Site Plan

WASHINGTON DULLES INTERNATIONAL AIRPORT



Source: Jacobs Facilities, Inc. July 2002

Figure ES-4

View of Proposed ATCT

WASHINGTON DULLES INTERNATIONAL AIRPORT



Source: Jacobs Facilities, Inc., July 2002



Chapter One

PURPOSE AND NEED

1.1 INTRODUCTION

The purpose of this federal Environmental Assessment (EA) is to disclose the potentially significant environmental, economic and social impacts of the proposed project and alternatives for the construction of a new Airport Traffic Control Tower (ATCT) at Washington Dulles International Airport. The EA was prepared in accordance with Federal Aviation Administration Orders 5050.4A issued on October 8, 1985 and 1050.1D, change 4, issued on June 14, 1999 by the Federal Aviation Administration (FAA) of the U.S. Department of Transportation. Compliance with FAA Orders 5050.4A and 1050.1D ensures that the proposed action will meet the procedural and substantive environmental requirements set forth by the Council on Environmental Quality in its regulations implementing the National Environmental Policy Act (NEPA).

Washington Dulles International Airport (IAD) is located in Fairfax and Loudoun counties in the Commonwealth of Virginia. It is approximately 26 miles west of the center of the District of Columbia as shown in **Figure 1-1** (all figures are in *Appendix A*). The Metropolitan Washington Airports Authority (the Authority) is currently undertaking a capital improvement program to replace and upgrade existing aircraft, passenger, and support facilities at IAD. Other potential future development at IAD is discussed in Section 3.6, “Cumulative Impacts”.

The Proposed Action is the construction of a new ATCT at Washington Dulles International Airport to replace the existing ATCT (the existing tower would not be removed due to its historic significance). The location of the Proposed Action is shown on **Figures 1-2 and 1-3**. The Proposed Action includes the site development, site utilities, access roads, the actual tower and base building, any support buildings, and all necessary FAA control connections to communications, airfield lights and navigational aids (NAVAIDS) (see Figure 1-3 and **Figure 1-4**). The proposed base building will encompass approximately 16,700 square feet. The tower between the base and cab is approximately 34 feet by 34 feet. The cab itself is approximately 30 feet by 30 feet (see **Figure 1-5**).

The location of the proposed action, ATCT and related projects, will be on the airport (see Section 2.0 “Alternatives”). The Region of Influence (ROI) for evaluating impacts related to the proposed action includes the project area and a 2-mile-wide area around the IAD airport boundary (see **Figure 1-6**).

1.2 TIME FRAME

The projects addressed in this EA include projects associated with the proposed ATCT. The construction is anticipated to last seventeen months. Post-construction installation of equipment by the FAA is expected to take twelve additional months.

1.3 CURRENT AIRPORT OPERATIONS

IAD, which occupies 11,000 acres and has three runways, serves primarily medium to long haul markets. Daily nonstop service is provided from IAD to 80 cities nationwide and there is direct service to 28 international destinations. Passenger traffic increased 56 percent from 1996, to 20.1 million passengers in 2000.

1.4 AIRPORT ACTIVITY AND FORECAST

Aircraft operations are expected to increase based on current projections and demand for service. Airport activity data and demand forecasts used in this Environmental Assessment are based upon activity forecasts prepared in October 2000 (HNTB 2000) and approved by FAA in November 2000 as the basis for future Federally funded capital improvements and future benefit-cost analysis and environmental analysis. The need for the proposed ATCT is not driven by forecasts of demand; however, the ATCT design recognizes the potential for the construction of additional runways and passenger concourses at IAD.

Projections for aircraft activity in the years 2007 are provided in **Table 1.1**. Actual data for 1999 through 2001 are also provided. An aircraft operation is defined as a takeoff or landing. A summary of actual and projected aircraft operations for commercial, cargo, general aviation, and military aviation at IAD is presented in Table 1.1. Total aircraft operations are expected to increase from 465,915 in 1999 to 636,092 in 2007 an average annual increase of 4.0%. However, operations actually decreased 2% in 2000, and then fell an additional 13% in 2001. Although the events of September 11, 2001 have caused a slowdown in Dulles activity, growth is expected to resume. The level of activity forecasted for 2007 may not be realized until 2008 or perhaps later. This growth is expected to occur with or without the proposed ATCT.

Table 1.1

**SUMMARY OF AIRCRAFT OPERATION PROJECTIONS,
WASHINGTON DULLES INTERNATIONAL AIRPORT**

	ACTUAL*			FORECAST*
	1999	2000	2001	2007
COMMERCIAL	393,294	389,314	327,609	570,532
GENERAL AVIATION	64,429	59,417	62,643	57,360
MILITARY	8,192	7,705	6,634	8,200
TOTAL	465,915	456,436	396,886	636,092
Notes	a	a	a	b

a. MWAA data.

b. Linear interpolation of forecasts for 2005 and 2010 from HNTB forecast (HNTB 2000).

* Includes arrivals and departures.

The forecast operations for 2007 are approximately 27 percent higher than those shown in the TAF. The need for the project is immediate, however, and is not dependent on the rate of future growth (Section 1.6). The use of the higher forecast is conservative with respect to impact analysis.

1.5 PURPOSE AND NEED

The present day Airport Traffic Control Tower (ATCT) at Washington Dulles International Airport (IAD) cannot accommodate the personnel or equipment required to efficiently control the Airport's current volume of air traffic. The existing tower began operating in 1962. Aircraft operations at Washington Dulles International have grown rapidly. Total aircraft operations increased from 8,016 in 1962 to 456,436 in 2000 (see Washington Dulles International Airport, Total Operations, Passengers, Mail and Freight Activities, Calendar Years 1962-2000 from MWWA in *Appendix B*). To serve this increased air traffic, more controllers and equipment are required and thus a larger tower cab is necessary. Also, needed technological advances available today can not be accommodated in the limited space of the existing tower cab.

In 1997 the FAA, the Authority and airlines met to identify facility and airport improvements for Washington Dulles International Airport. As a result of this discussion the FAA developed a strategy to focus on the equipment needs at IAD. The FAA authored the "Dulles Tower, Strategic Plan for Equipment" which was updated May of 2000. The #1 priority of this plan is to construct a new ATCT.

In recent years the existing tower also has experienced problems resulting from increased development around its base. Both ambient light glare at night and the quality of intake air to its heating, ventilating and air conditioning (HVAC) system are concerns. Also the original HVAC cannot provide sufficient cooling due to the amount of equipment and personnel in the cab.

Lastly the existing tower does not meet Americans with Disabilities Act (ADA) requirements.

Chapter Two

ALTERNATIVES

2.1 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

The “Alternatives” discussion focuses on the alternative sites examined in the Airport Traffic Control Tower Siting Study Final Report. It should be noted that modification of the existing tower was not considered viable because it lacked sufficient space and because physical expansion was contrary to historic preservation requirements. The Authority commissioned the Tower Siting Study to determine what site and height, for a new ATCT, were optimal. The ATCT siting study was accomplished in accordance with FAA Order 6480.4 “Airport Traffic Control Tower Siting Criteria”. The Study considered criteria including maximum visibility of airborne traffic patterns, complete visibility of airport surfaces utilized for movement of aircraft, and depth perception to all surfaces to be controlled. The Study also examined the tower requirements considering future airfield and terminal development. Ranges of possible tower locations were considered. Originally nine sites were investigated (see **Figure 2-1** for locations of sites). After comparing the airfield viewing conditions [i.e., distances to runway thresholds, shadowing (see description below)], the potential sites were narrowed to Site 1, Site 7, Site 8 and Site 9. Site 9 had its own set of problems: security would be difficult, it does not provide any better viewing than the existing tower, the distance to the southernmost runway end is long and the site itself is within an eligible historic district boundary. A matrix of the comparison of proposed tower sites is provided in **Table 2.1**. Some of the criteria presented in this table requires further explanation. These include Minimum Height, Maximum Allowable Height, and Shadowing Conditions. The minimum tower height at each location was determined by using a 35-minute angle between the line of sight of the air traffic controller and the airport surface. This criterion is used to evaluate whether a tower will provide adequate perspective for controllers i.e. enable them to differentiate the number and type of aircraft on the airfield. The maximum allowable height was determined by evaluating the Terminal Instrument Procedures (TERPS). TERPS specifies the height of allowable objects (the proposed ATCT) depending on how the aircraft use the airport and its airspace. In this case the Instrument Landing System (ILS) Approach and Missed Approach Criteria (part of TERPS) were applied to determine the maximum height of the ATCT. Lastly, “shadowing” occurs when an object (i.e., building) between the air traffic controller and the airfield surface (i.e., runway, taxiway, apron) blocks the air traffic controllers’ view of aircraft on that surface. The tower height shown in this column is the height at which “shadowing” would not occur.

A 7460 “Notice of Proposed Construction or Alteration” analysis was completed for each of the remaining three sites. A 7460 analysis is a FAA study of the impacts of a proposed project on the airport and its airspace. This could include the impact on aircraft operations, existing airport

Table 2.1

Summary Comparison of Preliminary Siting Options

Site	Location	Minimum Height ¹ 35 min. viewing angle	Maximum Allowable Height ²	Shadowing Conditions	Multiple Position Local Control ³	Greatest Distance to Runway Threshold ⁴	Site Accommodations	Access	Viewing Orientation	Comments
1	? Apron area south of future Tier 3 ? Near north/south axis of terminal/concourse configuration	160 feet (Runway 19R)	406 feet (371 feet viewing height)	Taxiway B north of Tier 1 with 300-foot viewing height (390 feet required)	Yes	12,000 feet existing, to Runway 12 13,600 feet future, to Runway 12R	Tower, base building, on-site parking prior to construction of Tier 3	Direct access for personnel in interim condition prior to Tier 3	All directions	- Apron area site - Shadows on north side of Tier 1 and Tier 2
2	? Apron area north of future Tier 4 ? Near east end of concourse	161 feet (Runway 19R)	209 feet (179 feet viewing height)	Taxiways D, E, and Z with 179-foot viewing height (850 feet required)	Yes	14,100 feet existing, to Runway 12 15,600 feet future, to Runway 19R	Tower and base building; no site parking	Access by bus or shuttle; no vehicle access for personnel	All directions	- Apron area site - TERPS limitations on height - Major shadowing
3	? Apron area south of Tier 2 ? Near west edge of apron	121 feet (Runway 19R)	170 feet (140 feet viewing height)	Taxiways A, B, J, and K and Runway 01R-19L with 140-foot viewing height (820 feet required)	Yes	10,300 feet existing, to Runway 19R 12,250 feet future, to Runway 30L	Tower and base building; no site parking	Access by bus or shuttle; no vehicle access for personnel	All directions	- Apron area site - TERPS limitations - Shortest distances to runway thresholds
4	? West airfield, between existing and future N-S runways	142 feet (Runway 01R)	223 feet (193 feet viewing height)	Taxiways J and K and Runway 01R-19L with 193-foot viewing height (1570 feet required)	Yes	12,800 feet existing, to Runway 01R 12,800 feet future, to Runway 01R	Tower, base building, site parking possible	Possible direct access for personnel	All directions, but east and south primarily	- Site away from apron - TERPS limitations - Major shadowing
5	? West airfield, west of future N-S runway	146 feet (Runway 19L)	---	Taxiways J and K and Runway 01R-19L with 300-foot viewing height (2400 feet required)	No	14,800 feet existing, to Runway 01R 14,800 feet future, to Runway 01R	Tower, base building, site parking possible	Possible direct access for personnel	East and south	- Site away from apron - Major shadowing - Maximum oblique viewing - Long view distances
6	? South airfield, south of future E-W runway ? Near E-W runway(s) and south thresholds of N-S runways	227 feet (Runway 19C)	417 feet (387 feet viewing height)	All E-W taxiways, J, K, and Runway 01R-19L with 227-foot viewing height (1620 feet required)	No	18,700 feet existing, to Runway 19R 18,700 feet future, to Runway 19R	Tower, base building, site parking possible	Direct access for personnel	North primarily	- Site away from apron - Major shadowing - Parallel viewing of N-S runways - Long view distances
7	? South airfield, between existing and future E-W runways, and east of thresholds	168 feet (Runway 19C)	290 feet (260 feet viewing height)	All E-W taxiways, and portions of Taxiways J and K with 250-foot viewing height (700 feet required)	Yes	16,100 feet existing, to Runway 19R 17,000 feet future, to Runway 19R (future)	Tower, base building, site parking possible	Direct access for personnel	West, north, and east	- Site away from apron - Major shadowing - Parallel viewing of N-S runways - Long view distances - Min. viewing to south
8	? Apron area south of Tier 2, on N-S axis of terminal/concourse layout	161 feet (Runway 19R)	359 feet (329 feet viewing height)	Taxiway B, north of Tier 1 with 300-foot viewing height (600 feet required)	Yes	12,080 feet existing, to Runway 12 12,670 feet future, to Runway 19R (future)	Tower and base building; no site parking	Access by dedicated shuttle until new APM is completed; no vehicle access for personnel	All directions	- Apron area site - Tall tower but minimal shadowing - Shorter view distances - Possible security issues with proximity to FIS building
9	? North of terminal area, west of lake	156 feet (Runway 12R)	---	All E-W taxiways between concourses	No	14,450 feet existing, to Runway 01R 17,350 feet future, to Runway 12R (future)	Tower and base building; site parking possible	Direct access for personnel	South and west primarily	- Off apron site - No capability for viewing E-W taxiways - Long view distances

1/ Minimum height shown is minimum viewing height, based on a 35 minute vertical viewing angle

2/ Maximum allowable height is determined from airspace constraints (approach and missed approach surfaces) without adjustment, and includes the entire structure; "Viewing Height" equals maximum structure height minus 35 feet

3/ Multiple position local control refers to conditions with movement areas on more than one side of the tower

4/ "Existing" refers to existing airfield; "Future" refers to the future airfield with the proposed runways

navigational equipment etc. The results of this 7460 analysis may be found in *Appendix B*.² Of the three sites, FAA Air Traffic objected to Site 7 because of its proximity to the arrival and departures for Runway 12/30 (as well as the proposed Runway 12/30). Sites 1, 7 and 8 were also simulated at the Airway Facilities Tower Integration Laboratory (AFTIL). Based on this analysis of the modeled views from the tower cab of the proposed ATCT, the FAA has identified Site 1 and Site 8 as suitable. The Authority and the FAA considered the relative advantages and disadvantages of Site 1 and Site 8. Site 1 is adjacent to the Tier 3 development planned for the future and Site 8 is adjacent to the Tier 2 development already being designed. Consequently, Site 1 will be able to accommodate direct access and on-site parking for personnel for a longer period of time than Site 8. Also construction of a new tower at Site 1 would most likely be less disruptive to Airport operations than construction at Site 8 because Site 1 is farther from existing aircraft operations areas. Therefore, the Authority and the FAA determined that Site 1 is the preferred site for the Proposed ATCT. Thus, the Proposed Action is to build and operate a new ATCT at the Site 1 location.

Based on the Site 1 Proposed ATCT location, alternative communication ductbank and utility corridor locations were analyzed (see **Figure 2-2**). In general the communications ductbank and utility corridor locations must meet three criteria: avoid future utilities that will service the proposed Tier 3 concourse, minimize wetland impacts and connect to existing facilities. Four critical areas were evaluated:

- **AREA A:** Ductbanks must cross existing wetlands as they extend westward from ATCT site. When taking into account future utilities that will service Tier 3, two east/west corridors are available for the ductbanks. One is located adjacent to the north edge of Taxilane G Object Free Area and is shown as the proposed ductbank. The other is located adjacent to the south edge of Taxilane H Object Free Area labeled as Option 2. Both corridors disturb equal amounts of undisturbed, unpermitted wetlands. Therefore, the alternative adjacent to the north edge of Taxilane G Object Free Area is proposed because the overall length of the ductbank is less. Other corridors in the east/west direction are available at this time that can avoid wetlands. However, if corridors that avoid wetlands are used at this time, there will be extensive disruption of navigational aid control in the future when these ductbanks would need to be relocated in corridors to avoid utility and Tier 3 construction. Disruptions to the navigational aids can affect the safety and security of the airport.
- **AREA B:** This area is located to the west of future midfield concourses Tier 3 and 4. No alternatives have been identified in this area due to expected future utilities running in a north/south direction west of the future midfield concourses. The future utility corridor is bound by a large stormwater pipe west of the telecommunication ductbank and a future jet fuel line to the east of the telecommunication ductbank.

²Please note that the maximum ATCT height shown in Table 2.1 does not match the maximum heights provided in the 7460 analysis. The maximum ATCT height in Table 2.1 was determined by applying ILS Approach and Missed Approach Criteria. The 7460 analysis determined maximum heights based on obstruction criteria and other TERPS criteria. When Table 2.1 was developed it was assumed that the ATCT would be an "obstruction" and therefore appropriately lighted. It was also determined that the Circling Minima would have to be raised because an ATCT below 520 feet AMSL would not provide the air traffic controllers with adequate views of the airport and aircraft.

- AREA C: This area is located near the existing ARFF Response Road. Sanitary, Water, and Gas lines must cross streams in three locations in this area to reach their service areas. These lines continue south and avoid any wetlands further south of the crossing. The points at which these utilities cross streams is the least disruptive to wetland areas.
- AREA D: The final area evaluated is located at the southern terminus of the water, gas, and sanitary lines. The wetland disturbance is required to make the connection to the existing lines. No alternatives have been identified as the existing utilities would have to be relocated to avoid wetlands.

