CHAPTER 2.0
PURPOSE AND NEED

2.1 INTRODUCTION

This chapter of the Draft Environmental Impact Statement (DEIS) describes the Purpose and Need for the proposed project at Washington Dulles International Airport (IAD) and identifies the Federal actions requested of the Federal Aviation Administration (FAA) and other Federal agencies. The identification of a proposed project's purpose and need is the primary foundation for the identification of reasonable alternatives to the project and the evaluation of any impacts resulting from those alternatives. The requested Federal actions being considered in this DEIS include FAA's unconditional approval of portions of the existing IAD 2004 Airport Layout Plan (ALP) to accommodate the proposed development of IAD. The 2004 ALP identifies major development items that constitute the Metropolitan Washington Airports Authority's (MWAA) current project proposal, including the construction of a new parallel north-south transport category runway, a new parallel east-west transport category runway, passenger terminal facility improvements, and associated developments. These projects are more fully described in **Chapter 1.0**, Introduction, and **Chapter 3.0**, Alternatives, of this DEIS. The potential environmental impacts associated with these projects, their reasonable alternatives, and other cumulative actions, are detailed in **Chapter 5.0**, Environmental Consequences, of this DEIS.

The following sections present the purpose for the proposed improvements at IAD and describe why the proposed improvements are needed.

2.2 PURPOSE OF AND NEED FOR THE PROPOSED IMPROVEMENTS

2.2.1 INTRODUCTION

MWAA has proposed several projects to support the development of IAD by implementing certain airfield system improvements that will safely accommodate the projected future aviation activity demand levels at IAD without incurring unacceptable levels of aircraft operational delay. The purpose of the proposed project is consistent with Federal transportation policies.

2.2.2 PURPOSE OF THE PROPOSED IMPROVEMENTS

2.2.2.1 Consistency with Federal Transportation Policies

FAA is charged with the implementation of Federal policies under its statutory authorities. It is within the framework of the National Environmental Policy Act of 1969 (NEPA), the National Policy, and the Airport and Airway Improvement Act, as amended, that FAA is responding to MWAA's proposal.

The following national policy in 49 U.S. Code (USC) §47101(a) relates specifically to the proposed improvements at IAD:

> (7) That airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease.

The delay-reducing airfield improvements proposed at IAD are consistent with the above-referenced public policy objective.

Although air traffic levels have decreased nationwide over the past several years due to a number of factors, most notably the events of September 11, 2001, FAA is still committed to increasing the efficiency and capacity at our nation's airports to meet both the existing and the future forecasted aviation demand. This commitment is reflected in the following statement from Marion C. Blakey, Administrator, FAA, made before the U.S. Senate Committee on Commerce, Science, and Transportation, on the state of the FAA, February 11, 2003:

> "While our commitment to safety is extraordinarily important, we must also remain committed to expanded airport capacity. Although the devastating events of September 11th continue to impact the number of people flying in this country, recovery of the system is inevitable. The temporary downturn in air travel affords us with a great opportunity to continue to focus on increasing airport capacity without unacceptable disruption to the system."

In addition to the overall national transportation policy discussed above, the operation of Washington's airport system is the subject of national policy and legislation. The roles of IAD and Ronald Reagan Washington National Airport (DCA), both owned and operated by FAA at the time, were defined by the U.S. Department of Transportation (DOT) in the Metropolitan Washington Airports Policy of 1981 (Federal Register, Volume 46, Number 228, Pages 58036-58037). The objectives of the policy were:

1. To provide the metropolitan Washington area with safe and efficient airport facilities.

2. To prescribe a role for DCA and IAD which, considering environmental and safety factors, will permit orderly planning by FAA, the surrounding region, and the aviation industry for the future of these facilities.

3. To reduce the aircraft noise and congestion associated with the prevailing use of DCA.

4. To promote better utilization of IAD.

5. To achieve optimum utilization of existing and planned capacity at IAD and DCA.

The policy of the Federal government was that growth in aviation demand in the Washington and Baltimore regions should be accommodated at IAD and Baltimore-Washington International Airport (BWI). While the DOT does not establish policy for BWI, it recognized that actions taken at DCA and IAD might influence operations at BWI. Therefore, BWI's role was considered in the development of the policy for DCA and IAD.

