



**Federal Aviation Administration**

**Finding of No Significant Impact (FONSI)**

**and**

**Record of Decision (ROD)**

**and**

**Agency Concurrence Letters, Public Comment Letters and Responses  
to Comments, and Environmental Assessment Errata**

**For the Washington D.C. Optimization of the  
Airspace and Procedures in the Metroplex (DC OAPM)**

**December 2013**



# Table of Contents

## Finding of No Significant Impact (FONSI) and Record of Decision (ROD)

I.	INTRODUCTION.....	1
II.	BACKGROUND .....	2
III.	PROPOSED ACTION .....	3
IV.	PURPOSE AND NEED FOR THE PROPOSED ACTION .....	4
V.	ALTERNATIVES .....	5
VI.	AFFECTED ENVIRONMENT.....	6
VII.	ENVIRONMENTAL CONSEQUENCES.....	7
	Noise .....	8
	Compatible Land Use.....	10
	Historical and Cultural Resources .....	11
	Wildlife (Avian and Bat Species) .....	12
	Environmental Justice .....	13
	Energy Supply .....	13
	Air Quality.....	13
	Climate .....	14
	Visual Impacts.....	14
	Cumulative Impacts.....	14
	Mitigation .....	15
	Other Considerations .....	15
VIII.	AGENCY AND PUBLIC INVOLVEMENT.....	15
IX.	THE AGENCY'S FINDINGS .....	16
X.	DECISIONS AND ORDERS .....	17
	RIGHT OF APPEAL.....	18

**Attachment: Agency Concurrence Letters, Public Comment Letters and Responses to Comments, and Environmental Assessment Errata**

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### **Finding of No Significant Impact (FONSI) and Record of Decision (ROD)**

### **For the Washington D.C. Optimization of the Airspace and Procedures in the Metroplex (DC OAPM)**

**December 2013**

#### **I. INTRODUCTION**

This document serves as the Federal Aviation Administration's (FAA) Finding of No Significant Impact and Record of Decision (FONSI/ROD) for the *Environmental Assessment for the Washington, D.C. Optimization of Airspace and Procedures in the Metroplex (DC OAPM) Project*, June 2013, attached hereto and incorporated by reference. The FONSI/ROD has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) (42 United States Code (U.S.C.) Section 4321 *et seq.*); implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations (CFR), parts 1500-1508); and FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, effective March 20, 2006 ("FAA Order 1050.1E"). This FONSI/ROD is also used by the FAA to demonstrate and document its compliance with the several procedural and substantive requirements of aeronautical, environmental, programmatic, and other statutes and regulations that apply to FAA decisions on proposed actions. This FONSI/ROD is based on the information and analysis contained in the Final Environmental Assessment (Final EA) dated November 2013, attached hereto.

Furthermore, this FONSI/ROD:

- Documents the FAA's finding that the DC OAPM will not have significant environmental impacts and explains the basis for that finding; and,
- Approves certain Federal actions associated with the implementation of the Proposed Action. Implementation of the Proposed Action will result in no airport-related development, land acquisition, construction, or other ground disturbance activities.

In approving the DC OAPM, the FAA has considered 49 U.S.C. § 40101(d)(4), which gives the FAA various responsibilities and holds it accountable for controlling the use of navigable airspace and regulating civil and military operations in that airspace in the interest of safety and efficiency. Additionally, consideration has been given to 49 U.S.C. § 40103(b)(2), which authorizes and directs the FAA Administrator to prescribe air traffic rules and regulations governing the flight of aircraft, for the navigation, protection, and identification of aircraft, and the protection of persons and property on the ground, and for the efficient utilization of the navigable airspace, including rules as to safe altitudes of flight and rules for the prevention of collisions between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

Furthermore, the FAA has given careful consideration to the aviation safety and operational objectives of the DC OAPM in light of the various aeronautical factors and judgments presented; the need to enhance efficiency of the national air transportation system; and the potential environmental impacts of the project.

## **II. BACKGROUND**

The FAA is in the process of implementing the Next Generation Air Transportation System (NextGen), the FAA's plan to modernize the National Airspace System (NAS) through 2025. NextGen is a complex program intended to develop and implement new technologies, while integrating existing technologies and adapting the air traffic management system to a new way of operating. NextGen represents an evolution from an air traffic control system that is a primarily ground-based system to a system that is satellite-based and will allow the FAA to guide and track air traffic more precisely and efficiently. To achieve NextGen goals, the FAA is implementing new Area Navigation (RNAV) and Required Navigation Performance (RNP) air traffic routes and instrument procedures (RNAV Standard Instrument Departures (SIDs), Standard Terminal Arrival Routes (STARs), and Standard Instrument Approach Procedures (SIAPs)) around the country that use emerging technologies and aircraft navigation capabilities. The implementation of RNAV and RNP procedures enables the use of other Performance Based Navigation (PBN) technology in the NAS, and facilitates more efficient procedures such as Optimized Profile Descents (OPD). The OAPM Initiative is considered a mid-term implementation step in the overall process of transitioning to the NextGen system. The FAA intends to design and implement RNAV procedures that will take advantage of the technology readily available in the majority of aircraft as part of the OAPM initiative. The OAPM initiative

specifically addresses airspace congestion, airports in close geographical proximity, and other limiting factors that reduce efficiency in busy Metroplex airspace. Efficiency is improved by expanding the implementation of RNAV-based standard instrument procedures and connecting the routes defined by the standard instrument procedures to high and low altitude RNAV routes. Efficiency would also be increased by taking advantage of RNAV to maximize the use of the limited airspace in congested Metroplex environments.

The DC OAPM initiative is intended to address specific issues related to the efficient flow of traffic in and out of the Washington, DC, Metroplex. A “Metroplex” is a geographic area that includes several commercial and general aviation airports in close proximity serving a large metropolitan area.

### **III. PROPOSED ACTION**

The Proposed Action consists of development of standard air traffic procedures to enhance efficient handling and movement of air traffic, while maintaining safety, into and out of the Washington, D.C. Metroplex airspace. The Proposed Action includes:

- 23 RNAV STARs (15 new RNAV STARs, 2 modified RNAV STARs, and 6 existing RNAV STARs)
- 26 RNAV SIDs (22 new RNAV SIDs, 1 modified RNAV SID, and 3 existing RNAV SID)
- 9 Conventional STARs (1 new Conventional STAR and 8 existing Conventional STAR)
- 11 Conventional SIDs (11 existing Conventional SIDs)

The Proposed Action includes 41 new and modified procedures consisting of 40 RNAV procedures and one conventional procedure. The 28 existing procedures include seven previously developed procedures identified as having independent utility that have not yet been implemented. In total, the Proposed Action will provide 49 RNAV and 20 conventional procedures<sup>1</sup> for the DC Metroplex area.

The Proposed Action would improve operational efficiency through use of new RNAV procedures which (1) improve the flexibility in transitioning traffic between enroute and terminal area airspace and between the terminal area airspace area and the runways; (2) improve the segregation of arrivals and departures in terminal area and enroute airspace; and (3) provide RNAV arrival and departure enroute transitional and terminal area airspace procedures for each major airport with the intent to provide more predictable ground and vertical paths through the airspace. In most cases, RNAV procedures that mirror the existing flight paths over the ground

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<sup>1</sup> Two procedures were inadvertently omitted from the text of the Draft EA. See Errata, at 3-1—3-2. Although these procedures were omitted from the text, they were analyzed and assessed as part of the proposed action in the Draft EA.

would replace current standard routings achieved through radar vectoring. Replacing vectoring with RNAV procedures would typically result in shorter and more predictable routes in comparison to current routes. The new RNAV procedures would also provide vertical navigation, allowing the aircraft to descend from cruise altitude into the D.C. Metroplex area with reduced pilot-controller communications and fewer inefficient level flight segments. Chapter 3 of the EA provides details on the Proposed Action.

Implementation of the Proposed Action would not require any ground disturbance or development of facilities, nor would it require local or state action. The Proposed Action consists only of procedural changes intended to improve operational efficiency, increase flight path predictability, and reduce required controller-pilot voice communication. Therefore, implementation of the Proposed Action would not increase the number of aircraft operations in the DC Metroplex airspace when compared to the No Action Alternative. The target date for starting implementation of the DC OAPM procedures is on or after December 12, 2013.

#### **IV.PURPOSE AND NEED FOR THE PROPOSED ACTION**

The DC OAPM project consisted of a Study Team phase, which analyzed the DC Metroplex operational challenges and explored opportunities to optimize air traffic procedures. The Study Team concluded that the existing published air traffic procedures in the DC Metroplex are inefficient, inflexible, and unnecessarily complex in consideration of recent advances in technology. The Study Team materials reflect three key factors as causes of inefficiencies in the DC Metroplex:

- Lack of flexibility in the efficient transfer of traffic between the enroute and terminal area airspace
- Complex converging interactions between arrival and departure flight paths
- Lack of predictable standard routes defined by procedures to/from airport runways to/from enroute airspace

These three factors demonstrate the need for the Proposed Action.

The purpose of the Proposed Action is to take advantage of the benefits of PBN by implementing RNAV procedures that will help improve the efficiency of the airspace in the DC Metroplex. The Proposed Action would address the three key factors causing the inefficiencies in the airspace and improve the efficiency of air traffic operations through increased flexibility, enhanced segregation between aircraft, and providing more predictable lateral and vertical paths. Implementing RNAV procedures will also comply with direction issued by Congress in the Modernization and Reform Act of 2012.

## V. ALTERNATIVES

The following provides a summary of the alternatives development process and alternatives considered. Further details are available in Chapter 3 of the EA.

***Identification and Evaluation of Potential Alternatives*** - In September 2010, the DC OAPM Study Team began work to define operational problems in the DC Metroplex and to identify potential solutions. The Study Team included experts on the Air Traffic Control (ATC) system for the DC Metroplex. The work completed was intended to provide a guide for later design efforts by the Design and Implementation (D&I) Team. The Study Team obtained input from local facilities (e.g., air traffic control), airspace users (e.g., pilots), and aviation industry representatives to learn more about the challenges of operating in the DC Metroplex. These meetings helped identify operational challenges related to individual procedures and potential solutions that would increase efficiency. Initially, the Study Team identified 56 issues related to existing procedures in the DC Metroplex. As the Study Team identified additional issues, they were grouped together in generalized causal factor categories based on similarity. The Study Team identified several potential modifications to the arrival/departure procedures to accommodate procedure changes that addressed the issues identified. The modifications proposed were conceptual in nature, and did not include a detailed technical assessment, which was reserved for the D&I Team to conduct.

Following completion of the Study Team's Final Report in March 2011, the D&I Team began work on the procedure designs. First, the Study Team proposals were prioritized based on complexity, interdependencies with other procedures, and degree of potential benefit to the Metroplex. Second, the D&I Team divided into workgroups to further develop and refine the Study Team proposals into preliminary designs. Finally, the preliminary designs were brought to the whole D&I Team for review and modification, if necessary. In developing the proposed procedures, the D&I Team was responsible for following regulatory and technical guidance as well as meeting criteria and standards in three general categories: RNAV design criteria and Air Traffic Control regulatory requirements, operational criteria, and safety factors.

To ensure that procedures included in the Proposed Action were viable, the D&I team undertook validation exercises that further refined the procedures. The D&I Team relied on stakeholder input, design solution tools (e.g., design and testing software), and the criteria described above to meet several final design milestones. Many procedures included in the Proposed Action have undergone several iterations as they were refined to meet safety and efficiency requirements and represent the final version of the procedure considered. For example, the proposed ANTHM STAR represents the fourth version of that procedure and the proposed MIIDY STAR is the second version of that procedure. The combined final procedure designs have been brought forward in this EA as the Proposed Action alternative.

***Alternatives Analyzed in the EA*** – In addition to the Proposed Action (described above), the EA also analyzed the No Action Alternative. Under the No Action Alternative, the FAA would maintain 30 existing arrival and departure procedures for the DC Metroplex. In addition, the No

Action Alternative would include the implementation of seven new RNAV procedures that were previously developed and determined to be of independent utility. The 37 currently published SIDs and STARs in the DC Metroplex serving the DC OAPM Study Airports that comprise the No Action Alternative include:

- 12 RNAV STARs
- 5 RNAV SIDs
- 11 conventional (i.e., non-RNAV) SIDs
- 9 conventional (i.e., non-RNAV) STARs

The existing conventional and RNAV arrival and departure procedures would remain as is, subject to minor, periodic reviews and revisions in response to changes in the operational environment (i.e., magnetic variation changes; obstruction surveys, and changes in FAA Air Traffic Control regulations). The No Action Alternative would not implement the specific procedures designed as part of the DC OAPM project.

The No Action Alternative would not meet the purpose and need for the project. It would not improve the efficiency of the airspace nor address any of the three key causal factors for airspace inefficiency. Furthermore, the No Action Alternative would not meet the congressional mandate to implement additional RNAV procedures.

## **VI.AFFECTED ENVIRONMENT**

The General Study Area for this project includes the geographic area in which natural resources and the human environment are potentially affected by the Proposed Action and its reasonable alternative. Paragraph 14.5e of Appendix A to FAA Order 1050.1E, requires consideration of impacts of airspace actions from the surface to 10,000 feet AGL if the study area is larger than the immediate area around an airport or involves more than one airport. Furthermore, policy guidance issued by the FAA Program Director for Air Traffic Airspace Management states that for air traffic project environmental analyses noise impacts should be evaluated for proposed changes in arrival procedures between 3,000 and 7,000 feet AGL and departure procedures between 3,000 and 10,000 feet AGL for large civil jet aircraft weighing over 75,000 pounds.

In developing the General Study Area, the FAA collected radar data from flight paths in the DC Metroplex. The General Study Area was designed to capture all flight paths identified in the radar data collected for the preparation of the EA as well as the designed Proposed Action routes out to the point at which 95 percent of aircraft are at or above 10,000 feet AGL for departures and at or above 7,000 feet AGL for arrivals, accounting for the terrain in and around the DC Metroplex region. The lateral extent of the General Study Area was concisely defined to focus on areas of traffic flow.

The resulting General Study Area is depicted on Exhibit 4-1 in the EA and includes areas in Washington, DC, and portions of 83 counties in four states (Virginia, Maryland, West Virginia, and Pennsylvania). It covers an area extending approximately 45 miles north of Baltimore, MD;

approximately 70 miles west and 60 miles east of Washington DC; and 30 miles south, 44 miles west, and 48 miles east of Richmond, VA.

Detailed information regarding the affected environment with respect to each relevant impact category is presented in Chapter 4 of the EA.

The DC OAPM General Study Area encompasses five major airports:

- Washington Dulles International Airport (IAD)
- Ronald Reagan Washington National Airport (DCA)
- Baltimore/Washington International Thurgood Marshall Airport (BWI)
- Joint Base Andrews (ADW)
- Richmond International Airport (RIC)

The DC OAPM General Study Area also includes the following satellite airports:

- Easton/Newman Field (ESN)
- Frederick Municipal Airport (FDK)
- Montgomery County Airpark (GAI)
- Manassas Regional/Harry P. Davis Field (HEF)
- Leesburg Executive Airport (JYO)
- Eastern West Virginia Regional/Shepherd Field (MRB)
- Martin State Airport (MTN)
- Winchester Regional Airport (OKV)
- Stafford Regional Airport (RMN)

The EA refers to the five major and nine satellite airports collectively as the Study Airports.

## **VII. ENVIRONMENTAL CONSEQUENCES**

The FAA analyzed the potential environmental impacts that could result from implementation of the Proposed Action as well as the impacts associated with the No Action Alternative on all relevant environmental impact categories specified in FAA Order 1050.1E. The FAA evaluated both alternatives for conditions in 2013, the first year of implementation of the optimized air traffic procedures under the Proposed Action, and 2018, five years after expected implementation of the Proposed Action.

The Proposed Action would not involve land acquisition, physical disturbance, or construction activities and, therefore, would not affect certain environmental impact categories. The following environmental resource categories would remain unaffected because either the resource does not exist within the General Study Area or it would not be affected by the activities associated with the Proposed Action. The unaffected resource categories or sub-categories include:

- Coastal Resources
- Construction Impacts
- Farmlands
- Fish, Wildlife, and Plants (Fish and Plants sub-categories only)
- Floodplains
- Hazardous Materials
- Pollution Prevention and Solid Waste
- Light Emissions and Visual Impacts (Light Emissions sub-category only)
- Natural Resources and Energy Supply (Natural Resources sub-category only)
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks (Socioeconomic Impacts and Children's Environmental Health and Safety Risks sub-categories only)
- Water Quality
- Wetlands
- Wild and Scenic Rivers

The Proposed Action would not cause changes in patterns of population movement or growth, public service demands, or business and economic activity. In addition, the Proposed Action does not involve construction or other ground disturbing activities that would involve the relocation of people or businesses. Furthermore, the Proposed Action does not include the construction of airport facilities that would result in or induce an increase in operational capacity. Thus, the Proposed Action would not result in Secondary or Induced impacts.

Those environmental impact categories that could potentially be affected by the Proposed Action are discussed further below.

### **Noise**

As required by FAA Order 1050.1E, the Noise Integrated Routing System (NIRS) was used to model the noise impacts for the DC OAPM project because the project involves a study area larger than the immediate vicinity of an airport, incorporates more than one airport, and includes actions above 3,000 feet above ground level (AGL). FAA also applied its criteria of significance, an increase of 1.5 dB DNL<sup>2</sup> or more on any noise sensitive area within areas exposed to 65 dB DNL or higher, to determine whether the project would result in a significant noise impact. Noise was analyzed for both the Proposed Action and the No Action Alternative during the year in which implementation of the Proposed Action would be initiated (2013) and a five-year look-ahead (2018).

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<sup>2</sup> DNL is the Day Night Average Sound Level. It is a single value representing the aircraft sound level over a 24-hour period. To represent the greater annoyance caused by a noise at night, the DNL metric includes a 10-decibel penalty weighting for noise occurring between 1:00 pm and 6:59 am.

The NIRS model computed DNL exposure values at three sets of data points throughout the General Study Area:

1. United States Census Bureau population census block centroids (center point of a census block)
2. Unique points representing certain specific cultural resources and areas potentially protected under Section 4(f) of the Department of Transportation Act (DOT Act) (49 U.S.C. § 303(c)), and historic properties protected under Section 106 of the National Historic Preservation Act (NHPA)(16 U.S.C. § 470 *et seq.*);
3. A uniform grid covering the General Study Area (using 0.5 nautical mile spacing) to document aircraft DNL exposure levels at potential noise sensitive locations that were not otherwise identified.

