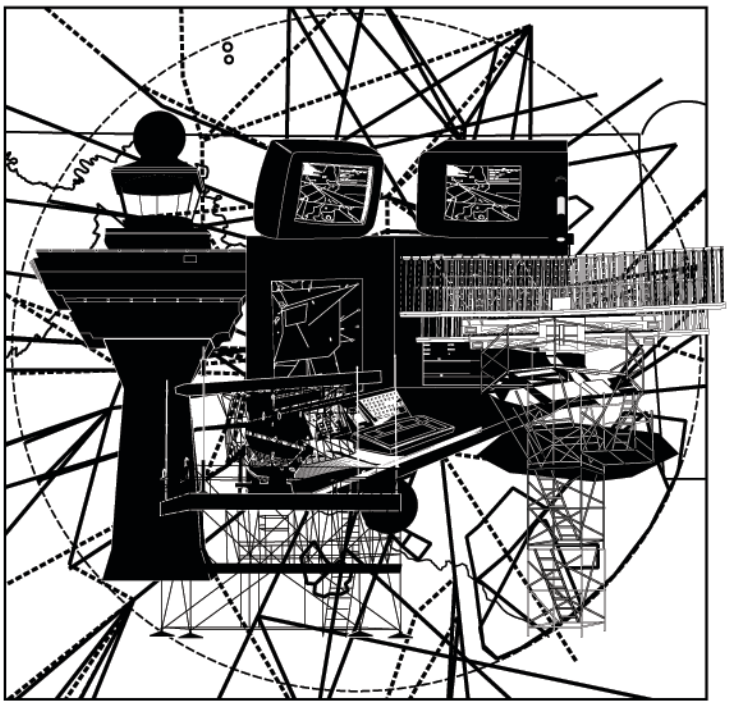
FINAL

ENVIRONMENTAL IMPACT STATEMENT

Potomac Consolidated TRACON Airspace Redesign



December 2002

Prepared By

U.S. Department of Transportation
Federal Aviation Administration

EXECUTIVE SUMMARY

The Federal Aviation Act of 1958 gives the FAA various responsibilities and holds it accountable for controlling the use of the navigable airspace and regulating civil and military operations in that airspace in the interest of the safety and efficiency of both of these operations [49 U.S.C. Section 40101(d)(4)]. In its effort to continually enhance safety and improve efficiency of aircraft employed in interstate commerce and for persons who desire transportation by air, the FAA is proposing modifications to aircraft routes and air traffic control procedures used in a 23,000 square mile area around Washington DC (the District).

The airspace redesign was conceived as a system for more efficiently delivering aircraft to and from major airports in the study area to benefit Instrument Flight Rule (IFR) aircraft.

The airspace redesign study (the Study) encompasses the area within a 75-nautical mile (NM) radius centered on a radio navigational aid (NAVAID), Non-Directional Beacon (NDB) in Georgetown, within the District. The study area comprises portions of five states – Delaware, Maryland, Pennsylvania, Virginia and West Virginia – and all of the District. **Figure ES-1** illustrates the study area.

This EIS evaluates the potential impacts associated with alternative routings for aircraft flying IFR at altitudes up to 18,000 feet mean sea level (MSL) from/to Andrews Air Force Base (ADW), Baltimore/Washington International Airport (BWI), Washington Dulles International Airport (IAD), Ronald Reagan Washington National Airport (DCA) and several smaller area airports. Aircraft overflying the area are also included in the analysis. Chapter 3 contains a more detailed description of the study area.

The tragic events of September 11, 2001 have led to increased security and reduced activity at the Baltimore-Washington Metropolitan area airports as well as other airports nationwide. Although the Potomac airspace project was proposed and evaluated prior to September 11, 2001, the proposed project would still meet important needs in the Baltimore-Washington Metropolitan area as evaluated by this EIS. The forecast included in this EIS is based on the best available data and valid assumptions, and the Proposed Action and its need are still sound. The forecast assumes that temporary downturns or upswings may occur during the forecast period. In the past, aviation activity has undergone significant, although temporary, reductions in response to economic downturns or security events such as the Persian Gulf War, but has recovered.

This EIS considers four airspace redesign alternatives consisting of a No Action Alternative and three other alternatives that address changes in routes and altitudes for aircraft away from the close-in airport environment. Changes to initial departure or final arrival procedures are not proposed. Generally, aircraft would be three to five miles from the departure/arrival airport before the changes that are proposed for each alternative would take effect, with the exception of the No Action Alternative, which considers no changes to the existing airspace. Additionally, current noise abatement procedures at the airports would not be changed under any of the alternatives.

NORTH

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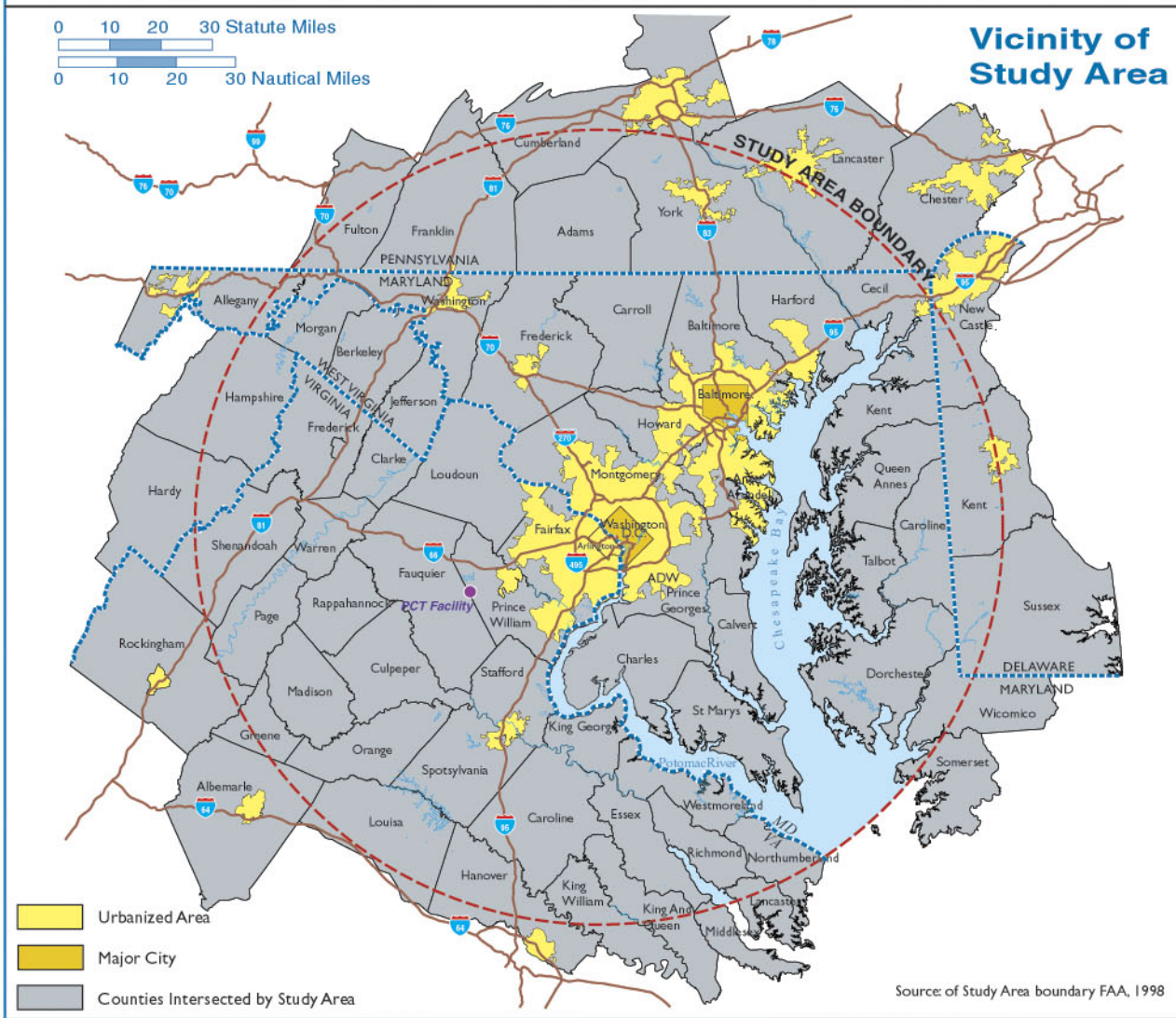
Study Area