Operation of IAD and DCA was transferred to MWAA from FAA in a lease agreement that became effective on June 7, 1987. Initially, the lease was for 50 years; however, it was recently extended to the year 2067. Consistent with the Federal legislation that authorized the lease (Title 49, Section 49104), MWAA agreed to:

> "… assume responsibility for the Federal Aviation Administration's Master Plans for the Metropolitan Washington Airports," 49 USC 49104(6)(A).

The most recent Master Plan Study for IAD (completed by FAA in 1985) details a preferred development plan of a five-runway system, which includes three north-south parallel runways and two east-west parallel runways.

Furthermore, the legislation authorizing the transfer of IAD and DCA to MWAA placed operational limitations on DCA. The legislation states that MWAA may not increase or decrease the number of Instrument Flight Rules (IFR) takeoffs or landings authorized by the High Density Rule (a Federal regulation) at DCA. Also, the legislation allows an air carrier to operate an aircraft nonstop only between DCA and another airport that is less than 1,250 statute miles away, known as the 1,250-mile limit. (legislation passed in 2000 and 2003 permits 12 round trip flights a day to serve points beyond the perimeter). Congress, through this legislation (amended recently by Section 425 of Vision 100), has placed operational restrictions on the use and capacity of DCA and MWAA has focused on IAD to accommodate increased aviation demand in the metropolitan Washington region (consistent with the DOT's *Metropolitan Washington Airports Policy of 1981*). The events of September 11, 2001, further limited DCA's ability to accommodate the growth in aviation activity in the Washington region due to its location relative to national landmarks and institutions.

Vision 100, signed into law on December 12, 2003, is also cited as the *Aviation Streamlining Approval Process Act of 2003*. The Act directs the Secretary of Transportation to develop and implement an expedited and coordinated environmental review process for airport capacity projects at congested airports, aviation safety projects, and aviation security projects. Section 303 of Vision 100 directs the FAA Administrator "to take action to encourage the construction of airport capacity enhancement projects at congested airports." Vision 100 states that a congested airport is an airport that accounted for at least 1 percent of all delayed aircraft operations in the U.S. in the most recent year for which data is available, and an airport listed in Table 1 of the FAA's *Airport Capacity Benchmark Report 2001*. IAD accounted for 1.9 percent of all delayed aircraft operations in the U.S. in 2003 (FAA Operations Network [OPSNET], 2004) and was included in Table 1 of the FAA's *Airport Capacity Benchmark Report 2001*.

2.2.2.2 Allow IAD to Safely and Efficiently Accommodate Future Activity without Incurring Unacceptable Aircraft Operational Delay

According to the FAA's National Plan of Integrated Airport Systems (NPIAS) (2001-2005), submitted to Congress on August 28, 2002:

> "An airport is considered to be congested when average delay exceeds 5 minutes per operation. Beyond this point delays are extremely volatile, and a small increase in traffic, adverse weather conditions, or other disruptions can result in lengthy delays that upset flight schedules and impose a heavy workload on the air traffic control system."

NPIAS included IAD as one of the 18 airports nationwide with an estimated average delay in excess of 5 minutes per operation that accounted for most of the severe air traffic delays in the U.S. during 2000.

Detailed simulation analysis of IAD using FAA's Airfield and Airspace Simulation Computer Model (SIMMOD) showed that the average delay per operation was 4.6 minutes in 1999, when IAD accommodated 467,227 annual operations (HTNB Corporation, February 2002).

As a result of several national and worldwide factors, activity levels at IAD declined by the year 2002 to 17 million passengers, resulting in 372,636 aircraft operations. As a result, detailed SIMMOD analysis of the 2002 activity level shows that average delay per operation decreased to 2 minutes (HNTB Corporation, November 2003). However, this downturn in aviation activity is anticipated to be short-term, and activity levels are expected to return to the 1999 and 2000 levels by 2007.