The proposed communications ductbank and utility corridor locations are shown on Figure 2-2.

2.2 ALTERNATIVES FURTHER CONSIDERED

2.2.1 PROPOSED ACTION

The Proposed Action is the construction of a new ATCT at Site 1 shown in Figure 2-1. The Proposed Action includes the site development, site utilities, access roads, the actual tower and base building, any support buildings, and all necessary FAA control communications connections to airfield lights and NAVAIDS. The base building covers approximately 16,700 square feet. The tower between the base and cab is approximately 34 feet by 34 feet. The cab itself is approximately 30 feet by 30 feet. The tower will have a 300-foot viewing height and will be approximately 330 feet tall. Site 1 is a midfield, terminal apron area site approximately 2,500 feet north of the extended centerline for Runway 12/30 and south of the existing ATCT. No land acquisition will be necessary for the Proposed Action to be implemented. The new tower will be built to minimize ambient light glare at night as well as to provide a sufficient HVAC system. Americans with Disabilities Act (ADA) requirements will also be addressed in the new tower.

2.2.2 ALTERNATIVES AS NECESSARY

As stated in the “Alternatives Considered but Not Carried Forward” section, all build alternatives except the Proposed Action have been eliminated from consideration mainly due to the viewing requirements from an ATCT.

2.2.3 NO ACTION

Consideration of the No Action Alternative is required through NEPA per the Council on Environmental Quality (CEQ) regulations. The No Action Alternative serves as a basis of comparison with other alternatives considered for detailed analysis. Under the No Action Alternative, the existing ATCT would remain in use, and there would be a continuation of problems related to inadequate space for recommended staffing and technological advances.

2.3 COMPARISON OF ALTERNATIVES

The two alternatives under consideration are the No Action and the Proposed Action. A comparison of the environmental consequences for each action is shown in **Table 2.2**.

The No Action alternative does not result in any environmental impact; however, it also does not meet the “Purpose and Need”. The Proposed Action will result in the construction of a new ATCT as Site 1 as shown in Figure 2-1 which meets the “Purpose and Need”.

2.4 MITIGATION MEASURES

Coordination with National Capital Planning Commission has been initiated to minimize potential visual impacts on the Main Terminal and the Dulles Airport Access Highway and to ensure that appropriate mitigation measures are implemented. The Authority has wetland permits for the impacted wetlands (or are covered by a Nationwide Permit) and has purchased credits from an approved wetland bank to mitigate the loss of wetlands on the IAD property.

2.5 DECOMMISSIONING OF THE EXISTING ATCT

It is proposed that the existing ATCT will be decommissioned. However, the existing ATCT structure itself will remain in place due to its historical significance. There are no plans to use the decommissioned tower for other purposes due to limiting conditions associated with means of egress and ADA requirements.

There is an Airport Surface Detection Equipment (ASDE) radar on top of the existing tower. An ASDE is a ground radar to give air traffic controllers in the tower cab a picture of airplanes and other vehicles as they move about the airport surface. If the existing ATCT is decommissioned the ASDE will remain in service. When or if the ASDE is decommissioned, the original look of the tower with the radar enclosure (similar to a golf ball) must be restored to comply with prior agreements under Section 106 of the National Historic Preservation Act (see *Appendix B* for the Memorandum of Agreement for The Installation Of An Airport Surface Detection Equipment Radar (ASDE-3) At Washington Dulles International Airport).

Table 2.2

COMPARISON OF ENVIRONMENTAL CONSEQUENCES FOR THE NO ACTION AND PROPOSED ACTION ALTERNATIVES

Impact Category	Environmental Consequences	
	NO ACTION	Proposed Action
Air Quality	No Impact	No Impact
Coastal Resources	No Impact	No Impact
Compatible Land Use	No Impact	No Impact
Community Involvement	No Impact	No Impact
Construction Impacts	No Impact	Best Management Practices (BMPs) and erosion control measures will be used
Cumulative Impacts	No Impact	No Impact
DOT Section 303 (4f)	No Impact	No Impact
Electronic Emissions	No Impact	No Impact
Farmlands	No Impact	Not Applicable
Fish, Wildlife and Plants	No Impact	No Impact
Floodplains and Floodways	No Impact	No Impact
Hazardous Materials and Solid Waste	No Impact	No Impact
Historic, Architectural, Archaeological, and Cultural Resources	No Impact	No Impact
Light Emissions and Visual Impacts	No Impact	Potential Impacts Mitigated through consultation with NCPC
Natural Resources and Energy Supply	No Impact	No Impact
Noise	No Impact	No Impact
Secondary (Induced) Impacts	No Impact	No Impact
Socioeconomic Impacts	No Impact	No Impact
Water Quality	No Impact	Increased runoff managed by stormwater Best Management Practices (BMPs)
Wetlands	No Impact	Impact mitigated by wetland banking. Temporarily impacted wetlands will be restored.
Wild and Scenic Rivers	No Impact	Not Applicable

Chapter Three

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The following is a discussion of the affected environment, environmental consequences and mitigation for the Proposed Action and the No Action alternatives by the impact categories specified by the FAA.

3.1 AIR QUALITY

3.1.1 AFFECTED ENVIRONMENT

IAD is located in the National Capital Interstate Air Quality Control Region (AQCR 47). This AQCR includes the District of Columbia, Montgomery and Prince George's Counties in Maryland, and Arlington, Fairfax, Loudoun, and Prince William Counties in Virginia. The area is in "attainment" for all of the National Ambient Air Quality Standards (NAAQS) criteria pollutants, except ozone, for which it is classified as a serious nonattainment area. The classification becomes severe nonattainment effective March 25, 2003. A nonattainment area is one that does not meet or that contributes to ambient air quality in a nearby area that does not meet the primary or secondary NAAQS for the pollutant.

Air emission sources at IAD and other airports include aircraft, ground support equipment (GSE), vehicles operating on airport roadways, and stationary sources such as heating equipment, emergency generators, and fuel tanks. Air emissions from these sources include particulate matter (PM₁₀), nitrogen oxides (NO_x), volatile organic compounds (VOCs), carbon monoxide (CO), and sulfur dioxide (SO₂).

AIR EMISSIONS – STATIONARY SOURCES

Air emissions from IAD are generated by stationary and mobile sources. Stationary sources include boilers, heaters, generators, two incinerators, fire training facility, fuel tanks, and miscellaneous paints and chemicals. The principal fuels used by stationary sources at IAD are natural gas, propane, low sulfur diesel, and No. 2 fuel oil, although the latter fuel is being phased out and replaced by diesel fuel.

The stationary sources are registered with the Virginia Department of Environmental Quality (DEQ) (Registration No. 70003) and are governed by a "Stationary Source Permit to Modify and Operate, New Source Performance Standard Permit" issued by the Northern Virginia Regional Office of the Virginia DEQ. The permit was issued to limit the potential for emissions of NO_x from sources operated by the Authority at the airport to below the 50 tons per year major source threshold. The Authority is participating in the Virginia DEQ "Synthetic Minor" operating program and has accepted Federally enforceable permit conditions such that potential emissions are reduced below Title V major source trigger levels. These permit conditions establish limits on the usage of natural gas, diesel fuel, and heating oil. **Table 3.1** summarizes the estimated

emissions associated with those fuel use limitations and estimated actual emissions from fuel combustion for the year 2000.

As Table 3-1 indicates, year 2000 emissions from combustion sources are approximately 30 percent and 27 percent of permit-level emissions for NO_x and CO, respectively, while SO₂, VOCs, and PM₁₀ are less than 10 percent of permit-level-based emissions. Other sources of air emissions at IAD include fuel storage tank standing and working losses, painting, and degreasing operations. Although these fugitive VOC emissions are not included in the IAD Synthetic Minor operating permit, they were estimated in 1997 to be 0.75, 22.96, and 1.95 tons/year for fuel storage tanks, painting, and degreasing, respectively (Beatty 2001, MWAA, personal communication).

Table 3.1

SUMMARY OF PERMIT-LEVEL AND YEAR 2000 AIR EMISSIONS

Equipment	Fuel	Allowable Emissions Based on Fuel Use Limits Set by Permit (tons/yr.)				
		NO _x	SO ₂	CO	VOCs	PM ₁₀
Boilers and Heaters	No. 2 Fuel Oil	2.10	7.46	0.53	0.02	0.21
Boilers and Heaters	Natural Gas	22.13	0.14	1.24	1.24	1.71
Boilers #3 and #4	Natural Gas	5.40	0.08	0.74	0.74	1.03
Incinerator	Natural Gas	0.01	<0.01	0.09	0.09	0.20
Heaters	Propane	1.75	<0.01	0.06	0.06	0.05
Fire Fighting Training	Propane	1.75	<0.01	12.98	12.98	28.66
Fuel Farm Generator	Diesel	1.62	0.17	0.03	0.03	0.05
Generators	Diesel	11.46	1.51	0.37	0.37	0.
Totals		46.22	9.36	43.26	15.54	32.57

Equipment	Fuel	Emissions Based on Year 2000 Fuel Use (tons/yr.)				
		NO _x	SO ₂	CO	VOCs	PM ₁₀
Boilers and Heaters	No. 2 Fuel Oil	0.10	0.37	0.03	<0.01	0.01
Boilers and Heaters	Natural Gas	6.07	0.04	5.10	0.33	0.46
Boilers #3 and #4	Natural Gas	6.78	0.04	5.69	0.37	0.52
Incinerator	Natural Gas	<0.01	<0.01	0.02	0.02	0.05
Heaters	Propane	0.40	0.00	0.05	0.01	0.01
Fire Fighting Training	Propane	0.10	0.00	0.53	0.72	1.60
Fuel Farm Generator	Diesel	0.16	0.02	0.04	0.01	0.01
Generators	Diesel					
Totals		13.61	0.47	11.46	1.47	2.66
7% of Permit Level		29.4%	5.0%	26.5%	9.5%	8.2%

Source: Washington Dulles International Airport, Draft Environmental Assessment, Tier 2 and Related Projects by EA Engineering, Science, and Technology, Inc., September 2001

AIR EMISSIONS – MOBILE SOURCES.

Mobile sources at IAD that produce air emissions include aircraft, ground service equipment, and roadway vehicles. Air emissions from these mobile sources were estimated using the Federal Aviation Administration's Emissions and Dispersion Modeling System (EDMS) (FAA 2000), which is the recommended model for air quality impact assessment for civilian airports and U.S. Air Force bases. The FAA model calculates emissions from aircraft based on the aircraft fleet make-up and the airport level of activity expressed as the number of landing and

takeoff (LTO) cycles for each aircraft type, using procedures prescribed by U.S. Environmental Protection Agency (EPA). One LTO represents one takeoff and one landing, which constitutes two aircraft operations. As noted in **Table 3.2**, there were approximately 235,000 LTOs at IAD in 1999. Emissions from the diesel-powered mobile lounges and planemates that operate between the Main Terminal and Concourses A, B, C, and D were also estimated. Emissions from mobile sources operating at IAD are summarized in **Table 3.3**. Details on the calculation methods and the detailed model inputs and outputs are provided in the “Washington Dulles International Airport Draft Environmental Assessment Tier 2 and Related Projects”³.

EPA has estimated air emissions from road and nonroad mobile sources at the county level (U.S. EPA 2001b). **Table 3.4** compares these mobile source emission data in Fairfax and Loudoun Counties to mobile source emissions at IAD. These data indicate that IAD accounts for approximately 5.8, 2.9, and 2.6 percent of NO_x, CO, and VOC emissions, respectively, of mobile air emissions in the two counties.

Table 3.2

1999 IAD AIRCRAFT OPERATIONS AND LTOs

Aircraft Category	Operations	LTOs
General Aviation		
Single Engine Piston	1,932	966
Twin Engine Piston	6,448	3,224
Turboprop	38,366	19,183
Business Jets	47,684	23,842
Military (C-130)	3,114	1,557
Commercial Turboprop	156,792	78,396
Regional Jet	46,496	23,248
Narrow-Body Jet	139,846	69,923
Wide-Body Jet	29,282	14,641
Total	469,960	234,980

Table 3.3

1999 MOBILE SOURCE EMISSIONS

Source	Emissions (tons/yr.)				
	NO _x	SO ₂	CO	VOCs	PM ₁₀
Aircraft	1,463	72	1,726	280	--
Ground Service Equipment	359	9	4,142	113	12
Mobile Lounges/Planemates	122	7	4	6	--
Roadways/Parking Lots*	172	7	1,661	223	8
Total	2,116	94	7,533	622	23

* Vehicles operating on airport property only (HNTB 2001b).

³ Planned construction of a new Midfield Concourse known as Tier 2, and an Automated People Mover System, as well as utility and other support facilities. Portions of this development, including the Tier 2 concourse and a South Utility Building, are on hold at this time.

Table 3.4

REGIONAL AND IAD MOBILE SOURCE EMISSIONS

Source	Emissions (tons/yr.)				
	NO _x	SO ₂	CO	VOCs	PM ₁₀
Year	1998				
Fairfax County	30,342	NE	226,574	19,965	1,800
Loudoun County	6,387	NE	34,440	3,578	494
Count Total	36,729	NE	261,014	23,543	2,294
Year	1999				
Washington Dulles International Airport	2,116	94	7,533	622	23

NE = Not estimated

3.1.2 ENVIRONMENTAL CONSEQUENCES

STATIONARY SOURCES

Primary new air emission stationary sources that are part of the Proposed Action are boilers and a back-up generator. These units have been sized to serve the new ATCT and new associated facilities. Each planned boiler unit is rated at 545 MBH per hour heat output and will use natural gas. The boilers will not operate at the same time. There is also a backup electrical generator planned for the ATCT. **Table 3.5** shows the projected emissions for the proposed ATCT. By comparing Table 3.5 to Table 3.1 it may be determined that the emissions are within the limits of the IAD synthetic minor permit.

Table 3.5

PROJECTED 2007 IAD STATIONARY SOURCE AIR EMISSIONS

Emissions (tons/yr.)				
NO _x	SO ₂	CO	VOCs	PM ₁₀
Proposed Action				
14.84	0.54	11.72	1.57	2.73
No Action				
13.61	0.47	11.46	1.47	2.66

MOBILE SOURCES

Aircraft operations at IAD are predicted to continue to increase at an average annual rate of approximately 4 percent. This increase in aircraft operations is based on a forecast of future demand that is driven by economic and population changes and not by airport facility replacement or expansion activities. Estimated aircraft landings and takeoffs (LTOs) for the year 2007 are presented in **Table 3.6**.

Table 3.6

PROJECTED 2007 IAD AIRCRAFT LTOs

Aircraft Category	2007 LTOs
General Aviation	
Single Engine Piston	950
Twin Engine Piston	3,250
Turboprop	4,100
Business Jets	28,710
Military	4,100
Commercial Turboprop	42,482
Regional Jet	115,927
Narrow-Body Jet	95,917
Wide-Body Jet	23,921
Total	319,357

Increased aircraft activity has an associated increase in air emissions from aircraft, ground support equipment, and vehicles operating on the Airport. Therefore, air emissions for the year 2007 were estimated for this increase using the FAA EDMS model. For 2007, the estimated taxi and delay time is 35 minutes based on an ongoing runway and alternatives study for IAD.

Other mobile sources include ground support equipment and vehicles operating on airport roadways and parking lots. Emissions from these sources also were calculated using the FAA EDMS model. The estimated emissions from IAD mobile sources for 2007 are summarized in **Table 3.7**.

Although the increase in aircraft activity is forecast to be approximately 36 percent between 1999 and 2007, the data in Table 3.7 note an approximate 74, 58, and 54 percent increase in NO_x, CO, and VOC emissions from IAD mobile source emissions between 1999 and 2007. The latter increases are attributable to both an increase in aircraft operations and an approximate 50 percent increase in estimated taxi and delay times for aircraft. However, emissions associated with the increased forecasted aircraft activity and increased taxi and delay times would occur for both the Proposed Action and No Action alternatives.

GENERAL CONFORMITY

Federal-sponsored airport development must conform with the Virginia State Implementation Plan (SIP) in accordance with the criteria and procedures established in the SIP for *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*. According to the Virginia SIP, a conformity determination (with the SIP) is required for each criteria pollutant if the emissions in a non-attainment or maintenance area for the pollutant caused by a federal action would equal or exceed a specified annual emissions rate when compared to the No Action alternative.

If a pollutant's net emission from the Proposed Action is less than the specified annual emission rate, then the proposed project is termed "*de minimis*" for that pollutant and no further analysis to determine conformity with the SIP is required. If it is equal or greater than the specified emission rate, then mitigation is required unless further analysis shows that it is in conformance with the SIP.

Table 3.7

PROJECTED 2007 IAD MOBILE SOURCE EMISSIONS

Source	Emissions (tons/yr.)				
	NO _x	SO ₂	CO	VOCs	PM ₁₀
Aircraft	2,817	141	3,993	533	--
GSE/AGE	517	14	5,941	161	19
Mobile Lounges/Planemates	152	8	4	7	3
Roadways/Parking Lots	195	10	1,942	254	9
Total	3,681	173	11,880	955	31

The National Capital Interstate AQCR is designated as nonattainment for ground level ozone and is classified as “serious” in this regard (“severe” after March 25, 2003). Precursors of ozone are nitrogen oxides (NO_x) and volatile organic compounds (VOC), therefore these are the emissions quantified. The General Conformity “*de minimis*” level for the National Capital Interstate AQCR is currently 50 tons/year for VOC and NO_x emissions (25 tons/year after March 25, 2003). As noted in Table 3.5, the estimated air emission increases from the proposed ATCT stationary sources are approximately 1.23 tons/year of NO_x and less than 1 ton/year of VOCs, which are below the “*de minimis*” level. There is no difference in mobile source emissions between the 2007 Proposed Action and No Action alternatives. Therefore, a Conformity determination is not required and the Proposed Action is presumed to conform with the SIP.