FIGURE ES-1

Location of Study Area



Vicinity of Study Area

Source: of Study Area boundary FAA, 1998

The airspace redesign alternatives considered within this EIS are possible only as a result of infrastructure and air traffic control (ATC) coordination improvements gained by the use of the new Potomac Consolidated TRACON (PCT).

This EIS addresses the potential impacts of the proposed project on environmental resource categories, as required by federal law and regulation. It has been prepared in accordance with Section 102(c) of the National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190, 32 U.S.C. Section 3321 et. seq.), the Federal Aviation Act of 1958 (49 U.S.C. Section 40101 et. seq.), the Airport and Airway Safety and Capacity Expansion Act of 1987 (49 U.S.C. Section 47101 et. seq.), and other laws as applicable.

1.1 TIERING

This EIS is tiered from an earlier EIS that evaluated environmental impacts that could result from a decision to physically consolidate the four Baltimore-Washington metropolitan areas TRACONs into a new building somewhere in the area. The first tier or "building EIS" resulted in FAA issuing a Record of Decision (ROD) on June 3, 1999. The ROD documented the decision to consolidate the four existing TRACONs into a new facility at Vint Hill in Fauquier County, Virginia. Subsequent to the ROD, the decision was made to consolidate the Richmond TRACON into the PCT. However, the incorporation of the Richmond TRACON has no effect on the scope of the airspace redesign.

The airspace redesign alternatives that are being considered in this EIS are made possible by establishment of the new PCT.

1.2 AIRSPACE REDESIGN BACKGROUND

1.2.1 National Airspace System

The NAS is the common network of air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, and manpower and material.

ATC's primary purpose is to separate aircraft operating in the system and to organize and expedite the flow of traffic. ATC maintains aircraft separation by directing aircraft by means of a specific route, altitude, and/or airspeed.

The ATC system is composed of several different types of facilities, with different purposes. Airport Traffic Control Towers (ATCT) manage airborne aircraft that are within a few miles of the airport, and aircraft that are on the ground. Primarily, ATCTs use sight to identify and track aircraft. They sequence arriving and departing aircraft on the runways. Air Route Traffic Control Centers (ARTCC) and TRACON facilities (such as PCT) manage air traffic that is not within the immediate vicinity of an airport, and thus use radar to identify and track aircraft. ARTCCs generally manage air traffic during the cruise portion of a flight, when the aircraft is at high altitudes. TRACONs generally manage air traffic during a flight's arrival or departure phase, when the aircraft is within approximately 50 miles of the airport.

1.2.2 National Perspective

The NAS is experiencing deficiencies that are evident to both users (the flying public, airlines, General Aviation, and the military) and the FAA. While today's ATC system provides a high level of safety, the continuing growth in air traffic volume has resulted in increased delays to maintain safe separation of aircraft. Additionally, the existing system was not designed to accommodate the potential user efficiencies that have been created by the advent of advanced navigation systems (e.g., inertial and satellite navigation systems). Consequently, NAS users suffer costly delays during periods of high traffic volume.

Due to the existing constraints in the NAS, (a system designed around land-based navigation aids) users cannot reduce their operational costs by flying routes they prefer or by receiving timely departure/arrival clearances. These options would require use of more advanced navigational aids (i.e., inertial and satellite navigational systems) that are not yet fully designed and certified by the FAA.

Major metropolitan areas have experienced increased air traffic demand resulting from influences such as population growth and an improved economy. Increased volume has made the existing airspace structure inefficient, which contributes to delays, lengthier routings, complex ATC procedures, and airspace saturation.

Nationwide, airspace management has become increasingly complex and more challenging as aircraft technological advances continue to occur and air traffic activity continues to grow. To maintain safety and efficiency, the FAA, airlines, and airport operators have worked to keep pace with these challenges through advances in air traffic control technology, airline efficiencies and airport improvements. Nonetheless, inefficiencies continue to occur and will increase as traffic levels rise unless further improvements are made.

In addition to the Baltimore-Washington metropolitan area, numerous proposals for airspace redesign have begun in the NAS. Two proximate studies are in the Chicago and New York areas. A ROD for the Chicago Terminal Airspace Project (CTAP) was published in November 2001 and the environmental analysis process has begun for redesign of airspace in the New York/New Jersey/Philadelphia metropolitan areas.

1.2.3 Local Perspective

The airspace to be controlled by the new PCT is one of the busiest air traffic areas in the world. Home to the nation's capital, the area is a major hub for national and international civilian and military air traffic. Geographically located in the mid-Atlantic region of the United States, it serves as one of the primary regions for reception and delivery of air traffic from and to Europe. Inefficiencies in this airspace can adversely affect major portions of the NAS.

From a historical perspective, DCA was the first major airport in the area. Although DCA lies in the center of the study area, the operational growth of BWI and IAD makes it prudent for FAA to re-examine use of the Baltimore-Washington metropolitan area airspace. The proximity of DCA and IAD has a significant effect on the operational efficiency of each airport. The airspace delegated to, and the AT procedures at each of the airports were adequate to the relative volume at each airport when the last airspace design was implemented in 1987. The operations at BWI, which have run apace with those at DCA in recent years, are forecast to exceed those at DCA. It has only

been in recent years that the operations at IAD have exceeded those at DCA. Steady growth at IAD has finally begun to approach the capacity available at that airport, while the operations at DCA, which is restricted by size and regulation, have remained relatively constant.

Today, ATC procedures in the Baltimore-Washington metropolitan area favor the operations at DCA. In fact, given the noise abatement procedures at DCA, the operation is very operationally efficient. Viewed from a system perspective, under today's airspace design, maximum operational efficiency at DCA has a negative effect on operational efficiency of IAD and BWI. Growth at IAD and BWI continues to exacerbate the situation.