By 2010, IAD is forecast to serve approximately 30 million passengers, resulting in 568,410 aircraft operations. With its existing three-runway configuration, aircraft operating at IAD are projected to experience 6.9 minutes of average delay per operation in 2010 based on detailed SIMMOD analysis (HNTB Corporation, November 2003).

Increases in airfield capacity to accommodate forecasted aviation demand should be coupled with improvements to passenger terminal and aircraft gate capacity. This would enable the airport system, as a whole, to accommodate the forecasted aviation demand, in 2010 and beyond.

Based on detailed SIMMOD analysis, IAD has approached unacceptable levels of average delay per operation (average delay in excess of 5 minutes, when the airport would be considered congested) in recent (1999-2000) peak activity years. Although the current decrease in aviation demand has allowed the airport to operate with acceptable delay with its existing three-runway configuration, demand is forecast to exceed the recent peak activity years within the DEIS study timeframe (6.9 minutes of average delay per operation in 2010). Therefore, the purpose of the proposed improvements is to safely and efficiently accommodate future projected levels of aircraft operational demand at IAD without incurring unacceptable levels of operational delay.

2.2.3 NEED FOR THE PROPOSED PROJECT

Specific IAD airfield improvements are needed to provide additional airside capabilities to safely and efficiently accommodate projected future levels of activity without incurring unacceptable levels of operational delay. An initial analysis of the proposed airfield improvements was conducted utilizing calculations of Annual Service Volume (ASV), which is FAA's method of estimating airfield capacity for long-range planning purposes. A more detailed method of determining average delay per aircraft for different airfield configurations and demand levels is simulation modeling using FAA's SIMMOD. The simulation modeling results are discussed in the following sections detailing the specific airfield improvement needs.

Annual Service Volume Calculations

The ability of a runway system to efficiently accommodate existing and projected levels of aviation demand is typically measured in terms of ASV, defined by FAA as a reasonable estimate of an airport's annual capacity. It measures the capability of an airport to accommodate aircraft operations in a safe and efficient manner without incurring excessive delays. Using guidance from FAA Advisory Circular (AC) 150/5060-5, Change 2, *Airport Capacity and Delay*, the ASV of the existing runway configuration (2002 and 2010 activity levels), four-runway scenarios (new north-south runway and new east-west runway; 2010 activity levels), and the five-runway scenario (2010 activity levels) at IAD were calculated. The calculations are provided in **Appendix A-2**.

ASV is FAA's standard method of estimating an airport's "theoretical" annual operational capacity and takes into account such considerations as runway configuration, runway use, local meteorological conditions, aircraft operating fleet mix, taxiway configuration, taxiway system, arrival/departure percentage split, touch-and-go operations, and airspace/air traffic control procedures.

FAA's AC 5090.3C*, Field Formulation of the National Plan of Integrated Airport Systems, Table 3-2*, specifies that when an airport's annual operations (arrivals and departures) approach 100 percent ASV, the construction of additional airfield enhancement projects should be underway. In addition, the airport sponsor should initiate planning studies to evaluate means of increasing airfield capacity when annual operations approach 60 to 75 percent of the calculated ASV.

As shown in **Table 2.2-1**, the 2002 demand level reached 73 percent of IAD's calculated ASV. Due to changes in the demand levels (including Annual Demand, Average Daily Demand - Peak Month, and Average Peak Hour Demand - Peak Month; see **Appendix A-2**) from 2002 to 2010, which are used as inputs to the ASV calculations, the ASV of the existing three-runway configuration would decrease to 485,587 annual operations in 2010. As shown in **Table 2.2-1**, the 2010 demand level would be at 117 percent of its calculated ASV for the existing configuration, 95 percent of the ASV for the four-runway scenario with an additional north-south parallel runway, and 98 percent of its calculated ASV for the four-runway scenario with an additional east-west parallel runway. The greatest ASV would be achieved with a five-runway system at IAD (3 parallel north-south runways and 2 parallel east-west runways), which would result in a demand level of 76 percent of ASV in the year 2010. **Figure 2.2-1** shows the ASV calculations and historic and forecast demand graphically.