3.1.3 MITIGATION MEASURES

Because neither the No Action nor the Proposed Action adversely impact air quality, no mitigation measures will be necessary for either scenario to be fully implemented.

3.2 COASTAL RESOURCES

3.2.1 AFFECTED ENVIRONMENT

COASTAL BARRIERS

The Coastal Barrier Resources Act of 1982 (CBRA), PL 97-348, was enacted to “minimize the loss of human life, wasteful expenditure of federal revenues, and damage to fish, wildlife, and other natural resources associated with coastal barriers along the Atlantic and Gulf of Mexico coasts.” Although the CBRA does not prohibit development that is privately financed, most federal financial assistance within a Coastal Barriers Resources System (CBRS) is prohibited. In addition, the Coastal Barrier Improvement Act (CBIA), passed in 1990, tripled the size of the established CBRA and prohibited the issuance of new federal flood insurance within specified areas.

IAD is not located within a CBRS and therefore the CBRA is not applicable to the project.

COASTAL ZONE MANAGEMENT

The Coastal Zone Management Act (CZMA) of 1972 was enacted by Congress to encourage states to protect, preserve, develop and, when possible, restore or enhance valuable natural coastal resources. Participation is a voluntary partnership between the federal government and the U.S. coastal states. In 1986 the Commonwealth of Virginia enacted the Virginia Coastal

Resources Management Program (VCRMP) by Executive Order as a supplement to existing State laws and policies through the Commonwealth and its coastal localities. The program was approved as part of a National Coastal Zone Management Program authorized by the CZMA. The Virginia DEQ primarily serves as the lead agency, although the laws and regulations are also administered by a network of core agencies and coastal localities in the Commonwealth. The VCRMP was established to protect and manage Virginia's "coastal zone," also referred to as "Tidewater Virginia," which includes 29 counties, 15 cities, and 43 towns of the Commonwealth. Fairfax County in its entirety is part of the VCRMP and Tidewater Virginia; Loudoun County is not considered either part of the VCRMP or Tidewater Virginia.

The Chesapeake Bay Preservation Act of 1988 was passed by the Virginia General Assembly in response to the need to improve the water quality of the Chesapeake Bay and other State waters by limiting pollution associated with development. The Chesapeake Bay Preservation Act requires local Tidewater governments (including Fairfax County) to include water quality protection measures in their zoning and subdivision ordinances and in their comprehensive plans in areas known as Chesapeake Bay Preservation Areas (CBPAs). CBPAs are divided into Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). RPAs are protected from most development because they function to improve and protect water quality. RMAs, which include all areas outside of RPAs, are regulated to protect RPAs and water resources from degradation resulting from development and land disturbing activity. The RPAs in Fairfax County include the Potomac River shoreline, major streams and wetlands adjacent to existing streams and shores, and a surrounding 100-foot buffer. There are several areas on the Airport property, primarily located in the southern portion of IAD along sections of Cub Run, Dead Run and, and Cain Branch, which been designated as RPAs by Fairfax County (See Appendix B for maps and excerpts of applicable legislation).

In July of 1993, Fairfax county adopted the "Chesapeake Bay Preservation Ordinance" which applies to all land located within the unincorporated areas of Fairfax County" (CODE County of Fairfax 2001). Proposed development activities located within Fairfax County must be in compliance with the required criteria in the Code of the County of Fairfax, the VCRMP, and ultimately the CZMA of 1972. These provisions call for minimization of disturbance, preservation of indigenous vegetation, minimization of impervious cover, and the use of stringent BMPs for stormwater.

3.2.2 ENVIRONMENTAL CONSEQUENCES

There would be no impacts from the No Action alternative.

COASTAL BARRIERS

IAD is not located within a Coastal Barriers Resources System and thus the Coastal Barrier Resources Act is not applicable to the Proposed Action.

COASTAL ZONE MANAGEMENT

Almost the entire Proposed Action is located within Loudoun County and therefore not in the coastal zone. The only portions of the Proposed Action that are within the coastal zone are the proposed communications ductbanks and the utility lines which are located in Fairfax County (see Figure 2-2). Therefore, it must be shown that the Proposed Action is consistent with the Virginia Coastal Resources Management Program. The enforceable regulatory programs comprising Virginia's Coastal Resources Management Program include: Fisheries Management, Subaqueous Lands Management, Wetlands Management, Dunes Management, Non-Point Source Pollution Control, Point Source Pollution Control, Shoreline Sanitation, Air Pollution Control, and Coastal Lands Management. The Proposed Action does not involve fisheries, subaqueous lands, dunes, or shoreline sanitation. The wetland impacts have been evaluated and a wetland mitigation plan has been approved. The Airport has a Virginia Pollutant Discharge Elimination System (VPDES) permit and therefore point source pollution control has been implemented. In order to address non-point source pollution control, the contractors will be required to provide erosion and sediment control plans that comply with the current Virginia Erosion and Sediment Control Law and General Criteria (see Section 3.5). Also, the Authority will employ stormwater BMPs and meet the performance standards in the Fairfax County Public Facilities Manual. Air pollution control was analyzed in Section 3-1 and it was shown that emissions from both the operation and construction of the Proposed Action are included in the SIP. Lastly, coastal lands management is the "Chesapeake Bay Preservation Ordinance" of Fairfax County (CODE County of Fairfax 2001). According to Section 118-5-2 of the Chesapeake Bay Preservation Ordinance, the construction, installation, operation and maintenance of electric, gas, and telephone transmission lines are exempt provided they are in accordance with the Erosion and Sediment Control Law (Code of Virginia) and with Chapter 104 of the Fairfax County Code which implements the Virginia Erosion and Sediment Control Law in Fairfax County. The project erosion and sediment control plan will incorporate the conservation standards of Chapter 104 of the Fairfax County Code. Therefore the proposed communications ductbanks and the electric lines running between the communication ductbanks located to the east of the Proposed ATCT) are exempt. Second, construction, installation and maintenance of water lines, storm or sanitary sewer lines and local gas lines are exempt subject to the following conditions:

- To the degree possible, the location of such utilities and facilities shall be outside RPAs;
- No more land shall be disturbed than necessary to provide for the desired utility installation;
- All such construction, installation, and maintenance of such facilities shall be in compliance with all federal permits and designed and conducted in a manner that protects water quality; and
- Any land disturbance exceeding an area of twenty-five hundred (2,500) square feet shall comply with Chapter 104 of the Fairfax County Code.

The proposed sanitary sewer must pass through the RPA associated with the Cub Run because it must tie into an existing sewer line on the other side of this RPA. Land disturbance will be minimized to the extent practicable. The Authority will comply with all federal permits and water quality will be protected. Lastly, as stated above, the erosion and sediment control plan will incorporate the performance standards of Chapter 104 of the Fairfax County Code.

Therefore, the Proposed Action is consistent with the Coastal Zone Management Plan of the Commonwealth of Virginia. The Chesapeake Bay Local Assistance Department concurs that the project is consistent with the Chesapeake Bay Preservation Act and the Virginia DEQ concurs that the Proposed Action is consistent with the Virginia Coastal Program (*See Virginia DEQ comment letter in Appendix F*).

3.2.3 MITIGATION MEASURES

Because the Proposed Action does not impact Coastal Barriers and is consistent with the Virginia Coastal Resources Management Program, mitigation measures are not required.

3.3 COMPATIBLE LAND USE

3.3.1 AFFECTED ENVIRONMENT

This section describes the land uses in the Region of Influence (ROI) around the Airport, which encompasses the 65 DNL noise contour and a 2-mile area from the IAD boundaries.

ZONING AND PLANNING IN LOUDOUN AND FAIRFAX COUNTIES

The properties adjacent to and surrounding IAD fall under the jurisdiction of Loudoun and Fairfax Counties (see **Figure 3-1**). Both counties have recognized the need for heightened awareness of the potential land use conflicts (especially with regard to noise impacts on residential communities), within the immediate vicinity of the Airport. *Appendix B* provides land use compatibility guidelines from FAA Order 1050.1D (1986).

Local county authorities retain the jurisdiction to determine land use around airports. Airport sponsors are encouraged to work with local authorities to ensure that proper zoning and other necessary land use controls are put into place near airports. This includes the adaptation of zoning laws, to the reasonable extent possible, to restrict the use of land adjacent to or in the immediate area of airports to activities compatible with normal airport operations, including the landing and taking off of aircraft.

Both Loudoun and Fairfax Counties have implemented specific zoning ordinances that restrict land use in areas around the Airport, in order to promote compatibility with its operation. Development in the immediate area is limited to agriculture, sparse residential, commercial, light industrial, and retail. Therefore, despite the increase in development within the Fairfax/Loudoun county area, that development has occurred largely outside of the areas influenced by the noise contours, as they existed in 1990.

The Airport is roughly bounded by U.S. Route 50 to the south, State Route (SR) 606 to the west and north, and Sully Road (Route 28) to the east. The area surrounding the Airport is zoned for a variety of uses including agriculture/low density residential, light and heavy industrial, industrial and office parks, and retail/commercial uses.

Loudoun County established an Airport Noise Overlay District as part of the Loudoun County Zoning Ordinance. This district defines an Airport Noise and Overflight Impact Area (ANOIA) that imposes development restrictions within specified areas (Loudoun County 2001). These restrictions include public notification of airport impact on residential communities up to 1 mile

beyond the 60 DNL contour shown in the Federal Aviation Regulations (FAR) Part 150 Noise Compatibility Program report for 740,000 annual operations (KPMG Peat Marwick 1993b, this FAR Part 150 Noise Compatibility Plan was never approved nor rejected by the FAA), acoustical treatment, disclosure statement and dedication of an aviation easement for new residential properties located within the 60-65 DNL range, and the prohibition of new residential and other noise sensitive land uses in areas greater than 65 DNL (Loudoun County 2000).

Fairfax County has also established an Airport Noise Impact Overlay District, largely dictated by the location of the 65 DNL noise contour at IAD. The County's Comprehensive Plan recommends against new residential development inside the County's adopted 60 DNL noise contour. In addition, Fairfax County's Comprehensive Plan recognizes the need to ensure that buildings constructed near the airport be limited in height so as not to obstruct operations at the airport.

Both Loudoun and Fairfax Counties anticipate the future expansion of IAD and continue to discourage future development within areas that may potentially be removed from the 65 DNL if noise contours shrink. Changes in the extent of the noise contours will be considered by the Boards of Supervisors in each county so that appropriate modifications can be made, if necessary, to the applicable planning and zoning documents to reflect the most current definition of the IAD Noise Impact Area to which land use compatibility policies will be applied.

EXISTING LAND USE

The IAD property is owned by the Federal Government and leased to and managed by the Authority.

The area immediately north of the Airport is primarily utilized by commercial properties and industrial parks, office buildings, and warehouses. South of and adjacent to the airport property along the Route 50 corridor is the Chantilly Crushed Stone Company, a mining operation that extracts traprock. Agricultural areas are located west of the Airport and include a large sod farm and a few single-family residences. High-density residential communities and retail centers primarily located east and southeast of the Airport include the towns of Reston, Herndon, Chantilly, and Centreville (Figure 3-1). Development is also increasing to the south and west consistent with the noise exposure contours as discussed above.

3.3.2 ENVIRONMENTAL CONSEQUENCES

There would be no impacts from the No Action alternative.

Zoning ordinances for Loudoun and Fairfax counties implement restricted land uses surrounding the Airport to maintain land use practices compatible with the noise contours associated with airport operations. The Proposed Action is not anticipated to increase the noise contour envelope and, therefore, the Proposed Action will not adversely impact land uses surrounding IAD.

The Proposed Action does not involve the acquisition of any property outside the airport boundary.

3.3.3 MITIGATION MEASURES

Mitigation measures are not required because the Proposed Action will not adversely impact land uses surrounding the Airport.

3.4 COMMUNITY INVOLVEMENT

3.4.1 AFFECTED ENVIRONMENT

Currently the Metropolitan Washington Airports Authority has a public web site, which discusses the planned development at IAD. The proposed new ATCT is described on this web site. A copy of the information concerning the new ATCT can be found in *Appendix B*.

3.4.2 ENVIRONMENTAL CONSEQUENCES

The public will be afforded an opportunity to review and comment on the draft Environmental Assessment. Their comments and concerns will be addressed and included in the Final Environmental Assessment. A public hearing is not planned. According to FAA Order 5050.4A, an opportunity for a public hearing is required only in the case of a new airport location, a new runway, or a major runway extension is involved. A public hearing is also appropriate when there is substantial environmental controversy; substantial interest in holding a hearing or a hearing is requested by another agency with jurisdiction over the Proposed Action.

3.4.3 MITIGATION MEASURES

The community will be afforded the opportunity to review and comment on the draft Environmental Assessment. All comments will be addressed.

3.5 CONSTRUCTION IMPACTS

3.5.1 AFFECTED ENVIRONMENT

The construction phase of the Proposed Action is expected to create minor and temporary impacts at the project construction sites and in the surrounding area. These impacts will be short-term in nature, lasting for the duration of construction activities. Site restoration measures will be undertaken.

Impacts related to construction activities include those in seven general categories: contractor staging areas, noise, air quality, solid waste, roadway use, water quality, and excess soil stockpiling.

Environmental Consequences

Contractor Staging Areas: Temporary contractor staging areas will be required throughout the construction process to store and assemble construction equipment and materials. Two types of staging areas are anticipated:

- 1) Close-in staging
- 2) Long-term supply staging (larger supplies)

The close-in contractor staging areas have the potential to temporarily impact pervious surfaces or cause adjustments to airport operations that occur in the near vicinity. The main long-term staging area is an existing facility south of Hoxie Road (see **Figure 3-2**). When the long-term staging areas are no longer needed to support construction activities, the temporary areas will be re-seeded and returned to pre-construction conditions. Stormwater runoff from the staging areas will flow to the temporary stormwater detention facilities.

Noise: Noise impacts are generally localized at the vicinity of the construction and demolition sites. Earthmoving equipment, asphalt pavers, drilling and other construction machinery and vehicles will create localized increases in noise levels. These temporary noise impacts should not disrupt normal airport operations.

Noise levels generally dissipate as distance from their origin increases. Distance from the construction site must be considered when evaluating potential noise impacts to land uses adjacent to or near the construction areas. The proposed construction activities will take place inside the IAD boundary. Due to the presence of a buffer zone on the airport perimeter and the absence of noise-sensitive land uses immediately adjacent to the Airport, construction-generated noise from the ATCT construction is not anticipated to adversely impact surrounding land uses (i.e., light industrial, commercial, retail, residential and agriculture).

Air Quality: Emissions from construction equipment and airborne dust have the potential to impact air quality. **Table 3.8** summarizes the air quality emissions expected to be generated by construction equipment. Emissions related to construction activities will be temporary and limited to the duration of the construction project. Dust control is important for airport construction activities, because light reflecting off of dust particles at night jeopardizes aircraft safety. Fugitive dust emissions from surface construction will be kept at a minimum by using applicable control methods outlined in 9 VAC-5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. Also, any cut-back asphalt usage must be in accordance with 9 VAC 5-40-5490.

Federal-sponsored airport development must conform with the Virginia State Implementation Plan (SIP) in accordance with the criteria and procedures established in the SIP for *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*. Please refer to the “Air Quality” section for a discussion of conformity.

As noted in Table 3.8, the estimated air emission increases from the proposed ATCT construction are approximately 14.36 tons/yr. of NO_x and 1.48 ton/yr. of VOCs, which are below the “*de minimis*” level. Therefore, a Conformity determination is not required and the Proposed Action is presumed to conform to the SIP.

Solid Waste: Construction activities will generate solid waste. Dumpsters will be located in construction areas for proper onsite disposal of construction-generated waste. A contracted solid waste disposal company will haul the materials offsite for either landfilling or for another appropriate disposal method.

Roadway Use: During the construction period, construction-related vehicles will be traversing the Airport’s access roads and internal roadways to deliver materials and equipment and to transport construction workers to their job sites. This increase in roadway use will be managed to avoid impact to normal airport operations. The access roads and internal roadways may

experience a slight increase in traffic volume; the increase should be easily accommodated on existing roadways. To mitigate the potential for increase in traffic volume, delivery of construction materials and large or bulky construction equipment that is slow-moving and could temporarily congest roadway traffic will be scheduled for non-peak hours. This congestion is likely to be intermittent and infrequent. Construction-related vehicles working near the Airport Operations Area (AOA) will be required to follow specified traffic patterns in areas where aircraft operate.