The results identified the differences in DNL noise exposure between the two alternatives (Proposed Action compared to No Action Alternative) to determine if implementing the Proposed Action would result in significant noise impacts. The analysis also identified any DNL increase of 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB and any DNL increase of 5 dB or higher in areas exposed to noise between DNL 45 dB and 60 dB. While the EA refers to such increases as a “reportable noise increase,” they are not significant. The results of the NIRS modeling indicated that:

1. The Proposed Action would not result in a DNL 1.5 dB or higher increase in noise-sensitive areas exposed to aircraft noise at or above DNL 65 dB
2. The Proposed Action would not result in DNL increases of 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB
3. The Proposed Action would result in a DNL increase of 5 dB or higher in areas exposed to noise between DNL 45 dB and 60 dB.
  - a. 2013: 17,455 people exposed to noise levels between 45 to 60 dB DNL would experience a DNL 5 dB or higher increase in 2013 because of the Proposed Action. The affected population is located from two to eight miles west of Richmond International Airport. Exhibit 5-1 in Chapter 5 of the EA depicts the location of the population centroids that would experience the reportable noise increase in 2013. As noted above, these increases, while reportable, are not considered significant impacts.
  - b. 2018: 20,239 people exposed to noise levels between 45 to 60 dB DNL would experience a DNL 5 dB or higher increase in 2018 because of the Proposed Action. The affected population is located from two to eight miles west of Richmond International Airport. Exhibit 5-2 in Chapter 5 of the EA depicts the location of the population centroids that would experience the reportable increase in 2018. As noted above, these increases, while reportable, are not considered significant impacts.

Thus, the Proposed Action would not result in significant noise impacts. Accordingly, no mitigation is required per FAA Order 1050.1E, Appendix A, paragraph 14.4c.

## **Compatible Land Use**

Because the Proposed Action is not expected to have significant noise impacts (as measured by changes in noise exposure at populated census block centroids) in 2013 and 2018, there would be no compatible land use impacts.

## **Department of Transportation Act, Section 4(f)**

FAA identified resources within the General Study Area that had the potential to qualify for protection under Section 4(f) of the DOT Act. No land acquisition, construction, or other ground disturbance activities would occur under the Proposed Action; therefore, the Proposed Action would not physically use any potential Section 4(f) resources. Consequently, the focus of the evaluation of potential Section 4(f) resources was adverse impacts that have the potential to result in a constructive use.

As noted under “Noise” above, the FAA’s noise modeling included areas potentially protected under Section 4(f). However, no potential Section 4(f) resources located in areas exposed to DNL 65 dB or higher would experience a significant increase of DNL 1.5 dB or higher. Furthermore, the Proposed Action would not cause reportable increases of DNL 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB.

Noise modeling indicated five potential Section 4(f) resources exposed to noise between DNL 45 dB and 60 dB would experience a DNL 5 dB or higher increase under 2013 and 2018 conditions. These resources include three local parks/recreational facilities (Davee Gardens Fitness Park, Hickory Hill Community Center, and the Ruffin Road Elementary School Annex) and two historic resources listed on the National Register of Historic Places (NRHP) (Richmond National Cemetery and the Clarke-Palmore House). These facilities are located between three and seven miles west of Richmond International Airport. A quiet setting is not an attribute of any of these properties. Table 5-5 in Chapter 5 of the EA depicts the change in DNL at these facilities under the Proposed Action compared to the No Action Alternatives under both 2013 and 2018 conditions. While the difference in noise conditions represent reportable noise increases, 14 CFR part 150, Airport Noise Planning, Land Use Compatibility Guidelines, recognizes all land uses as being compatible in areas exposed to DNL 50 dB and below. Therefore, the Proposed Action would not result in a direct or constructive use of potential Section 4(f) resources in 2013 or 2018. FAA coordinated its findings with the agencies responsible for managing the identified resources. The agencies concurred with FAA’s conclusion that the Proposed Action would not result in a “constructive use.”

Under FAA Order 1050.1E, a significant impact would occur when a proposed action either involves more than a minimal physical use of a Section 4(f) resource or would result in a “constructive use” substantially impairing the 4(f) property. Because the Proposed Action would not result in either a physical or constructive use of Section 4(f) resources, there would be no significant impacts on those resources.

## **Historical and Cultural Resources**

Section 106 of the National Historic Preservation Act (NHPA) requires the FAA to consider the effects of its undertakings on properties listed or eligible for listing in the National Register of Historic Places (NRHP). In assessing whether an undertaking, such as the Proposed Action, affects a property listed or eligible for listing on the NRHP, FAA must consider both direct and indirect effects. Direct effects include the physical removal or alteration of an historic resource. Indirect effects include changes in the environment of the historic resource that could substantially alter the characteristics that made it eligible for listing on the NRHP. Such changes could include changes in noise exposure and visual impacts.

To assess the potential indirect effects of the Proposed Action on historic resources, an area of potential effects (APE) was defined. Federal regulations define the APE as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE for the DC Metroplex was defined as being contiguous with the General Study Area. Historic resources were identified within the General Study Area and their locations are shown on Exhibit 4-5 in Chapter 4 of the EA. No Indian reservations or tribal lands were identified within the General Study Area.

No land acquisition, construction, or other ground disturbance activities would occur under the Proposed Action; therefore, the Proposed Action would not directly (i.e., physically) affect any historical, architectural, archaeological, or cultural resources. The assessment focused on the potential for indirect adverse effects to historic and cultural resources that may result from changes in air traffic routes, such as aircraft noise and visual impacts. Based on the modeled results for the unique grids and General Study Area uniform grids, no historically, architecturally or culturally significant properties located in the area exposed to DNL 65 dB or higher would experience a significant increase of DNL 1.5 dB or higher. Furthermore, the Proposed Action would not cause reportable noise increases of DNL 3 dB or higher in areas exposed to noise between DNL 60 dB and 65 dB.

A reportable noise increase of DNL 5 dB or higher for resources exposed to DNL levels between 45 dB and 60 dB under both 2013 and 2018 Proposed Action conditions were identified at two facilities, the Richmond National Cemetery and the Clarke-Palmore House. The NRHP nomination form for the Richmond National Cemetery identifies the facility as being eligible for listing due to its historic role as a Civil War Era cemetery and for its historic architecture. Similarly, the NRHP nomination form for the Clarke-Palmore House identifies the facility as being eligible for listing due to its historic architecture. The reportable noise increase calculated for these facilities would not affect these attributes. Furthermore, analysis indicates that both the Richmond National Cemetery and the Clarke-Palmore house are situated in residential areas within an urbanized environment exposed to typical noise levels associated with human activity (e.g., automobile traffic). Accordingly, any increase in noise associated with the Proposed Action would be unlikely to diminish the integrity of the property's setting in a historical or cultural context. Therefore, the Proposed Action would not result in an adverse effect to Historic and Cultural Resources in either 2013 or 2018.

According to FAA Order 1050.1E, Appendix A, the visual sight of aircraft, aircraft contrails, or aircraft lights at night, particularly at a distance that is not normally intrusive, should not be assumed to constitute an adverse impact. Changes in aircraft routes associated with the Proposed Action would generally occur at altitudes above 3,000 feet AGL; therefore, the visual sight of aircraft and aircraft lights would not be considered intrusive. Consequently, the Proposed Action would not result in significant visual impacts. Therefore, the Proposed Action would not adversely affect the property's historic, architectural, or cultural significance through introduction of a visual feature that would diminish the integrity of the setting.

The FAA determined that under the meaning of 36 CFR, Parks, Forests, and Public Property, section 800.5(a), Protection of Historic Properties, the Proposed Action would not have an "adverse effect" on historic resources. Additionally, in accordance with the Section 106 of the NHPA, written concurrence of FAA's determination was obtained from the Maryland, Virginia, West Virginia, Pennsylvania, and District of Columbia State Historic Preservation Officers' (SHPOs) with both the definition of the APE and the finding of no adverse effects. As requested by the Pennsylvania and West Virginia SHPOs, the FAA also contacted Gettysburg National Military Park and Harpers Ferry National Historic Park, respectively, both components of the National Park System. Officials representing both facilities concurred with the finding of no adverse effects on these properties. The concurrence letters can be found in the Attachment, "Agency Concurrence Letters, Public Comment Letters and Responses to Comments, and Environmental Assessment Errata".

### **Wildlife (Avian and Bat Species)**

The greatest potential for impacts to wildlife species related to air traffic procedure changes would result from wildlife strikes on avian and bat species at altitudes below 3,000 feet AGL. The FAA's Wildlife Strike Database provides strike information that is reportable by airport, including species struck, height of strike, and type and extent of aircraft damage. Table 5-7 in Chapter 5 of the EA provides a summary of wildlife strikes reported by Study Airport between 1990 and April 2013. In total, 3,100 records provide strike altitude for incidents involving birds and bats. Of these, a total of 2,812 reported strikes (91 percent of all strikes) occurred at altitudes below 3,000 feet. The decline in the number of strikes reported above 3,000 feet AGL indicates that there is less likelihood of bird/bat strikes at these altitudes. Under the Proposed Action, the majority of changes to proposed flight paths would occur above 3,000 feet AGL and no significant changes to arrival and departure corridors below 3,000 feet AGL would be expected. In addition, under the Proposed Action, the FAA anticipates increased use of the narrower arrival and departure corridors associated with the RNAV procedures. As narrower corridors would reduce the area in which RNAV equipped aircraft operate, the Proposed Action would not be expected to result in increased impacts to avian and bat species when compared to the No Action Alternative. Therefore, there would be no significant impacts to avian and bat species under the Proposed Action compared with the No Action Alternative. Accordingly, the FAA has determined that the Proposed Action is not likely to adversely affect any federally-listed species for 2013 or 2018.

## **Environmental Justice**

Under the Proposed Action, no areas within the General Study Area would experience a change in noise exposure or other relevant impact category, (such as air quality, hazardous materials, and water quality) that would exceed applicable thresholds of significance. The Proposed Action would not affect low income or minority populations at a disproportionately higher level than other population segments. Therefore, no adverse direct or indirect effects would occur to any environmental justice populations within the General Study Area under the Proposed Action for 2013 and 2018.

## **Energy Supply**

In terms of energy use and potential effects on the depletion of energy supplies, the Proposed Action would involve changes to air traffic flows; however, the optimized air traffic routes under the Proposed Action would improve the efficiency of air traffic routes and operations, including continuous climb-outs and optimized descents, where possible, which overall would reduce aircraft fuel consumption compared with the No Action Alternative.

Aircraft fuel burn is considered a proxy for determining whether the Proposed Action would have a measurable effect on local energy supplies when compared with the No Action Alternative. The FAA's NIRS model calculates aircraft-related fuel burn as an output along with calculating aircraft noise exposure. NIRS modeling indicated that less fuel would be burned under the Proposed Action in comparison with the No Action Alternative (approximately one (1) percent less in the first year of implementation (2013) and in the five-year look-ahead year (2018). Therefore, there would be no significant impact to energy supply that would exceed available or future supplies of energy.

## **Air Quality**

The Proposed Action would not change the number of aircraft operations compared with the No Action Alternative. Furthermore, the Proposed Action would result in more efficient air traffic routes and operations, resulting in a reduction in fuel burn compared with the No Action Alternative. The reduction in fuel burn (as reported above for "Energy Supply") was used as an indicator that the Proposed Action would result in fewer emissions from aircraft operations compared with the No Action Alternative. The Proposed Action when compared to the No Action Alternative would result in a decrease in emissions due to a reduction in fuel burn. The Proposed Action is also presumed to conform to State Implementation Plans (SIP) for Maryland, Virginia, Pennsylvania, and the District of Columbia, the jurisdictions that fall within the General Study Area. Accordingly, implementation would not cause or contribute to a new violation of the National Ambient Air Quality Standards (NAAQS), worsen an existing violation, or delay meeting the NAAQS.

## **Climate**

Although there are no federal standards for aviation-related greenhouse gas emissions, the CEQ has indicated that climate should be considered in NEPA analyses. Greenhouse gas emissions were quantified in terms of carbon dioxide equivalent (CO<sub>2</sub>e), which was calculated by multiplying the number of gallons of fuel projected to be burned under both the Proposed Action and the No Action Alternative by the CO<sub>2</sub>e associated with each gallon of fuel burned (9.7438 kg of CO<sub>2</sub>e). Based on the fuel burn values reported in the EA, CO<sub>2</sub>e emissions would be lower with implementation of the Proposed Action compared with the No Action Alternative (approximately one (1) percent less in the first year of implementation (2013) and approximately one (1) percent less in the five-year look-ahead year (2018)).

## **Visual Impacts**

The Proposed Action does not include development, construction, or demolition of facilities; therefore, it would not disturb the aesthetic integrity of an area or result in visual contrast with the existing environment. Implementation of the Proposed Action would not increase the number of aircraft operations at the Study Airports compared with the No Action Alternative. Changes in aircraft traffic patterns under the Proposed Action are expected to be at altitudes and distances sufficiently removed from viewers that visual impacts would not be anticipated. According to FAA Order 1050.1E, Appendix A, the visual sight of aircraft, aircraft contrails, or aircraft lights at night, particularly at a distance that is not normally intrusive, should not be assumed to constitute an adverse impact. Changes in aircraft routes associated with the Proposed Action would generally occur at altitudes above 3,000 feet AGL; therefore, the visual sight of aircraft and aircraft lights would not be considered intrusive. Consequently, the Proposed Action would not result in significant visual impacts.

## **Cumulative Impacts**

NEPA implementing regulations define cumulative impacts as the incremental impact of the action when added to the impacts of other past, present, and reasonably foreseeable future actions regardless of the agency, federal or nonfederal, undertaking such actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. A summary of past, present, and reasonably foreseeable future actions that were considered is provided in Table 5-10 in Chapter 5 of the EA.

Due to the nature of the Proposed Action (i.e., the lack of land disruption or construction activities), the FAA considered potential cumulative impacts for one category: aircraft noise (effects related to changes in aircraft noise exposure include potential impacts on populations in the General Study Area, compatible land use, potential Section 4(f) resources, historic and cultural resources). Therefore, consideration was given to the ability of the identified past, present, and reasonably foreseeable future actions to contribute cumulatively to the aircraft overflight noise of the Proposed Action. Detailed discussion of the cumulative impact analysis with respect to noise is presented in Section 5.11 of the EA. Based on that analysis, the FAA does not expect the Proposed Action to result in significant cumulative impacts.

## **Mitigation**

Thresholds of significance for any environmental impact category would not be exceeded due to the Proposed Action; therefore, no mitigation is being proposed as part of this project.

## **Other Considerations**

The Proposed Action involves air traffic control routing changes for airborne aircraft only. The United States Government has exclusive sovereignty of airspace in the United States [49 U.S.C. Section 40103(a)]. Congress has provided extensive and plenary authority to the FAA concerning the efficient use and management of the navigable airspace, air traffic control, air navigation facilities, and the safety of aircraft and persons and property on the ground [49 U.S.C. Sections 40103(b)(1) and (2)]. To the extent applicable, and as there are no significant impacts under noise or compatible land use, the Proposed Action is consistent with the plans, goals, and policies for the area and with the applicable regulations and policies of federal, state, and local agencies.

## **VIII. AGENCY AND PUBLIC INVOLVEMENT**

Public involvement and early consultation process began with the initiation of the preparation of the EA. FAA distributed an early notification letter to 468 federal, state, and local agencies and elected officials as well as to 17 Native American tribes on December 19, 2012, and placed a legal notice in three major newspapers covering the General Study Area. In addition, a website was developed ([www.oapmenvironmental.com](http://www.oapmenvironmental.com)). The FAA provided the web address in the public notices as well as the letters to agencies and elected representatives. After the 2012 elections, a notification letter was sent to newly elected representatives on March 25, 2013. Copies of the notification letter, legal notice, and comments received are provided in Appendix A of the EA.

The Draft EA was released on June 20, 2013. The FAA updated the project website to reflect the release of the EA, including making the entire EA available electronically. The FAA published notice of availability of the EA in three major newspapers. A digital copy was made available in 64 libraries; to West Virginia (West Virginia Division of Culture and History), Virginia (Virginia Department of Historic Resources), Maryland (Maryland Historic Trust), Pennsylvania (Pennsylvania Historical and Museum Commission), and the District of Columbia (DC State Historic Preservation Office) SHPOs; and the United States Environmental Protection Agency (EPA). In addition, the FAA sent letters to the previous recipients of the early coordination letters to update them on the status of the project, advise them of the release of the EA (including the project's web address), and solicit comments. The names and addresses of parties who received notification of availability are listed in Appendix B of the EA.

The comment period ended on July 20, 2013, 30 days after the release of the Draft EA. The FAA received comments and/or concurrence letters from 15 commenters (13 agencies and 2 individuals). The FAA carefully considered all comments received and none warranted revision of the EA. Although the comments received resulted in no revisions to the EA, an errata sheet

was prepared to correct errors identified after the Draft EA's June 20, 2013, release. The errata sheet is attached to this FONSI/ROD (See Attachment, "Agency Concurrence Letters, Public Comment Letters and Responses to Comments, and Environmental Assessment Errata").

## **IX. THE AGENCY'S FINDINGS**

### **A. The DC OAPM Project will ensure the safety of aircraft and the efficient use of airspace. (49 U.S.C. § 40103(b)).**

The Federal Aviation Act of 1958 gives the Administrator the authority and responsibility to assign by order or regulation the use of the navigable airspace in order to ensure the safety of aircraft and the efficient use of the airspace. In its continuous effort to ensure safety of aircraft and improve the efficiency of transit through the navigable airspace, the FAA will create or modify standard instrument departure procedures (SIDs) and standard terminal arrival routes (STARs) in the DC Metroplex. The project will enhance the efficiency of the airspace in the DC Metroplex by creating shorter, more predictable ground and vertical paths through the limited airspace in the DC Metroplex. Additionally, this project will allow the FAA to begin to achieve its NextGen goals.

In deciding to implement the Proposed Action, the FAA carefully evaluated both the Proposed Action and the No Action Alternatives. The No Action Alternative will do nothing to improve the efficiency of the airspace or address any of the three key causal factors for airspace efficiency. The No Action Alternative would not further the Agency's goal in transitioning to NextGen.

### **B. This project does not involve the use of any historic sites or other properties protected under Department of Transportation Act Section 303(c), also known as Section 4(f).**

The project does not involve any physical development or modification of facilities and therefore no actual, physical use of resources protected under Section 4(f) of the Department of Transportation Act or Section 106 of the National Historic Preservation Act would result. The project would also not result in a constructive use of any protected property because it would not cause increases in noise sufficient to impair the value of those resources. None of the protected properties in the General Study Area have a quiet setting as a generally recognized purpose and attribute.

The project would not cause an adverse effect on historic resources listed on or eligible for listing on the National Register of Historic Places. This determination is based on consultation under Section 106 of the National Historic Preservation Act with the State Historic Preservation Officers in each state within the General Study Area.

### **C. Clean Air Act, Section 176 (c)(1) Conformity Determination (42 U.S.C. § 7506(c)).**

The project is an air traffic control activity that adopts approach and departure procedures for air operations. It is presumed to conform under 72 Fed. Reg. 41565 (July 30, 2007). The project would not result in the development of physical facilities nor would it result in or induce an

increase in operational capacity in the study area. Detailed analysis was not necessary to conclude that the project conforms with the purposes of the SIPs in the four states in the study area and the District of Columbia. The project will not cause a new violation of the NAAQS, worsen an existing violation, or delay meeting the standards of the NAAQS in the study area.

**D. The FAA has given this proposal the independent and objective evaluation required by the Council on Environmental Quality (40 C.F.R. 1506.5)**

After careful and thorough consideration of the EA and the facts contained herein, I find that the Proposed Action is consistent with existing national environmental policies and objectives as set forth in Section 101 of National Environmental Policy Act and other applicable environmental requirements and will not significantly affect the quality of human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of National Environmental Policy Act. Therefore, an environmental impact statement will not be prepared.