TABLE 2.2-1
ANNUAL SERVICE VOLUME

Airfield Scenario	2002		2010	
	ASV	Percent of ASV	ASV	Percent of ASV
Existing Configuration	509,343	73%	485,587	117%
Four-Runway Configuration (N/S)[1]	n/a	n/a	595,382	95%
Four-Runway Configuration (E/W)[2]	n/a	n/a	577,653	98%
Five-Runway Configuration [3]	n/a	n/a	749,873	76%

n/a = not applicable.
1 Redundant Dual/Triple simultaneous IMC operations (North-South).
2 Dual simultaneous IMC operations (North-South and East-West).
3 Redundant Dual/Triple simultaneous IMC operations (North-South) and Dual simultaneous IMC operations (East-West).

Sources: Aircraft Operations Forecast - *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, November 2003.
Annual Service Volume Calculations, URS Corporation, 2003.

The ASV calculations demonstrate the need for both of the proposed runway improvements at IAD by 2010, since the three-runway (existing) and four-runway configurations would approach or exceed 100 percent of the ASV in that time period. Historically, the ASV of the existing runway configuration was approached in the peak historical years of 1999 and 2000 (467,227 and 456,436 annual operations, respectively). Collectively, the addition of a new parallel north-south and east-west runway would provide adequate capacity, in terms of ASV, to safely and efficiently accommodate aviation demand within the study timeframe.

The following sections examine the specific airfield improvement needs in greater detail, using simulation analysis to determine average delay per operation with forecast demand levels.

2.2.3.1 Need for a Parallel North-South Transport Category Runway Immediately Capable of Dual Simultaneous Independent Operations during Instrument Meteorological Conditions (IMC) While Reserving the Capability of Triple Simultaneous Independent Operations during IMC in the Future

In its existing three-runway configuration, IAD operates in 4 major aircraft operational "flows," as shown on **Figure 2.2-2**. These operational flows are influenced mainly by wind speed and direction, cloud ceiling, and visibility. During Visual Meteorological Conditions (VMC), when aircraft may operate under Visual Flight Rules (VFR), the most common operating flow is the Mixed Flow, in which arrivals occur on Runways 19L and 19R (a small number of arrivals occur on Runway 12 also), and departures occur on Runways 19L and 30. The next most common operating flow overall and the most common during IMC, when aircraft are required to operate under IFR, is the North Flow. Under this operational flow, Runway 30 is used for departures, and Runways 1L and 1R are used for arrivals and departures. In the South Flow, which is used less frequently, arrivals and departures occur on Runways 19L and 19R and arrivals occur on Runway 12. Overall, the Mixed, North, and South Flows are in use 99 percent of the time (Northwest Flow is discussed in detail in **Section 2.2.3.2**).

As shown on **Figure 2.2-2** and **Table 2.2-2**, the average delay per operation (determined by SIMMOD) of the existing runway configuration in 2010 would be 6.9 minutes. Of that total (and based on weighting factor relative to the percent of use), the Mixed Flow would account for 3.9 minutes, the North Flow would account for 1.1 minutes, the South Flow would account for 0.7 minutes, and the Northwest Flow would account for 1.2 minutes of average delay per operation.

TABLE 2.2-2
2010 WEIGHTED AVERAGE DELAY PER OPERATION (MINUTES) BY OPERATING FLOW

Operating Flow	Weighted Average Delay per Operation (Minutes)			
	Existing Configuration	Four-Runway (N/S)[1] Configuration	Four-Runway (E/W)[2] Configuration	Five-Runway[3] Configuration
Mixed Flow	3.9	2.6	2.1	1.6
North Flow	1.1	0.7	0.8	0.6
South Flow	0.7	0.2	0.7	0.2
Northwest Flow	1.2	1.2	0.2	0.2
Total	**6.9**	**4.7**	**3.8**	**2.6**

1 Redundant Dual/Triple simultaneous IMC operations (North-South).
2 Dual simultaneous IMC operations (North-South and East-West).
3 Redundant Dual/Triple simultaneous IMC operations (North-South) and Dual simultaneous IMC operations (East-West).