Table 3.8

ESTIMATED CONSTRUCTION ACTIVITY AIR QUALITY EMISSIONS

Construction Equipment	Usage (hrs)	Emissions (lb.)				
		CO	NOx	VOC	PM	SOx
Asphalt Pavers		0.00	0.00	0.00	0.00	0.00
Plate Compactors		0.00	0.00	0.00	0.00	0.00
Concrete Pavers	160	142.50	312.45	35.02	28.06	29.00
Rollers		0.00	0.00	0.00	0.00	0.00
Scrapers		0.00	0.00	0.00	0.00	0.00
Paving Equipment		0.00	0.00	0.00	0.00	0.00
Signal Boards		0.00	0.00	0.00	0.00	0.00
Trenchers	960	870.49	954.30	149.81	137.15	88.57
Bore/Drill Rigs	720	2,289.09	2,739.44	359.04	358.29	231.40
Excavators	220	263.08	543.87	36.07	72.85	47.05
Concrete/Indust. Saw	80	66.33	79.38	10.40	10.38	6.71
Cement Mixers	40	2.50	5.98	0.56	0.49	0.51
Cranes	1920	1,483.05	3,637.00	456.57	508.47	328.39
Graders	120	105.48	266.47	43.66	27.76	24.15
Off-Highway Trucks		0.00	0.00	0.00	0.00	0.00
Crushing/Proc. Equipment		0.00	0.00	0.00	0.00	0.00
Rough Terrain Lifts		0.00	0.00	0.00	0.00	0.00
Rubber Tired Loaders	160	144.46	309.99	25.97	38.82	25.88
Rubber Tired Dozer		0.00	0.00	0.00	0.00	0.00
Tractor/Loader/Backhoe	960	609.49	905.27	128.44	94.11	76.19
Crawler Tractors	40	38.54	82.71	10.38	8.91	6.83
Skid Steer Loader		0.00	0.00	0.00	0.00	0.00
Off-Highway Tractor		0.00	0.00	0.00	0.00	0.00
Dumpers/Tenders		0.00	0.00	0.00	0.00	0.00
Forklifts		0.00	0.00	0.00	0.00	0.00
Dump Truck	3200	5,504.00	18,876.48	1,696.00	1,568.00	1,751.04
Other Construction Equipment		0.00	0.00	0.00	0.00	0.00
TOTALS	(lbs.):	11,519.01	28,713.33	2,951.93	2,853.31	2,615.70
	(tons):	5.76	14.36	1.48	1.43	1.31

Water Quality: Construction activities have the potential to cause erosion and sedimentation that can impact water quality. Erosion control measures (e.g., silt fences and stormwater detention ponds) as required in the Authority Design Manual (January 2002) will be implemented to minimize offsite transport of soils from construction areas. Contractors will be required to provide an erosion and sediment control plan that complies with the latest version of the Virginia Erosion and Sediment Control Law and General Criteria, including the *Virginia Erosion and Sediment Control Handbook*. Ground water and stormwater from construction areas will flow to two temporary stormwater detention ponds. Water will flow through a grit box

prior to entering the ponds. Because the Proposed Action disturbs more than 10,000 square feet of land, a Stormwater Pollution Prevention Plan (SWPPP) is required prior to implementation (MWA 2000b). The SWPPP will be included in the existing NPDES permit for the Airport.

Excess Soil Stockpiling: Temporary storage areas for excess soil from foundations, and other facility construction will be necessary for soils removed during construction. It is anticipated that approximately 4,600 cubic yards of soil will require stockpiling over the life of the project. Some of this material will be used for fill in subsequent projects at portions of the Airport. It is anticipated that the storage area for the Tier 2 development will be used for this stockpiling effort.

Prior to stockpiling, excess soil will undergo geotechnical testing to determine future use. Screening for potential contamination will also be performed. Unsuitable or contaminated materials will be removed and disposed of properly at an offsite location. The proposed stockpile for the Tier 2 development is located in the southern portion of the Airport, set back approximately 50 feet from the property line (see **Figure 3-3**). As currently planned, the site will be approximately 90 acres in size, with an approximate capacity of 3.8 million cubic yards (mcy). The site will be filled to a 38-foot elevation and will have a 2:1 slope. For every 10 acres of stockpile, there will be 1 acre of stormwater pond to control potential erosion and runoff impacts. Trees will be removed to prepare and create the stockpile area. Because at least a 50-foot buffer will be retained south of the stockpile area, it is not anticipated that the stockpile will be visible from outside the Airport's property boundary. A Phase I Archaeological Survey has been performed on the site. Erosion from the stockpiles will be minimized by seeding to stabilize the exposed surfaces. The stockpile area will be revegetated after completion of the capital improvement program.

3.5.2 MITIGATION MEASURES

There will be no adverse impacts due to the construction phase of the Proposed Action. Therefore, mitigation measures will not be required.

3.6 CUMULATIVE IMPACTS

3.6.1 AFFECTED ENVIRONMENT

The Council on Environmental Quality (CEQ) Regulations requires the assessment of cumulative impacts in NEPA documents. CEQ regulations define cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. The affected environment for cumulative impacts is as stated under each of the impact categories.

3.6.2 ENVIRONMENTAL CONSEQUENCES

Overall, the Proposed Action comprises a small portion of the current and planned development activity in the Dulles region. Although the region could experience cumulative effects to air quality, water quality (stormwater runoff and increased impervious surface area), and habitat loss due to multiple ongoing roadway and development projects, the Proposed Action accounts for a small fraction of these effects.

It is not expected that the Proposed Action discussed in this environmental assessment will produce significant environmental impacts. Nor is it expected that the effects of the Proposed Action, when added to the effects of other proposed projects in the region, will cause otherwise insignificant impacts to exceed thresholds of significance.

The proposed ATCT and related projects are designed to replace and improve existing services at IAD. Impacts that are associated with this project are limited to the area of the airport property and will be effectively mitigated. The analyses of potential for environmental effects identified air quality (including air quality during construction), stormwater, wetlands, Rare, Threatened and Endangered (RTE) species, and historic and cultural resources as resources for which impact management or mitigation may be implemented for the Proposed Action. The potential for combined effects with other projects to result in a greater impact than any of the proposals when examined alone is evaluated below.

Proposed projects that could represent potential for cumulative impacts are divided into three categories:

- Planned Development at IAD
- Planned Land Use Development in the Region
- Planned Ground Transportation Projects

PLANNED DEVELOPMENT AT IAD

Improvement projects that are currently underway or planned for implementation concurrent with the ATCT project include: Tier 2 Concourse, Automated People Mover (APM) system, South Utilities, Support Facilities (see the Tier 2 and Related Projects EA), Concourse B extension, roadway and parking improvements (including two new public parking garages), a new air cargo building, and an upgrade of the existing heating and cooling utility plant. These improvement projects and the Proposed Action have independent utility in that they primarily are replacements for existing outmoded facilities or provide improvements to the quality of service. They do not individually or collectively increase capacity beyond what can be handled by the existing system of three runways.

Future planned development at IAD includes implementation of Tier 3 and Tier 4 midfield concourses and fourth and fifth runways that will allow for major airport capacity expansion (see **Figure 3-4**). The potential future development at IAD will be addressed in separate NEPA documentation. The ATCT and related projects have been designed in the context of possible future airport expansion so that conflicts and/or cumulative impacts will not occur.

AIR QUALITY

The combined impact of the Proposed Action and the Tier 2 and Related Projects must be assessed in regard to air emissions from stationary sources. The cumulative mobile sources do not have to be evaluated because neither the ATCT nor the Tier 2 project causes more emissions than the No Action alternative.

PROPOSED ACTION

Primary new air emission stationary sources that are part of the ATCT and related projects are boilers and a back-up generator. These units have been sized to serve the new ATCT and new associated facilities. Each planned boiler unit is rated at 545 MBH heat output and will use natural gas. The boilers will not operate at the same time. There is also a backup electrical generator planned for the ATCT.

TIER 2 AND RELATED PROJECTS

Primary new air emission stationary sources that are part of the Tier 2 and Related Projects are three new high temperature hot water (HTHW) generators that are planned for the new South Utility Building (this project is temporarily on hold, as noted previously). These units have been sized to serve the new Tier 2 Concourse and new associated facilities, such as the APM maintenance facility. Each planned HTHW unit is rated at 70,000 MBH heat output and will use natural gas with diesel fuel backup. There are no backup electrical generators planned for the South Utility Building.

The new HTHW generators in the proposed South Utility Building will provide heat to several other facilities, in addition to Tier 2. The heating loads of these buildings have been estimated as part of a larger engineering study of the South Utility Building (Burns and McDonnell 2001). Based on natural gas consumption by several existing IAD buildings, it was estimated that approximately 50 million cubic feet of natural gas per year would be required to meet the additional heating load associated with the Tier 2 and Related Projects.

The cumulative stationary source air emissions for the proposed ATCT and the Tier 2 and Related Projects are shown in **Table 3.9**. The stationary source air emissions for the Tier 2 and Related Projects are from the Draft EA for Tier 2 and Related Projects (EA Engineering 2002).

By comparing Table 3.9 to Table 3.1, it may be determined that the emissions are within the limits of the IAD synthetic minor permit.

AIR QUALITY – CONSTRUCTION

Cumulative construction emissions must be evaluated for the Proposed Action and the Tier 2 development.

Federal-sponsored airport development must conform with the Virginia State Implementation Plan (SIP) in accordance with the criteria and procedures established in the SIP for *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*. Please refer to the Air Quality section for a discussion of conformity.

Table 3.9

CUMULATIVE PROJECTED 2007 IAD STATIONARY SOURCE AIR EMISSIONS

Emissions (tons/yr.)				
NO_x	SO₂	CO	VOCs	PM₁₀
ATCT				
1.23	0.07	0.26	0.10	0.08
Tier 2 and Related Projects				
16.18	0.49	13.62	1.61	2.86
Total				
17.41	0.56	13.88	1.71	2.94
No Action				
13.61	0.47	11.46	1.47	2.66

The National Capital Interstate AQCR is designated as nonattainment for ground level ozone and is currently classified as “serious” in this regard (“severe” after March 25, 2003). Precursors of ozone are nitrogen oxides (NO_x) and volatile organic compounds (VOC). Therefore, these are the emissions that are quantified. The General Conformity “de minimis” level for the National Capital Interstate AQCR is 50 tons/year for VOC and NO_x emissions (25 tons/year after March 25, 2003). As noted in the Washington Dulles International Airport, Draft Environmental Assessment Tier 2 and Related Projects, the VOC emissions total 56 tons and the NO_x emissions total 586 tons for the demolition and construction of the Tier 2 development. Based on a time frame of 6 years, VOC emissions are 9 tons/year, and NO_x emissions are 98 tons/year. The construction emissions for the Proposed Action may be found in Table 3-8. Based on a construction period of 17 months the VOC emissions are 1 ton/year and NO_x emissions are 10 tons/year. Therefore, the total construction emissions are 10 tons/year VOC and 108 tons/year NO_x. The amount of NO_x exceeds the *de minimis* threshold. Therefore, it must be determined that these emissions are included in the SIP developed by Virginia DEQ and the Metropolitan Washington Council of Governments (COG) for Northern Virginia. The Authority has confirmed that the SIP does include a NO_x construction emission budget for the Airport of 0.746 ton per ozone season day, which is equivalent to 272 tons/year (see *Appendix C*).

STORMWATER

The Authority has undertaken a planning study to develop a long-term stormwater management strategy that reflects ultimate site build-out. Therefore, adverse cumulative impacts resulting from increased impervious surface and stormwater runoff from future onsite projects are not anticipated.

The Authority also is completing an evaluation of alternative concepts for the management of spent deicing fluid. The objective is to maximize the recovery of spent glycol and minimize discharges to the stormwater system.

WETLANDS

A joint permit application (JPA) for the wetland impacts of the Tier 2 and Related Projects was approved. Approximately 26 acres of emergent, scrub-shrub, and forested wetlands in the mid-field area may be altered by implementation of Tier 2 and Related Projects and are included in the permit application (see **Figure 3-5**). A 0.252 acre wetland will be impacted by the buildings of the Proposed Action. This wetland was included in the JPA. The proposed communication ductbanks, sanitary sewer, gas lines, water lines and electricity lines will impact wetlands. Approximately 600 linear feet of utilities installed to the east of the proposed ATCT will impact wetlands included in the aforementioned permit for the Tier 2 and Related Projects. The communication ductbanks and sanitary sewer running to the west and south will impact intact and unpermitted wetlands. Wetlands impacted by the communications ductbanks and sanitary sewer (1,100 linear feet) will be covered by Nationwide Permit 12, Utility Line Activities.

RARE, THREATENED, AND ENDANGERED SPECIES

The Authority has undertaken Rare Threatened and Endangered Species (RTE) surveys to identify species of concern in the vicinity of the Proposed Action. None were observed at the ATCT site, but a Virginia-listed rare plant, the hairy beardtongue, was found 1,200 ft east-southeast of the ATCT site. The observed RTE species has habitat requirements that are found either outside of the ATCT project area or are found throughout the airport property. Supplemental RTE surveys will be conducted to investigate the project areas for future planned development at IAD, and consultation with federal and state resource agencies will continue. Therefore, it is not anticipated that significant adverse cumulative impacts to RTE will occur on the airport property as the result of the Proposed Action and subsequent airport projects.

HISTORIC AND CULTURAL RESOURCES

The Tier 2 and Related Projects were analyzed in the Tier 2 EA and received a determination of “No Adverse Effect”. The other current/planned projects (Concourse B extension, roadway and parking improvements, a new air cargo building, and an upgrade of the existing heating and cooling utility plan) are covered by a previous MOA or outside the historic district. Due to their locations in relation to the Proposed Action, the original terminal and the Dulles Access Highway, none of these projects would appear in the viewshed analysis completed for the proposed action. Therefore, it is not anticipated that significant adverse cumulative impacts to historic and cultural resources will occur.

Also, the Authority has an ongoing resource management program that involves coordination with the State Historic Preservation Officer (SHPO) and is developing memoranda of agreement to address historic and cultural resource management throughout the airport property. There are a Programmatic Memorandum of Agreement (PMOA) and a Memorandum of Understanding (MOU) in place. The PMOA states that the Authority has agreed to comply with the National Historic Preservation Act in regards to consultation with the SHPO and Advisory Council on Historic Preservation (ACHP). The MOU, executed between the Authority and the National Capital Planning commission (NCPC), addresses the visual experience of approaching the Airport on the Dulles Airport Access Highway. This comprehensive program will work to prevent adverse cumulative impacts to onsite historic and cultural resources.

PLANNED DEVELOPMENT IN THE IAD REGION

The IAD region is rapidly growing with business parks and industrial centers. Most of this development is subject to the approval of either Fairfax County or Loudoun County and must comply with local environmental requirements.

REGIONAL GROUND TRANSPORTATION PROJECTS

Multiple roadway and transportation improvement projects are currently underway or in the planning process in the vicinity surrounding IAD. Virginia Department of Transportation (DOT) projects include the following:

- I-66 Corridor Study
- Dulles Toll Road “Smart Travel” Improvements
- Route 28 Improvements (Between I-66 and Route 7)
- Route 50 Traffic Calming Measures
- Park-and-Ride Lot Feasibility Studies (I-95, I-395, I-66, and Dulles Toll Road)

In addition to projects designed to ease vehicular traffic, the Virginia Department of Rail and Public Transportation, in cooperation with the Federal Transit Administration and Washington Metropolitan Area Transit Authority, is working to improve the rapid transit systems in the Dulles Corridor. Preparation of an Environmental Impact Statement (EIS) for the Dulles Corridor Rapid Transit Project is currently underway.

Fairfax County-specific projects include:

- Improvements to Dulles Toll Road Interchange at Hunter Mill Road
- Pedestrian and bicycle trail construction at Sully Road (Route 28), Route 50, and Adkins Road

All transportation projects that involve federal funding are subject to evaluation under NEPA. The projects identified above are in various phases of the process, but each has or will address the potential for cumulative impacts with IAD. Since IAD projects are designed to improve service to air traffic levels that are expected regardless of the project, and since transportation improvements are, likewise, intended to reduce adverse offsite environmental impacts associated with those levels of use, no adverse cumulative impacts due to the Proposed Action being implemented are expected.

3.6.3 MITIGATION MEASURES

Since no significant cumulative impacts are expected from either the Proposed Action or the No Action alternatives, mitigation measures are not required.

3.7 DEPARTMENT OF TRANSPORTATION ACT SECTION 303(c) (FORMERLY SECTION 4(f))

3.7.1 AFFECTED ENVIRONMENT

Section 303(c) (formerly Section 4(f)) of the DOT Act states that the DOT Secretary shall not approve programs or projects that require the use of certain publicly owned land or historic sites, unless there is no feasible and prudent alternative to the use of the land, and the program or project includes all possible planning to minimize harm resulting from its use. Publicly owned lands that qualify as Section 303(c) lands include public parks, recreation areas, wildlife and waterfowl refuges. Historic sites of national, state, or local significance are also considered Section 303(c) lands.

PUBLIC PARKS AND RECREATION AREAS

There are many public parks and recreation areas located in the vicinity of IAD. There are no wildlife or waterfowl refuges in the vicinity of IAD. This Environmental Assessment limits the description of these parks to those included in the ROI. Sources used to compile information on the public parks and recreation areas included the Northern Virginia Planning District Commission and ADC maps of Northern Virginia and Loudoun County. No federal, state, or regional parks are located in the ROI. The Local and Stream Valley Parks within the ROI for this project are depicted on **Figure 3-6** and listed in **Table 3.10**.

Sully Historic Park is the only park within the IAD property boundary. Sully Historic Park is located in the southern panhandle of airport property east of Sully Road (see Figure 3-6). Sully Historic Park is a public park that was entrusted to the care of the Fairfax County Park Authority. Sully Historic Park is considered 303(c) land, but the Proposed Action will neither directly nor indirectly affect this Park.

Stream Valley Parks include designated Environmental Quality Corridors (EQC). Some or all of a stream valley component may constitute a “genetic corridor” which should be managed primarily to protect and enhance biological diversity and wildlife movement (Fairfax County 1991). Stream Valley Parks also provide a buffer for designated Sensitive Area Corridors and to afford expanded passive recreation opportunities within the EQC or adjacent to it (Fairfax County 1991).