The existing level of traffic is not efficiently handled by the current airspace design, which is based on the interaction of four separate area TRACONs. In the late 1980s, it became clear that the increased demand for air service in the Baltimore-Washington metropolitan area would result in unacceptable congestion and delays to users of the airspace controlled by the four existing area TRACONs. In 2000, the area TRACONs were controlling 1.9 million operations and overflights.[1] By the year 2005, this volume is projected to increase to 2.1 million.[2] Excessive user delay and inefficient routings result from the current design. As addressed in Section 1.2, FAA has made the decision to physically consolidate the Baltimore-Washington area TRACONs. This EIS evaluates changes in airspace usage that could occur after the consolidation.

1.3 PROPOSED ACTION

The Proposed Action for this EIS is to redesign the airspace in the Baltimore-Washington metropolitan area excluding noise abatement procedures. This involves developing new routes, altitudes and procedures to take advantage of the newly consolidated TRACON, improved aircraft performance, and emerging ATC technologies.

Notably, despite the advances in aircraft and ATC technology and increases in the number and types of aircraft using the airspace, the basic structure of the airspace has essentially remained the same for many years. The proposed PCT airspace redesign project is intended to improve air traffic flow, enhance safety and improve efficiency that will reduce delays, simplify operations for pilots, decrease controller workload, and increase controller flexibility during periods of severe weather.

1.4 PURPOSE AND NEED FOR THE ACTION

The purpose of this airspace redesign is to take full advantage of the benefits afforded by the newly consolidated TRACON facility by increasing air traffic efficiency and enhancing safety in the Baltimore-Washington metropolitan area.[3]

There are three overriding reasons to consider airspace redesign for the Baltimore-Washington metropolitan area: 1) growth in demand, 2) air traffic control inefficiencies, and 3) planned capability. These three reasons are discussed in the following subsections.

1.4.1 Growth in Demand

Over 27.4 million passengers were enplaned at BWI, DCA, and IAD in fiscal year (FY) 2000. That number is projected to increase to 28.2 million by the year 2005 using the FAA's Office of Aviation Policy and Plans

(APO) projections.[4] It is significant to note that APO projections have understated the recent rapid growth at BWI and IAD.

ADW generates a heavy volume of national security-sensitive air traffic including presidential, congressional, and diplomatic flights.

Currently, during peak traffic periods, the Baltimore-Washington metropolitan area experiences air traffic delays. Despite the current level of delay, the demand for services continues to increase as evidenced by the extensive expansion plans at BWI and IAD that have received considerable coverage in local news media and are listed in later sections of this EIS. More efficient use of the Baltimore-Washington metropolitan area airspace, without compromising safety, is needed if the projected system demand is to be met without excessive delays for the flying public.

1.4.2 Air Traffic Control Inefficiencies

The movement of aircraft within the airspace as presently configured has become increasingly inefficient. The era of aviation deregulation witnessed a dramatic and unpredictable growth in the demand for air traffic services.

The proximity of high performance jet aircraft operating in and out of four major airports creates a complex air traffic control environment. National security requirements in and around the District have also resulted in numerous restrictions being placed on airspace use. The combined factors of increased traffic volume, proximity of airports, the mix of aircraft with widely varying operating characteristics, and special-use airspace requirements, have compounded operational complexity and degraded overall operational efficiency. These inefficiencies are further categorized as communication, boundary, arrival and departure inefficiencies and are discussed in the following sections.

Communication Inefficiencies

The existing four TRACONS each have separate radar, flight data processing automation and communication systems. This means that the existing four TRACONs operate using separate automation systems that do not allow rapid exchange of data among controllers in adjacent facilities. Communication between TRACONs relies on "Voice Call" lines.

The initiating controller must make a voice call to a controller at another local area TRACON and then wait for the receiving controller to answer before coordination between TRACONs may be affected. The initiating controller has no way of determining if the receiving controller is too busy to answer the line and must make a decision on how to handle the affected aircraft until communication is established.

The establishment of the PCT will provide a single radar facility for controlling all aircraft in the Baltimore-Washington metropolitan area away from the arrival/ destination airports (TRACON controllers typically manage aircraft that are between 5 and 50 miles from the airport). The immediate area around the airport is controlled by the ATCT.

The PCT will house all the areas' TRACON controllers in one facility with one new automation platform[5] that will provide dramatically improved opportunity for coordination. This enhanced capability will provide the opportunity for integrated procedures that promote user efficiencies and enhance safety especially during inclement weather conditions.

The PCT will allow all controllers (formerly from the four separate TRACONs) to have real-time information on all aircraft, and more effective communication with all controllers in the PCT. This ability will enhance safety and reduce communications delays for flights that traverse the area. It will also allow redesigning routes in order to benefit from the improved communication capability.

Boundary Inefficiencies

There are approximately 64 altitude/speed restrictions as aircraft transition between inter-facility boundaries with the airspace controlled by the existing four TRACONs. As stated earlier, prior to consolidation, each facility operated using its own communications, automation and radar systems that share limited inter-facility links.

In lieu of coordinating each aircraft with the receiving controller, sets of standard procedures have been developed to allow "silent hand-offs" of aircraft between facilities. These result in predetermined "one size fits all" altitude and speed restrictions for that particular boundary crossing to ensure a full measure of safety when transferring an aircraft from one facility to another. When these pre-determined altitudes were designed, the designers took into consideration the worst performing aircraft and set the standards accordingly. This currently has the effect of penalizing higher performance aircraft. In the worst case scenario, the higher performance aircraft may be penalized (i.e., by slower speeds, specific altitudes) when there are no other aircraft in proximity, across the facility boundary.

In the PCT, all controllers will use the same automation and communication system, thus ensuring the capability to display all of the information within the PCT's airspace boundaries that a controller may need. In addition, a controller will have instant voice access to any other controller in the consolidated facility. The ability to have this instant access with a common communication system and full flight data information from the common automation system will eliminate the need for many of the present speed and altitude restrictions. Redesign of the airspace would permit elimination of the present airspace boundary restrictions.

Arrival Inefficiencies

There are numerous arrival fixes in the Baltimore-Washington metropolitan area. Many arrival streams are eventually consolidated through controller vectoring, the merging of incoming flows of aircraft as they approach their destination airport. This process effectively funnels aircraft toward their destination airport. Aircraft routes are consolidated and the distance between aircraft is compressed as aircraft approach their destination airport. Many of these arrival procedures prescribe radar vectors that steer a landing aircraft a considerable distance from the intended arrival airport at lower altitudes to allow departure traffic to climb above the arrivals. As aircraft are descended, fuel usage and noise levels increase. An additional consequence is that jets are mixed with turboprop and prop aircraft at the lower altitudes, requiring controllers to pay considerable attention to the different operating characteristics (including wake turbulence) of these dissimilar aircraft.

Departure Inefficiencies

Departing aircraft are also constrained by the existing four-TRACON structure. Situations occur where departure aircraft are restricted to a specific altitude in order to cross boundaries between area TRACONs.