**E. Findings Pursuant to the Purpose and Need**

Upon implementing the Proposed Action, the airspace that serves the Study Airports would include optimized air traffic routings to improve the efficiency of the air traffic routes. Based on the EA prepared for the Proposed Action, this FONSI/ROD is issued. Both the EA and the FONSI/ROD are hereby incorporated into this decision.

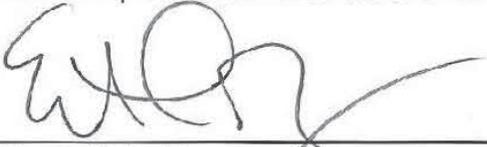
**X. DECISIONS AND ORDERS**

I, the undersigned, have reviewed the referenced EA including the evaluation of the purpose and need that this Project would serve, the alternative means of achieving the purpose and need, and the environmental impacts associated with these alternatives. I find the Project described in the EA is reasonably supported and issuance of a finding of no significance is appropriate. Therefore, an environmental impact statement will not be prepared.

I have carefully considered the FAA's statutory mandate under 49 U.S.C. § 40103 to ensure the safe and efficient use of the national airspace system as well as the other aeronautical goals and objectives discussed in the EA.

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve the operational changes as described in the proposed action alternative and direct that actions be taken that will enable implementation of the DC OAPM project.

Approved:

  
\_\_\_\_\_  
Elizabeth L. Ray  
Vice President, Mission Support Services  
Air Traffic Organization  
Federal Aviation Administration

December 12, 2013  
Date

## **RIGHT OF APPEAL**

**This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C. § 46110 by the U.S. Circuit Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.**



**Federal Aviation Administration**

**Agency Concurrence Letters, Public Comment Letters and Responses  
to Comments, and Environmental Assessment Errata**

**For the Washington D.C. Optimization of the  
Airspace and Procedures in the Metroplex (DC OAPM)**

**December 2013**



## Table of Contents

<b>1</b>	<b>Agency Concurrence Letters</b> .....	<b>1-1</b>
	Edwin C. Luther, Director of Recreation & Parks, County of Henrico .....	1-3
	Maryland Office of Preservation Services, Maryland State Department of Planning.....	1-5
	DC State Historic Preservation Office .....	1-9
	West Virginia Division of Culture and History.....	1-11
	Commonwealth of Virginia, Department of Historic Resources .....	1-13
	National Park Service, Harpers Ferry National Historical Park.....	1-15
	Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation .....	1-17
	National Park Service, Gettysburg National Military Park.....	1-19
<b>2</b>	<b>Comment Letters and Response to Comments</b> .....	<b>2-1</b>
	Michael Skowrunski.....	2-3
	Andrew F. Tress, Hartford County Council.....	2-5
	Robbie Ruhr, Commonwealth of Virginia, Department of Conservation and Recreation .....	2-13
	William C. Lebegern, Metropolitan Washington Airports Authority .....	2-15
	James T. Smith, Jr., Maryland Department of Transportation .....	2-17
	Lynda Lowin, Air Force District of Washington .....	2-19
	Michael Kroposki .....	2-21
	Steve Kokkinakis, National Oceanic & Atmospheric Administration .....	2-25
	P. Clifford Burnette, Jr., Commonwealth of Virginia, Department of Aviation .....	2-27
	Barbara Rudnick, United States Environmental Protection Agency .....	2-29
	Norris C. Howard SR, Pocomoke Indian Nation .....	2-31
<b>3</b>	<b>Environmental Assessment Errata</b> .....	<b>3-1</b>
3.1	Corrections to Text and Tables .....	3-1
3.2	Corrections to Exhibits .....	3-5
3.3	Proposed Action Procedure Adjustments .....	3-23

## List of Tables

Table 1	Response to Comments (1 of 12) .....	2-33
---------	--------------------------------------	------

## List of Exhibits

Exhibit 3-16	Proposed Action - Major Study Airports Arrivals and Departures, South Flow .....	3-7
Exhibit 3-17	Proposed Action - Major Study Airports Arrivals and Departures, North Flow .....	3-9
Exhibit 3-18	Proposed Action Satellite Study Airports Arrivals and Departures .....	3-11
Exhibit 3-19	Proposed Action - Major Study Airports Arrivals, South Flow .....	3-13
Exhibit 3-20	Proposed Action - Major Study Airports Departures, South Flow .....	3-15

Exhibit 3-21	Proposed Action - Major Study Airports Arrivals, North Flow .....	3-17
Exhibit 3-22	Proposed Action - Major Study Airports Departures, North Flow.....	3-19
Exhibit 3-23	Proposed Action Satellite Study Airports Arrivals .....	3-21

# **1 Agency Concurrence Letters**

The Draft Environmental Assessment (EA) for the Washington, D.C. OAPM (DC OAPM) Project required consultation with various agencies under Section 4(f) of the Department of Transportation Act (DOT Act), and Section 106 of the National Historic Preservation Act (NHPA). This section includes the letters received from the consulting agencies, providing concurrence with findings of no effects under Section 106 of the NHPA or no constructive use under Section 4(f) of the DOT Act.

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COMMONWEALTH OF VIRGINIA  
COUNTY OF HENRICO

Edwin C. Luther, IV  
DIRECTOR OF RECREATION AND PARKS

July 1, 2013

FAA  
Attn: Lee Kyker, Environmental Specialist  
Eastern Service Center-Operations Support Group  
1701 Columbia Avenue  
College Park, GA 30337

RE: Washington D.C. Metroplex Area Optimization of Airspace and Procedures in the Metroplex (DC OAPM) Environmental Assessment (EA)-Request for Concurrence

Dear Mr. Kyker:

We have reviewed the Federal Aviation Administration (FAA) completion of a Draft Environmental Assessment (EA) to consider the potential environmental impacts of the implementation of the Washington D.C. Metroplex Area Optimization of Airspace and Procedures in the Metroplex (DC OAPM) project.

Based on the results of the EA, the FAA has identified a "reportable noise increase" resulting from the proposed action on the historical resource known as the Clarke-Palmore House located at 904 McCoull Street, Richmond, VA 23231. While a reportable noise increase has been identified at this property, the FAA has determined that this would not constitute a constructive use for purposes of Section 4(f) of the DOT Act, nor would it represent a significant impact for purposes of the Draft EA.

4FO1 We accept your findings that the proposed undertaking, implementation of optimized standard arrival and departure instrument procedures in the Washington D.C. Metroplex area, would not result in a constructive use of the affected property.

Sincerely,

Edwin C. Luther  
Director of Recreation & Parks

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U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

F  
FAA  
ACA/EJZ

RECEIVED  
JUN 19 2013

BY: \_\_\_\_\_

201302795

June 17, 2013

SHPO01

Maryland Office of Preservation Services  
Maryland State Department of Planning  
J. Rodney Little, SHPO  
100 Community Place  
Crownsville, MD 21032



**Reference: Washington D.C. Metroplex Area Optimization of Airspace and Procedures in the Metroplex (DC OAPM) Environmental Assessment (EA) – Notice of Availability**

MD

Dear Mr. Little:

The purpose of this letter is to inform you that the Federal Aviation Administration (FAA) has completed a Draft Environmental Assessment (EA) to consider the potential environmental impacts of the implementation of the Washington D.C. Metroplex area Optimization of Airspace and Procedures in the Metroplex (DC OAPM) project. Early notification of the preparation of the EA was previously sent to the District of Columbia State Historic Preservation Office on December 19, 2012. In addition, a letter requesting further information on potential historic or cultural resources in the project area was sent on May 28, 2013.

On June 20, 2013, the Draft EA will be available for public review and comment. The documents are available on the enclosed CD and online at [www.oapmenvironmental.com](http://www.oapmenvironmental.com). Based on the results of the EA, the FAA proposes to make a finding of “no adverse effect” on historic properties under 36 C.F.R. 800.5. Information supporting this finding, including a description of the undertaking and its effect on historic properties and other information required under 36 C.F.R. 800.11(e) are contained within the EA, are incorporated by reference, and are enclosed with this correspondence.

**Project Description**

A “metroplex” is a major metropolitan area with multiple airports, where heavy air traffic and environmental constraints combine to hinder efficient aircraft movement. A variety of factors have combined to reduce the efficiency of airspace within the DC Metroplex. The FAA proposes to optimize the efficiency of aircraft routes and the supporting airspace management structure through the implementation of the DC OAPM Project. This would entail implementation of RNAV-defined Instrument Flight Procedures that improve upon existing, but less efficient ground-based and/or radar vector procedures. Study airports include:

15  
ESC  
7/15/13

- Dulles International Airport
- Ronald Reagan Washington National Airport
- Baltimore/Washington International/Thurgood Marshall Airport
- Joint Base Andrews
- Richmond International Airport
- Easton/Newnam Field Airport
- Frederick Municipal Airport
- Montgomery County Airpark
- Manassas Regional Airport/Harry P. Davis Field
- Leesburg Executive Airport
- Eastern West Virginia Regional Airport/Shepherd Field
- Martin State Airport
- Winchester Regional Airport
- Stafford Regional Airport

### **Area of Potential Effects**

For the current undertaking, the FAA has defined an Area of Potential Effects (APE) for historic and cultural resources that is contiguous with the general study area (GSA) identified for the EA. The APE is described in Section 5.4.2 and depicted on Exhibit 5-20. Potential effects on historic and cultural properties are discussed in Section 5.4.3. A list of the historic and cultural properties evaluated in the EA along with noise modeling results are included in Appendix G of the EA.

### **Request for Concurrence**

The FAA requests your review of the EA. Additionally; we seek your concurrence with a finding that the proposed undertaking, implementation of optimized standard arrival and departure instrument procedures in the Washington D.C. Metroplex area, would have no adverse effect on historic or cultural properties.

If you desire to provide comments, please provide them by letter or email before July 20, 2013 to the undersigned at the following address:

**Lee Kyker, Environmental Specialist**  
**Eastern Service Center - Operations Support Group**  
**1701 Columbia Avenue**  
**College Park, GA 30337**  
**(404) 305-5587 (tel)**  
**(404)-305-5572 (fax)**  
**e-mail address for comments:**  
**DCOAPM@faa.gov**

FAA would like to thank you for your interest in this project. If you have any questions about the information provided, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Barry A. Knight". The signature is written in a cursive style with a large initial 'B' and 'K'.

Barry A. Knight  
Manager, Operations Support Group  
Eastern Service Center

Enclosure:  
Draft Environmental Assessment CD

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GOVERNMENT OF THE DISTRICT OF COLUMBIA  
STATE HISTORIC PRESERVATION OFFICE



**DC STATE HISTORIC PRESERVATION OFFICE  
FEDERAL AGENCY SECTION 106 REVIEW FORM**

**TO:** Ms. Lee Kyker, Environmental Specialist, Federal Aviation Administration

**ADDRESS:** Via email to [lee.kyker@faa.gov](mailto:lee.kyker@faa.gov)

**PROJECT NAME/DESCRIPTION:** Optimization of Airspace and Procedures in the DC Metroplex

**PROJECT ADDRESS/LOCATION DESCRIPTION:** Airspace Surrounding Washington, DC

**DC SHPO PROJECT NUMBER:** 13-433

The DC State Historic Preservation Office (DC SHPO) has reviewed the above-referenced federal undertaking(s) in accordance with Section 106 of the National Historic Preservation Act and has determined that:

This project will have **no effect** on historic properties. No further DC SHPO review or comment will be necessary.

There are **no historic properties** that will be affected by this project. No further DC SHPO review or comment will be necessary.

This project will have **no adverse effect** on historic properties. No further DC SHPO review or comment will be necessary.

SHPO02

This project will have **no adverse effect** on historic properties **conditioned upon** fulfillment of the measures stipulated below.

Other Comments / Additional Comments (see below):

Based upon our review of the project Environmental Assessment and our discussions with Ms. Kyker of the FAA staff, we understand that this Federal action is limited primarily to revisions to the flow of air traffic around the DC Metro Area, that no substantial noise increase will result from the proposed revisions, and that no ground disturbing activities or other physical alterations within the District of Columbia will occur in conjunction with the project. Therefore, we concur with FAA's finding that the undertaking will have "no adverse effect" on historic properties within the District of Columbia.

**BY:**   
C. Andrew Lewis  
Senior Historic Preservation Specialist  
DC State Historic Preservation Office

**DATE:** July 23, 2013

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**The Culture Center**  
1900 Kanawha Blvd., E.  
Charleston, WV 25305-0300

**Randall Reid-Smith, Commissioner**

Phone 304.558.0220 • www.wvculture.org  
Fax 304.558.2779 • TDD 304.558.3562

EEO/AA Employer

July 18, 2013

Ms. Lee Kyker  
Environmental Specialist  
Eastern Service Center – Operations Support Group  
1701 Columbia Ave.  
College Park, GA 30337

Re: Metroplex (DC OAPM) Environmental Assessment (EA)  
FR#: 13-205-MU-2

Dear Ms. Kyker:

We have reviewed the above mentioned project to determine its effects to cultural resources. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the Federal Aviation Administration (FAA) has completed a Draft Environmental Assessment (EA) to consider the potential environmental impacts of the implementation of new procedures designed to optimize airspace in the Washington, DC, metro area. The project may involve changes in current flight paths and/or altitudes in particular areas. The submitted Generalized Study Area map indicates that the flight paths will include Berkeley, Morgan, and Hampshire Counties.

We are in receipt of the Draft Environmental Assessment (EA), including a description of the undertaking and its effects on historic properties.

FAA Order 1050.1E describes an increase of Day-Night Average Sound Level (DNL) 1.5 decibels (dB) at a noise sensitive land use (e.g., residences, schools, etc.) exposed to aircraft noise of DNL 65 dB or higher under the proposed action as a significant impact. Therefore, properties exposed to DNL 65 dB or higher and an increase of DNL 1.5 dB or higher under the proposed action may be adversely effected by the project. According to submitted information, no properties in West Virginia will be exposed to DNL 65 dB or higher and an increase of DNL 1.5 dB or higher under the proposed action. Therefore, we concur with your opinion that the proposed project will have *no adverse effect* on any West Virginia properties that are eligible for or listed in the National Register of Historic Places. No further consultation is necessary; however, we do ask that you contact our office if your project should change.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Michael Kyne, Structural Historian, at (304) 558-0240.*

Sincerely,

Susan M. Pierce  
Deputy State Historic Preservation Officer

SMP/MLK

SHPO03

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# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Douglas W. Domenech  
Secretary of Natural Resources

Kathleen S. Kilpatrick  
Director

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
www.dhr.virginia.gov

August 1, 2013

Ms. Lee Kyker  
Federal Aviation Administration  
Eastern Service Center, Operations Support Group  
1701 Columbia Avenue  
College Park, GA 30337

Re: D.C. Optimization of the Airspace and Procedures in the Metroplex Project  
Fairfax, Loudoun, Arlington and Henrico Counties, Virginia  
DHR File No. 2012-1769

Dear Ms. Kyker,

On August 1, 2013, the Virginia Department of Historic Resources (DHR) received information regarding the above-referenced project for our review and comment pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended. DHR understands that the FAA is proposing to change the airspace system that will optimize the efficiency of aircraft routes and supporting management throughout the DC Metroplex, including Washington-Dulles International Airport, Reagan National Airport, and Richmond International Airport. The project will implement area navigation defined Instrument Flight Procedures that improve upon existing, but less efficient ground-based and/or radar vector procedures.

Within your Area of Potential Effects (APE), only two historic properties will be affected indirectly by the proposed project. The Richmond National Cemetery (DHR ID#043-0126) and the Clarke-Palmore House (DHR ID#043-0085) in Henrico County are both listed in the National Register of Historic Places (NRHP). Based upon a review of the information provided, we concur with your determination of no adverse effect. Should you have any additional questions, please contact me at (804) 482-6084, or via email at [andrea.kampinen@dhr.virginia.gov](mailto:andrea.kampinen@dhr.virginia.gov).

SHPO04

Sincerely,

Andrea Kampinen  
Architectural Historian, Office of Review and Compliance

Administrative Services  
10 Courthouse Ave.  
Petersburg, VA 23803  
Tel: (804) 862-6416  
Fax: (804) 862-6196

Capital Region Office  
2801 Kensington Office  
Richmond, VA 23221  
Tel: (804) 367-2323  
Fax: (804) 367-2391

Tidewater Region Office  
14415 Old Courthouse Way  
2<sup>nd</sup> Floor  
Newport News, VA 23608  
Tel: (757) 886-2807  
Fax: (757) 886-2808

Roanoke Region Office  
1030 Penmar Avenue, SE  
Roanoke, VA 24013  
Tel: (540) 857-7585  
Fax: (540) 857-7588

Northern Region  
Preservation Office  
P.O. Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7029  
Fax: (540) 868-7033

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**Re: DC Optimization of Airspace and Procedures - Section 106 Consultation**  
**Harriett, Rebecca** to: Lee Kyker

08/01/2013 08:32 AM

Dear Ms. Kyker:

Thank you for the opportunity to review the EA for the Washington DC Optimization of Airspace and Procedures in the MetroPlex. Our Chief of Resources Management Mia Parsons has reviewed and does not see an adverse impact on Harpers Ferry National Historical Park. Please accept this e:mail as confirmation of our review.

Sincerely,

Rebecca L. Harriett  
Superintendent

SHPO05

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Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

August 6, 2013

Lee Kyker, Environmental Specialist, Operations Support Group  
Eastern Service Center  
Federal Aviation Administration  
1701 Columbia Avenue  
College Park, GA 30337

RE: BHP ER 2013-0647-042-E  
Section 106 Consultation for the proposed Washington, D.C. Optimization of the Airspace and Procedures in the Metroplex (DC OAPM) Project  
Receipt of Eligible Resources List and No Areas of Noise Significance Statement (FAA)  
Receipt of National Park Service letter regarding Gettysburg National Military Park, Eisenhower National Historic Site, Gettysburg Battlefield Historic District

Dear Ms. Kyker:

Thank you for submitting information concerning the above referenced project. The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with state and federal laws. Section 106 of the National Historic Preservation Act of 1966, and the implementing regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, is the primary federal legislation. The Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988) is the primary state legislation. These laws include consideration of the project's potential effects on both historic and archaeological resources.

SHPO06

We concur with the findings of the agency that the proposed project will have no adverse effect on the properties within the General Study Area located in Pennsylvania that are listed in or eligible for the National Register of Historic Places.

If you have any questions, please contact Cheryl L. Nagle at 717-772-4519 or [chnagle@pa.gov](mailto:chnagle@pa.gov).

Sincerely,

Digitally signed by Cheryl L. Nagle  
DN: cn=Cheryl L. Nagle, o,  
ou=PHMC-BHP,  
email=chnagle@state.pa.us  
, c=US  
Date: 2013.08.06 16:16:50  
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FOR

Douglas C. McLearn, Chief  
Division of Archaeology & Protection

DCM/cln

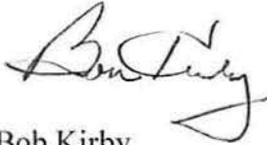
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understand that Visual Flight Rules were not applied to your analysis since there would have been no change in routing or altitudes to accommodate the proposed operations. All changes related to the preferred alternative are associated with the use of Area Navigation (RNAV) technology instead of the older Navigational Aid (NAVAID) technology.

If you have questions, or wish to discuss this further, please contact Winona Peterson directly at 717-338-4482 or via email at [winona\\_peterson@nps.gov](mailto:winona_peterson@nps.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Bob Kirby". The signature is written in a cursive style with a large, stylized initial "B".