A Stream Valley Park of significance that is located within the ROI of IAD is the Cub Run Stream Valley. The headwaters of Cub Run and Cain Branch are located in the southern portion of IAD. Cub Run Stream Valley contains some of the most extensive and sensitive natural and cultural resources to be found in Fairfax County and is a major wildlife and recreational corridor to the Occoquan River shoreline (Fairfax County 1991). Significant archaeological resources are also known to exist within the Cain Branch tributary (Fairfax County 1991).

Table 3.10

LOCAL AND STREAM VALLEY PARKS WITHIN THE IAD ROI

Local Parks and Recreation Areas	
Arcola Community Center Arcola Slave Quarters Sterling Wayside Chantilly Fox Valley Franklin Glen Franklin Farms Frying Pan Chandon Alabama Drive Cuttermill Herndon Centennial Golf Course Bill Allen Field	Sterling Community Center Sterling Middle School Guilford School Sterling Annex Community Center Bready Floris Community School Site Richard W. Jones Sully Historic Bruin Trailside International Golf Course Pleasant Valley Golf Course Washington and Old Dominion Regional Trail
Stream Valley Parks	
Flatlick Frog Branch Horsepen Run	Frying Pan Cub Run Cain Branch

Historic District

The historic district at IAD is considered Section 303(c) lands. Resources that form a historical or architectural unit are generally evaluated as a district [Parsons Management Consultants (PMC) 1989]. Once individual resources have been identified, boundaries of a proposed historic district may be established. The boundaries for the eligible IAD historic district fall within those established by the 1958 Saarinen Master Plan for the Airport (see **Figure 3-7**). The proposed boundaries of the historic district are in accordance with the guidelines provided by the National Register of Historic Places, which states that historic district boundaries should include the significant concentration of buildings, sites, structures, or objects making up the district. Within the historic district at IAD, 13 structures, the mobile lounges, the runways, the terminal area landscaping, and the Dulles Airport Access Highway meet National Register criteria. The proposed ATCT itself will be located outside of the historic district boundary.

3.7.2 ENVIRONMENTAL CONSEQUENCES

PUBLIC PARKS AND RECREATION AREAS

There would be no impacts from the No Action alternative.

The Proposed Action is not expected to impact public parks and recreation areas. The projects will occur within the airport boundaries, and will conform to the provisions of the Airport Master Plan. In addition, the perimeter buffer zone at IAD will minimize noise or construction-related impacts to parks and recreation areas within the ROI.

HISTORIC DISTRICT

There would be no impacts from the No Action alternative.

The Proposed Action and related projects will not significantly impact the historic district at IAD. The Authority has agreed with the Virginia SHPO and the Advisory Council on Historic Preservation (ACHP) to comply with Section 106 of the National Historic Preservation Act as documented in the 1987 Programmatic Memorandum of Agreement (PMOA) (MWWA 1987). Consultation with the SHPO on the Proposed Action has been initiated by the Authority and the formal review process is currently ongoing. The Authority will implement planning and alternatives analysis to comply with Section 303(c). The Proposed Action includes planning to minimize harm resulting from use as well as ensuring the project will be compatible with the normal activity or aesthetic value of the historic district. See Section 3.14 for analysis of the historic viewscape.

3.7.3 MITIGATION MEASURES

Because neither the No Action nor the Proposed Action adversely impact public parks, recreation areas or historic districts, no mitigation measures will be necessary for either scenario to be fully implemented.

3.8 ELECTRONIC EMISSIONS

3.8.1 AFFECTED ENVIRONMENT

The installation of electronic systems could cause annoyance to individuals in the vicinity. The Proposed Action will include the installation of electronic systems and the affected environment for electronic emissions is the Airport and the nearby area.

3.8.2 ENVIRONMENTAL CONSEQUENCES

There would be no impacts from the No Action alternative.

The electronic equipment and systems to be installed in the replacement ATCT will be similar to those in the existing tower. Since there are no known problems of annoyance (i.e., radio interference, television interference and health hazards) due to the existing tower, it may be assumed that there will be no significant impact from electronic emissions due to the Proposed Action.

3.8.3 MITIGATION MEASURES

Mitigation measures are not required because the anticipated electronic emissions do not result in a significant impact on the affected environment

3.9 FARMLANDS

3.9.1 AFFECTED ENVIRONMENT

Under the Farmland Protection Policy Act or the FPPA (Public Law 97-98), the U. S. Department of Agriculture has developed criteria to identify the effects of Federal programs on

the conversion of farmland to nonagricultural uses. In general, prime farmland has the necessary and essential combination of soil quality, growing season, and moisture supply needed to produce economically, sustained high yields of crops when treated and managed according to acceptable farming methods. In addition, USDA classifies unique farmlands as any land other than prime farmland that is used for the “production of specific high-value food and fiber crops”.

As part of the EA prepared by EA Engineering, Science and Technology, Inc. for the overall Tier 2 improvement program at Dulles International Airport (IAD), consultation with the USDA Natural Resources Conservation Service (NRCS) office in the County of Fairfax was initiated. The NRCS office indicated that 32 prime farmland soil types exist in Fairfax County, seven of which are located on IAD property (see **Table 3.11**). This is based upon a review of the 1963 Soil Survey of Fairfax County, Virginia. The USDA Natural Resources Conservation Service Loudoun County soil survey does not include the land on the Airport.

Table 3.11

PRIME FARMLAND SOIL TYPES THAT EXIST ON IAD PROPERTY IN THE COUNTY OF FAIRFAX

Soil Symbol	Soil Name and Description	Percent of Soil Type in Fairfax County (%)
Bh	Brecknock silt loam, undulating phase	0.5
Bn	Buck silt loam, eroded undulating phase	0.5
Bo	Bucks loam, undulating phase	0.4
Ck	Croton silt loam*	0.6
Lb	Lindside silt loam	0.1
Ma	Manassas silt loam	0.5
Rg	Rowland silt loam	1.0

*only drained areas are considered prime farmland soils

3.9.2 ENVIRONMENTAL CONSEQUENCES

There would be no impacts from the No Action alternative.

The Proposed Action will not involve conversion of farmland to non-agricultural use and the land was purchased prior to August 6, 1984. The Farmland Protection Policy Act, therefore, is not applicable. No formal consultation is required.

3.9.3 MITIGATION MEASURES

Because the Farmland Protection Policy Act is not applicable, no mitigation measures will be necessary.

3.10 FISH, WILDLIFE AND PLANTS

3.10.1 AFFECTED ENVIRONMENT

Animal species expected to be observed in the area are typical of those associated with the noted vegetation cover types. Birds that would be expected to occur at IAD include migratory species, such as warblers and waterfowl. Common bird species such as robins (*Turdus migratorius*), cardinals (*Cardinalis cardinalis*), and starlings (*Sturnus vulgaris*) may be observed through all seasons. Mammals that occur at IAD include cottontail rabbits (*Sylvilagus floridanus*), squirrels (*Sciurus carolinensis*), woodchucks (*Marmota monax*), white-tailed deer (*Odocoileus*

virginianus), fox (*Vulpes fulva*), American black bear (*Ursus americanus*), and coyote (*Canis latrans*). Common reptiles and amphibians within the area would include garter snakes (*Thamnophis sirtalis*), American toads (*Bufo americana*), and box turtles (*Terrapene carolina*).

Several plant communities exist on the IAD property. These communities include upland hardwood (oak-hickory complex), maintained grassland, old field (red cedars, poison ivy, multiflora rose, and herbaceous species), and floodplain forest. The floodplain forest occurs along well-defined wetland areas and is dominated by oak (*Quercus* sp.), ash (*Fraxinus americana*), and sycamore (*Platanus occidentalis*), and ironwood (*Ostrya virginiana*) tree species. No unique habitats exist on the property other than wetland areas (refer to Section 3.20 for further details).

ENDANGERED AND THREATENED SPECIES

Section 7 of the Endangered Species Act requires that information be collected from the regional director of the U.S. Fish and Wildlife Service (USFWS) on whether any species which is listed or proposed to be listed may be present in the area affected by the proposed action. As part of the EA conducted for the Tier 2 development program for the Airport, consultation with Federal and State resource agencies was completed. These resource agencies included:

- U.S. EPA Region III, Environmental Services Division
- U.S. Department of the Interior, Fish and Wildlife Service
- Commonwealth of Virginia, Department of Conservation and Recreation, Division of Natural Heritage
- Commonwealth of Virginia, Department of Game and Inland Fisheries
- Commonwealth of Virginia, Department of Agriculture and Consumer Services
- Virginia Department of Environmental Quality

Agency correspondence letters received are included in *Appendix D*. Tables in this same appendix present lists of threatened and endangered species known or suspected to occur in Fairfax and Loudoun counties, respectively. A key to the abbreviations used on Natural Heritage Resource Lists follows these two tables.

The Virginia Department of Conservation and Recreation (DCR) responded to a request for endangered and threatened species information, and stated that two state rare plant species, hairy beardtongue (*Penstemon hirsutus*) and white heath aster (*Aster ericoides*), have been documented within IAD. The Virginia Department of Game and Inland Fisheries responded to a request for endangered and threatened species information and stated that the state threatened wood turtle (*Clemmys insculpta*) has been documented within the project area. Further consultation with the Virginia Department of Game and Inland Fisheries revealed that the location of the wood turtle is outside of the northeast property boundary of IAD. Additionally, the USFWS has stated that the federally listed threatened plant, the small whorled pogonia (*Isotria medeoloides*), may be present within IAD if suitable hardwood forest habitat is present.

The Virginia threatened upland sandpiper and the state special concern northern harrier have been observed at IAD by USDA personnel. The USDA observations are of casual use.

3.10.2 ENVIRONMENTAL CONSEQUENCES

Rare, threatened, and endangered (RTE) species field surveys were conducted in June/July 2001. Details of these field surveys are located in *“The Washington Dulles International Airport Environmental Assessment Tier 2 and Related Projects”* (also see **Figure 3-8**). Neither the USDA nor the investigators for the Tier 2 and Related Projects observed any sign of nesting activities at IAD for the upland sandpiper. Hairy beardtongue was observed during field surveys of the mid-field area at IAD. The second species presented by DCR, white heath aster, was not observed during the field surveys. Also the Federally listed, threatened plant, the small whorled pogonia was not found during the surveys.

Additional airport surveys were conducted in 2002. The red-breasted nuthatch, golden crowned kinglet, hermit thrush, and winter wren, all species of state special concern, were observed. Neither the USDA nor the investigators observed any sign of nesting activity by these species at the Airport. A federally and state listed threatened bald eagle was observed flying over the airport but has not been found using the habitat at IAD.

Threatened and endangered species are not significantly impacted by implementation of either the Proposed Action or No Action alternatives. Comparable habitat for the upland sandpiper is found throughout the airport parcel. One state-listed rare species, the hairy beardtongue was found near the proposed ductbank and sanitary sewer alignments. Although these individual specimens would be impacted by the Proposed Action, the impact is not considered a significant one.

3.10.3 MITIGATION MEASURES

Because neither the No Action nor the Proposed Action significantly impact the species of plants or animals as listed by state and federal agencies as threatened or endangered, no mitigation measures are required.

3.11 FLOODPLAINS AND FLOODWAYS

3.11.1 AFFECTED ENVIRONMENT

Floodplain Management, Executive Order 11988 issued May 24, 1977, directs all Federal agencies to avoid both long- and short-term adverse effects associated with occupancy, modification, and development in the 100-year floodplain, when possible. Floodplains are defined in this order as “the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent greater chance of flooding in any given year.” Flooding in the 100-year zone is expected to occur once every 100 years, on average.

The airport property contains four predominant streams. Stallion Branch is located in the northern portion of the property, Horsepen Run is located in the northern and northeastern portion of the property, Frying Pan Run is located on the eastern side of the Airport, and Dead Run is located in the southern portion of IAD. The 100-year floodplain as mapped by the Federal Emergency Management Agency (FEMA) is shown in **Figure 3-9**.

3.11.2 ENVIRONMENTAL CONSEQUENCES

The Proposed Action is not within the limits of any officially identified 100-year floodplain. Thus, no notable adverse impacts are anticipated on the area's natural and beneficial floodplain values for either the Proposed Action or the No Action alternative since encroachment of a floodplain is not documented to be part of either action.

3.11.3 MITIGATION MEASURES

Because neither the No Action nor the Proposed Action adversely impact floodplains found on IAD property and as identified by FEMA as needing protection, no mitigation measures will be necessary for either scenario to be fully implemented.

3.12 HAZARDOUS MATERIALS AND SOLID WASTE

3.12.1 AFFECTED ENVIRONMENT

Four primary laws have been passed governing the handling and disposal of hazardous materials, chemicals, substances, and wastes. The two statutes most applicable to airport projects are the Resource Conservation and Recovery Act (RCRA, as amended by the Federal Facilities Compliance Act of 1992) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended (also known as Superfund). RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for cleanup of any release of a hazardous substance (excluding petroleum) into the environment.

SOLID WASTE

Solid waste is collected and removed from the Airport by an offsite contractor. In 2000, approximately 2,975 tons of municipal solid waste was generated at IAD. Most solid waste is disposed of in Fairfax County facilities. Approximately 230 tons of paper products and 160 tons of ferrous metals are collected and recycled annually. The Authority also operates an incinerator with a rated operating capacity of 120 pounds per hour. The incinerator is a natural gas-fired, dual chamber unit. Materials that are incinerated include contraband and foreign food, plants, and other prohibited items that are confiscated from passengers arriving on international flights. In 2000, approximately 14,750 pounds of material were destroyed in the incinerator, which was down from 19,000 pounds in 1999.

HAZARDOUS WASTE

The Authority generates hazardous wastes that are typical for airport operations. These include expired shelf-life materials, materials in damaged containers, waste paints and associated materials, waste diesel and gasoline fuels, flammable materials such as mineral spirits, absorbents, filters, and adhesives. The Authority is defined as a small quantity generator under RCRA rules since the Airport generates less than 1,000 kilograms (2,200 pounds) of hazardous wastes per month. They operate a 90-day hazardous waste storage area on the southern area of the Airport along Willard Road. Waste materials are stored at this site for a period of less than 90 days and are ultimately removed offsite by a contractor for disposal. The site has a concrete pad and is surrounded by a secured chain-link fence. No more than 30 55-gallon drums are typically accumulated at the site.

POLLUTION PREVENTION

The Authority recycles and otherwise reuses large quantities of materials throughout IAD. The Authority contracts with recyclers and other end-use marketers to dispose of metals, paper, used waste oil, antifreeze, solvents, and batteries. **Table 3.12** summarizes the types and quantities of these materials as reported to Fairfax County for the Year 2000. The materials noted in the source reduction category are either reused onsite or stockpiled onsite for future use.

In addition recovered propylene glycol deicing fluid with a 7 percent or greater concentration is recycled.

Table 3.12

RECYCLED AND REUSED MATERIALS

Material	Quantity (tons/yr.)	Material	Quantity (tons/yr.)
Recycling		Source Reduction	
Ferrous Metals	160	Concrete	27,725
Paper	230	Fill Material	572,900
Antifreeze	5	Asphalt	5,450
Waste Oil	53		
Solvents	8		
Auto Batteries	2		
Tires	5		
Total	463	Total	606,075

3.12.2 ENVIRONMENTAL CONSEQUENCES

The Airport currently produces and collects municipal solid waste and hazardous wastes. The types, collection, and disposal of these wastes are not expected to change appreciably when either the No Action or the Proposed Action scenarios are implemented. Although there are no projections of future waste quantities, the nature of the replacement ATCT's operation would result in similar amounts of municipal solid waste and hazardous waste as are known to be generated today. The total wastes generated by the Proposed Action would continue to be collected by contractors and removed from the Airport as they are today for proper disposal under either scenario of future operations.

Recovered deicing fluid of less than 7 percent glycol concentration is routed to the sanitary sewer. These discharges are included in IAD's wastewater discharge permit. The Authority currently has studies underway to modify deicing procedures at IAD to minimize the volume of runoff containing spent deicing fluid and to maximize recycling efforts. Discharge to the sanitary sewer will continue to be coordinated with the Washington, DC Water and Sewer Authority (DCWASA) to ensure that the discharge will not exceed requirements of the sewer use permit (Wollard 2001, personal communication).

3.12.3 MITIGATION MEASURES

Current in-place mitigation measures that reduce the volume of wastes would continue for both the No Action and the Proposed Action scenarios of implementation and would include the new ATCT when it becomes functional. These measures include a recycling program that in the Year 2000 reclaimed approximately 400 tons of paper and ferrous metals.

3.13 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, & CULTURAL RESOURCES

3.13.1 AFFECTED ENVIRONMENT

To comply with the National Historic Preservation Act of 1966 and Archeological and Historic Preservation Act of 1974, cultural resources at the project site must be identified. A historic property is defined as one that is listed in, or eligible for listing in, the National Register of Historic Places, the official list of the nation's cultural resources. The acts are defined as follows:

The National Historic Preservation Act of 1966 (as amended) – This act establishes the national historic preservation program which includes elements for identification, assistance, and protection of historic properties. The Act establishes the Advisory Council on Historic Preservation to advise the President and Congress on historic preservation matters, to recommend measures to coordinate Federal preservation activities, and to comment on Federal actions affecting properties included in or eligible for inclusion in the National Register of Historic Places.

The Archeological and Historic Preservation Act of 1974 – Provides for the survey, recovery, and preservation of significant scientific, prehistoric, historic, or archeological data that may be destroyed or irreparably lost due to a Federally funded, or Federally licensed project.