In many cases, altitude restriction is used to separate aircraft from an adjacent facility's airspace as opposed to another aircraft. Newer, high performance aircraft are penalized the most in limits to their operating capabilities such as departure restrictions. Other departure aircraft are vectored great distances to cross into another facility's airspace at a specified point in space that meets the receiving facility's need. The consolidated TRACON will permit the elimination of the existing inter-TRACON boundaries, allowing for more efficient routing of departures.

1.4.3 Planned Capability Improvement

Consolidation of the individual airspace controlled by each of the existing four TRACONs will enable altitude optimization and use of a "high downwind" operation at the primary airports in the area. All area airports could be served from multiple arrival fixes. Different altitudes would be used to ensure that aircraft going to the nearest airport would be lowest in the arrival pattern at a particular fix. Rather than vectoring arrivals farther out from the airport and descending the aircraft, these arrivals would be kept high enough to allow departure aircraft to exit the airport area beneath the arrival stream but not so high as to cause aircraft passenger discomfort during the descent. The departures would then be allowed to climb relatively unrestricted toward their departure gate/fix.

As a result of the PCT, aircraft routes and altitudes can be modified to take advantage of coordination improvements afforded by TRACON consolidation. The inefficiencies previously identified can be resolved through airspace redesign.

1.4.4 Purpose and Need Summary

The proposed action and Purpose and Need are summarized here:

- The proposed action being considered for approval is to redesign the airspace in the Baltimore-Washington metropolitan area.
- The purpose of this airspace redesign is to take full advantage of the benefits afforded by the newly consolidated TRACON facility allowing for increases in air traffic efficiency and enhanced safety in the Baltimore-Washington metropolitan area.
- The proposed action is needed to:
  - Meet the projected growth in aviation demand without inducing excessive delays and while maintaining safety of flight;
  - Resolve current air traffic control inefficiencies (affecting communications, boundaries, arrival and departure procedures) to handle existing and projected traffic demand;
  - Exploit the infrastructure improvements afforded by the TRACON consolidation by modifying aircraft routes and altitudes.

1.5 ALTERNATIVES

Federal guidelines concerning the environmental review process require that reasonable alternatives that might accomplish the project Purpose and Need be rigorously explored and objectively evaluated. The following types of potential alternatives are considered:

- Air Travel Demand Management - regulate air travel demand to limit flight operations to a level below the saturation level of the airspace structure
- Improved Air Traffic Control Technology – use of new technologies to improve the efficiency of the airspace
- Airspace Redesign Alternatives - use restructured airspace routes, altitudes, and sectors to route aircraft to and from area airports

Only airspace redesign offers the potential to improve operational efficiency using the PCT's improved internal communications capabilities, and improved ATC and NAS technology.

1.5.1 Evaluation of Reasonable Alternatives

In developing each alternative, the Potomac Design Team considered design objectives and constraints to the airspace redesign. The following objectives and assumptions guided the development of airspace alternatives:

Airspace Design Objectives

- Reduce congestion in sectors
- Shorten routes
- Segregate routes for aircraft of dissimilar operating characteristics
- Impose fewer altitude restrictions on climbing departure aircraft
- Allow aircraft to operate at higher, more fuel efficient altitudes for longer periods
- Provide radar service where currently non-radar service is provided[6]
- Use point-to-point navigation (e.g., RNAV, GPS)
- Create flexible airspace structure
- Accommodate projected growth
- Reduce existing and future environmental impact if possible

Airspace Design Assumptions

- Point-to-point navigation capability (e.g., RNAV, GPS)
- Single automation platform
- Multiple radar sites (coverage)
- No changes to present-day restricted and prohibited areas
- No changes to published noise abatement procedures or initial departure/final arrival procedures.

1.5.2 Reasonable Alternatives Considered

In addition to the No Action Alternative three airspace redesign alternatives were considered in detail for this EIS. The No Action Alternative was included in subsequent analyses, as required by NEPA and CEQ regulations, in order to determine the relative environmental impacts and benefits of the reasonable alternatives, as compared to the existing airspace structure. The alternatives considered within this EIS are identified as follows:

No Action Alternative

The existing airspace structure (the No Action Alternative) relies on a system of fixes, routes, and procedures to direct aircraft through PCT airspace. ATC operates in a systematic manner such that all flights between two airports are typically assigned to the same route. A series of gates and structured procedures are used to ensure safe separation between aircraft that are on opposite sides of the intra-facility boundaries.

Intra-facility boundaries refer to the internal walls of the PCT airspace structure. The

walls are the former boundaries of the ADW, BWI, DCA, and IAD TRACONs that existed prior to TRACON consolidation.

Figures ES-2 and **ES-3** show the arrival and departure routes used in the existing airspace structure. The figures show the north/west[7] and south/east[8] runway use configurations.

Alternative 1 – New Peripheral Airspace Ingress/Egress Transfer Points with New Internal Airspace Design

Alternative 1 allows for more direct routing of aircraft by using flexible arrival and departure fixes that are not based on conventional ground-based Navigational Aids (NAVAIDs).

Alternative 1 uses area navigation to guide aircraft. Conventional navigation generally requires that aircraft be routed over ground-based NAVAIDs. Area navigation allows fixes to be established virtually anywhere. Note that area navigation does not necessarily require use of flight management systems (FMS). Aircraft without area navigation capabilities would necessarily be vectored by ATC.

Alternative 1 arrival and departure routes for a north/west and south/east configuration are shown in **Figures ES-4** and **ES-5**, respectively. These figures illustrate some of the specific differences between Alternative 1 and the No Action alternative, namely:

- A new parallel downwind pattern (both left and right downwind legs) for BWI arrivals to Runway 33 would be created.
- A new departure track for jet departures to the southwest would be created at BWI.
- North flow ADW jet departures make right hand turns after departing the airfield.
- Southbound DCA Runway 04 jet departures would have a delayed turn to the south after departing the airfield.
- Philadelphia arrivals routed through PCT would be routed more directly to their destination

Alternative 2 – Existing Peripheral Airspace Ingress/Egress Transfer Points with New Internal Airspace Design (Preferred Alternative)

Alternative 2 is the preferred alternative and the environmentally preferred alternative. Alternative 2 was conceived as a low-risk concept from the viewpoint of implementation. Alternative 2 does not significantly affect the airspace structure of ATC facilities adjacent to PCT airspace and, therefore, does not require inter-facility coordination or approval. This means that the existing ingress and egress transfer points at the boundary of PCT airspace would remain essentially unchanged. Alternative 2 primarily proposes changes only to the airspace structure within the existing PCT airspace boundaries. Alternative 2 would remove the intra-facility boundaries and related constraints of the existing airspace structure.

Alternative 2 arrival and departure routes for a north/west and south/east configuration are shown in **Figures ES-6** and **ES-7**, respectively. These figures illustrate some of the specific differences between Alternative 2 and the No Action alternative, namely:

- For IAD departures, the AML (Armel) departure fix would be moved to the north to avoid crossing of arrivals from west.
- A new high right downwind pattern would be created for BWI arrivals to Runway 33L.