Bob Kirby  
Superintendent

cc: Cheryl Nagle, Pennsylvania Historical & Museum Commission, 400 Third Street,  
Harrisburg, Pennsylvania 17120

## **2 Comment Letters and Response to Comments**

This section includes the comment letters received on the Draft EA for the DC OAPM Project. Eight letters with comments on the Draft EA were received during the public comment period. The FAA reviewed the comment letters and has provided responses to substantive comments contained therein. These responses follow the comment letters below.

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**From:** Michael Skowrunski [<mailto:miskowrunski@gmail.com>]  
**Sent:** Wednesday, February 06, 2013 4:01 PM  
**To:** Angelotti, Julia  
**Subject:** Please Help - Aircraft Noise near Stone Ridge/Gum Spring Rd.

A01 | I am writing to you on behalf of hundreds of frustrated residents in the Stone Ridge - Gum Spring Rd corridor. Noise levels from Dulles airport departing aircraft have reached unacceptable levels in our communities. It is depriving residents of sleep and making it increasingly difficult to enjoy outdoor activities.

How can you help? The FAA currently has a impact study underway for the DC area. We would be grateful for your assistance in raising our concerns to them so they can be included in their assessment activities.

Attached is a short one-page PDF that briefly reviews the noise issues and possible solutions the FAA study group (DC OAPM) should consider.

Thank you for your time, and I look forward to any additional questions you may have.

Michael Skowrunski

-Resident of Loudoun County

--

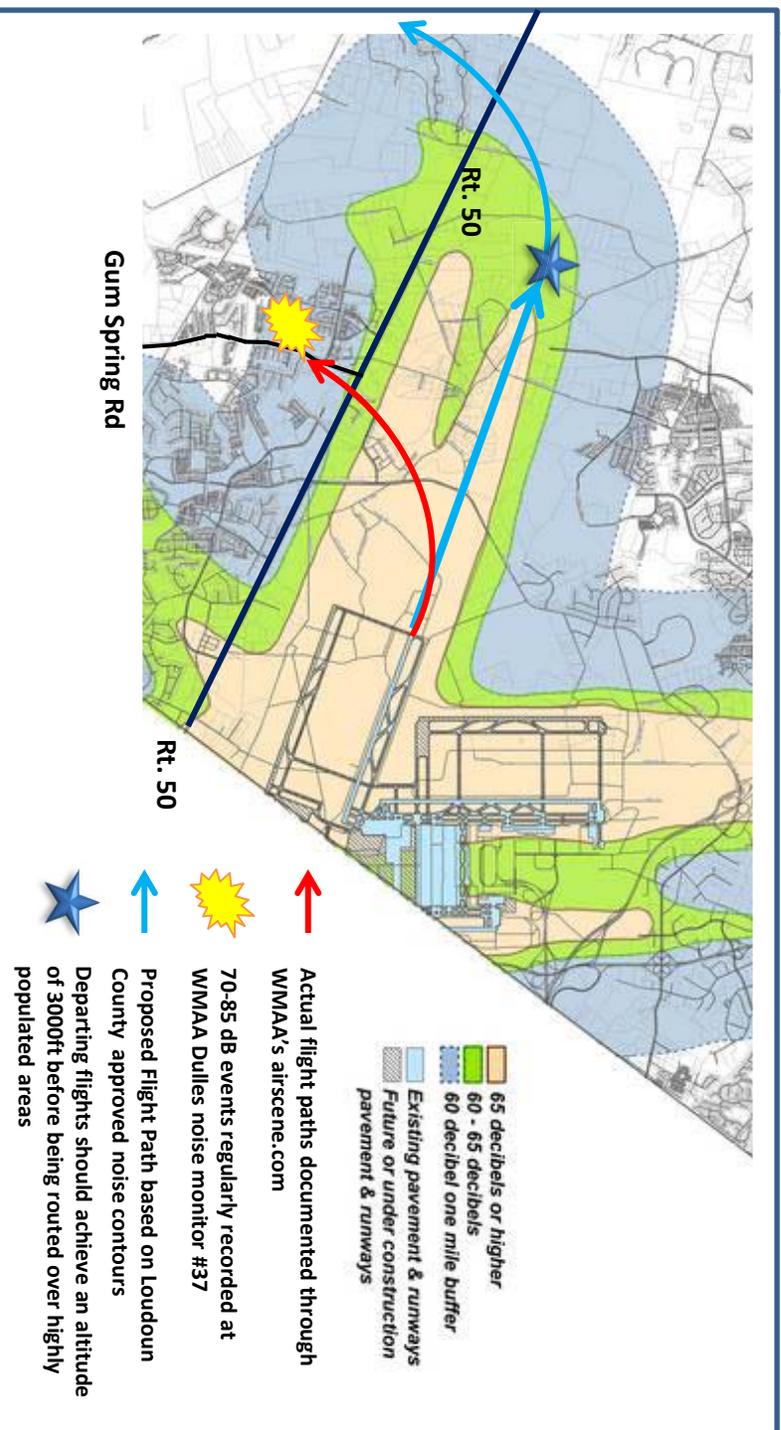
Mike

gvoice: 703.791.9199 [attachment "Stone Ridge - Gum Spring Aircraft Noise - DC OAPM Study.pdf" deleted by Shirley Miller/AWA/FAA]

## PLEASE HELP! Flight paths impacting the Stone Ridge / Gum Spring Rd corridor

**Background:** The Stone Ridge/Gum Spring Rd corridor has seen tremendous growth in the last 10 years. Current outbound flight paths from Dulles Airport Runway 12/30 take aircraft over heavily populated communities at altitudes below 2000ft. **These flight paths do not honor the intent of the approved noise contours in Loudoun County (Figure below)**

**Impact:** Residents of this area are under tremendous stress from noise pollution of these flight paths. **Noise disturbances begin at 6am and continue through 11:30pm impacting family's ability to sleep.** These communities were built within the 60 dB one mile buffer but are exposed to higher noise levels than many areas within the 65+dB noise contour - which is not deemed acceptable for residential use.



### Our communities need your help!!

The FAA is currently conducting a DC Optimization of Airspace and Procedures (DC OAPM) Study to be completed in 2013. More information is available at: [http://oapmenvironmental.com/dc\\_metroplex/dc\\_introduction.html](http://oapmenvironmental.com/dc_metroplex/dc_introduction.html)

- Their goal is to evaluate the potential environmental impacts and are in the process of establishing a Primary Study Area, consisting of the four major airports, to evaluate potential impacts of changes in aircraft routing that are proposed to occur below 10,000 feet above ground level (AGL).

**Please contact the DC OAPM lead and ask them to consider revising flight paths so that noise impacts on these communities may be reduced. – DC OAPM Point of Contact: Lee Kyker, DCOAPM@faa.gov**



Wash. D.C. Metroplex Area Optimization of Airspace and Procedures in the  
Metroplex Draft Environmental Assessment-Notice of Availability

Tress, Andrew to: 9-ASO-DCOAPMcomment

06/28/2013 01:37 PM

---

1 attachment



Fully Executed Bill 13-4 As Amended Zoning Code Revision Airports.pdf

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Lee Kyker,

Thank you for your letter to our office informing us of your plans to conduct an environmental assessment of our metroplex. In Harford County we have recently passed legislation allowing airports in our county to expand their facilities under certain criteria from our newly amended zoning code. This will directly affect the Harford County Airport Owners Group, Inc. specifically the location in Churchville, MD. We ask that you please take this into consideration when conducting your environmental assessment of the area. The legislation is attached for your convenience.

B01

**Andrew F. Tress**

Legislative Aide to President Boniface  
Harford County Council  
212 S. Bond Street  
Bel Air, MD 21014  
410-638-4109  
X 1813  
aftress@harfordcountymd.gov

HARFORD COUNTY BILL NO. 13-4 As Amended

Brief Title Zoning Code Revision – Airports

is herewith submitted to the County Council of Harford County for enrollment as being the text as finally passed.

**CERTIFIED TRUE AND CORRECT**

*Panela Mest*  
Council Administrator

Date March 5, 2013

**ENROLLED**

*Billy Bonforce*  
Council President

Date March 5, 2013

**BY THE COUNCIL**

Read the third time.

Passed: LSD 13-7

Failed of Passage: \_\_\_\_\_

By Order

*Panela Mest*  
Council Administrator

Sealed with the County Seal and presented to the County Executive for approval this 6th day of March, 2013 at 3:00 p.m.

*Panela Mest*  
Council Administrator



**BY THE EXECUTIVE**

*David R. Craig*  
COUNTY EXECUTIVE

APPROVED: Date March 7, 2013

**BY THE COUNCIL**

This Bill No. 13-4 As Amended having been approved by the Executive and returned to the Council, becomes law on March 7, 2013.

EFFECTIVE: May 6, 2013

*Panela Mest*  
COUNCIL ADMINISTRATOR

COUNTY COUNCIL  
OF  
HARFORD COUNTY, MARYLAND

BILL NO. 13-4 (As Amended)

Introduced by Council President Boniface at the request of the County Executive and  
Council Members Shrodes, Slutzky and McMahan

Legislative Day No. 13-2 Date January 15, 2013

AN ACT to repeal and reenact, with amendments, Subsection I(1), Aircraft landing and storage, private, and Subsection I(2), Airports, general aviation, of Subsection I, Transportation, communications and utilities (TCU), of Section 267-88, Specific standards, of Article IX, Special Exceptions, of Part 1, Standards, of Chapter 267, Zoning, of the Harford County Code, as amended; to make reference to the Maryland Aviation Administration regarding private and public airports; to allow airports, general aviation, in the AG District; to revise requirements related to airport uses; and generally relating to zoning.

By the Council, January 15, 2013

Introduced, read first time, ordered posted and public hearing scheduled

on: February 19, 2013

at: 7:00 PM

By Order: Pamela Meister, Council Administrator

**PUBLIC HEARING**

Having been posted and notice of time and place of hearing and title of Bill having been published according to the Charter, a public hearing was held on February 19, 2013, and concluded on February 19, 2013.

Pamela Meister, Council Administrator

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW. [Brackets] indicate matter deleted from existing law. Underlining indicates language added to Bill by amendment. Language

1 Section 1. Be It Enacted By The County Council of Harford County, Maryland that Subsection  
2 I(1), Aircraft landing and storage, private, and Subsection I(2), Airports, general aviation, of Subsection  
3 I, Transportation, communications and utilities (TCU), of Section 267-88, Specific standards, of Article  
4 IX, Special Exceptions, of Part 1, Standards, of Chapter 267, Zoning, of the Harford County Code, as  
5 amended, be, and they are hereby, repealed and reenacted, with amendments, all to read as follows:

6 **Chapter 267. Zoning**

7 **Part 1. Standards**

8 **Article IX. Special Exceptions**

9 **§ 267-88. Specific standards.**

10 I. Transportation, communications and utilities (TCU).

11 (1) Aircraft landing and storage, private. This use may be granted in the AG, CI, LI and GI  
12 Districts, provided that:

13 (a) The airfield is designed in accordance with design criteria [recommended in the  
14 latest Federal Aviation Administration advisory circular for utility airports or  
15 Heliport Design Guide.] REQUIRED FOR PRIVATE USE AIRPORTS AS  
16 SET FORTH IN THE CURRENT CODE OF MARYLAND REGULATIONS,  
17 TITLE 11, DEPARTMENT OF TRANSPORTATION, SUBTITLE 03,  
18 MARYLAND AVIATION ADMINISTRATION, CHAPTER 04,  
19 AERONAUTICAL REGULATIONS.

20 (b) The approach and landing paths are in accordance with the [current Federal  
21 Aviation Administration Regulation, Part 77, Objects Affecting Navigable  
22 Airspace.] REQUIREMENTS FOR PRIVATE USE AIRPORTS AS SET  
23 FORTH IN THE CURRENT CODE OF MARYLAND REGULATIONS,  
24 TITLE 11, DEPARTMENT OF TRANSPORTATION, SUBTITLE 03,

1 MARYLAND AVIATION ADMINISTRATION, CHAPTER 04,  
2 AERONAUTICAL REGULATIONS.

3 (c) The length of the runway and the height of obstacles at each end of the runway  
4 are compatible with takeoff and landing performance, as defined in the flight  
5 manual for the aircraft to be operating from the airfield.

6 (d) The length of the runway is sufficient for the aircraft to stop safely without  
7 thrust reversal after aborting takeoff at takeoff speed.

8 [(e) The takeoff and landing flight path of the aircraft has a minimum of 250 feet  
9 vertical clearance over surrounding property, unless a navigation easement  
10 agreement is reached with affected property owners for a lesser clearance.

11 [(f)](E) No business, such as the sale or leasing of aircraft, maintenance or flight  
12 instructions, shall be allowed.

13 [(g)](F)The applicant shall maintain a flight operation log that shall be open for  
14 inspection by representatives of the Department of Planning and Zoning.

15 (G) NOTWITHSTANDING THE NUMBER OF TRIPS PER DAY  
16 GENERATED, PRIOR TO SUBMISSION OF AN APPLICATION TO THE  
17 BOARD OF APPEALS, A COMMUNITY INPUT MEETING SHALL BE  
18 HELD, AS PROVIDED FOR IN SECTION 268-20, AS APPLICABLE.

19 (2) Airports, general aviation. These uses may be granted in the AG, CI, LI and GI  
20 Districts, provided that:

21 (a) Landing, takeoff and utility areas used by aircraft shall be provided with a hard  
22 surface.

23 [(b) No structures or areas used for servicing aircraft shall be located less than 200  
24 feet from any property line or less than 100 feet from any public or private

1 institution.

2 (c) Airport approach and departure paths shall not be located over residential,  
3 institutional or other densely populated areas.

4 (d) No areas used by self-powered aircraft shall be located less than 1,000 feet  
5 from any residential lot on the approach and departure ends of the runway.

6 (e) Parking of vehicles shall not be permitted within 100 feet of any property line.

7 (f) The airport shall be surrounded by a sturdy and well-constructed fence, not less  
8 than 6 feet in height, with suitable gates effectively controlling access to such  
9 area.]

10 (B) ALL COMMERCIAL MAINTENANCE OR SERVICING OF AIRCRAFT  
11 SHALL TAKE PLACE ENTIRELY WITHIN AN ENCLOSED  
12 STRUCTURE. NO STRUCTURES USED FOR THE COMMERCIAL  
13 MAINTENANCE OR SERVICING OF AIRCRAFT SHALL BE LOCATED  
14 LESS THAN 200 FEET FROM ANY PROPERTY LINE.

15 (C) AIRPORT APPROACH AND LANDING PATHS ARE IN ACCORDANCE  
16 WITH REQUIREMENTS FOR PUBLIC USE AIRPORTS AS SET FORTH  
17 IN THE CURRENT CODE OF MARYLAND REGULATIONS, TITLE 11,  
18 DEPARTMENT OF TRANSPORTATION, SUBTITLE 03, MARYLAND  
19 AVIATION ADMINISTRATION, CHAPTER 04, AERONAUTICAL  
20 REGULATIONS.

21 (D) THE AIRFIELD IS DESIGNED IN ACCORDANCE WITH THE DESIGN  
22 CRITERIA FOR PUBLIC USE AIRPORTS AS SET FORTH IN THE  
23 CURRENT CODE OF MARYLAND REGULATIONS, TITLE 11,  
24 DEPARTMENT OF TRANSPORTATION, SUBTITLE 03, MARYLAND

1 AVIATION ADMINISTRATION, CHAPTER 04, AERONAUTICAL  
2 REGULATIONS.

3 (E) A STURDY AND WELL-CONSTRUCTED FENCE, NOT LESS THAN 6  
4 FEET IN HEIGHT, SHALL BE CONSTRUCTED ALONG ANY PUBLIC  
5 ROAD. ALL AIRCRAFT STORED ON THE SITE SHALL BE SECURED  
6 BY LOCKS OR STORED INSIDE A LOCKED ENCLOSURE TO  
7 PREVENT THE UNAUTHORIZED USE OF SUCH AIRCRAFT.

8 [(g)](F) Appropriate airport accessory uses, such as restaurants, snack bars, automobile  
9 rental agencies, airline business offices and service facilities, but not other  
10 business or industrial uses, may be permitted.

11 [(h)](G) The Director of Planning shall refer the application to the [Federal Aviation  
12 Agency and/] MARYLAND AVIATION ADMINISTRATION or the  
13 appropriate regional planning bodies to determine:

14 [1] If such airport is an integral part of or will interfere with the general  
15 plan of airports for the Maryland-Washington Regional District.

16 [2] If the takeoff and landing pattern of a new, reoriented or lengthened  
17 runway will interfere with the flight pattern of any nearby airport.

18 [(i) The takeoff and landing flight path will be a minimum distance of 250 feet  
19 vertical clearance over surrounding property, unless a navigation easement  
20 agreement is reached with affected property owners for a lesser clearance.]

21 (H) THE LENGTH OF THE RUNWAY AND THE HEIGHT OF OBSTACLES  
22 AT EACH END OF THE RUNWAY ARE COMPATIBLE WITH TAKEOFF  
23 AND LANDING PERFORMANCE, AS DEFINED IN THE FLIGHT  
24 MANUAL FOR THE AIRCRAFT TO BE OPERATING FROM THE

1 AIRFIELD.

2 (I) NO MORE THAN 50% OF THE LAND AREA UPON WHICH THE  
3 COMMERCIAL OPERATION IS CONDUCTED MAY BE LOCATED IN  
4 THE AG DISTRICT. THE COMMERCIAL OPERATION INCLUDES ALL  
5 BUILDINGS, PAVEMENT AREAS, AIRPORT APPROACH AND  
6 LANDING PATHS, AIRCRAFT PARKING AND STORAGE AREAS.

7 (J) NOTWITHSTANDING THE NUMBER OF TRIPS PER DAY  
8 GENERATED, PRIOR TO SUBMISSION OF AN APPLICATION TO THE  
9 BOARD OF APPEALS, A COMMUNITY INPUT MEETING SHALL BE  
10 HELD, AS PROVIDED FOR IN SECTION 268-20, AS APPLICABLE.

11 Section 2. And Be It Further Enacted that this Act shall take effect 60 calendar days from the date  
12 it becomes law.

EFFECTIVE: **May 6, 2013**

*The Council Administrator does hereby certify that  
fifteen (15) copies of this Bill are immediately available for  
distribution to the public and the press.*



\_\_\_\_\_  
Council Administrator



**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF CONSERVATION AND RECREATION**  
600 East Main Street, 24<sup>th</sup> Floor  
Richmond, Virginia 23219  
(804) 786-6124

**MEMORANDUM**

DATE: July 1, 2013  
TO: Lee Kyker, FAA  
FROM: Roberta Rhur, Environmental Impact Review Coordinator  
SUBJECT: DCR 13-042, FAA, Metroplex Study to Optimize Airspace in VA

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

C01

Biotics documents the presence of natural heritage resources in the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

C02

Cumberland Marsh, Chotank Creek, Bull Run Mountains, Ellick Woodlands, Ogdens cave and Crows Nest State Natural Area Preserves are in the project vicinity, however, we do not anticipate any adverse effects to the Natural Area Preserve and associated resources due to the project scope and location.

C03

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or [Gladys.Cason@dgif.virginia.gov](mailto:Gladys.Cason@dgif.virginia.gov)).

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.