The National Register of Historic Places has established standards by which individual resources (both archaeological and architectural) are evaluated to determine their eligibility for listing. Resources may include buildings, sites, objects, and structures and are placed on the National Register according to the following summarized criteria:

- a) Association with events that have made a significant contribution to the broad patterns of American history; or
- b) Association with the lives of persons significant in our past; or
- c) Significance for architecture; or
- d) Significance for archaeology (36 CFR 60.4).

PROGRAMMATIC MEMORANDUM OF AGREEMENT (PMOA)

A Programmatic Memorandum of Agreement (PMOA) was executed on 29 May 1987 by the Authority, the Advisory Council on Historic Preservation (ACHP), and the Virginia State Historic Preservation Officer (SHPO) which detailed actions to be undertaken to ensure the protection of historic and archaeological resources at IAD (MWAA 1987). This PMOA states that the Authority has agreed to comply with the National Historic Preservation Act in regards to consultation with the SHPO and ACHP.

EXISTING NATIONAL, STATE AND LOCAL HISTORIC RESOURCES AT IAD

IAD was declared eligible for the National Register in 1978 but it is not actually listed (PMC 1989). Approximately 61 buildings and 41 mobile lounges are now located at the IAD complex. Thirteen structures meet National Register criteria as well as the mobile lounges, the runways,

terminal area landscaping, and the Dulles Airport Access Highway. These structures were all constructed as part of the initial 1962 building campaign and are integral parts of Eero Saarinen's original design intent (PMC 1989). IAD was the first airport in the United States to be designed specifically for aircraft flying via jet propulsion, thus conforming to Criterion A of the National Register of Historic Places. Additionally, considered the greatest achievement of master architect Eero Saarinen by his peers and the public, IAD fulfills Criterion C of the National Register of Historic Places.

Resources that form a historical or architectural unit are generally evaluated as a district [Parsons Management Consultants (PMC) 1989]. Once individual resources have been identified, boundaries of a proposed historic district may be established. The boundaries for the eligible IAD historic district fall within those established by the 1958 Saarinen Master Plan for the airport (see Figure 3-7). The proposed boundaries of the historic district are in accordance with the guidelines provided by the National Register of Historic Places, which states that historic district boundaries should include the significant concentration of buildings, sites, structures, or objects making up the district. The historic district at IAD does include the aforementioned 13 structures, the mobile lounges, the runways, the terminal area landscaping, and the Dulles Airport Access Highway meet National Register criteria. The proposed ATCT itself will be located outside of the historic district boundary. However, the proposed communication ductbank is required to connect with existing ductbanks that are located within the historic district boundary.

Within a National Register historic district, buildings may be designated as being either "contributing" or "non-contributing." According to National Register Bulletin 16, Guidelines for Completing National Register of Historic Places Forms, "a contributing building, site, structure, or object adds to the historic architectural qualities, historic associations, or archeological values for which a property is significant." Thirteen structures at IAD were found to be contributing resources that meet National Register Criteria (see Figure 3-7) (PMC 1989). The contributing buildings that may be impacted by the Proposed Action are:

The Main Terminal is a 1,240-foot by 181-foot structure located on a visually and physically raised foundation of access road and approach ramps. The current configuration of the Main Terminal includes a 1996 expansion project, which increased the building to 1,240 feet in length and 1.1 million square feet. The north and south facades each have 32 piers, which are spaced, consistently at intervals of 40 feet. The east and west end walls are supported primarily by vertical trussed steel mullions. Each window segment is concave as viewed from the exterior. The colonnaded piers reach 65 feet on the north side and 40 feet on the south side. As originally constructed, the terminal contained 330,000 square feet of space. The context of the Main Terminal includes the building, the approach roads, the area between the terminal and the apron buildings which includes the path of the mobile lounges, original parking accommodations, and the planned landscaping.

The Airport Traffic Control Tower is located on the south finger of the Main Terminal. The tower is 193 feet tall consisting of the tower shaft, five levels of cab rooms, and an uppermost-level radar structure. An observation deck surrounds the base of the tower, stretching along the south finger to the Main Terminal.

SULLY PLANTATION

Sully Historic Park is a Virginia landmark located in the southern panhandle of airport property east of Sully Road (see Figure 3-7). The Park consists of 38.9 acres of an original 3,311-acre tract granted to Henry Lee in 1725 (PMC 1989). Henry Lee operated a tobacco quarter on Sully Plantation. The main residence, stone dairy, kitchen/laundry, smokehouse, and office make up the park today. The house is furnished with antiques of the Federal Period. Formal and kitchen gardens complement the house. The original tract encompassed the entire southern portion of IAD. Due to the historic significance of the site, it was saved from demolition in 1959 and entrusted to the care of the Fairfax County Park Authority. The Sully Plantation is listed on the National Register of Historic Places as a historic district.

NATIONAL, STATE AND LOCAL HISTORIC RESOURCES WITHIN THE ROI

The historic sites (potentially eligible for or listed on the National Register of Historic Places) within the ROI outside the airport boundary include the Frying Pan Spring Meeting House, Barn on Route 50, Carter Schoolhouse, Pleasant Valley Methodist Church, Alexander D. Lee House, Arcola School, Arcola Methodist Church, Stone Slave Quarters and a Stone Outbuilding on Route 774 (see Figure 3-7). Frying Pan Spring Meeting House, located in Frying Pan Park, Herndon, Virginia, is the closest to the Proposed Action. The Frying Pan Spring Meeting House was built in 1791. It was used for town meetings as well as for religious services, and is listed on the National Register.

HISTORIC AND ARCHEOLOGICAL

A map of areas on IAD with potential for prehistoric sites is shown in **Figure 3-10**. The area in which the proposed ATCT development will be built has been heavily disturbed by previous construction.

CULTURAL RESOURCES

The Smithsonian Institution's National Air and Space Museum (NASM) is building a new museum within Airport property, for the display and preservation of its collection of historic aviation and space artifacts. In honor of its major donor, it has been named the "Steven F. Udvar-Hazy Center" (NASM 2001). The Udvar-Hazy Center will be located about 3 miles south of the Main Terminal at IAD near the intersection of Routes 28 and 50 (see Figure 3-7). The 760,057-square-foot building will be situated on 176.5 acres. Ground was broken on October 25, 2000 and it is scheduled to open in December 2003 (Air Force 2001).

The design calls for exhibit hangars, an observation tower from which visitors can watch air traffic at IAD, a workshop where the public can watch the restoration and preservation of historic aircraft, collections storage, classrooms, archives, a large-format theater, restaurants, and gift shops. More than 180 aircraft and 100 spacecraft will be on display at the Center. The Center will provide a field trip destination for Virginia's school children where they will participate in learning laboratories and classrooms.

3.13.2 ENVIRONMENTAL CONSEQUENCES

The Airport Environmental Handbook, Federal Aviation Administration Order 5050.4A, (Chapter 5, Par. 47e(8)(b)1) states that the area of the Proposed Action's potential impact is that geographic area within which direct and indirect impacts generated by the proposed action could reasonably be expected to occur and thus cause a change in the historic, architectural, archaeological, or cultural qualities possessed by the property. Section 106 of the National Historic Preservation Act requires Federal agencies to consider the effects of their actions on historic properties within the area of impact and seek comments from the Advisory Council on Historic Preservation. For this purpose, Section 106 contains a review process that includes steps for identifying and evaluating historic properties, assessing the effects of proposed action on that property, and, if there is an adverse effect, consultation with the SHPO on ways to avoid, reduce, or mitigate the impact.

Section 106 applies to properties listed on the National Register, properties formally determined eligible for listing, and to properties not formally determined eligible, but that meet specific eligibility criteria. The procedures for meeting Section 106 requirements and establishing whether an undertaking will have an impact on an identified property are defined in the regulations of the Advisory Council on Historic Preservation, 36 CFR Part 800, Protection of Historic Properties. The regulations state:

An undertaking has an effect on a historic property when the undertaking may alter characteristics that may qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered (36 CFR §800.9).

Once the criterion of effect has been applied, a determination of "no adverse effect" or "adverse effect" is made:

An undertaking is considered to have an "adverse effect" when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

"Adverse effects" include, but are not limited to:

Physical destruction, damage, or alteration of all or part of the property.

Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register.

Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.

Neglect of a property resulting in its deterioration or destruction.

Transfer, lease, or sale of the property.

The Section 106 review process ensures that a Federal agency will weigh historical preservation issues into the balance of a proposed project's anticipated benefits and costs.

EXISTING NATIONAL, STATE AND LOCAL HISTORIC RESOURCES AT IAD

The Proposed ACTC itself is not within the eligible IAD historic district or Sully Park. Also the Proposed Action will not increase the noise at either of these locations. Therefore the only effect the Proposed Action may have on these historic resources is a visual impact. The visual impact of the proposed tower on the historic viewshed is analyzed in Section 3.14. It should be noted that the sections of the proposed communication ductbank, required to tie the new facility into the existing airport equipment, must be located within the eligible IAD historic district. However, all of the ductbanks will be underground and will not adversely impact the eligible IAD historic district.

Archaeological resources should not be a concern because the area where the proposed ATCT will be built has been heavily disturbed during previous construction of the original airport infrastructure.

Formal consultation with the SHPO has been completed. The Virginia SHPO (Department of Historic Resources) has concurred with the terms in a Conditional Determination of No Adverse Effect. The conditions include:

- If the final design of the proposed ATCT and related improvements involve ground disturbance in locations other than the midfield area between the two existing runways, the Authority will conduct an archaeological assessment and provide the Virginia SHPO with the results.
- The results of the visual viewshed analysis contained within the EA must be presented to the Virginia SHPO. (This condition was satisfied at an October 22, 2002 meeting between the Authority and the SHPO).
- Summary design documentation for the proposed ATCT will be made available to the Virginia SHPO for their review and comment. Should the final design include significant new design elements, the Authority will enter into additional agency consultation to assess these effects.
- The existing ATCT will be decommissioned. However, the existing ATCT structure itself will remain in place due to its historical significance. There are no plans to use the decommissioned tower for other purposes due to limiting conditions associated with means of egress and ADA requirements. The Authority will continue to maintain the decommissioned ATCT.
- When the Airport Surface Detection Equipment (ASDE) radar is removed from atop the existing tower, the Authority will work with the FAA to develop a plan to restore the original look of the tower with a spherical radar enclosure, according to a prior agreement between FAA and the SHPO under Section 106 of the National Historic Preservation Act.

POTENTIALLY AFFECTED HISTORIC RESOURCES IN THE VICINITY OF IAD

The Proposed Action was investigated to determine whether it would directly or indirectly affect the historic and/or archaeological integrity of historic resources located outside the Airport boundaries but within the ROI. Due to the distance of IAD from all of the historic sites within the ROI and the buffer zone at IAD, the Proposed Action would have no adverse impact on any of the sites. The closest historic site (outside the airport boundaries within the ROI) to the Proposed Action is the Frying Pan Spring Meeting House. This site was included in a viewshed

analysis (See Section 3.14). The results of the analysis showed that the proposed ATCT would not be seen from the Frying Pan Spring Meeting House.

3.13.3 MITIGATION MEASURES

The No Action alternative does not adversely impact the historical, architectural, archeological, or cultural resources therefore no mitigation measures would be required for this scenario.

Based on the Conditional Determination of No Adverse Effect, the Proposed Action does not require mitigation measures.

3.14 LIGHT EMISSIONS AND VISUAL IMPACTS

3.14.1 AFFECTED ENVIRONMENT

LIGHT EMISSIONS

The primary sources of light emissions from airports are the FAA required lighting for security, obstruction clearance, and navigation. An analysis of the impact of light emissions on the surrounding environment is required when proposed projects include the introduction of new lighting that may affect residential or other sensitive land uses. Only in unusual circumstances, such as when high intensity strobe lights shine directly into a residence, is the impact of light emissions considered sufficient to warrant special study and planning for measures to reduce such impacts (Airport Environmental Handbook, FAA 5050.4A).

VISUAL IMPACTS

Airport improvement activities involving potential disruption of the natural environment or aesthetic integrity of the area or any activities that may affect sensitive locations such as parks, historic sites, or other public use areas are relevant visually. Airport improvement activities should be consistent with the goals and objectives of the Airport Master Plan to preserve the views of the area.

Therefore, the visual impacts on the eligible IAD historic district, Sully Historic Park and Frying Pan Park must be assessed. The following is a description of each of these sites.

The boundaries for the eligible IAD historic district fall within those established by the 1958 Saarinen Master Plan for the airport (Figure 3-7). Within the historic district at IAD, 13 structures, the mobile lounges, the runways, the terminal area landscaping, and the Dulles Airport Access Highway meet National Register criteria.

Sully Historic Park is a Virginia landmark located in the southern panhandle of airport property east of Sully Road (Figure 3-7). The Park consists of 38.9 acres of an original 3,311-acre tract granted to Henry Lee in 1725 (PMC 1989). The Sully Plantation is listed on the National Register of Historic Places as a historic district.

The only historic site (listed on the National Register of Historic Places) within the ROI outside the airport boundary is the Frying Pan Spring Meeting House located in Frying Pan Park,

Herndon, Virginia (Figure 3-7). The Frying Pan Spring Meeting House was built in 1791. It was used for town meetings as well as for religious services.

Also per a Memorandum of Understanding (MOU) the impact of the Proposed Action on the views of the original terminal and the views from the Dulles Access Highway must be assessed. The Memorandum of Understanding (MOU) was executed on November 2nd, 1998 by the Authority and the National Capital Planning Commission (NCPC). See *Appendix B*. The MOU recognizes the special landmark and symbolic character of the original terminal and the visual character and quality of the Dulles Access Highway and the related approaches to the original terminal. In accordance with the MOU the NCPC will be afforded the opportunity to comment and make recommendations regarding the visual impacts of the Proposed Action.

3.14.2 ENVIRONMENTAL CONSEQUENCES

LIGHT EMISSIONS

There would be no impacts from the No Action alternative.

The Proposed Action does not create increased or intrusive light emissions that affect sensitive off-airport land uses or aircraft operations, and additional lighting requirements during construction activities are not anticipated to create a hazardous wildlife attraction or impact aircraft operations.

The Proposed Action construction will take place within the existing configuration of the Airport. While nighttime construction activity will require additional lighting, the lighting will be appropriate to the activity and will not impact the surrounding community. The existing buffer zone of vegetation around the Airport will protect the surrounding communities from potential intrusive and persistent light interference during and after the construction of IAD development projects.

VISUAL IMPACTS

There would be no impacts from the No Action alternative.

A viewshed analysis was completed to evaluate the visual impact of the Proposed Action. **Figures 3-11** thru **3-18** illustrate the viewshed analysis. Viewpoints 1 thru 4 reflect the visual experience of approaching the Airport on the Dulles Airport Access Highway. The proposed ATCT is basically not visible from Viewpoints 1 thru 4. Viewpoints 5 and 6 are from Rudder Road. The proposed ATCT can be seen from both points. However, it does not obstruct or distract from the view of the IAD historic district because it appears to be relatively small and separate from the historic terminal building. Viewpoints 7 and 11 are from the North Garage and the interior of the existing terminal. The graphics reveal that the proposed ATCT appears relatively small and it does not obscure the view of the IAD historic district. Viewpoints 8, 9, and 10 are situated in the short-term parking lot. The proposed tower cannot be seen from Viewpoints 8 and 9. The proposed ATCT is visible from Viewpoint 10, but as in the previous cases, the ATCT appears relatively small and it does not obscure the view of the IAD historic district. The analysis completed for Viewpoint 12 illustrates that the proposed ATCT cannot be seen from Frying Pan Park. Finally, Viewpoint 13 shows that the top of the proposed ATCT is

barely visible from the Sully Plantation. However, it is so inconspicuous that it does not impact the natural setting.

In all of the views, in which the new ATCT can be seen, the tower does not diminish the integrity of the IAD historic district's or Sully Plantation's significant historic features. The proposed tower is to be carefully designed to minimize effects upon and within the IAD historic district. Therefore, the Proposed Action is not expected to have an adverse visual impact on the aesthetic integrity of the historic airport or the Sully Plantation. The SHPO will review this analysis and evaluate the visual impact as part of the formal consultation to address all of the historical, architectural, archeological, & cultural resources.

Also, the views from Viewpoints 1, 2, 3, 4, 5, 6, 8, 9, and 10 shows that the Proposed Action does not significantly impact the views of the original terminal from the Dulles Access Highway and related approaches. The NCPC will review this analysis and comment on the visual impact as detailed in the MOU. The comments from the NCPC will be reviewed and evaluated by the Authority.

The existing tower is to remain in place. Also, there is an Airport Surface Detection Equipment (ASDE) radar on top of the existing tower. If the existing ATCT is decommissioned the ASDE will remain in service. When or if the ASDE is decommissioned, the original look of the tower with the radar enclosure (similar to a golf ball) must be restored to comply with prior agreements under Section 106 of the National Historic Preservation Act (see *Appendix B* for the Memorandum of Agreement for The Installation Of An Airport Surface Detection Equipment Radar (ASDE-3) At Washington Dulles International Airport). Therefore, there will be not a visual impact from decommissioning the existing ATCT.

Formal consultation with the SHPO has been completed and the SHPO concurred with a Conditional Determination of No Adverse Effect.

3.14.3 MITIGATION MEASURES

The No Action alternative does not adversely impact the aesthetic integrity of the area and therefore no mitigation measures would be required for this scenario.