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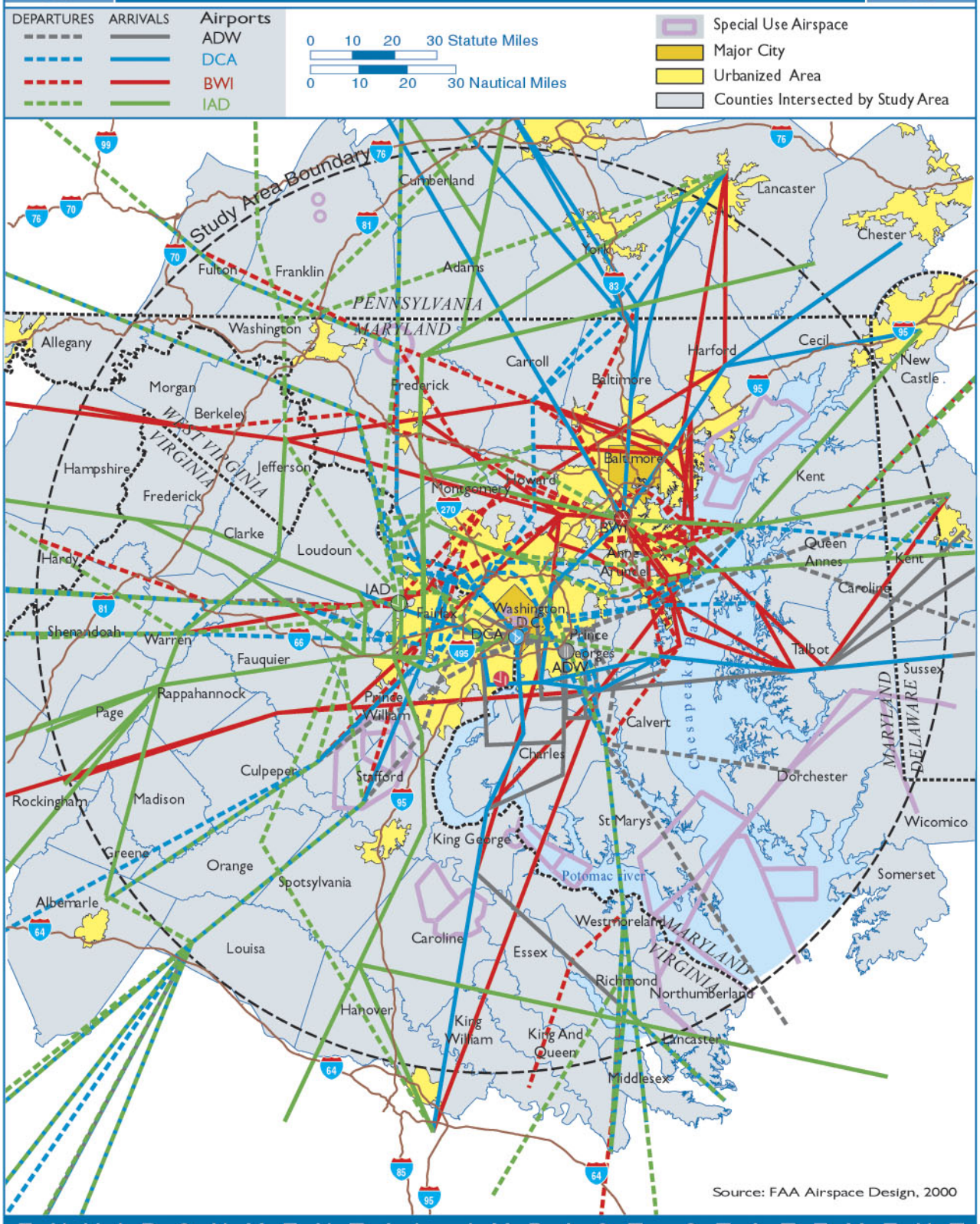
North/West Routings for No Action Alternative

FIGURE ES-2



Source: FAA Airspace Design, 2000

NORTH

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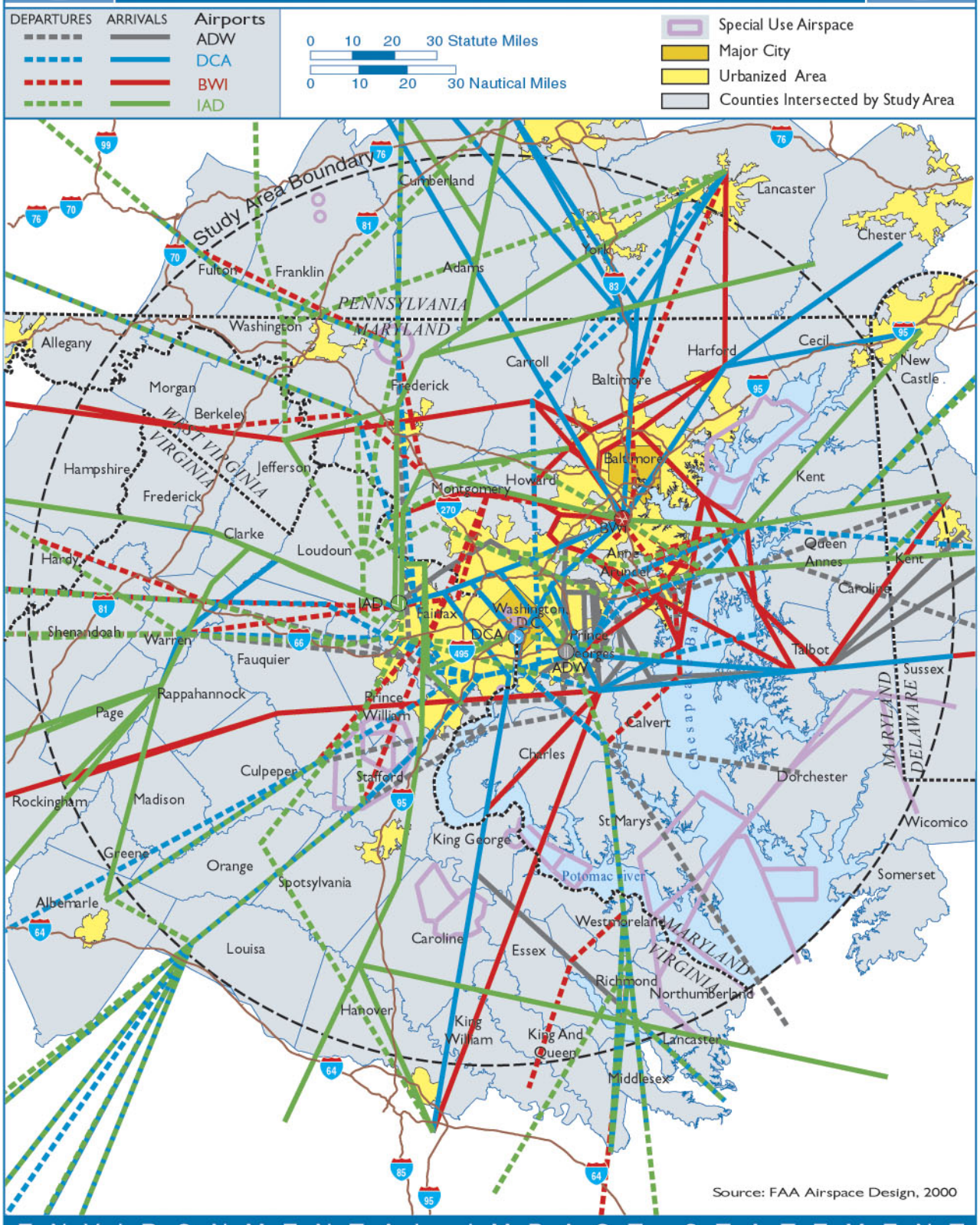
South/East Routings for No Action Alternative