July 12, 2013

Ms. Lee Kyker  
Environmental Specialist  
Federal Aviation Administration  
Eastern Service Center – Operations Support Group  
1701 Columbia Avenue  
College Park, GA 30337

RE: Draft Environmental Assessment for Washington, D.C. Optimization of Airspace and Procedures in the Metroplex (DCOAPM)

Dear Ms. Kyker:

D01 — The Metropolitan Washington Airports Authority has reviewed the above referenced document and supports the Federal Aviation Administration's (FAA) initiative for the optimization and enhancement of airspace and air traffic procedures within the Washington, D.C. region.

It is our understanding that this proposed action supports the FAA's Next Generation (NextGen) Air Transportation System operational improvements for the nation's air transportation system. We encourage and support additional improvements at our airports and within the Washington, D.C. region through the implementation of current and future NextGen initiatives.

We would like to thank you and your staff for the efforts that went into this work.

Sincerely,

William C. Lebegern  
Manager, Planning Department

WCL:djb

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**Maryland Department of Transportation**  
The Secretary's Office

**Martin O'Malley**  
Governor

**Anthony G. Brown**  
Lt. Governor

**James T. Smith, Jr.**  
Secretary

7/18/13

July 13, 2013

Ms. Lee Kyker  
Environmental Specialist  
Federal Aviation Administration  
Eastern Service Center – Operations Support Group  
1701 Columbia Avenue  
College Park GA 30337

Dear Ms. Kyker:

Thank you for your letter to Governor O'Malley, notifying the State of Maryland of the Federal Aviation Administration's (FAA) efforts to optimize the airspace and flight procedures in the Washington, D.C. Metroplex. The Governor received your letter and asked that I, as Secretary of the Maryland Department of Transportation, respond on his behalf.

The focus of FAA's efforts is to change flight paths and altitudes in certain areas that would allow publication and implementation of optimized standard arrival and departure instrument procedures serving air traffic flows into and out of airports in the Washington D.C. Metroplex. The FAA Maryland airports evaluated in the optimization efforts include Baltimore/Washington International Thurgood Marshall (BWI Marshall), Easton/Newnam Field, Frederick Municipal, Montgomery County Airpark, and Martin State (MTN) airports. Also, the FAA indicates that the proposed actions would not require any ground disturbance or increase the number of aircraft operations within the Washington D.C. Metroplex airspace area.

For the State of Maryland, the Maryland Aviation Administration (MAA), and owners and operators of BWI Marshall and MTN airports have reviewed the June 20, 2013 draft Environmental Assessment (EA) for the DC OAPM and found the following information to be pertinent to its review:

1. The draft EA indicates the procedures designed as part of the DC OAPM would support arriving and departing aircraft operating under Instrument Flight Rules (IFR) at the study area airports using currently available technology. This is to ensure that aircraft not equipped with Performance-Based Navigation capabilities such as Area Navigation (RNAV) and Required Navigation Performance (RNP) continue to have access to terminal airspace;
2. The intent of the DC OAPM is to use the limited airspace as efficiently as possible;
3. The proposed action is, in part, a result of Congress' "*FAA Modernization and Reform Act of 2012*" and FAA continuing efforts to modernize airspace utilization by using more current and precise technologies to improve the efficiency of aircraft movements. The optimization efforts are expected to provide a safer, more predictable airspace operating environment by implementing procedures that will achieve better segregation of arrivals and departures within the terminal airspace; and
4. FAA noise analysis of proposed improvements to Standard Terminal Arrival Route (STAR) and Standard Instrument Departure (SID) procedures indicates no areas of Maryland population that would be impacted significantly by the proposed actions in 2013 or 2018. This means there would not be a 1.5 dB increase in noise over any sensitive land uses.

My telephone number is 410-865-1000  
Toll Free Number 1-888-713-1414 TTY Users Call Via MD Relay  
7201 Corporate Center Drive, Hanover, Maryland 21076

Ms. Lee Kyker  
Page Two

E01

Based on its review of the draft EA and supporting analyses, the State of Maryland concludes the FAA has documented there is not expected to be any significant adverse environmental effects to Maryland resulting from the proposed airspace optimization efforts. This includes residents, airport users, and operators at the Maryland airports listed above.

Thank you, again, for your letter. The Governor appreciates hearing from you and, on his behalf, I thank you for coordinating this effort with the State of Maryland. Should you need supplemental information or clarification, please contact Mr. Paul J. Wiedefeld, A.A.E., Executive Director/Chief Executive Officer, MAA, at 410-859-7060.

Sincerely,



James T. Smith, Jr.  
Secretary

cc: Mr. Barry A. Knight, Manager, Operations Support Group, Eastern Service Center  
FAA  
Mr. Paul J. Wiedefeld, A.A.E., Executive Director/Chief Executive Officer, MAA



**Air Force District of Washington (AFDW) Response to FAA Environmental Assessment Letter Dated 14 June 2013 (TMT 7528)**

9-ASO-DC

Lowin, Lynda E GS14 USAF AFDW AFDW/A4/7 to: OAPMcom 07/17/2013 01:22 PM  
ment

"Supinger, Jamie TSgt USAF AFDW AFDW/A4/7", AFDW  
Cc: A7C Workflow, AFDW/A4/7 Workflow, "PERRY, MELINDA  
MSgt USAF AFDW AFDW/A4/7", "Szatanek, Jeffery S CIV USAF

1 attachment



FAA EA letter to Ms Lowin - AFDW.pdf

Mr Lee Kyker -

In response to your letter of 14 Jun 2013, the Air Force District of Washington and Joint Base (JB) Andrews have reviewed the Washington DC Metroplex Area Optimization of Airspace and Procedures in the Metroplex (DC OAPM) Draft Environmental Assessment (EA). We appreciate the opportunity to provide input and do not have any comments or concerns with the "Proposed Action" and the "No Action" alternatives. There are no anticipated environmental impacts, to include noise, to JB Andrews.

F01

Our point of contact for this matter is Mr Dave Sumner, 240-612-6223, who may be contacted for additional information as required. Please keep us apprized as the EA is finalized.

V/R, Lynda  
Ms Lynda Lowin, GS-14, DAF  
Deputy Director Logistics, Installations and Mission Support  
Air Force District of Washington  
Commercial: 240-612-6210

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Comments on DEA

MICHAEL G KROPOSKI to: 9-ASO-DCOAPMcomment

07/18/2013 09:37 AM

Please respond to MICHAEL G KROPOSKI

Dear Sir or Madam,

Below are my comments on the above mentioned DEA. They are numbered to facilitate responses.

Sincerely,

Michael Kroposki

Comments on the DC OAPM DEA

G01 1. This draft is incomplete and therefore does not meet the requirements of NEPA (National Environmental Policy Act). While much of the methodology developed for 14 CFR Part 150 is good, some of it must be supplemented for NEPA. 40 CFR 1502.22 requires a clear and concise statement of the uncertainty in any projected environmental impacts. When this point was made recently in comments on the Boston Logan RNAV project draft EA, the FAA responder cited with approval the statement in the BLANS Protocol, Section 1.4 to the effect that noise DNLs forecasted had a range of uncertainty of +/- 3 to 5 dB. This statement is necessary in this draft EA. Assuming that it applies to this draft, this range of uncertainty means that no definite conclusions can be drawn concerning DNL projections with less than 3 dB increases. Further refinement of methodology will be necessary to make an environmental assessment of impacts below increases of 3dB. Using such refinements as accurate takeoff weights, YDNL calculated from daily DNL's with daily temperatures instead of imprecision from AAD averaging and smaller grid spacing around airports, the total uncertainty may be reduced to levels below 1.5 dB.

G02 2. In the Boston comments it was also pointed out that a source of increasing uncertainty in the computed DNLs was the ever increasing trend of Passenger Load Factors (PLF). When the noise modeling databases ( INM, NIRS, etc.) were first assembled, the PLF was below 70%, recent FAA reports show it to be 84.3%; an increase of approximately 15%. This is very critical to the modeling because variations in aircraft takeoff weight make significant changes in the computed DNLs. ( see 1,2,3). It appears from this EA draft that the default takeoff weight which uses only stage length was utilized. The INM User manual 7.0 states on page 13, Section 2.1.3 (4) that the user should " Make every effort to develop accurate average values for input data. In particular, flight profiles and ground tracks must be modeled realistically. and if feasible, obtain actual takeoff weights and use average weight to choose profile stage numbers instead of using trip length." For example, if the Boeing 737-800 is chosen as a representative common aircraft, a 15% increase in passenger loading is about 27 passengers. FAA regulations for estimation of passenger weight (AC 120.27E, Chapter 2) state that an average weight for both winter and summer for a passenger with carryon and checked baggage is 238.5 lbs. So the added weight of 27 passengers is 6439.5 lbs. The difference between stage 1 and stage 2 takeoff weight

for the 737-800 is 5900 lbs. With the current level of passenger loading stage 2 default takeoff weight should be used instead of stage one for trips up to 500 nm.

If an SEL is computed for the 737-800 using both stage 1 and 2 takeoff weights the difference for observer points under the flight path 3 and 4 miles from start of roll is 1.1 and 1.2 dB. Since the DNL is the summation of many individual noise events (here, aircraft departures) the YDNL will be underestimated by about 1-2 dB if current passenger loading weight is not accurately estimated for noise model input!

Accurate take off weights are always computed for every commercial aircraft departure for safety reasons (AC 129.27E). The methodology is regularly updated (see ICAO Working Paper November 2009, STA-10/ WP/5). Since the actual takeoff weights and data for reasonable estimates are available, use of these in place of the default weight based only upon trip length is required by NEPA.

3. In the EA draft Aircraft Noise Technical Report at section 3.2.8, page 3-48 it is stated that "The trip length is needed in noise calculations because it influences the take-off weight of the aircraft, which is higher for longer trips, and lower for shorter trips. The great-circle distance is used to calculate a stage length for each aircraft operation. For purposes of this noise analysis, arrival and departure airport pairs were input into the NIRS model, which automatically assigned the appropriate stage length."

INM has a default setting for takeoff weight estimation outlined in the INM Technical Manual 7.0 on page 170 Table G-4-14: Guidance for Determining Departure Takeoff Weights. This method uses trip length to estimate fuel load and adds a factor of 65% payload to estimate the takeoff weight. Since NIRS probably uses this same methodology, this EA should state

specifically the algorithm used to calculate take off weights and specifically state the assumptions made in the calculations. While use of the default settings 65% payload may have been realistic

in 1970, the current Load Factors clearly show it is not so today[ see 4 at 3.4.1, page 20 ]. A more realistic average weight is most likely much higher. INM noise calculations are especially

sensitive to variations in takeoff weight. One study of input sensitivities has shown that a 10% variation in takeoff weight leads to an error of 3-7 dB [2]. Also since large jet aircraft are most likely the largest contributors of noise energy, an error in the largest contributors to DNL will

predominate since noise as measured by DNL is aggregated logarithmically. Assuming unrealistically low take off weights have been used in the draft EA, it may be assumed that the calculated DNL's are significantly underestimated!

. In response to a comment on the Boston Logan RNAV that use of trip length without adjustment was inaccurate the FAA responder suggested that since INM assumes full thrust on takeoff and many airlines are using derated thrust on takeoff, this derating was offsetting the decreased noise resulting under estimation of takeoff weight. This suggestion is not very accurate for three reasons. First it is well known that derated thrust take offs merely move the noise contours further out ( see 4). The laws of physics dictate that the same amount of total thrust is needed to put the aircraft at cruising speed and altitude. Second significant derating is only possible when the aircraft is lightly loaded. Given the fixed length of the takeoff runway, a heavier aircraft requires more thrust to reach take off speed on a limited length runway. Third, derated thrust results in a slower climb. The lesser altitude results in more noise so the derated thrust is offset by the lower altitude of the aircraft (5).

The FAA responder also mentioned that the study cited above of INM sensitivity to aircraft weight did not apply because its results were stated in terms SEL and not DNL. This of course is

G02

G03

G04

G05

G06

not very perceptible. DNL is merely an aggregation of the annual noise events measured in SEL. Further the underestimation of takeoff weight is present in each noise event aggregated in the annual average so it will show up in the same magnitude in the annual average, the DNL.

G07 4. The use of AAD( Average Annual Day) DNL as a substitute for YDNL is not in compliance with Order 1050.1E, Appendix A 14.1a or Part 150, A150.3(b). The use of AAD DNL appears to have been utilized to save computational time (See INM Users Guide, page 12 Section 2.1.2). However the AAD computation obscures or loses valuable information concerning the range of daily DNLs. If there is a wide range with many very noisy days , i.e. high DNLs compared to the average, this information is important for the decision maker to be aware of. A table of daily DNLs used to compute the YDNL would give more complete information which is a basic objective of NEPA.

It should be noted that although the AAD DNL computation has been utilized for many years in INM studies, the Part 150 regulations have never been amended to accept them in place of the YDNL. This may be a result of the lack of FAA desire to offer such an amendment for public comment based upon the fact that AAD results in some rather bizarre output. It is often the case that annual averages of operations of each aircraft type yields fractions of an airplane. It is difficult to comprehend the flight of a fractional 747. Is it as loud as a complete aircraft?

G08 5. It is not clear that this noise modeling software has been validated for modeling PBN air procedures (RNAV and RNP). Unlike conventional air procedures the PBNs require strict adherence to prescribed flight paths. While this requirement actually makes generation of the flight profile by the model more accurate it entails constant change in the aircraft operational controls including thrust to maintain the flight path. Noise modeling software such as NIRS and INM utilize linear segments to model the aircraft flight path. These segments assume constant or linear changes in the operational parameters of an aircraft. In PBN and especially RNP the aircraft control surfaces and the thrust are constantly changing in a random (not linear) manner to maintain the prescribed position. Changes in thrust will result in changing noise generation. The size of these random noise variations must be assessed. Without validation studies PBN air procedure impact studies are subject to a new source of uncertainty in the computed YDNL. NEPA requires this source to be quantified.

G09 6. The draft EA does not appear to state the Grid spacing. This information is critical to the evaluation of PBN air procedures. PBN procedures for the most part do not eliminate aircraft noise, they merely move it. The decrease in aircraft track dispersion results in concentration of noise directly under the flight tracks. The FAA has recognized this phenomenon by calling it "noise focusing" (3). From an environmental perspective, noise focusing is the most problematic feature of PBN air procedures. In past EAs for PBNs the grid spacing around airport has been reduced or as it is called in noise modeling, " a refinement". The 65 dB contour for an RNAV departure will show an enlargement compared to a conventional departure. This enlargement takes the shape of long thin fingerlike contours. The grid spacing in this draft EA does not display this PBN characteristic impact probably because the grid spacing is too large and therefore does not clearly display the environment impact as required by NEPA.

G10 7. The FAA NEPA regulations use round numbers, for example 65 dB, with one exception 1.5 dB ( Order 1050.1E section 14), however table 1 in the draft EA on page 1-2, Aircraft Noise Technical report, cites the noise limits as 3.0 and 5.0 dB. These are different numbers. A change

G10

of 4.6 dB would satisfy the 5 dB limit under standard numerical nomenclature but would not be valid according to table 1. This table should be revised in accordance with Order 1050.1E

Submitted by  
Michael Kroposki Esq.

NOTES:

1. Review of Integrated Noise Model (INM) Equations and Processes, David W. Forsyth, John Gulding, and Joseph DiPardo, NASA/CR-2003-212414 pages 18-22
2. "Sensitivity of FAA Integrated Noise Model to Input Parameters" , Applied Acoustics, Vol 66, Issue 3, March 2005, pages 263-276, (copy attached)
3. Technical analysis attachment to letter of FAA Administrator Huerta to RTCA Sept 21, 2012 at bottom of page 8.
4. Aircraft Noise, Michael J.T. Smith, Cambridge University Press, page 244
5. Review of Integrated Noise Model (INM) Equations and Processes, *ibid*, page 30, 5th paragraph.



NOAA National Weather Service (NWS) comments on Draft Environmental Assessment for Washington, D.C. Optimization of Airspace and Procedures in the Metroplex

Steve Kokkinakis - NOAA Federal to: 9-ASO-DCOAPMcomment

07/18/2013 01:55 PM

Cc: Steve Kokkinakis - NOAA Federal, Yelena Platt - NOAA Affiliate

Dear FAA:

NOAA submits the following information for consideration on weather radar assets and upper air balloon launching operations within the Washington, DC area of interest as you finalize your Environmental Assessment for Washington, D.C. Optimization of Airspace and Procedures in the Metroplex.

Weather Radars:

- There is a NOAA/NWS Weather Radar (WSR-88D) located at Sterling, VA (Dulles International Airport) -- specific location is: +38 58 34N; -77 29 15W
- There is a NOAA/NWS Weather Radar (WSR-88D) located at Wakefield, VA -- specific location is: +36 59 02.58; -77 00 26.5
- NOAA/NWS recommends approach/departure routes be no closer than 1,200 feet to Sterling and Wakefield WSR-88D radars.

Upper Air Observations:

- NOAA/NWS launches upper observations with balloon-borne radiosondes two times per day from the Sterling, VA Weather Forecast Office (Dulles International Airport) location (NWS coordinates with FAA before each release).
- The Sterling Field Support Center also launches up to 6 balloon/Upper Air test flights per day at different times during test operations (NWS coordinates with FAA before each release).

Weather Radars contact: Vance Mansur - 405-573-3433 ([minnis.v.mansur@noaa.gov](mailto:minnis.v.mansur@noaa.gov))

Upper Air Observations contact: Sterling Field Support Center, Jim Fitzgibbon - 703-661-1243([james.fitzgibbon@noaa.gov](mailto:james.fitzgibbon@noaa.gov))

Regards,  
Steve

Steve Kokkinakis  
Senior Advisor on NEPA Coordination and Compliance  
Office of Program Planning and Integration  
National Oceanic & Atmospheric Administration  
US Department of Commerce

1315 East-West Highway  
Silver Spring, MD 20910

H01

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# COMMONWEALTH of VIRGINIA

Randall P Burdette  
Director

*Department of Aviation*  
5702 Gulfstream Road  
Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624  
FAX • (804) 236-3635

July 3, 2013

Mr. Lee Kyker, Environmental Specialist  
Eastern Service Center, Operations Support Group  
1701 Columbia Avenue  
College Park, Georgia 30337

Mr. John E. Fisher  
Department of Environmental Quality  
Office of Environmental Impact Review  
629 East Main Street, 6<sup>th</sup> Floor  
Richmond, Virginia 23219

**Re: Draft Environmental Assessment for Washington, DC Optimization of Airspace and Procedures in the Metroplex  
Virginia Department of Environmental Quality (DEQ) Project Number 13-122F**

Gentlemen:

Thank you for requesting our comments regarding Draft Environmental Assessment for Washington, DC Optimization of Airspace and Procedures in the Metroplex, Project Number 13-122F.

The Virginia Department of Aviation has reviewed the draft environmental assessment report provided. After our review of the document, the Department acknowledges that the 'no action' alternative, in our opinion, will not fulfill the goals of the FAA to meet its primary mission as mandated by Congress- to provide for the efficient use of airspace.