Consultation with the NCPC has been initiated and any required mitigation will be defined through such consultation. No comments were received from the NCPC by the close of the comment period for the Draft EA.

3.15 NATURAL RESOURCES AND ENERGY SUPPLY

3.15.1 AFFECTED ENVIRONMENT

Energy sources used to operate various facilities at IAD include electricity, natural gas, No. 2 fuel oil, propane, diesel fuel, and gasoline. Electricity is supplied by Dominion Virginia Power (formerly known as Virginia Electric and Power Company or VEPCO). There are approximately a dozen standby emergency generators located throughout the Airport's property. Electricity is delivered to the Airport at a substation located on airport property adjacent to Route 28. The Authority then provides electricity service to its facilities and airport tenants via

underground lines in the northern portion of the Airport and overhead lines in the southern portion.

Natural gas is supplied by Columbia Gas of Virginia (CGV), a unit of NiSource Inc. Natural gas is delivered to the airport property line, and the Authority provides service to its facilities and airport tenants via approximately 16 miles of underground pipeline. The utility building boilers are the largest consumers of natural gas on the Airport and can operate on No. 2 fuel oil as a backup. Consumption of natural gas, No. 2 fuel oil, propane, and diesel fuel by stationary sources is limited by the Airport's air quality operating permit. A summary of those permit limits and energy consumption by the Authority facilities in the year 2000 is provided in **Table 3.13**.

Table 3.13

**METROPOLITAN WASHINGTON AIRPORTS AUTHORITY FACILITY
ENERGY CONSUMPTION IN 2000**

Equipment	Fuel	Annual Permit Limit		2000 Actual	
All Boilers and Heaters	No. 2 Fuel Oil	210,000	gallons	10,420	gallons
Boilers #1 and #2, All Small Boilers, and All Heaters	Natural Gas	450,000,000	cubic feet	121,464,730	cubic feet
Boilers #3 and #4	Natural Gas	270,000,000	cubic feet	135,583,360	cubic feet
Incinerator	Natural Gas	4,000,000	cubic feet	998,390	cubic feet
Heaters	Propane	250,000	gallons	56,677	gallons
Live Fire Fighting Training	Propane	562,000	gallons	31,372	gallons
Fuel Farm Generator	Diesel	5,000	gallons	757	gallons
Other Generators	Diesel	55,000	gallons		

Gasoline and diesel fuels are provided by vendors and are utilized by vehicles operated by the Authority throughout the Airport. Approximately 150,000 and 430,000 gallons of gasoline and diesel fuel, respectively, are consumed by the Authority at IAD yearly. There is an effort underway to replace currently used No. 2 fuel oil with diesel in order to reduce the number of fuel types at the Airport. Finally, there are a number of tenants that provide and consume fuel for vehicles and aircraft. For example, jet fuel that is purchased by the airlines servicing IAD is provided by an airport tenant who operates a relatively large fuel tank farm on the east side of the Airport adjacent to Virginia Highway 28.

3.15.2 ENVIRONMENTAL CONSEQUENCES

The energy demands for the Proposed Action will be met by extending existing on-airport service lines currently terminating in the southern portion of the Airport in order to accommodate the demand for such service by a new ATCT. A more energy-efficient building and appliances are predicted to result in no significant increase for the new, but larger ATCT facility when it becomes operational (supplanting the existing tower's intended function). The new building will be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. The proposed ATCT would require a backup electrical generator in order to be able to operate during power outages, either unplanned or planned by DVP. This is no different from the existing ATCT. Such back-up equipment will also be more energy-efficient than the back-up equipment currently in place at the existing ATCT. The No

Action alternative would not require the addition, abandonment or extension of any such energy services.

Natural gas consumption at the proposed ATCT is expected to be slightly more than the existing ATCT simply by virtue of there being more building volume. It is conservatively estimated that approximately 10-15% greater demand will be placed on the Airport's supplier of natural gas to accommodate the new, larger ATCT facility relative to the existing ATCT.

Electrical energy demand will not increase under the No Action alternative. However, similarly for natural gas, demand for electrical power will increase ever so slightly for the Proposed Action. This is due to the increased number of people expected to populate the new ATCT and the continued use of the existing ATCT. The Authority has discussed their proposed increased electricity demand with Dominion Virginia Power, and no supply problems are envisioned.

The anticipated small net increase in demand for natural gas and electricity should not have a significant effect on the local supplies of energy and the related natural resources.

3.15.3 MITIGATION MEASURES

Because neither the Proposed Action nor the No Action alternatives are anticipated to adversely impact the supply of natural resources and energy for the region, no mitigation measures will be necessary for either scenario to be fully implemented.

3.16 NOISE

3.16.1 AFFECTED ENVIRONMENT

The analysis of noise considers the effects of aircraft noise on residents/dwellings and noise-sensitive activities at other places (schools, hospitals, nursing homes, churches, auditoriums, and outdoor amphitheaters and concert halls). The compatibility of existing and planned noise-sensitive land uses with aircraft noise is addressed in Section 3.3, Compatible Land Use.

A variety of noise metrics are used to assess noise impacts in different ways. Noise metrics are used to describe individual noise events or groups of events.

The Decibel, dB

Sound pressure level is a measure of the sound pressure of a given noise source relative to a standard reference value. Sound pressure levels are measured in decibels (dB). Decibels are logarithmic quantities – the logarithms of the ratio of the two pressures, the numerator being the pressure of the sound source of interest, and the denominator being the reference pressure.

A-Weighted Decibel, dBA

Frequency, or pitch, is an important characteristic of sound. When analyzing noise, it is of interest to know how much is low-, middle-, and high-frequency noise. Human ears are better equipped to hear middle and high frequencies; mid- and high-frequency noises are more annoying. High-frequency noise also produces more hearing loss. Engineering solutions to noise problems are different for different frequency ranges. The normal frequency range of hearing for most people extends from about 20 to 15,000 Hertz (Hz).

The “A” filter approximates the sensitivity of the human ear and helps in assessing the perceived loudness of various sounds.

Equivalent Sound Level, Leq

The Equivalent Sound Level (Leq) is a measure of the exposure resulting from the accumulation of A-weighted sound levels over a particular time period of interest. Conceptually, Leq may be thought of as a constant sound level over the period of interest that contains as much sound energy as the actual time-varying sound level with its normal peaks and valleys. Leq is often presented for consecutive one-hour periods to illustrate how the hourly noise dose rises and falls throughout a 24-hour period as well as how a few loud aircraft significantly affect certain hours.

Day-Night Sound Level

The Day-Night Sound Level (DNL) represents noise as it occurs over a 24-hour period. It is the same as a 24-hour equivalent sound level (Leq), with one important exception: DNL treats nighttime noise differently from daytime noise. The equivalent sound level is the log of the average value of the sound exposure during a stated time period. In calculating DNL, it is assumed that the A-weighted level from an aircraft operating at night (10:00 p.m. to 7:00 a.m.) is 10 dBA louder than it actually is. This penalty is applied to account for greater sensitivity to nighttime noise and because events at night are often perceived to be more intrusive. It is equivalent to adding 10 additional simultaneous flights by that aircraft during the daytime.

The DNL metric is recommended by the Federal Interagency Committee on Noise (FICON) as the primary metric for determining aircraft noise exposure. The U.S. Environmental Protection Agency (EPA) in its *Guidelines for Noise Impact Analysis* (1982) recommends DNL as the primary measure of general audible noise for land use compatibility planning, and the metric to be used to relate noise in residential environments to chronic annoyance by speech interference and in some part by sleep and activity interference.

The FAA Office of Environmental and Energy requires the use of a computer program developed by the FAA to prepare DNL noise contours. This computer program is the Integrated Noise Model (INM). The INM incorporates a comprehensive set of computer routines for calculating noise exposure contours around airports. The input data required of the user include average daily and nightly aircraft operations by specific aircraft type (fleet mix), typical flight path and runway geometry, and average annual runway and flight path use statistics by aircraft category. Version 6.0a was used for the noise analysis in this EA. The FAA developed the INM as the primary tool for analyzing and evaluating noise impacts from aircraft operations. Its use is required for all FAA-sponsored projects requiring environmental evaluation.

HNTB conducted a noise analysis in support of the EA for the Tier 2 projects at IAD. The noise contours developed were based on existing aircraft operations in 1998 and are depicted in **Figure 3-19** (HNTB 2001a). The overall acreage of land contained within the 65 DNL contour is 9,197 acres.

3.16.2 ENVIRONMENTAL CONSEQUENCES

The Proposed Action will not result in any increase in airport operations (types and number of aircraft used, runway layout, and runway utilization) compared to the No Action alternative. The same increase in operations will happen regardless of whether or not the Proposed Action is constructed. The number of people in the surrounding communities that live and work within the area influenced by the noise contours will not increase as a result of the Proposed Action. The Proposed Action will not individually or cumulatively introduce noise to a previously unaffected area, or significantly increase noise over a noise sensitive area.

The forecasted noise contours for 2007 are shown in **Figure 3-20**. The overall acreage of land within the 65 DNL contour projected for 2007 is 6,367 acres. Even though the number of aircraft using IAD is forecasted to increase by approximately 79 percent in 2007 (HNTB 2001a), the 2007 noise contours show a reduction in acres impacted (located within the 65 DNL) of about 30 percent.

The reduction in area impacted is mainly a result of increased number of Stage 3 aircraft in the fleet utilizing IAD, and the corresponding decrease in the number of Stage 2 aircraft. The Airport Noise and Capacity Act of 1990 required a phased elimination of Stage 2 aircraft weighing more than 75,000 pounds in the contiguous United States. The newer Stage 3 aircraft are significantly quieter.

Therefore, no noise impacts are expected to occur as a result of the implementation of either alternative.

3.16.3 MITIGATION MEASURES

Because neither the No Action nor the Proposed Action adversely impact noise surrounding the Airport, no mitigation measures will be necessary for either scenario.

3.17 SECONDARY (INDUCED) IMPACTS

3.17.1 AFFECTED ENVIRONMENT

Secondary or induced impacts are dependent on the scope of the project and include associated shifts in population, public service demands, or changes in the business or economic climate in the community surrounding the airport.

3.17.2 ENVIRONMENTAL CONSEQUENCES

As discussed in pertinent sections, the proposed ATCT project at IAD will not have a significant adverse impact on noise, land use, or social factors. Additionally, the Proposed Action will not result in a population shift, change the public service demands of the airport, or adversely impact the business and economic climate of the surrounding community. Therefore, no adverse induced impacts are anticipated as a result of the Proposed Action or No Action alternatives.

3.17.3 MITIGATION MEASURES

Mitigation measures are not required because neither the Proposed Action nor No Action alternative results in a significant impact on the affected environment.

3.18 SOCIOECONOMIC IMPACTS / ENVIRONMENTAL JUSTICE

3.18.1 AFFECTED ENVIRONMENT

Socioeconomic impacts consider the relocation of residences and businesses and other community disruption, including the alteration of surface transportation patterns. The region of influence (ROI) is the neighborhoods and social institutions and services of the region immediately surrounding the Airport. The following paragraphs provide background regarding the social environment.

SOCIAL AND SOCIOECONOMIC CHARACTERISTICS

IAD is located in the Metropolitan Washington region. For statistical purposes, the U.S. Census Bureau defines the Metropolitan Washington region as a Primary Metropolitan Statistical Area (PMSA). The Washington PMSA includes Loudoun, Fairfax, Prince William, Stafford, King George, Spotsylvania, Culpeper, Fauquier, Warren, and Clarke counties in Virginia, Jefferson and Berkeley Counties in West Virginia, and Frederick, Montgomery, Prince George's, Charles, and Calvert Counties in Maryland. Overall, the Washington, DC-MD-VA-WV PMSA had a population of 4,923,153 people in 2000, representing a 16.6 percent increase from 1990 (U.S. Census Bureau 2001). The Washington Metropolitan area is forecasted to experience continued population growth and expansion.

POPULATION DEMOGRAPHICS

Population demographics to the census block level are available from the U.S. Census Bureau for both Fairfax and Loudoun Counties from the 2000 census. Population data for the portion of each census tract that falls within the IAD ROI are compared in **Table 3.14**.

According to the 2000 census, the population of Fairfax County, Virginia is 969,749 persons, representing an 18.5 percent increase in population from 1990. Fairfax County covers 395 square miles and has a population density of approximately 2,455 people per square mile. The population of Loudoun County, Virginia is 169,599 persons, representing a 96.8 percent increase in population from 1990. Loudoun County has a land area of 520 square miles, resulting in a population density of approximately 326 people per square mile.

The area within the ROI has a total population of 95,099 people and is 69.9 percent white; 7.3 percent black; 13.9 percent Asian; 5.6 percent "other," which includes American Indians, Native Alaskans, Native Hawaiians, and Pacific Islanders; and 5.6 percent multi-racial, which includes persons reporting two or more races (U.S. Census Bureau 2001). This is comparable to the demographics of both Fairfax County (69.9 percent white, 8.6 percent black, 13.0 percent Asian, 4.8 percent "other," and 3.7 percent multi-racial) and Loudoun County (82.8 percent white, 6.9 percent black, 5.3 percent Asian, 2.6 percent "other," and 2.4 percent multi-racial).

Table 3.14

POPULATION DEMOGRAPHIC DATA WITHIN THE ROI FOR LOUDOUN AND FAIRFAX COUNTIES AND THE COMMONWEALTH OF VIRGINIA

AREA	TOTAL POPULATION WITHIN ROI (2000)	% WHITE (2000)	% NON-WHITE (2000)	% MULTI-RACIAL (2000)
Fairfax County*	969,749	69.9	26.4	3.7
Tract 480500	1,249	83.4	13.8	2.8
Tract 480800	2,444	49.3	42.4	8.3
Tract 480900	13,422	54.6	39.8	5.6
Tract 481000	3,952	51.7	42.6	5.7
Tract 481100	14,515	68.0	29.1	2.9
Tract 481200	209	64.6	31.1	4.3
Tract 482500	14,703	77.9	19.3	2.8
Tract 482600	7,669	75.9	21.8	2.3
Tract 490100	3,043	84.7	13.5	1.8
Tract 491500	1,844	84.9	13.3	1.7
Tract 491600	8,484	63.6	32.1	4.3
Tract 491800	1,578	61.2	36.8	2.0
Loudoun County*	169,599	82.8	14.8	2.4
Tract 611006	1,419	76.5	20.5	3.0
Tract 611007	2,452	74.6	22.2	3.2
Tract 611008	119	94.1	5.9	0.0
Tract 611400	111	99.1	0.9	0.0
Tract 611500	310	66.8	29.0	4.2
Tract 611600	6,704	71.3	24.6	4.0
Tract 611700	4,870	73.3	23.4	3.3
Tract 611800	6,002	85.4	12.4	2.2
Virginia*	7,078,515	72.3	25.7	2.0

Source: U.S. Census Bureau 2001

*Numbers represent the entire population of each county or the Commonwealth of Virginia

ENVIRONMENTAL JUSTICE

Executive Order (EO) 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, dated February 11, 1994, requires federal agencies to identify and address disproportionately high and adverse human health or environmental impacts on low-income and minority populations in the community which would result from a federally proposed action. Guidance for implementing Executive Order 12898, entitled Environmental Justice Guidance Under the National Environmental Policy Act, were published by the Council on Environmental Quality on December 10, 1997.

ECONOMIC CHARACTERISTICS

IAD employs more than 15,400 people and served more than 20.1 million passengers in 2000. In 1998, the Airport generated approximately \$4.1 billion dollars in business revenue for the regional economy and contributed \$136 million dollars in state and local taxes. Passenger traffic increased 56 percent between 1996 and 2000, and IAD was named the fastest growing airport in the country [Metropolitan Washington Airports Authority (MWWA) 2000a].

The increase in the number of high technology and telecommunications companies located in Fairfax and Loudoun counties has fueled a corresponding economic expansion in both counties. **Table 3.15** shows the top 10 employers in each county. In April 2001, unemployment rates were 1.5 and 1.2 percent for Fairfax and Loudoun County, respectively (Virginia Economic Commission 2001).

These figures are below the 2.2 percent unemployment rate for the state of Virginia in April 2001 (Virginia Economic Commission 2001) and the national unemployment rate of 4.4 percent for May 2001 (U.S. Bureau of Labor Statistics 2001). Both Loudoun and Fairfax Counties recognize that IAD is a vital and important component of the economic health and viability of each county, evidenced by the fact that United Airlines is the largest single employer in Loudoun County (Loudoun County Department of Economic Development 2001).

3.18.2 ENVIRONMENTAL CONSEQUENCES

Overall, the Proposed Action is not expected to cause adverse social or socioeconomic impact on the communities surrounding the airport. Since the Proposed Action involves limited construction that is located entirely within the airport proper, the projects will not result in the relocation of residences or disrupt established communities or planned development. Neither the Proposed Action nor No Action alternatives would cause the relocation of businesses. Impacts on businesses, recreational areas, community institutions, social services, surface transportation patterns, and emergency vehicle response time would not be significant for either alternative.

Since the Proposed Action will occur within the IAD property boundary, the Proposed Action is not expected to result in any adverse human health or environmental effects to minority or low-income populations.

Economic impacts could include loss of property tax base and tax revenues typically due to the acquisition of taxable property for airport development. However, the Proposed Action does not involve acquisition of taxable property. Airport development costs are also a factor to be considered. For the Proposed Action to be implemented, there will be increased costs attributable to the construction of the proposed ATCT but these will be recovered by means of a lease with the FAA. Therefore, the Proposed Action and the No Action alternatives will not have an economic impact.