FIGURE ES-3



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North/West Routings for Alternative 1

FIGURE ES-4

Source: FAA Airspace Design, 2000

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South/East Routings for Alternative 1

FIGURE ES-5

Source: FAA Airspace Design, 2000

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North/West Routings for Alternative 2

FIGURE ES-6

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South/East Routings for Alternative 2

FIGURE ES-7

- A new high left downwind pattern would be created for IAD arrivals to Runway 01L.
- Southbound DCA Runway 04 jet departures would have a delayed turn to the south after departing the airfield.
- Alternative 2 would route the aircraft landing at IAD from the New York area to ingress PCT airspace at the lowest useable flight level (i.e., an altitude of 18,000 feet or greater)[9], instead of the current procedure that restricts aircraft to an altitude of 10,000 feet and airspeed of 250 knots.
- Aircraft landing at BWI, DCA and ADW from the north would also enter the PCT airspace at higher altitudes than they do in the existing airspace structure.
- Philadelphia arrivals routed through PCT would be routed more directly to their destination.

Alternative 3b – New/Existing Peripheral Airspace Ingress/Egress Transfer Areas with New Internal Airspace Design (includes Corner Post with Arrival Transfer Areas)

Alternative 3b is a derivative of the corner post system, which was discussed in Section 2.2, Alternative 3a. However, Alternative 3b uses transfer areas[10] between adjacent ATC facilities and PCT. The use of arrival transfer areas increases airspace flexibility, and removes the restrictions (i.e., established structure) inherent in the corner post system. Departure routes would be located between the arrival transfer areas and routes. Arrivals and departures would be segregated and traffic in a given ATC sector would be traveling in the same direction. In areas where arrival and departure routes would cross, routes would narrow and would be designed for minimal interaction and interdependency between aircraft.

Alternative 3b arrival and departure routes for a north/west and south/east configuration are shown in **Figures ES-8** and **ES-9**, respectively. These figures illustrate some of the specific differences between Alternative 3b and the No Action alternative, namely:

- A more direct routing of BWI late night southwestbound departures from Runway 28 would be established.
- A new high left downwind pattern would be created for IAD arrivals to Runway 01L.
- A more direct routing to new departure fixes for DCA Runway 04 departures, both north- and southbound, would be created.
- A more direct routing for ADW westbound departures would be established.
- All north- and westbound departures off of Martin State Airport's Runway 15 would initially make a left rather than a right turn after departing the airfield.
- Philadelphia arrivals routed through PCT would be routed more directly to their destination.

All the Action Alternatives would include a significant redesign of the PCT airspace structure, thus yielding improvements in operational efficiency. The alternatives would require varying degrees of coordination and transfer of control with adjacent ATC facilities; thus, the ease and timeliness of implementation are also important criteria.

1.6 AFFECTED ENVIRONMENT

The airspace redesign study encompasses the area within a 75 NM radius centered on a navigational aid in Georgetown, within the

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North/West Routings for Alternative 3b

FIGURE ES-8

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South/East Routings for Alternative 3b

FIGURE ES-9

District. The specific navigational aid is the Georgetown NDB. The area in which the Proposed Airspace Redesign changes would occur determined the size of the study area. It was determined that the majority of the airspace changes affecting aircraft beyond 75 NM would be at altitudes where significant impacts are not likely to occur.

The airspace redesign area comprises portions of five states—Delaware, Maryland, Pennsylvania, Virginia, and West Virginia—and all of the District. As illustrated in Figure ES-1, Delaware, Maryland, Pennsylvania, and the District are included in the Mid-Atlantic sub-region of the Northeastern region of the United States, while Virginia and West Virginia are included in the Southern region of the United States. The airspace study area is comprised of approximately 23,400 square miles encompasses all or part of approximately 83 counties, ten independent cities, the District, as well as other municipal areas.

1.6.1 Study Area Airports

There are 76 public-use airports located in the study area. A representative traffic sample was used to build a baseline of the existing air traffic operations and overflights. This sample included IFR traffic into and out of 39 of these airports.

This study focuses on the four primary airports (BWI, DCA, IAD, and ADW) and 16 non-primary airports, which are listed in **Table ES.1**. Airports for which individual runways were modeled include those that had a significant volume of aircraft flying IFR (based on available FAA flight plan and radar data).

Table ES.1

List of Airports Modeled in Study Area

Category	Airport	ID
Primary	Andrews Air Force Base	ADW
	Baltimore-Washington International	BWI
	Ronald Reagan Washington National	DCA
	Washington Dulles International	IAD
Non-Primary	Phillips Army Airfield	APG
	College Park	CGS
	Davison Army Airfield	DAA
	Carroll County Regional/Jack B. Poage Airport	DMW
	Easton	ESN
	Shannon	EZF
	Frederick Municipal	FDK
	Montgomery County Airpark	GAI
	Manassas Regional	HEF
	Hagerstown Regional	HGR
	Leesburg Executive	JYO
	Eastern West Virginia Regional	MRB
	Martin State	MTN
	Patuxent River Naval Air Station/Trapnell Field	NHK
	Winchester Regional	OKV
	Bay Bridge	W29

Note: Precede each ID with a 'K' to create the ICAO ID.

Source: FAA Airspace Design Team

1.6.2 Flight Operations

Although the noise environment around major airports comes almost entirely from operations of jet aircraft, the DNL calculations used in this EIS reflect the noise from many types of jet and propeller aircraft operations on IFR flight plans. Aircraft (including helicopters) operating VFR are not part of the airspace redesign because they are unaffected by the proposed alternatives. IFR Flight operations modeled for this EIS were 4,662 in the year 2000, 5,033 in the year 2005, and 5,516 in the year 2010.

1.7 ENVIRONMENTAL CONSEQUENCES

A total of 19 impact categories are addressed using criteria defined in FAA Order 1050.1D, Change 4 "Policies and Procedures for Considering Environmental Impacts."