The document identifies 47 Standard Terminal Approach Routes (STARs) and 37 Standard Instrument Departure Procedures (SIDs) in the preferred alternative that are designed to optimize the use of airspace and incorporate NextGen technologies to achieve the following objectives:

- Improve the flexibility in transitioning traffic between enroute and terminal area airspace and between terminal area airspace and the runways



DEQ Project Number 13-122F

July 3, 2013

Page 2

- Improve the segregation of arrivals and departures in terminal area and enroute airspace
- Provide RNAV arrival and departure enroute transitional and terminal area airspace procedures for each individual runway with the intent to provide a more predictable ground and vertical path.

The Department believes that the proposed action provides greater flexibility and efficiency with respect to improving operational capacity and safety at the study airports and, in particular, the Virginia airports, which include the Large Hub Air Carrier airports Washington Dulles International Airport (IAD) and Ronald Reagan Washington National Airport (DCA); one Small Hub Air Carrier airport, Richmond International Airport (RIC), three Reliever airports, Manassas Regional Airport (HEF), Leesburg Executive Airport (JYO), and Stafford Regional Airport (RMN); and one General Aviation airport, Winchester Regional Airport (OKV). We also believe that, as shown, the optimization will enhance the National Airspace System (NAS), as well.

101

Although the Department is in agreement with the purpose and need for the proposed action, we reserve our final comments until we have reviewed the public's comments.

We appreciate the consideration you have given to us by requesting our comments on this project. Please do not hesitate to contact me should you have any questions or require further assistance regarding the Department's review of this project.

Sincerely,



P. Clifford Burnette, Jr.  
Director  
Airport Services Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

July 19, 2013

Mr. Lee Kyker,  
Environmental Specialist  
Eastern Service Area – Operations Support Group  
Federal Aviation Administration  
1701 Columbia Avenue  
College Park, GA 30337

Re: Draft Environmental Assessment (EA) for Washington, D.C. Optimization of Airspace and Procedures in the Metroplex

Dear Mr. Kyker:

In accordance with the National Environmental Policy Act (NEPA) of 1969, Section 309 of the Clean Air Act and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency (EPA) is responding to your request for comments on the referenced project. We have included the following comments for your consideration in the development of the final Environmental Assessment (EA).

As you are aware, this draft EA is to document the potential effects to the environment that may result from the implementation Area Navigation (RNAV) defined Instrument Flight Rules for aircraft routing to and from airports in the Washington, D.C. Metroplex. The Washington, D.C. Metroplex study area includes the major airports of Baltimore Washington International, the Dulles International, Andrews Air Force Base and the Ronald Reagan National. The implementation of RNAV will replace the existing NAVID technology and provide for more efficient airspace structure and aircraft flight procedures in the D.C. Metroplex.

After a review of the above referenced EA the Environmental Protection Agency has the following comments.

J01 1. As discussed in the EA, the implementation of the RNAV procedures will improve aircraft flow within the National Airspace System. It is unclear whether that improve aircraft flow would translate to increase capacity. In the case where increase capacity is a result of the proposed action the EA should include a discussion of the indirect or secondary impacts that may occur.

J02 2. Section 5.3.3 of the Environmental Assessment discusses potential environmental impacts to the Department of Transportation Act, Section 4(f) Resources, specifically the



J02

changes in aircraft noise exposure resulting from the implementation of the Proposed Action. The noise analysis identified six grid points representing five Section 4(f) resources that are above the FAA's action level as outlined in FAA Order 1050.E. The FAA Order 1050E further stipulates that exposures of 5dB or greater in areas exposed to aircraft noise between DNL 45 and 65 dB should be considered for airspace action, such as changes to air traffic routes. It is unclear what specific measures would be considered in these areas to reduce noise levels.

EPA appreciates the opportunity to review and make comments on the EA. If you have any questions you can contact Kevin Magerr at (215) 814-5724.

Sincerely,



Barbara Rudnick,  
Team Leader, NEPA Program



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**From:** [quindocqua@aol.com](mailto:quindocqua@aol.com) [mailto:quindocqua@aol.com]

**Sent:** Tuesday, August 27, 2013 11:43 AM

**To:** [DCOAPM@faa.gov](mailto:DCOAPM@faa.gov); Community Awareness Services; [quindocqua@aol.com](mailto:quindocqua@aol.com); [howardcamp3@verizon.net](mailto:howardcamp3@verizon.net)

**Subject:** DC OAPM Draft Environmental Assessment - Notice of Availability

Greetings:

The Notice of availability letter dated June 14, 2013 was sent to an obsolete point of contact and returned as not deliverable. I eventually received the letter, however much too late to meet the July 20, 2013 deadline for comments. Hopefully, our contact information has been corrected to avoid any future delays.

Should the deadline for public comments be extended or waived and for future notices; please direct notices to Norris C. Howard SR, Paramount Chief - Pocomoke Indian Nation – 3355 Allen Road, Eden, MD 21822.

K01

I recently viewed, on line, the list of "Historic and Cultural Resources" in the DC OAPM Draft Environmental Assessment-Notice of Availability and found a number of listed resources that may be of concern to our organizations. A proper investigation of those properties and arranging appropriate consultations with the Maryland Historical Trust, the Archaeological Society of Maryland, Inc. and the Virginia Department of Historic Resources would require considerable time and certainly foreclose a considered response on such short notice.

K02

Briefly stated, the interests of the **Pocomoke Indian Nation, Inc.** is the promotion of the general welfare, health, education, cultural heritage and preservation of historical assets of the Pocomoke Nation whose People inhabited Somerset County and portions of Wicomico and Worcester Counties, MD, Sussex County, DE and Accomac County, VA. It is our position that safeguards should be employed to ensure the integrity of cultural and historical resources. Additionally, access should be provided to our People and our collaborators and representatives for current and future studies of known and newly discovered archaeological properties and Native sacred sites.

Another organization which I also chair and receive mail at the same address is the **Remnant Bands of American Indians of the Eastern Shore of Maryland, Inc.** That organization is more general in scope and its geographical area extends from the Flats of the Susquehanna River to the Watersheds of the Pocomoke River and is inclusive of Caroline, Cecil, Dorchester, Kent, Queen Anne, Somerset, Talbot, Wicomico, and Worcester counties. Please include the "Remnant Bands" in future notices.

Thank You.

Sincerely,

Norris C. Howard SR

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**Table 1 Response to Comments (1 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
01	Edwin C. Luther	County of Henrico	7/1/2013	4F01	We accept your findings that the proposed undertaking, implementation of optimized standard arrival and departure instrument procedures in the Washington D.C. Metroplex area, would not result in a constructive use of the affected property.	Comment Noted.
02		Maryland Office of Preservation Services, Maryland State Department of Planning	7/15/2013	SHPO01	The Maryland Historical Trust has determined that this undertaking will have no adverse effect on historic properties.	Comment noted.
03	C. Andrew Lewis	DC State Historic Preservation Office	7/23/2013	SHPO02	This project will have no adverse effect on historic properties. No further DC SHPO review or comment will be necessary.	Comment noted.
04	Susan Pierce	West Virginia Division of Culture and History	7/18/2013	SHPO03	Therefore, we concur with your opinion that the proposed project will have no adverse effect on any West Virginia properties that are eligible for or listed in the National Register of Historic Places.	Comment noted.
05	Andrea Kampinen	Commonwealth of Virginia, Department of Historic Resources	08/01/2013	SHPO04	Based upon a review of the information provided, we concur with your determination of no adverse effect.	Comment noted.
06	Rebecca L. Harriett	National Park Service, Harpers Ferry National Historical Park	08/01/2013	SHPO05	Our Chief of Resources Management Mia Parsons has reviewed and does not see an adverse impact on Harpers Ferry National Historical Park.	Comment noted.
07	Douglas C. McLearen	Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation	08/06/2013	SHPO06	We concur with the findings of the agency that the proposed project will have no adverse effect on the properties within the General Study Area located in Pennsylvania that are listed in or eligible for the National Register of Historic Places.	Comment noted.

**Table 1 Response to Comments (2 of 12)**

Letter ID	Name	Organization	Date	Comment #	Comment	FAA Response
08	Bob Kirby	National Park Service, Gettysburg National Military Park	08/01/2013	4F02	Based upon the information provided for NPS resources within the study area NPS concurs with the FAA finding that there will be no substantial change to the noise environment at any Section 4(F) resources within our jurisdiction.	Comment noted.
A	Michael Skowrunski	Individual	2/6/2013	A01	I am writing to you on behalf of hundreds of frustrated residents in the Stone Ridge-Gum Spring Rd corridor. Noise levels from Dulles airport departing aircraft have reached unacceptable levels in our communities. It is depriving residents of sleep and making it increasingly difficult to enjoy outdoor activities. How can you help? The FAA currently has an impact study underway for the DC area. We would be grateful for your assistance in raising our concerns to them so they can be included in their assessment activities.	The commenter's concern is noted. The EA has been prepared to analyze the effects associated with the DC OAPM project. The purpose of the DC OAPM project is to optimize aircraft routes and supporting airspace management structure serving IFR aircraft operating departing or arriving at airports in the Washington, D.C. Metroplex area. The noise analysis prepared for the Draft EA indicates that there would be no significant noise impacts resulting from implementation of the DC OAPM project. Please see Chapter 5 of the Draft EA for more information on the noise analysis.
B	Andrew F. Tress	Hartford County Council	6/28/2013	B01	In Harford County we have recently passed legislation allowing airports in our county to expand their facilities under certain criteria from our newly amended zoning code. This will directly affect the Harford County Airport Owners Group, Inc. specifically the location in Churchville, MD. We ask that you please take this into consideration when conducting your environmental assessment of the area.	Comment noted. The analysis of environmental effects associated with DC OAPM project considers the effects of reasonably foreseeable projects planned for airports throughout the General Study Area. Please see Chapter 5 of the Draft EA for a complete list of projects identified and assessed as a part of the cumulative impacts analysis.

**Table 1 Response to Comments (3 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
C	Robbie Rhur	Commonwealth of Virginia, Department of Conservation and Recreation	7/1/2013	C02	Cumberland Marsh, Chotank Creek, Bull Run Mountains, Ellick Woodlands, Ogdens cave and Crows Nest State Natural Area Preserves are in the project vicinity, however, we do not anticipate any adverse effects to the Natural Area Preserve and associated resources due to the project scope and location.	Comment noted.
C	Robbie Rhur	Commonwealth of Virginia, Department of Conservation and Recreation	7/1/2013	C03	Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the OCR, OCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.	Comment noted.
D	William C. Lebegern	Metropolitan Washington Airports Authority	7/12/2013	D01	The Metropolitan Washington Airports Authority has reviewed the above referenced document and supports the Federal Aviation Administration's (FAA) initiative for the optimization and enhancement of airspace and air traffic procedures within the Washington, D.C. region.	Comment noted.
E	James T. Smith, Jr.	Maryland Department of Transportation	7/13/2013	E01	Based on its review of the draft EA and supporting analyses, the State of Maryland concludes the FAA has documented there is not expected to be any significant adverse environmental effects to Maryland resulting from the proposed airspace optimization efforts. This includes residents, airport users, and operators at the Maryland airports listed above.	Comment noted.

**Table 1 Response to Comments (4 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
F	Lynda Lowin	Air Force District of Washington	07/17/2013	F01	We appreciate the opportunity to provide input and do not have any comments or concerns with the "Proposed Action" and the "No Action" alternatives. There are no anticipated environmental impacts, to include noise, to JB Andrews.	Comment noted.
G	Michael Kroposki	Individual	7/18/2013	G01	This draft is incomplete and therefore does not meet the requirements of NEPA (National Environmental Policy Act).	The Draft EA was prepared in compliance with FAA Order 1050.1E, Chg 1, and satisfies the requirements of NEPA as well as the implementing regulations issued by the Council on Environmental Quality (CEQ)(40 CFR Parts 1500-1508). The analysis of potential noise impacts was undertaken using FAA's standard noise model for projects of this kind, following established and approved methodologies. Accordingly, the EA meets and satisfies the requirements of NEPA. Comments and responses on environmental documentation prepared for other, unrelated projects are not applicable to this project.

**Table 1          Response to Comments (5 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
G	Michael Kroposki	Individual	7/18/2013	G02	<p>When the noise modeling databases (INM, NIRS, etc.) were first assembled, the PLF was below 70%, recent FAA reports show it to be 84.3%; an increase of approximately 15%. This is very critical to the modeling because variations in aircraft takeoff weight make significant changes in the computed DNLs. (see 1,2,3). It appears from this EA draft that the default takeoff weight which uses only stage length was utilized. The INM User manual 7.0 states on page 13, Section 2.1.3 (4) that the user should " Make every effort to develop accurate average values for input data. In particular, flight profiles and ground tracks must be modeled realistically. and if feasible, obtain actual takeoff weights and use average weight to choose profile stage numbers instead of using trip length.". For example, if the Boeing 737-800 is chosen as a representative common aircraft, a 15% increase in passenger loading is about 27 passengers. FAA regulations for estimation of passenger weight (AC 120.27E, Chapter 2) state that an average weight for both winter and summer for a passenger with carryon and checked baggage is 238.5 lbs. So the added weight of 27 passengers is 6439.5 lbs. The difference between stage 1 and stage 2 takeoff weight for the 737-800 is 5900 lbs. With the current level of passenger loading stage 2 default takeoff weight should be used instead of stage one for trips up to 500 run.</p> <p>If an SEL is computed for the 737-800 using both stage 1 and 2 takeoff weights the difference for observer points under the flight path 3 and 4 miles from start of roll is 1.1 and 1.2 dB. Since the DNL is the summation of many individual noise events (here, aircraft departures) the YDNL will be underestimated by about 1-2 dB if current passenger loading weight is not accurately estimated for noise model input!</p>	<p>The analysis of potential noise impacts was undertaken following established and approved methodologies using the FAA's approved noise model for assessing noise impacts associated with air traffic changes over broad areas. More information on the NIRS model can be found on the FAA website (<a href="http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/">http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/</a>).</p>

**Table 1 Response to Comments (6 of 12)**

Letter ID	Name	Organization	Date	Comment #	Comment	FAA Response
G	Michael Kroposki	Individual	7/18/2013	G03	Since NIRS probably uses this same methodology, this EA should state specifically the algorithm used to calculate take off weights and specifically state the assumptions made in the calculations.	The assumptions used in calculating noise are included in the Aircraft Noise Technical Report. The analysis of potential noise impacts was undertaken following established and approved methodologies using the FAA's approved noise model for assessing noise impacts associated with air traffic changes over broad areas. More information on the NIRS model can be found on the FAA website ( <a href="http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/">http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/</a> ).
G	Michael Kroposki	Individual	7/18/2013	G04	While use of the default settings 65% payload may have been realistic in 1970, the current Load Factors clearly show it is not so today[ see 4 at 3.4. 1, page 20 ]. A more realistic average weight is most likely much higher.	The average weight calculation includes more than passenger load factor. NIRS has a Total Payload factor built into the model. It also includes passenger load and the weight of the aircraft, cargo, and fuel. More information on the NIRS model can be found on the FAA website ( <a href="http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/">http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/</a> ).
G	Michael Kroposki	Individual	7/18/2013	G05	INM noise calculations are especially sensitive to variations in takeoff weight. One study of input sensitivities has shown that a 10% variation in takeoff weight leads to an error of 3-7 dB [2].	Noise calculations are sensitive to many noise modeling input variables. It is not technically sound to look at one variable, e.g., takeoff weight, in isolation. It should be noted that the article the commenter is citing pertains to INM version 6.0. The current version of INM is 7.0d. More information on INM 7.0d can be found on the FAA website ( <a href="http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/inm_model/">http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/inm_model/</a> ).

**Table 1          Response to Comments (7 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
G	Michael Kroposki	Individual	7/18/2013	G06	Also since large jet aircraft are most likely the largest contributors of noise energy, an error in the largest contributors to DNL will predominate since noise as measured by DNL is aggregated logarithmically. Assuming unrealistically low take off weights have been used in the draft EA, it may be assumed that the calculated DNL's are significantly underestimated!	The commenter's assumption that calculated DNLs are significantly underestimated is not accurate and appears to be based on his assumption that the passenger load factor is the prevailing variable in the noise model. Noise calculations are sensitive to many noise modeling input variables. For example, the noise model uses a conservative value of 100% thrust for departure procedures, although airlines typically do not use 100% power in takeoff. Thrust reduction at takeoff varies. Therefore, the 100% thrust assumption will result in higher noise calculations than may occur for particular departures. The goal of the noise analysis is to capture the average annual conditions at the airport.

**Table 1 Response to Comments (8 of 12)**

Letter ID	Name	Organization	Date	Comment #	Comment	FAA Response
G	Michael Kroposki	Individual	7/18/2013	G07	The use of AAD (Average Annual Day) DNL as a substitute for YDNL is not in compliance with Order 1050.1E, Appendix A 14.1a or Part 150, A150.3(b).	<p>FAA Order 1050.1e requires that all detailed noise analyses conducted for environmental documentation for FAA projects be completed using the most current version of the FAA's INM, NIRS, or HNM noise models (FAA Order 1050.1e, Chg. 1, App. A, Sec 14.2b.) The INM 7.0 User Guide states:</p> <p>In the U.S., annual day-night average sound level (DNL or Ldn) is used for quantifying airport noise...INM uses the concept of an "average annual day". FAR Part 150 allows the use of average input data in INM, as follows:</p> <p>Operational data (Part 150 Sec. A150.103(b)): "...the following information must be obtained for input to the calculation of noise exposure contours: ... (2) Airport activity and operational data which will indicate, on an annual average-daily-basis, the number of aircraft, by type of aircraft, which utilize each flight track, in both standard daytime (0700-2200 hours local) and nighttime (2200-0700 hours local) periods for both landings and takeoffs."</p> <p>An average annual day is a user-defined best representation of the typical long-term average conditions for the airport. These average conditions include the number and type of operations, routing structure, runway configuration, aircraft weight, temperature, and wind... For policy decisions, however, it is necessary to normalize all scenarios to the same time period (a yearly average), to insure an unbiased comparison among alternatives.</p>

**Table 1 Response to Comments (9 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
G	Michael Kroposki	Individual	7/18/2013	G08	It is not clear that this noise modeling software has been validated for modeling PBN air procedures (RNAV and RNP).	NIRS is the FAA's approved noise-assessment program designed to provide an analysis of air traffic changes over broad areas such as those included as part of the Proposed Action and as required by 1050.1e. The NIRS model is able to account for the dispersion of aircraft along a route. Model parameters are designed to distribute the air traffic in a fashion that more closely approximates the actual variation in individual flight tracks. With these parameters, a route describes not only a single track, but multiple parallel tracks, as well. In this way, NIRS more closely simulates the spread of actual air traffic operations along a route. More information on the NIRS model can be found on the FAA website ( <a href="http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/">http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/nirs_nst/</a> ).
G	Michael Kroposki	Individual	7/18/2013	G09	The draft EA does not appear to state the Grid spacing.	The interval for grid point spacing is 0.5 nautical miles, covering the entire General Study Area. This is discussed on page 5-4 of the Draft EA.
G	Michael Kroposki	Individual	7/18/2013	G10	The FAA NEPA regulations use round numbers, for example 65 dB, with one exception 1.5 dB (Order 1050.1 E section 14), however table 1 in the draft EA on page 1-2, Aircraft Noise Technical report, cites the noise limits as 3.0 and 5.0 dB. These are different numbers. A change of 4.6 dB would satisfy the 5 dB limit under standard numerical nomenclature but would not be valid according to table 1. This table should be revised in accordance with Order 1050.1E.	The significant impact threshold and reportable noise increase criteria shown in Table 1 in the DC OAPM Noise Impact Technical Report is consistent with FAA Order 1050.1E, Appendix A, Section 14. Therefore, no revisions to Table 1 are necessary. The fact that some numbers in the Order are presented as whole numbers is a matter of formatting and stylistic convention.  The EA presents the noise values as reported by NIRS, which rounds to the nearest 1/10th of a dB. For comparison to noise criteria, FAA applied the criteria to the nearest 1/10th of a dB (consistent with the above reference Appendix A, section 14.3). FAA consistently applied this methodology throughout the analysis.