While employment at the Airport will rise only very slightly due to the new ATCT's construction (this primarily being temporary employment with only a few permanent positions), overall the Proposed Action will not cause an appreciable change in permanent employment levels at IAD or within the ROI compared to the No Action alternative.

3.18.3 MITIGATION MEASURES

Because neither the No Action nor the Proposed Action adversely impact the socioeconomic fabric in existence in and around IAD, no mitigation measures will be necessary for either scenario to be fully implemented.

Table 3.15

TOP 10 EMPLOYERS IN FAIRFAX AND LOUDOUN COUNTIES

Fairfax County	Loudoun County
Inova Health System	United Airlines
Science Applications International Corp.	Worldcom/UUNet
Booz-Allen Hamilton, Inc.	Atlantic Coast Airlines/United Express
American Management Systems	America Online, Inc.
Verizon	Orbital Sciences Corporation
ExxonMobil	Loudoun Healthcare, Inc.
Federal Home Loan Mortgage Corp.	MWAA
Navy Federal Credit Union	Airline Tariff Publishing Company
UUNet Technologies	Federal Aviation Administration
Raytheon Company	Lansdowne Conference Resort

Source: Fairfax County Economic Development Authority and Loudoun County Department of Economic Development

3.19 WATER QUALITY

This section addresses the quality of surface and ground water resources, stormwater and wastewater.

3.19.1 AFFECTED ENVIRONMENT

SURFACE WATER

Surface-water resources at IAD consist of several stream courses that drain to the north and to the south from a divide in the lower middle portion of the airport property (see **Figure 3-21**). The northern part of the Airport drains to Horsepen Run and Stallion Branch, which converge and discharge to Broad Run just outside of IAD property. Broad Run ultimately empties into the Potomac River. Cabin Branch drains the western portion of IAD property and also discharges into Broad Run. Cub Run, Dead Run, and Cain Branch receive drainage from the southern part of the Airport (see Figure 3-21). These stream courses converge and discharge to Bull Run south of the Airport, and ultimately to the Occoquan River and then into the Potomac River. Two of the north-draining streams—an unnamed tributary of Horsepen Run and lower Horsepen Run—are impounded and designated Dulles Lake and Horsepen Lake, respectively (see Figure 3-21). These impoundments serve as retention facilities to reduce the potential for downstream flooding and pollutant discharge from runoff leaving the Airport’s miscellaneous paved areas. The combined surface acreage of these impoundments is approximately 37 acres.

In addition to these impoundments, the streams on IAD represent substantially modified systems owing to their incorporation into IAD’s stormwater management system. Numerous storm drains on IAD lead to both piped and open drainageways and ultimately into tributaries and named streams on the site. The stormwater system at IAD includes a total of 51 outfalls (MWAA 2000b).

All surface waters on IAD are classified as Class III Nontidal Waters in the Virginia State Water Control Board Water Quality Standards (9 VAC 25-260-5 et seq.). The designated use of these waters, as with all State waters, is recreational use, e.g., “...swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including

game fish, which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g., fish and shellfish” (9 VAC 25-260-10). These waters are subject to published statewide numerical criteria for dissolved oxygen, pH, water temperature, and many other chemical constituents. The southern-draining streams on IAD are additionally subject to the Occoquan Watershed Policy, which restricts point source discharges from publicly owned treatment works (POTWs).

GROUND WATER

This section considers the hydrogeology of the Airport and in particular the site of the Proposed Action and potential impacts to the ground water and water supply from petroleum storage, waste handling and deicing. Ground water at IAD occurs in two water-bearing zones, one a shallow perched water table within weathered rock, and a deeper aquifer within fractured bedrock (MWAA 2000b). Depth is generally less than 20 feet below grade, and flow is southeasterly. Ground water is not divided into classes in Virginia, but is subject to numerical standards and criteria that may be either statewide or may differ by physiographic province. There are two private drinking-water wells located in the northwest quadrant outside of the security fence line. Several IAD wells supply non-potable water for sanitary purposes to the South Shops Area, the contractor staging area, and Gate 4. Potable water is supplied to these areas by trucked spring water. The Fairfax County Water Authority supplies potable water to all other areas of IAD (292 million gallons in 2000). Well water and trucked potable water will soon be replaced by new water service from the south.

STORMWATER

There is the potential for release of pollutants to surface water and/or ground water by airport activities. Typically these activities include loading and unloading operations; outdoor storage of chemicals, fuels, and other materials; vehicle and equipment maintenance; vehicle and aircraft fueling; runway and aircraft deicing; runway derubberizing operations; construction/excavation activities; and other activities that could release potential pollutants to surface or ground water (MWAA 2000b). However, the Proposed Action is not anticipated to increase any such activities.

WASTEWATER

Wastewater generated at IAD is collected by an extensive sanitary sewer system and is conveyed to the Blue Plains Wastewater Treatment Plant in Washington, D.C. The wastewater is discharged under Wastewater Discharge Permit No. 025-5, issued to the Authority/IAD by the District of Columbia Water and Sewer Authority. The permitted discharge to the Blue Plains plant has been increased to 1.5 million gallons per day (mgd) from 1.0 mgd. The sanitary sewer system includes all developed areas of the Airport except the South Shops Area, which is currently served by an individual septic system. However, this septic system will be deactivated once a planned outfall to the south and the Occoquan treatment plant is completed. Since 1995, the annual sanitary sewage flow at IAD has averaged 255 million gallons, and has increased by more than 40 percent since 1995. The highest annual flow during that period was 333.6 million gallons in 2000.

3.19.2 ENVIRONMENTAL CONSEQUENCES

The No Action alternative will have no adverse impact on the quality of water leaving the Airport (either as stormwater or as wastewater) via surface waters or via ground water.

SURFACE WATER QUALITY

The Proposed Action is anticipated to have no adverse effects on surface water quality. All construction and subsequent operational activities will be under restrictions embodied in IAD's VPDES stormwater discharge permit, as well as pertinent State guidance (*Northern Virginia BMP Handbook* and *Virginia Stormwater Management Handbook*) and County requirements (*Fairfax County Public Facilities Manual* and *Loudoun County Facilities Standards Manual*). In addition to the management of stormwater runoff via existing and future temporary facilities, each separate construction project will be required to have individual erosion and sediment control plans approved by the Authority's Building Codes/Environmental Branch. With these various restrictions and controls in place, no adverse effects due to implementation of the Proposed Action on surface water quality are expected.

GROUND WATER

Construction of the Proposed Action poses some potential for impacting ground water resources. This potential stems from either construction accidents or disturbance of prior contamination of the soils, if any. Each construction specification will require the contractor to provide adequate health and safety protocols and personnel to deal with any contamination encountered. In the event of contaminated ground-water infiltration in excavations, contractors will be required to route the water through oil-water separators and carbon filtration, and then to sample and test the water using a third-party independent laboratory. Because of the amount of petroleum product stored and used at IAD, the airport is required to conduct a ground-water characterization study. This includes a series of shallow and deep monitoring wells distributed over IAD that are frequently monitored for contaminants. Additional protection from ground water contamination (surface water and soil as well) is afforded by IAD's innovative Leak Protection System, approved by the Commonwealth of Virginia. All underground fuel piping is monitored daily as part of this system (Beatty 2001, personal communication). As a consequence of these extensive controls and safeguards, no impacts to ground water are anticipated from construction and operation of the Proposed Action.

STORMWATER

Potential effects on water quality from airport construction and operation are primarily a result of stormwater runoff. Stormwater runoff and associated erosion and sedimentation may result from the actual construction activities for the new ATCT and from the excavated soil stockpile. At project completion, there may be effects of increased stormwater runoff due to an increase in impervious surfaces. Impervious areas are minimally increased due to the Proposed Action. The Proposed Action would add approximately 1.4 total acres of impervious surface.

The Proposed Action will necessitate some excavation. Sediment and erosion control plans will be developed for the construction project. Stormwater runoff from the Proposed Action's construction area will be collected and treated in a temporary detention pond or in the pond associated with the Tier 2 improvement program to be located near the eastern end of Runway 12-30. The pond is designed to provide BMPs for 50 percent phosphorus reduction, and to provide sufficient capacity for 2-year and 10-year storm event volumes as required by Virginia regulations (Alpha Corporation 2000). The 50 percent phosphorus removal is a requirement of the *Northern Virginia BMP Handbook* [Northern Virginia Planning District Commission and Engineers and Surveyors Institute (NVPDC & ESI) 1992] for stormwater management systems draining to the Occoquan Reservoir in Fairfax County. The pond will be lined and be designed to dewater within 30 hours of a storm event to discourage use by waterfowl and wading birds.

Soil from all excavations will be stockpiled at the south end of IAD property, and this also poses potential impact to water quality due to runoff. Stormwater, erosion, and sediment control at the excess soil stockpile site will be managed by a pond, sized at 1 acre for every 10 acres of stockpiled soil. The excavation for the ATCT base building and tower will be approximately 4,600 cubic yards of earth.

The Proposed Action is not anticipated to have a significant impact on water quality due to the surface water/stormwater draining off of the new impervious surfaces. Runoff from the completed ATCT will be accommodated by a new dry detention pond located just south of the Proposed Action (see **Figure 3-22**).⁴ A BMP structure prior to the pond will provide an oil-water separator and sedimentation device. The final design for the run-off system will be established through appropriate permitting procedures. The design will incorporate BMPs for water quality management as required by the *Northern Virginia BMP Handbook*, *The Fairfax County Public Facilities Manual* and *The Loudoun County Facilities Standards Manual*.

At any airport, the potential for discharge of deicing fluid (propylene glycol) to the stormwater system is a significant concern. Glycol discharged to natural streams can exert a substantial Biochemical Oxygen Demand (BOD) that could have deleterious impacts. However, for the Proposed Action, no such activities will be associated with its implementation and therefore, there is no need for further analysis of this topic.

WASTEWATER

No impacts to the sanitary sewer system are expected from either the No Action or the Proposed Action scenarios. Functionally, the proposed ATCT will be a one-for-one replacement facility that will generate little or no additional sanitary waste over the No Action levels. The proposed ATCT's sanitary waste will be discharged to the Airport's sanitary sewer and conveyed for treatment either to the District of Columbia Water and Sewer Authority or to the Upper Occoquan Sewage Authority.

⁴The Federal Aviation Administration (FAA) has generated an Advisory Circular (AC) which pertains to detention ponds entitled "Hazardous Wildlife Attractants on or Near Airports", AC 150/5200-33. This AC recommends dry detention ponds be used rather than retention ponds with permanent pool levels to manage run-off from airports. This is because dry detention ponds have significantly less potential for attracting waterfowl than wet retention ponds. Waterfowl in flight can represent a hazard for landing or departing aircraft.

3.19.3 MITIGATION MEASURES

The Proposed Action will add approximately 1.4 acres of impervious surface to the Airport’s drainage area. The final design for the run-off system will be established through appropriate permitting procedures. The design will incorporate BMPs for water quality management as required by the *Northern Virginia BMP Handbook* and *The Fairfax County Public Facilities Manual*.

3.20 WETLANDS

3.20.1 AFFECTED ENVIRONMENT

A wetland survey following the procedures of the U.S. Army Corps of Engineers (USACE) Manual (1987) was completed for the IAD property in 2000 (MWAA 2000c). Based on this survey and an approved jurisdictional determination by USACE, approximately 748 acres of wetlands are located on IAD property. Most of the wetlands delineated at IAD are adjacent to or associated with surface water features such as streams, drainageways, or ponds. **Table 3.16** presents the types of wetlands that occur at IAD. **Figure 3-23** shows the distribution of wetlands for the entire airport, and **Figure 3-24** shows the wetlands distribution for the Proposed Action.

Table 3.16

TYPICAL WETLAND TYPES AND DOMINANT SPECIES AT IAD

Wetland Type	Typical Species	
	Scientific Name	Common Name
Emergent (Herbaceous)	<i>Bidens frondosa</i>	Beggar ticks
	<i>Impatiens pallida</i>	Jewelweed
	<i>Lonicera japonica</i>	Japanese honeysuckle
	<i>Polygonum hydropiper</i>	Smartweed
	<i>Scirpus cyperinus</i>	Wool grass
Scrub-Shrub (Shrubs)	<i>Cephalanthus occidentalis</i>	Buttonbush
	<i>Cornus amomum</i>	Silky dogwood
	<i>Diospyros virginiana</i>	Common persimmon
	<i>Rosa multiflora</i>	Multiflora rose
	<i>Viburnum prunifolium</i>	Blackhaw viburnum
Forested Riparian (Trees)	<i>Acer rubrum</i>	Red maple
	<i>Fraxinus pennsylvanica</i>	Green ash
	<i>Juniperus virginiana</i>	Eastern redcedar
	<i>Salix nigra</i>	Black willow
	<i>Quercus palustris</i>	Pin oak
Open Water	----	----

3.20.2 ENVIRONMENTAL CONSEQUENCES

The No Action alternative will not impact any wetlands.

The construction activities for the Proposed ATCT, ATCT offices and parking will involve disturbance of land 100 feet beyond the building footprint, and 50 feet outside the parking lot

footprint. The areas encompassed by these limits of disturbance were overlaid on a drawing of the jurisdictional wetlands (see Figure 3-24). Based on this analysis, a 0.252-acre wetland, located west of Flight Line Road and north of the existing haul road, will be impacted by the Proposed Action. This palustrine, emergent, persistent, isolated wetland was included in the joint permit application (JPA) for Tier 2 and Related Projects (see Figure 3-5). The JPA for a Virginia Water Protection Permit was submitted by the Authority to the Virginia DEQ, USACE, and other regulatory agencies for their review. This permit has been approved.

Also, as shown on Figures 3-22 and 3-24, the proposed communication ductbanks, sanitary sewer, gas lines, water lines and electricity lines will impact wetlands. Approximately 600 linear feet of utilities installed to the east of the proposed ATCT will impact wetlands included in the aforementioned permit for the Tier 2 and Related Projects. The communication ductbanks and sanitary sewer located to the west and south of the proposed ATCT, will impact intact and unpermitted wetlands. Nationwide Permit 12, Utility Line Activities, applies to the wetlands impacted by the communications ductbanks and sanitary sewer. Approximately 1100 feet of utility lines will be located in the waters of the U.S.; therefore, the District Engineer will be notified by a preconstruction notification. As discussed in Section 2.1, avoidance of wetlands during utility installation is not possible, and the proposed alignment minimizes wetland impacts. These impacts will be temporary, and wetland areas affected by utility installation will be restored to pre-construction contours upon completion of the utility work. To meet the Norfolk District of the U.S. Corps of Engineers regional conditions, whenever possible, all excavated material will be placed on an upland site. However, when this is not feasible, temporary stockpiling will adhere to the following:

- All excavated material stockpiled in a vegetated wetland area will be placed on filter cloth, mats, or some other semi-permeable surface. The material will be stabilized with straw bales, filter cloth, etc. to prevent reentry into the waterway.
- All excavated material will be placed back into the trench to the original contour and all excess excavated material will be completely removed from the wetlands within 30 days after the pipeline has been laid through the wetland area. Permission will be attained from the District Engineer or his authorized representative if the material will be stockpiled longer than 30 days.

The entrance road off of Flight Line Road will be designed to avoid wetland impacts. The soil stockpile area has been designed to avoid impacts to wetlands. An appropriate buffer between the stockpile and an adjacent wetland area will be maintained.

3.20.3 MITIGATION MEASURES

Permission to impact wetlands will be acquired prior to initiation of construction activities. A preconstruction notice will be submitted to the District Engineer. The JPA for the Tier 2 and Related Projects has been approved and the loss of wetland at IAD has been mitigated through the purchase of approximately 28 wetland credits from the Cedar Run Wetland Bank. Approximately 0.75 of these credits would be required to mitigate wetlands affected by the construction of the Proposed ATCT, ATCT offices and parking. This is included in the credits already purchased by the Authority for Tier 2 and related projects. Wetland banking is

part of the Authority's Comprehensive Wetland Strategy to mitigate wetlands that could be potentially affected by near term and future planned airport development.

3.21 WILD AND SCENIC RIVERS

3.21.1 AFFECTED ENVIRONMENT

The Wild and Scenic Rivers Act includes river areas eligible for protection under the legislation as those that are free-flowing and have "outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural and other similar values." Wild rivers are those that exist in a free-flowing state with excellent water quality and with adjacent lands that are essentially primitive. Scenic rivers are those rivers that exist in a free-flowing state and with adjacent lands that are largely undeveloped (i.e., adjacent lands still present an overall natural character, but in places may have been developed for agricultural, residential, or other land uses). Recreational rivers are those rivers that may have undergone some impoundment or diversion in the past and that may have adjacent lands which are considerably developed, but that are still capable of being managed so as to further the purposes of the Wild and Scenic Rivers Act.

River segments that appear to qualify for inclusion in the National Wild and Scenic River System are listed on the Nationwide Inventory, compiled by the U. S. Department of Interior. No rivers on the Nationwide Inventory are located within the affected environment of the Proposed Action or the No Action alternatives.

3.21.2 ENVIRONMENTAL CONSEQUENCES

The nearest State-designated scenic river, Goose Creek, is located approximately 5 miles northwest and upstream of IAD.

Therefore, no environmental impacts from the Proposed Action or the No Action alternatives are anticipated.

3.21.3 MITIGATION MEASURES

Mitigation of impacts to such resources due to implementation of either the Proposed Action or the No Action alternative will not be required since neither scenario will adversely cause impacts to any such rivers.

Chapter Four

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Chapter Five

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