Source: *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, November 2003.

The addition of a new parallel north-south runway would provide benefits for the operating flows at IAD that are used for the majority of operations (99 percent). Specifically, a new north-south runway would:

- Provide an additional runway dedicated to arrivals in the Mixed Flow;
- Provide a runway to accommodate arrivals and departures, while enabling the existing Runway 1L to be used solely for arrivals in the North Flow; and
- Provide an additional runway to accommodate arrivals and departures in the South Flow.

As shown in **Table 2.2-2**, an additional north-south parallel runway would reduce the weighted average delay per operation in the Mixed (33 percent), North (36 percent), and South (71 percent) Flows. Total average delay per operation would be reduced by 32 percent, to 4.7 minutes, with an additional north-south parallel runway. Delay cost benefits of the new north-south runway (operational in 2008) would total over $36 million (based on year 2000 prices) through 2010 (HNTB Corporation, April 2003).

Based on FAA planning guidelines contained in FAA AC 150/5060-5, Change 2, *Airport Capacity and Delay*, the greatest degree of airfield operational capacity and delay reduction improvement is achieved through the development and use of widely spaced parallel runways equipped with Category III Instrument Landing System (ILS). Utilizing this type of runway development layout, simultaneous independent arrival and departure operations are safely and efficiently conducted during all weather conditions, most particularly during low visibility and cloud ceiling height conditions that are classified as IMC.

Through the development and use of parallel runways that offer the ability to conduct dual or triple simultaneous independent approach capabilities, the maximum reduction in aircraft operational delay can be achieved when compared to non-parallel runway airfield improvement scenarios or close-in parallel runways (less than 4,300-foot runway centerline separation) that offer limited, incremental capacity improvements and/or reduced operational flexibility through dependent arrival/departure operations.

Based on FAA analysis, the maximum hourly IFR (used during IMC) arrival rate for dependent (close-in) parallel north-south runways, which would not provide the capability of performing triple simultaneous independent approaches in IMC, would be 70 arrivals per hour. However, the maximum hourly IFR arrival rate of three independent (widely spaced, minimum of 4,300 feet with high-update radar/monitoring equipment) north-south parallel runways at IAD, which would provide the ability to conduct triple simultaneous independent approaches in IMC, would be 105 arrivals per hour. The ability to accommodate an additional 35 aircraft per hour during IMC conditions would significantly enhance the operational capabilities of the airport and result in decreased delays per operation and overall more efficient handling of aircraft.

Figure 2.2-3 shows the estimated number of arrivals per hour at IAD with forecasted 2010 average day-peak month operations at IAD. The maximum hourly IFR arrival rate of the dependent (close-in) north-south runway system (70 per hour) would be exceeded for 3 hours during the average day of the peak month in 2010. During these 3 hours, approximately 36 arrival operations could be affected,

resulting in delays to those aircraft and perhaps others. Forecasts developed by MWAA beyond the 2010 study timeframe indicate that operational levels would continue to increase through 2020 resulting in greater levels of delay to a larger number of aircraft (HNTB Corporation, November 2003). Therefore, the hourly IFR arrival rate of the dependent (close-in, less than 4,300 feet) north-south runway system would continue to be exceeded past this study timeframe.

Also shown in **Figure 2.2-3** is the maximum hourly IFR arrival rate of the independent (widely spaced) north-south three-runway parallel system proposed by MWAA. The forecast maximum hourly arrival rate in 2010 would be 87 aircraft per hour. However, this configuration has the capability to accommodate a maximum hourly IFR arrival rate of 105 aircraft per hour. Therefore, the forecast year 2010 maximum hourly arrival rate would not exceed the capabilities of the airport at any time during the average day of the peak month in 2010. It is anticipated that operational demand would continue to increase at IAD well past the year 2010 based on MWAA aviation demand forecasts. The hourly IFR arrival rate of the independent (widely spaced, 4,300 feet or greater) north-south runway system that would provide triple simultaneous independent operations during IMC would continue to enable IAD to safely and efficiently accommodate demand beyond this EIS timeframe.