**Table 1 Response to Comments (10 of 12)**

Letter ID	Name	Organization	Date	Comment #	Comment	FAA Response
H	Steve Kokkinakis	National Oceanic & Atmospheric Administration	7/18/2013	H01	<p>NOAA submits the following information for consideration on weather radar assets and upper air balloon launching operations within the Washington, DC area of interest as your finalize your Environmental Assessment for Washington, D.C. Optimization of Airspace and Procedures in the Metroplex.</p> <p>Weather Radars:</p> <ul style="list-style-type: none"> <li>• There is a NOAA/NWS Weather Radar (WSR-88D) located at Sterling, VA (Dulles International Airport) --specific location is: +38 58 34N; -77 29 15W</li> <li>• There is a NOAA/NWS Weather Radar (WSR-88D) located at Wakefield, VA -- specific location is: +36 59 02.58; -77 00 26.5</li> <li>• NOAA/NWS recommends approach/departure routes be no closer than 1,200 feet to Sterling and Wakefield WSR-88D radars.</li> </ul> <p>Upper Air Observations:</p> <ul style="list-style-type: none"> <li>• NOAA/NWS launches upper observations with balloon-borne radiosondes two times per day from the Sterling, VA Weather Forecast Office (Dulles International Airport) location (NWS coordinates with FAA before each release).</li> <li>• The Sterling Field Support Center also launches up to 6 balloon/Upper Air test flights per day at different times during test operations (NWS coordinates with FAA before each release).</li> </ul>	<p>The Wakefield, Virginia NOAA/NWS Weather Radar (WSR-88D) is located outside the General Study Area and, therefore, is not considered further.</p> <p>The Sterling, Virginia NOAA/NWS Weather Radar (WSR-88D) is located immediately adjacent to Dulles International Airport in an area where aircraft currently operate. Implementation of the DC OAPM project would not change aircraft operations in this area.</p>
I	P. Clifford Burnette, Jr.	Commonwealth of Virginia, Department of Aviation	07/03/2013	I01	<p>Although the Department is in agreement with the purpose and need for the proposed action, we reserve our final comments until we have reviewed the public's comments.</p>	<p>Comment noted.</p>

**Table 1 Response to Comments (11 of 12)**

<b>Letter ID</b>	<b>Name</b>	<b>Organization</b>	<b>Date</b>	<b>Comment #</b>	<b>Comment</b>	<b>FAA Response</b>
J	Barbara Rudnick	U.S. Environmental Protection Agency	7/19/2013	J01	As discussed in the EA, the implementation of the RNAV procedures will improve aircraft flow within the National Airspace System. It is unclear whether that improved aircraft flow would translate to increase capacity. In the case where increase capacity is a result of the proposed action the EA should include a discussion of the indirect or secondary impacts that may occur.	As discussed in Chapter 2 of the Draft EA, The purpose of the Proposed Action is to take advantage of the benefits of performance based navigation by implementing RNAV procedures that will help improve the efficiency of the airspace in the DC Metroplex. The Proposed Action does not increase capacity of existing airspace, and does not include infrastructure improvements (e.g., new runways) that would increase airfield capacity. Therefore, implementation of the Proposed Action would not result in an increase in the number of aircraft operations at the Study Airports and no discussion of indirect or secondary impacts related to increased capacity would be necessary.
J	Barbara Rudnick	U.S. Environmental Protection Agency	7/19/2013	J02	Section 5.3.3 of the Environmental Assessment discusses potential environmental impacts to the Department of Transportation Act, Section 4(f) Resources, specifically the changes in aircraft noise exposure resulting from the implementation of the Proposed Action. The noise analysis identified six grid points representing five Section 4(f) resources that are above the FAA's action level as outlined in FAA Order I050.1E. The FAA Order I050.1E further stipulates that exposures of 5 dB or greater in areas exposed to aircraft noise between DNL 45 and 65 dB should be considered for airspace action, such as changes to air traffic routes. It is unclear what specific measures would be considered in these areas to reduce noise levels.	As discussed in Chapter 5 of the Draft EA while the difference in noise conditions resulting from implementation of the Proposed Action as compared to the No Action alternative represent reportable noise increases, FAR Part 150 compatible land use guidelines recognize all land uses as being compatible in areas exposed to DNL 50 dB and below. The six grid points where reportable noise increases were identified would not experience noise levels above DNL 50 dB due to the Proposed Action (See Table 5-5 for calculated noise values). Therefore, the Proposed Action would not result in a direct or constructive use of potential Section 4(f) resources in 2013 or 2018. Accordingly no measures to reduce noise levels in these areas would be warranted or necessary.

**Table 1 Response to Comments (12 of 12)**

Letter ID	Name	Organization	/Date	Comment #	Comment	FAA Response
K	Norris C. Howard SR	Pocomoke Indian Nation, Inc.	08/27/2013	K01	I recently viewed, on line, the list of "Historic and Cultural Resources" in the DC OAPM Draft Environmental Assessment Notice of Availability and found a number of listed resources that may be of concern to our organizations. A proper investigation of those properties and arranging appropriate consultations with the Maryland Historical Trust, the Archaeological Society of Maryland, Inc. and the Virginia Department of Historic Resources would require considerable time and certainly foreclose a considered response on such short notice.	As part of the OAPM EA process, the FAA initiated consultation under Section 106 of the National Historic Preservation Act with the State Historic Preservation Officers (SHPOs) for the states located within the General Study Area. This includes consultation with the State of Maryland Office of Preservation Services and the Virginia Department of Historic Resources. Both agencies concurred with the FAA's determination of no adverse effect to historic properties. Please see Letters 02 and 05, above.
K	Norris C. Howard SR	Pocomoke Indian Nation, Inc.	08/27/2013	K02	It is our position that safeguards should be employed to ensure the integrity of cultural and historical resources. Additionally, access should be provided to our People and our collaborators and representatives for current and future studies of known and newly discovered archaeological properties and Native sacred sites.	Comment noted. Please note that the Proposed Action would not involve land acquisition or ground disturbing activities that would affect archaeological or architectural resources (See Chapter 4 of the Draft EA.)

### 3 Environmental Assessment Errata

The errata sheet corrects errors or omissions that were identified after the printing of the Draft EA for DC OAPM Project in June 2013. This errata sheet must be attached to the EA to comprise a full and complete record of the environmental analysis for the project. The EA will not be reprinted.

Section 3.1 provides changes and additions for text and tables. Section 3.2 provides changes and additions to exhibits. Changes in text and tables are indicated with ~~strikeout~~ type where the text is removed and replaced. New text is indicated with **bold italic** type where text is added. Changes to exhibits are noted by difference in color.

#### 3.1 Corrections to Text and Tables

##### Chapter 2

On Page 2-1, first paragraph, the following correction will be made to the text to reflect that the OAPM Initiative was undertaken prior to enactment of the FAA Modernization and Reform Act of 2012 (“the Act”) and was not dependent upon authorization of the Act:

~~As discussed in Chapter 1, the FAA Modernization and Reform Act of 2012 (“the Act”) was enacted in February 2012 to help modernize the nation’s air transportation system. Among other provisions, the Act requires the implementation of performance-based airspace procedure enhancements at 35 of the nation’s busiest airports<sup>32</sup> and at any medium or small hub airports located within the same Metroplex area as determined by the FAA Administrator. The Act also requires that all performance-based procedures be certified, published, and implemented by June 30, 2015. Accordingly, the Federal Aviation Administration (FAA) proposes to increase the efficiency of the DC Metroplex airspace through the implementation of area navigation (RNAV) defined Instrument Flight Procedures (IFPs)<sup>33</sup> that improve upon existing, but less efficient ground-based and/or radar vector procedures.<sup>34</sup> The FAA Administrator has decided to implement the DC Metroplex enhancements before the June 30, 2015 deadline.~~

##### Chapter 3

On Page 3-31, second paragraph, the following corrections will be made to the text to reflect that all 69 procedures were included in the analysis of environmental impacts associated with the Proposed Action:

~~The Proposed Action includes 67 procedures: 38 procedures developed by the D&I Team, 22 existing procedures, and seven previously developed procedures identified as having independent utility that have not yet been implemented. In some cases, the D&I Team determined that existing procedures are efficient and a redesign was unnecessary. Of the 38 new procedures developed by the D&I Team, 22 procedures are SIDs and 17 procedures are STARs. Of the 38 procedures developed by the D&I Team, all but one are RNAV. The 22 existing and seven previously developed procedures are also included as part of the No Action Alternative.~~

***The Proposed Action includes 69 procedures: 41 procedures developed by the D&I Team, and 28 existing procedures (six RNAV STARs, three RNAV SIDs, eight conventional STARs, and 11 conventional SIDs). The 28 existing procedures include seven previously developed procedures identified as having independent utility that have not yet been implemented. A total of 49 of the Proposed Action procedures are RNAV procedures and 20 procedures are conventional. In some cases, the D&I Team determined that existing procedures are efficient and a redesign was unnecessary. Of the 41 new and modified procedures developed by***

*the D&I Team, 23 procedures are RNAV SIDs and 18 procedures are STARs (17 RNAV procedures and one conventional procedure). Of the 23 RNAV SIDs developed by the D&I Team, 22 are new procedures and one is a modification to a prior RNAV SID. Of the 17 RNAV STARs developed by the D&I Team, 15 are new procedures and 2 are modifications to prior RNAV STARs.*

On Page 3-33, Table 3-2, the following additions will be made to reflect that all 69 procedures, including TIKEE ONE and FIXET ONE, were included in the analysis of environmental impacts associated with the Proposed Action:

**Table 3-2 Proposed Action Alternative Procedures (2 of 4)**

Proposed Action Procedure	No Action Alternative Procedure	Procedure Type	Basis of Design	Airport	Other Study Airports Served	Transition (enroute /runway)	Entry/Exit Gate Served	Objective
<i>TIKEE ONE</i>	<i>No Procedure</i>	<i>STAR</i>	<i>RNAV</i>	<i>DCA</i>	<i>HEF, RMN, ADW</i>	<i>1/2</i>	<i>West, South, North</i>	<i>Segregation, Predictability</i>
<i>FIXET ONE</i>	<i>No Procedure</i>	<i>SID</i>	<i>RNAV</i>	<i>BWI</i>	<i>None</i>	<i>6/8</i>	<i>West/South</i>	<i>Segregation, Flexibility</i>

On Page 3-55, fourth paragraph, the following corrections will be made to the text:

The Proposed Action includes 47 **49** RNAV STARs and SIDs, ~~37~~ **38** of which can be used independently to the Study Airports. In comparison, the No Action Alternative includes 17 RNAV procedures, 12 of which can be used independently to the Study Airports. The increased number of independent RNAV STARs and SIDs under the Proposed Action indicates that this alternative would better achieve the objective of improving flexibility in transitioning aircraft within the DC Metroplex airspace.

On Page 3-56, second paragraph, the following corrections will be made to the text:

The Proposed Action includes 47 **49** RNAV STARs and SIDs. In comparison, the No Action Alternative includes 17 RNAV procedures. Therefore, the additional RNAV STARs and SIDs included under the Proposed Action indicates that this alternative would **better** achieve the objective ~~better of~~ segregating air traffic in the DC Metroplex airspace.

On Page 3-57, third and fourth paragraph, the following corrections will be made to the text:

The majority of procedures under both the Proposed Action Alternative would be RNAV STARs and SIDs, representing ~~70~~ **71** percent of the total number of procedures compared to 57 percent under the No Action Alternative. Overall, the number of routes that transition from/to an entry/exit gate to/from a runway end for the Proposed Action Alternative would increase over the No Action Alternative. Therefore, the Proposed Action Alternative would be expected to provide more predictability requiring less controller-to-controller and controller-to-pilot communications as compared to the No Action Alternative.

Based on the criteria above, the Proposed Action Alternative would provide a total of 47 **49** RNAV STARs and SIDs in the DC Metroplex airspace compared to the 17 RNAV STARs and SIDs provided in the No Action Alternative. This represents a ~~476~~ **188** percent increase in the number of RNAV procedures. With the increased number of predictable routes, the Proposed Action would provide better segregation of arrival and departure flows in comparison to the No Action Alternative.

On Page 3-58, Table 3-4, the following corrections will be made:

**Table 3-4 Alternatives Evaluation: Improve Predictability of Air Traffic Flow**

Criteria	No Action Alternative	Proposed Action
Arrival Procedures		
Number of RNAV STARs	12	<del>22</del> <b>23</b>
Total Arrival Procedures	21	<del>34</del> <b>32</b>
Percent RNAV STARs of Total	57%	<del>70%</del> <b>72%</b>
Number of Combinations of Entry Points and Runway Ends Served by Runway Transitions in the RNAV STARs for all Study Airports		
	45	<del>446</del> <b>121</b>
Departure Procedures		
Number of RNAV SIDs	5	<del>25</del> <b>26</b>
Total Departure Procedures	16	<del>36</del> <b>37</b>
Percent RNAV SIDs of Total	31%	70%
Number of Combinations of Runway Ends and Exit Points Served by Runway Transitions in the RNAV SIDs for all Study Airports		
	29	<del>483</del> <b>196</b>

#### Chapter 4

On Page 4-10, third and fourth paragraphs, the following corrections will be made to the text:

**AAD NIRS Operations:** A total of 1,438,745 IFR-filed flights from/to the Study Airports were identified through an examination of radar data obtained from the FAA’s Performance Data Analysis and Reporting System (PDARS). The PDARS database was queried for the 2011 calendar year for all IFR-filed flights that operated at the study airports within the General Study Area. As described in Section 4.1.1, during this 365 day period, ~~84~~ **83** days of data were unusable. The ~~284~~ **282** days of usable data span all seasons and runway usage configurations for the Study Airports in the General Study Area. This data was used to develop the AAD fleet mix, time of day (day and night) and runway use input for NIRS. More detailed information related to the NIRS input for Existing Conditions is available upon request (Please see Appendix C for contact information).

**AAD NIRS Flight Tracks and Climb/Descent Patterns:** The PDARS data provided tracks for each flight that occurred within the ~~284~~ **282** days of 2011. The data was not only used to define the AAD track locations and use representing a typical flow of traffic, but also the typical climb and descent patterns that occur along each flow. Patterns also include top-of-climb and top-of-descent locations for fuel burn modeling purposes. The tracks were analyzed using proprietary software in order to visualize and analyze the radar data. All the trajectories were “bundled” into a set of tracks representing a flow. The flows comprise all the typical flight routings within the General Study Area for an average annual day. NIRS tracks are then developed based on the group of radar tracks representing each flow.

## Chapter 5

On Page 5-15, Table 5-5, the following corrections will be made:

**Table 5-5 Summary of Noise Exposure at Potential Section 4(f) Properties (2013 and 2018)**  
(2 of 2)

<u>Year</u>	<u>Property Name</u>	<u>Address</u>	<u>No Action Alternative</u>	<u>DNL Proposed Action</u>	<u>Change</u>
2018	Davee Garden Fitness Park	3412 Ryburn St., Richmond, VA 23234	40.6	46.6	6.00
2018	Hickory Hill Community Center	3000 E. Belt Blvd. Richmond, VA 23224	<del>40.3</del> <b>40.4</b>	<del>46.5</del> <b>45.8</b>	<del>6.2</del> <b>5.4</b>
2018	Richmond National Cemetery	1701 Williamsburg Rd. Richmond, VA 23231	<del>40.5</del> <b>41.8</b>	<del>46.4</del> <b>48.5</b>	<del>5.9</del> <b>6.7</b>
2018	Ruffin Road Elementary School Annex	2001 Ruffin Rd. Richmond, VA 23224	<del>40.2</del> <b>40.3</b>	<del>45.9</del> <b>46.5</b>	<del>5.7</del> <b>6.2</b>

Notes:

Totals may not add up due to rounding.

On Page 5-17, Table 5-6, the following corrections will be made:

**Table 5-6 Summary of Noise Exposure at Historic Resources (2013 and 2018)**

<u>Year</u>	<u>Property Name</u>	<u>Address</u>	<u>No Action Alternative</u>	<u>DNL Proposed Action</u>	<u>Change</u>
2013	Clarke-Palmore House	904 McCoul St., Richmond, VA 23231	40.4	46.1	5.7
2013	Clarke-Palmore House	904 McCoul St., Richmond, VA 23231	40.1	45.6	5.6
2013	Richmond National Cemetery	1701 Williamsburg Rd. Richmond, VA 23231	41.9	48.5	6.6
2018	Clarke-Palmore House	904 McCoul St., Richmond, VA 23231	40.5	46.4	5.9
2018	Clarke-Palmore House	904 McCoul St., Richmond, VA 23231	40.2	45.9	5.7
2018	Richmond National Cemetery	1701 Williamsburg Rd. Richmond, VA 23231	<del>40.5</del> <b>41.8</b>	<del>46.4</del> <b>48.5</b>	<del>5.9</del> <b>6.7</b>

Notes:

Totals may not add up due to rounding.