1.7.1 Noise

The FAA has considered the matter of threshold levels above which aircraft noise causes an adverse impact on people. The FAA and other federal agencies have established DNL 65 dB as the threshold above which aircraft noise is considered not to be compatible with residential land use. FAA criteria recognizes that a significant impact occurs if a proposed action would result in an increase of DNL 1.5 dB or more on any noise sensitive area exposed to DNL greater than or equal to 65 dB. [11 12 13]

In 1992, FICON recommended that where there is a significant noise impact the FAA conduct further analysis. FICON recommended that the FAA evaluate noise levels between DNL 60 and 65 dB for potential increases in DNL greater than or equal to 3 dB. The FAA adopted FICON's recommendation into FAA Order 1050.1D, Change 4.

For the purpose of this EIS, increases of 3 dB in areas that would be exposed to DNL between 60 dB and 65 dB were considered to have slight-to-moderate impacts. Additionally, increases of 5 dB or greater in areas that would be exposed to DNL between 45 dB to 60 dB are also considered to be slight-to-moderate impacts. The increase in noise at these levels is enough to be noticeable and potentially disturbing to some people, but the cumulative noise level and the magnitude of the change are not high enough to constitute a significant impact.

Alternative 1

Applying the FAA impact thresholds, the change in aircraft DNL relative to the No Action Alternative, is depicted in **Figure ES-10** for years 2005. No significant impact would result from noise increases of Alternative 1. The majority of the areas seen in the figures are slight-to-moderate impacts and areas of slight-to-moderate relief, concentrated near the primary airports. There would be a couple of small areas newly impacted. Unique to Alternative 1 and 2010, there would be a small area of slight-to-moderate relief in the southwestern portion of the study area in Greene County, Virginia.

Alternative 2

The change in aircraft DNL relative to the No Action Alternative, is depicted in **Figures ES-11** for years 2005. The majority of the areas seen in the figures are areas of slight-to-moderate impacts and areas of slight-to-moderate relief, concentrated near the primary airports. There would be one small area newly impacted west of IAD in 2005. The shape of area 205B, north of IAD, is due to the peculiar geography of a particular census block along the Potomac River.

Alternative 3b

The change in aircraft DNL relative to the No Action Alternative is depicted in **Figure ES-12** for the year 2005. No significant noise impact would result from noise increase of Alternative 3b. The majority of the areas seen in the figures are slight-to-moderate impacts and areas of slight-to-moderate relief, concentrated near the primary airports. For 2005, there would be one area newly impacted west of BWI. For 2010, there would be four areas newly

NORTH

Intervals of Noise Exposure Change in color valued Census Blocks:

Slightly to Moderately Relieved
Newly Relieved
Significantly Relieved
Decreasing Impact

Slightly to Moderately Impacted
Newly Impacted
Significantly Impacted
Increasing Impact

Source: FAA Analysis

Major Cities and Urbanized Area
Counties Intersected by Study Area

EXECUTIVE SUMMARY

Change in Aircraft Noise Exposure for Year 2005 Alternative 1 Relative to the No Action Alternative

FIGURE ES-10

0 10 Statute Miles
0 10 Nautical Miles

PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA

Franklin
Adams
York
Chester
Washington
Carroll
Baltimore
Harford
Cecil
New Castle
Study Area Boundary
Morgan
Berkeley
105B
Frederick
Jefferson
105G
105N
BALTIMORE
105P
105H
Howard
105L
105O
Kent
105A
Clarke
Loudoun
Montgomery
105D
105I
Anne Arundel
BWI
105M
105Q
Queen Annes
Kent
105T
IAD
105C
Warren
Fauquier
WASHINGTON, D.C.
Fairfax
Arlington
DCA
105K
ADW
105J
105E
105F
Caroline
MARYLAND
DELAWARE
Talbot
105S
105R
Chesapeake Bay
Prince Georges
Calvert
Rappahannock
Prince William
Culpeper
Charles
Potomac
Sussex
Dorchester

POTOMAC CONSOLIDATED TRACON AIRSPACE REDESIGN

NORTH

Intervals of Noise Exposure Change in color valued Census Blocks:

Slightly to Moderately Relieved
Newly Relieved
Significantly Relieved
Decreasing Impact

Slightly to Moderately Impacted
Newly Impacted
Significantly Impacted
Increasing Impact

Source: FAA Analysis

Major Cities and Urbanized Area
Counties Intersected by Study Area

EXECUTIVE SUMMARY

Change in Aircraft Noise Exposure for Year 2005 Alternative 2 Relative to the No Action Alternative

FIGURE ES-11

0 10 Statute Miles
0 10 Nautical Miles

PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA

Franklin
Adams
York
Chester
Washington
Carroll
Baltimore
Harford
Cecil
New Castle
Study Area Boundary
Morgan
Berkeley
Frederick
Jefferson
Clarke
Loudoun
Montgomery
Howard
Anne Arundel
Kent
Queen Annes
Caroline
Talbot
Warren
Fauquier
Rappahannock
Culpeper
Prince William
Fairfax
Arlington
Prince Georges
Calvert
Charles
Dorchester
Sussex
Chesapeake Bay
Potomac
MARYLAND
DELAWARE

BALTIMORE,

WASHINGTON, D.C.

205A
205B
205C
205D
205E

IAD
DCA
ADW
BWI

81 83 95 340 70 695 270 97 28 29 7 50 66 495 301 4 2 1 5

MARYLAND CONSOLIDATED TRACON ENVIRONMENTAL IMPACT STATEMENT

POTOMAC CONSOLIDATED TRACON AIRSPACE REDESIGN

ENVIRONMENTAL IMPACT STATEMENT

NORTH

Intervals of Noise Exposure Change in color valued Census Blocks:

Slightly to Moderately Relieved
Newly Relieved
Significantly Relieved
Decreasing Impact

Slightly to Moderately Impacted
Newly Impacted
Significantly Impacted
Increasing Impact

Source: FAA Analysis

Major Cities and Urbanized Area
Counties Intersected by Study Area

EXECUTIVE SUMMARY

Change in Aircraft Noise Exposure for Year 2005 Alternative 3b Relative to the No Action Alternative

FIGURE ES-12

0 10 Statute Miles
0 10 Nautical Miles

PENNSYLVANIA
MARYLAND
WEST VIRGINIA
VIRGINIA

Franklin
Adams
York
Chester
Washington
Carroll
Baltimore
Harford
Cecil
New Castle
Study Area Boundary
Morgan
Berkeley
Frederick
Jefferson
Howard
Kent
Clarke
Loudoun
Montgomery
Anne Arundel
Queen Annes
Caroline
Talbot
Kent
Sussex
Warren
Fairfax
Fauquier
Rappahannock
Culpeper
Prince William
Prince Georges
Calvert
Charles
Dorchester
Chesapeake Bay
Potomac
MARYLAND
DELAWARE

BALTIMORE
WASHINGTON, D.C.
Arlington

3b05A
3b05B
3b05C
3b05D
3b05E
3b05F
3b05G
3b05H
3b05I
3b05J
3b05K
3b05L
3b05M
3b05N

IAD
DCA
ADW
BWI

81 83 95 340 70 695 270 97 28 29 7 50 66 495 301 4 2 1 5

impacted – two near IAD and two near BWI. The shape of area 3b05B, north of IAD, is due to the peculiar geography of a particular census block along the Potomac River.