2.2.3.2 Need for a Parallel East-West Transport Category Runway Capable of Dual Simultaneous Independent Operations during IMC

Similar to an additional north-south parallel runway, an additional east-west runway would benefit operations in the Mixed Flow and North Flow. However, the primary benefit of a new east-west runway would be during the Northwest Flow, in which strong crosswind conditions occur and IAD is limited to operations on Runway 12/30. As shown in **Figure 2.2-2**, the wind conditions and operating flow are rare (approximately 1 percent of all annual operations), however, the Northwest Flow would account for a disproportionate amount of average delay per operation (17 percent) with the airport's existing configuration. In addition to delays at IAD, delays are felt system-wide when a large hub airport such as IAD is limited to one operational runway.

The addition of a new parallel east-west runway would provide benefits for the operating flows at IAD that would account for the majority of delays (90 percent) in the existing runway configuration by 2010. Specifically, a new east-west runway would:

- Provide an additional runway dedicated to departures in the Mixed Flow,
- Provide an additional runway dedicated to departures in the North Flow, and
- Provide another runway to accommodate arrivals and departures in the Northwest Flow.

As shown in **Table 2.2-2**, an additional east-west parallel runway would reduce the weighted average delay per operation in the Mixed (46 percent), North (27 percent), and Northwest (83 percent) Flows. Total average delay per operation would reduce by 45 percent, to 3.8 minutes, with an additional east-west parallel runway.

The delay reduction detailed in this section would be achieved through the development and use of widely spaced parallel runways. A runway separation distance of 4,300 feet is required to perform dual simultaneous independent operations during IMC.

2.2.3.3 Provide Redundant Runways

FAA's Air Traffic OPSNET data system catalogues data pertaining to the reasons for delays (each consisting of more than 15 minutes) at specific airports. Data from 1990 through 2002 at IAD indicates that runway closures caused 4.6 percent of all delays over 15 minutes. Adverse weather conditions caused the greatest percentage of delays (66 percent) from 1990 through 2002 at IAD.

Redundant Dual Independent North-South Operations Capability

Currently, IAD has two widely spaced parallel north-south runways that are capable of providing dual independent simultaneous approaches during IMC. A new north-south runway, with adequate spacing and ILS, would immediately provide the ability for dual independent simultaneous approach capabilities in conjunction with the existing Runway 1L/19R. Therefore, the new runway would provide redundancy for the existing north-south parallel runways to provide similar capabilities in the event of a runway closure of either of the existing north-south runways (due to rehabilitation/maintenance, repairs, aircraft rescue and fire fighting exercises, snow removal, etc.) and unforeseen emergencies (incidents), without hindering overall airport operations.

Redundant East-West Runway

A new east-west runway, with adequate spacing and ILS, would not only provide the ability to perform dual independent simultaneous approaches during IMC but also provide redundancy for the existing east-west runway in the event of a runway closure and unforeseen emergencies. A critical need for redundancy exists when the airport operates with only one runway during the Northwest (12/30) Flow. A new east-west runway would allow IAD to remain open if a runway closure were to occur during the Northwest Flow configuration, alleviating delays at the airport and system-wide.

2.2.3.4 Provide Adequate Passenger Terminal and Aircraft Gate Capacity to Accommodate Forecasted Growth in Aviation Demand (Tier 3 Concourse)

According to *Washington Dulles International Airport Updated Activity Forecasts and Simulation* (HNTB Corporation, November 2003) and shown in **Table 1.3-1**, enplaned passengers are forecasted to increase from 8,515,498 in 2002 to 15,350,500 in 2010 (an 80 percent increase).

Other concourse development planned at IAD during the project time period is the Tier 2 Concourse improvements (under separate environmental review; issued a Finding of No Significant Impact (FONSI) by FAA in August 2002). The Tier 2 Concourse is intended to replace the temporary Concourse C/D and enhance services currently provided by IAD (EA Engineering, *Final Environmental Assessment*, Page 1, August 8, 2002). No additional gate capacity will be developed as a result of the Tier 2 Concourse improvements.

Development of the Tier 3 Concourse would provide an increase of passenger terminal and aircraft gate capacity concurrent with an increase in airfield capacity, and allow IAD to safely and efficiently accommodate future aviation activity. In addition, aviation growth past the study timeframe could be managed more effectively with components of the airport system (including airfield and passenger terminals) operating with similar capacities.

2.3 PURPOSE AND NEED SUMMARY

MWAA seeks to develop airfield system improvements that in the near term would allow IAD to safely and efficiently accommodate 568,410 annual aircraft operations by 2010 with acceptable levels of average delay per operation (less than 5 minutes). MWAA also needs the improvements to continue to provide mid- and long-term operational capability to accommodate the long-term forecasts of aviation activity in a flexible, safe, and efficient manner. A summary of the simulation analysis provided in **Table 2.3-1** shows that IAD has approached unacceptable delay levels in the past, and improvements to the existing IAD airfield system are needed for future delay reduction and throughput capacity considerations.

TABLE 2.3-1
AVERAGE DELAY PER OPERATION (MINUTES)

Airfield Scenario	1999	2002	2010
Existing	4.6	2.0	6.9
Four-Runway (N/S)[1]	n/a	n/a	4.7
Four-Runway (E/W)[2]	n/a	n/a	3.8
Five-Runway[3]	n/a	n/a	2.6

n/a = not applicable.

1 Redundant Dual/Triple simultaneous IMC operations (North-South).

2 Dual simultaneous IMC operations (North-South and East-West).

3 Redundant Dual/Triple simultaneous IMC operations (North-South) and Dual simultaneous IMC operations (East-West).

Sources: 1999 - *Capacity Review and Alternatives for the Fourth and Fifth Runways at Washington Dulles International Airport*, HNTB Corporation, February 2002.
2002, 2010 - *Washington Dulles International Airport Updated Activity Forecasts and Simulation*, HNTB Corporation, November 2003.

As shown in **Figure 2.2-1** and **Table 2.3-1**, runway capacity would be maximized while maintaining the flexibility to accommodate growth beyond 2010 with both the north-south and east-west runways. Demand would be 76 percent of calculated ASV and the estimated average delay per operation would be 2.6 minutes in 2010.

The greatest increase in runway capacity with corresponding decreases in average aircraft delay would be achieved through the development of a runway system at IAD that would, by design:

- Provide needed capacity improvements and operational throughput capacity to accommodate projected levels of aircraft operational demand at IAD,
- Accommodate future levels of operational demand without incurring unacceptable levels of average aircraft delay,
- Provide the capability to immediately accommodate dual simultaneous independent operations and provide the capability to accommodate triple simultaneous independent operations in north-south flows during IMC in the future, and
- Provide the capability to accommodate dual simultaneous independent operations in east-west flows during IMC.

Without such airfield improvements, the inherent operational and throughput capacity of the airfield would be constrained, thereby reducing the utility and efficient use of the runway system and increasing levels of delay, with an associated degradation of the IAD's ability to provide a satisfactory level of service to the traveling public and within the national airspace system. For these same reasons, additional passenger terminal and aircraft gate capacity is needed to coincide with the increase in airfield capacity. Although it is not quantified in this DEIS, delays experienced at a large hub airport such as IAD invariably affect other airports within the system.

In order to provide the capacity to safely accommodate projected levels of activity through 2010, the runway system must maintain the flexibility to accommodate growth beyond 2010. This flexibility is maximized when the runway system allows for the ability to conduct triple simultaneous independent approaches during IMC in the future.

In addition to runway capacity needs, the IAD airport system needs to safely and efficiently accommodate growth in passenger handling facilities by providing adequate passenger terminal facilities and aircraft gate capacity.