1.7.2 Compatible Land Use

The proposed alternatives do not result in significant noise impacts. Additionally, noise levels in the study area have been compared with the land uses for the area using the FAA land use compatibility table[14] and they are compatible. Therefore, it can be concluded that there would be no significant impacts as it relates to compatible land uses.

1.7.3 Socioeconomic Impacts and Environmental Justice

Although some areas with high minority and low-income populations will experience a slight-to-moderate noise impact, other areas with the similar demographics will experience a slight-to-moderate reduction in noise impacts. None of these areas will experience any significant impacts as the result of the Proposed Action. Therefore, the proposed alternatives would not impose a change that would disproportionately impact minority or low-income households for any of the impact categories considered.

1.7.4 Section 303(c) Resources

In 2005, Alternative 1 would have a slight-to-moderate impact on parts of nine Section 303(c) properties. In 2010, Alternative 1 would have a slight-to moderate noise impact on one fewer property. Even with the increase in noise over these properties, the noise level would remain below 65 dB DNL. The increase in noise over these properties would not substantially impair the value of significance of any of the properties affected by Alternative 1 nor affect the normal activity at any of the properties. No constructive use of Section 303(c) properties would occur with Alternative 1.

For Alternative 2, parts of 7 Section 303(c) properties would experience a slight-to-moderate impact in 2005. In 2010, Alternative 2 would have a slight-to moderate noise impact on one fewer property. Despite the increase in noise, the noise exposure of these properties would remain below DNL 65 dB. The value and significance of the Section 303(c) properties affected by Alternative 2 would not be substantially impaired as a result of the noise increase, nor would the normal activities of the properties be affected. Under Alternative 2, no constructive use of Section 303(c) properties would occur.

Thirteen Section 303(c) properties would be slightly-to-moderately impacted in 2005 by Alternative 3b. Two additional Section 303(c) properties would be slightly-to-moderately impacted by Alternative 3b in 2010. The noise exposure for these properties would remain below the DNL 65 dB even with the increase in noise level. The increase in noise over these properties as a result of Alternative 3b would not substantially impair their value in terms of prior significance and enjoyment nor would it change their normal activity. Alternative 3b would not constitute a constructive use of Section 303(c) properties.

1.7.5 Historical, Architectural, Archaeological, and Cultural Resources

The Proposed Action will not have an adverse affect on historic and cultural resources, because it will not diminish the integrity of any resource's location, design, setting, materials, workmanship, feeling, or association. Therefore, no Section 106 consultation is required. There will be no

significant impacts relating to historical, architectural, archaeological and cultural resources.

1.7.6 Fish, Wildlife, and Plants (Specifically Migratory Birds)

The Proposed Action presented in this EIS involves flight paths that are generally above 3,000 feet AGL. Therefore, based on the available information from the FAA National Wildlife Strike Database, it was concluded that the impacts to migratory bird patterns resulting from the proposed alternatives would be minimal and not significant.

1.7.7 Air Quality

The final rule for Determining Conformity of General Federal Actions to State and Federal Implementation Plans, (40 CFR Parts 6, 51, and 93), was published in the Federal Register in 1993[15]. In Section 51.853 (c)(1), the Environmental Protection Agency (EPA) lists actions that are *de minimis* and, thus, do not require an applicable analysis under this rule. EPA states in the preamble to this regulation that it believes, "air traffic control activities and adopting approach, departure, and en route procedures for air operations" are illustrative of *de minimis* actions. Agency coordination with the EPA confirmed that the proposed actions examined in this EIS are exempt from analysis under the General Conformity Rule. Qualitatively, reduction of delay and more efficient flight routings will serve to reduce fuel burn and thereby reduce air pollutant emissions.

The proposed alternatives would not induce additional vehicular traffic because they are intended to accommodate the existing and forecast demand. Therefore, none of the alternatives considered would result in negative impacts to air quality.

1.8 PUBLIC AND AGENCY INVOLVEMENT

On September 3, 1999, the FAA published a Notice of Intent (NOI) to prepare an EIS in the Federal Register. Formal scoping occurred from September 3, 1999 to December 3, 1999. During this period, public and agency scoping meetings were held at six different locations in the study area. Members of the agencies and the public were given 90 days to provide comment.

In addition to the scoping meetings, 86 letters were sent to agencies with jurisdiction or special knowledge relative to the Airspace Redesign EIS. Twenty-nine organizations responded to the letters by the requested due date.

FAA published a Notice of Availability of the DEIS in the Federal Register on February 27, 2002 (67 FR 9019). Subsequently, on March 18, FAA published a Notice in the Federal Register (67 FR 12078) that detailed the times, dates and locations for 11 public hearings on the DEIS. Paid advertisements for the public hearings were placed in the Washington Post and Baltimore Sun on March 19 and 20, 2002. Further, FAA mailed or emailed information about the DEIS, public hearings and comment process to approximately 2,000 community and other potentially interested organizations and individuals. Individuals who received only the Executive Summary were informed that a complete DEIS was available upon request. Finally, the Executive Summary of the DEIS and information about the public hearings was placed on the Potomac TRACON web site.

The FAA has hosted or participated in a series of meetings with the general public and agencies with interest in the Potomac

Airspace Redesign project throughout the development of the EIS. The Potomac Airspace Redesign project also established an 800 number ((800) 762-9531) for the public to use in contacting the Project staff. Additionally, a world wide web site for the Potomac Airspace Redesign Project provides background, information, and points of contact for the project. This website is at www.faa.gov/ats/potomac.

Executive Summary Endnotes

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[1] U.S. Department of Transportation Federal Aviation Administration, Administrator's Fact Book, June 1998: 13-14.

[2] Briefing for Metropolitan Washington Council of Governments March 11, 1998.

[3] Booz Allen & Hamilton, An Independent Assessment of The Potomac TRACON Project Cost Benefit Analysis, August 1997: i.

[4] Office of Aviation Policy and Plans (APO), US DOT FAA, Terminal Area Forecasts Fiscal Years 1998-2015. FAA-APO-98-7, December 1998.

[5] Automation platform refers to a single radar data processing system and the information it provides to controllers.

[6] PCT will not require any additional radar installations. Service will be provided using existing assets.

[7] The north/west configuration is also known as Configuration 01.

[8] The south/east configuration is also known as Configuration 16.

[9] Altitudes at 18,000 feet MSL and above are known as flight levels.

[10] Transfer areas contain multiple fixes that are designated as either arrival or departure areas. Transfer areas are unidirectional.

[11] Federal Aviation Administration, Order 1050.1D, Change 4, "Policies and Procedures for Considering Environmental Impacts."

[12] 14 C.F.R. Part 150, Section 150.21(a)(2)(d).

[13] Federal Interagency Committee on Noise (FICON), "Federal Agency Review of Selected Airport Noise Analysis Issues," August 1992, p. 3-5.

[14] 14 CFR Part 150, Appendix A, Table 1.

[15] 40 C.F.R. Parts 6, 51, and 93. United States Government Printing Office, World Wide Web Address: www.access.gpo.gov, July 2001.