2.4 FEDERAL ACTIONS

2.4.1 REQUESTED FEDERAL ACTIONS WITHIN THE RECORD OF DECISION

The Federal actions being considered in this DEIS and which will be subject to findings in the FAA's Record of Decision (ROD) include:

- The unconditional approval, pursuant to 49 USC 40103(b) and 47107(a)(16), of revisions to the IAD ALP (i.e., those for which this DEIS provides environmental analysis) for proposed development which includes two widely spaced Transport Category parallel runways, passenger terminal facility, and associated developments;

- The Federal approval necessary to proceed with processing of an application for Federal funding for those development proposals under applicable funding programs, including the Airport Improvement Program (AIP) and/or the use of Passenger Facility Charges (PFCs);

- FAA determination that the proposed airfield development projects would meet Federal Clean Air Act (CAA) and General Conformity requirements;

- Continued close coordination between the airport sponsor and appropriate FAA program offices, as required for safety during construction (14 Code of Federal Regulations [CFR] Part 139) under 49 USC 44706;

- Approval of the appropriate amendments to the Airport Certification Manual pursuant to 14 CFR Part 139;

- Appropriate amendment to air carrier operations specifications pursuant to 49 USC 44705; and

- Prior to any funding decision concerning the proposed development, a determination shall be made under 49 USC 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interest of national defense pursuant to 49 USC 44502(b). Subject to a determination that the development is needed for the purpose under 49 USC 44502(b), this decision includes approval to proceed with processing funds for eligible airport development projects described in the proposed action, in accordance with 49 USC, Part B (formerly the Airport and Airway Improvement Act of 1982).

At the conclusion of the NEPA process, appropriate Federal findings will be documented in a ROD that FAA will prepare to support and explain their decision on the proposed project, or consideration of funding for the proposed projects.

If MWAA proposes to FAA to construct other projects that currently appear on the ALP and that are conditionally approved (i.e., those projects shown on the ALP but have not undergone environmental analysis, see **Section 1.2.5**), FAA will review those proposals under NEPA at the time they are requested.

2.4.2 OTHER FEDERAL ACTIONS

The MWAA has submitted an ALP to the FAA for approval. FAA will evaluate the ALP that currently shows the projects proposed by MWAA in this DEIS to:

- Determine its ability to provide a safe, efficient utilization of the IAD airfield;
- Determine the ability to increase the airfield capacity and efficiency of IAD;
- Assess factors affecting the control of air traffic;
- Approve, pursuant to 49 USC 40103, of flight procedures up to 3,000 feet above ground level (AGL) (arrivals and departures);
- Establish conformance with FAA design criteria and Federal grant agreements (Federal Aviation Regulations [FAR] Parts 77, 139, 150, 152, 157, and 169); and
- Determine that all proposed airport development shall be in accordance with standards established or approved by the Secretary of Transportation per Section 509(d) of the *Airport and Airways Improvement Act of 1982* including but not limited to, standards for site layout, site preparation, paving, lighting, and safety approaches.

Specific elements of the FAA unconditional approval of applicable portions of the ALP include the following, which will need to be accomplished prior to operation of the proposed projects:

- FAA determination of the effects upon safe and efficient utilization of airspace, including a review of potential changes to air traffic procedures for consistency with Potomac Terminal Radar Approach Control (TRACON) EIS;
- FAA determination that the proposed project is in conformance with FAA design criteria and approval of construction plans and specifications;

- DOT request that the Department of Commerce convey to MWAA a property interest in land that is administered by NOAA/NWS. The proposed project would require the relocation of certain NOAA/NWS facilities, for which NOAA will prepare separate NEPA documentation. FAA and NOAA/NWS will be coordinating their respective decisions regarding any required property transfer to MWAA and relocation of NOAA/NWS facilities;

- FAA determination that the proposed project is in conformance with Federal grant agreements per FAR Parts 77, 150, 152, 157, and 169;

- FAA review and approval of amended *Airport Certification Manual* (Part 139);

- FAA establishment of new instrument landing systems and associated approach lighting systems, and navigational aids as appropriate, for the new runways;

- FAA establishment of new flight procedures, including visual and instrument arrival and departure procedures for the new runways (Part 95);

- FAA provision of controller training for new simultaneous approach/departure procedures and facilities;

- FAA development of facility procedures for departure headings, simultaneous approaches, airspace procedures, and position responsibilities;

- FAA development of new video maps for the new runways and associated airspace; and

- FAA designation of controlled airspace and revised routing (FAR Part 71 and 75).