## Appendix H

On Page H-1, first paragraph, the following corrections will be made to the text:

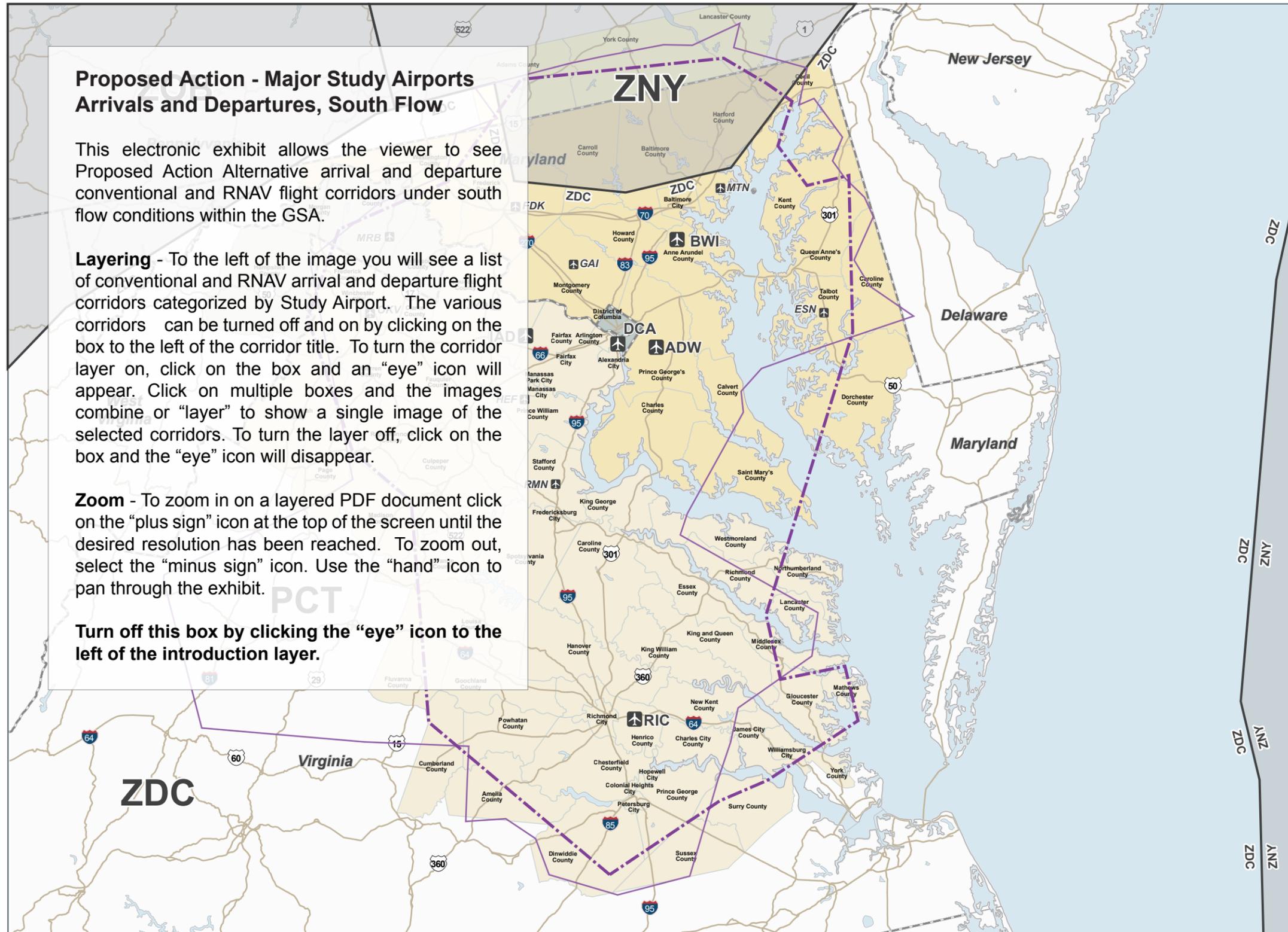
Table H-1 identifies the U.S. Census blocks that in 2013 would experience a DNL 5 dB or greater increase in areas exposed to DNL between 45 dB and 60 dB under the Proposed Action when compared to the No Action Alternative. Exhibit 5-1 in the Draft Environmental Assessment (EA) identifies the location of the population centroids for each census block. For each affected centroid, Table H-1 provides the location by city/county, the geographical coordinates (latitude and longitude), the calculated DNL under No Action and Proposed Action conditions for 2013, the change in DNL, and the U.S. Census block identification number. As shown in the table, a total of 17,445 people, associated with 252 population centroids would be affected. Of the 252 affected population centroids, ~~442~~ **136** centroids, representing 6,582 people are located within the City of Richmond, 78 centroids, representing 5,602 people are located in the community of Montrose (a Census Designated Place in unincorporated Henrico County), and 38 centroids, representing 5,261 people are located in unincorporated Henrico County.

## 3.2 Corrections to Exhibits

### Chapter 3

On Exhibit 3-16 (Page 3-37), Exhibit 3-17 (page 3-39), Exhibit 3-18 (Page 3-41), Exhibit 3-19 (Page 3-43), Exhibit 3-20 (Page 3-45), Exhibit 3-21 (Page 3-47), Exhibit 3-22 (Page 3-49), and Exhibit 3-23 (Page 3-51) the following additions will be made (additional arrival procedure corridors are shown in green with italicized labels and changes to departure procedures are shown with white and red italicized labels. Changes to the legend are shown in bold italic text.):

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**LEGEND**

- General Study Area Boundary
- Study Airport
- District of Columbia
- Maryland County in Study Area
- Pennsylvania County in Study Area
- Virginia County in Study Area
- West Virginia County in Study Area
- State Boundary
- U.S. and Interstate Highways
- Water
- Potomac Consolidated TRACON Boundary
- ARTCC Boundary
- Conventional South Arrival
- Conventional South Departure
- RNAV South Arrival
- RNAV South Departure
- Radar Vector South Arrival
- Radar Vector South Departure

**Notes:**  
The electronic version of this document is zoomable.  
Corridor shading may vary based on layering of corridors.  
**WIGOL STAR only used during inclement weather and is not depicted on this map.**

- DCA** Ronald Reagan Washington National Airport
- IAD** Washington Dulles International Airport
- BWI** Baltimore/Washington International Thurgood Marshall Airport
- ADW** Joint Base Andrews
- RIC** Richmond International Airport
- MTN** Martin State Airport
- ESN** Eastern/Navnam Field Airport
- FDK** Frederick Municipal Airport
- GAI** Montgomery County Airpark
- RMN** Stafford Regional Airport
- JYO** Leesburg Executive Airport
- HEF** Manassas Regional Airport/Harry P. Davis Field
- OKV** Winchester Regional Airport
- MRB** Eastern WV Regional Airport/Shepherd Field
- RNAV** Area Navigation

Projection: Lambert Conformal Conic  
Scale: 1,750,000



**Proposed Action - Major Study Airports Arrivals and Departures, South Flow**

This electronic exhibit allows the viewer to see Proposed Action Alternative arrival and departure conventional and RNAV flight corridors under south flow conditions within the GSA.

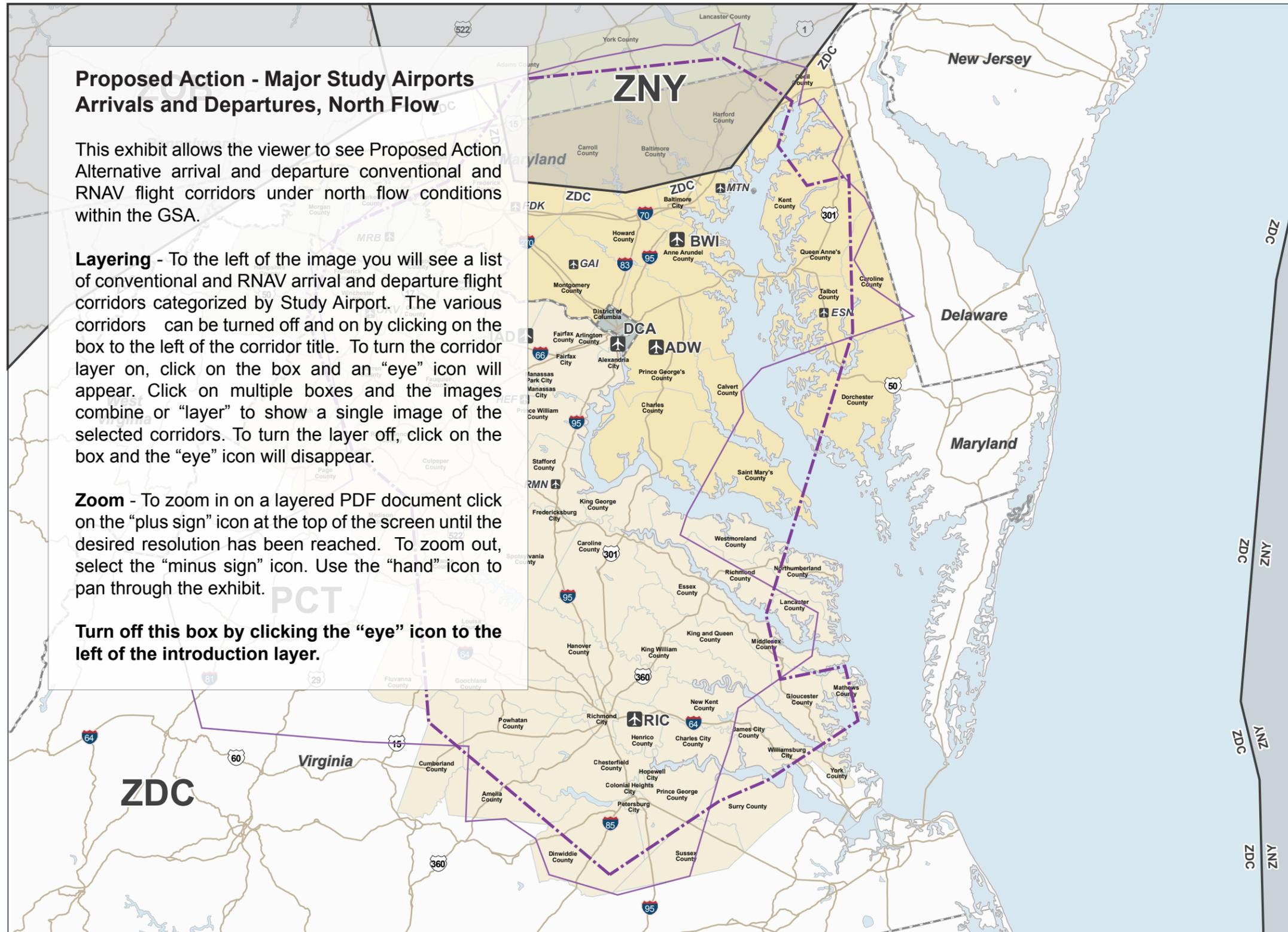
**Layering** - To the left of the image you will see a list of conventional and RNAV arrival and departure flight corridors categorized by Study Airport. The various corridors can be turned off and on by clicking on the box to the left of the corridor title. To turn the corridor layer on, click on the box and an “eye” icon will appear. Click on multiple boxes and the images combine or “layer” to show a single image of the selected corridors. To turn the layer off, click on the box and the “eye” icon will disappear.

**Zoom** - To zoom in on a layered PDF document click on the “plus sign” icon at the top of the screen until the desired resolution has been reached. To zoom out, select the “minus sign” icon. Use the “hand” icon to pan through the exhibit.

Turn off this box by clicking the “eye” icon to the left of the introduction layer.

Sources: National Atlas of the United States of America: U.S. County Boudaries, 2005; U.S. State Boundaries, 2005; and Water Bodies, 2005; Bureau of Transportation Statistics: National Transportation Atlas Database National Highway Planning Network, 2012; FAA: NFDCA Airport database, 2012; ATAC Corporation: Study Area Boundary, 2013.  
Prepared By: ATAC Corporation, February 2013.

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<b>BWI</b>	Baltimore/Washington International Thurgood Marshall Airport
<b>ADW</b>	Joint Base Andrews
<b>RIC</b>	Richmond International Airport
<b>MTN</b>	Martin State Airport
<b>ESN</b>	Easton/Nawnam Field Airport
<b>FDK</b>	Frederick Municipal Airport
<b>GAI</b>	Montgomery County Airpark
<b>RMN</b>	Stafford Regional Airport
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<b>MRB</b>	Eastern WV Regional Airport/Shepherd Field
<b>RNAV</b>	Area Navigation

Projection: Lambert Conformal Conic  
Scale: 1,750,000



**Proposed Action - Major Study Airports Arrivals and Departures, North Flow**

This exhibit allows the viewer to see Proposed Action Alternative arrival and departure conventional and RNAV flight corridors under north flow conditions within the GSA.

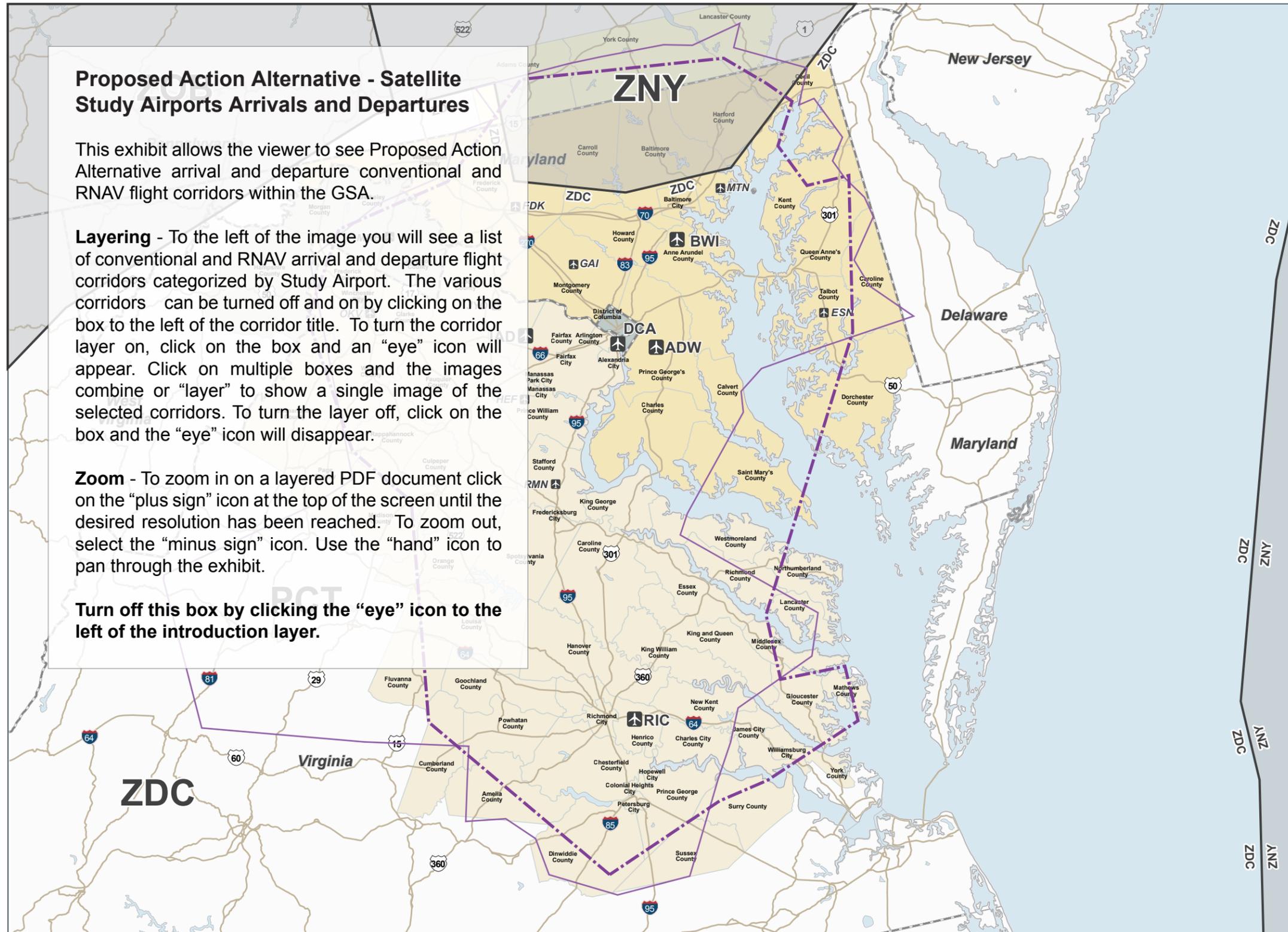
**Layering** - To the left of the image you will see a list of conventional and RNAV arrival and departure flight corridors categorized by Study Airport. The various corridors can be turned off and on by clicking on the box to the left of the corridor title. To turn the corridor layer on, click on the box and an “eye” icon will appear. Click on multiple boxes and the images combine or “layer” to show a single image of the selected corridors. To turn the layer off, click on the box and the “eye” icon will disappear.

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<b>RNAV</b>	Area Navigation

Projection: Lambert Conformal Conic  
Scale: 1,750,000



**Proposed Action Alternative - Satellite Study Airports Arrivals and Departures**

This exhibit allows the viewer to see Proposed Action Alternative arrival and departure conventional and RNAV flight corridors within the GSA.

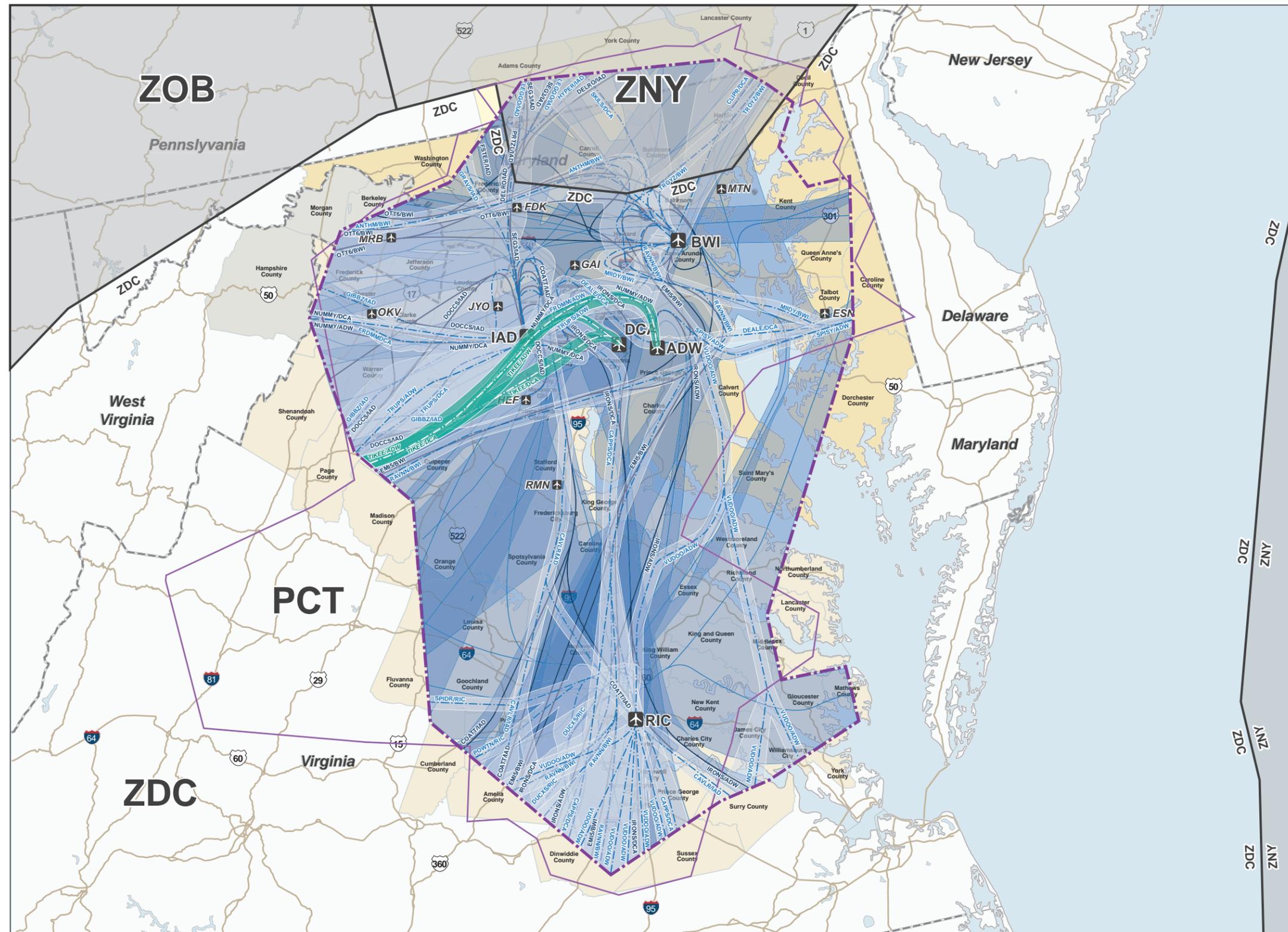
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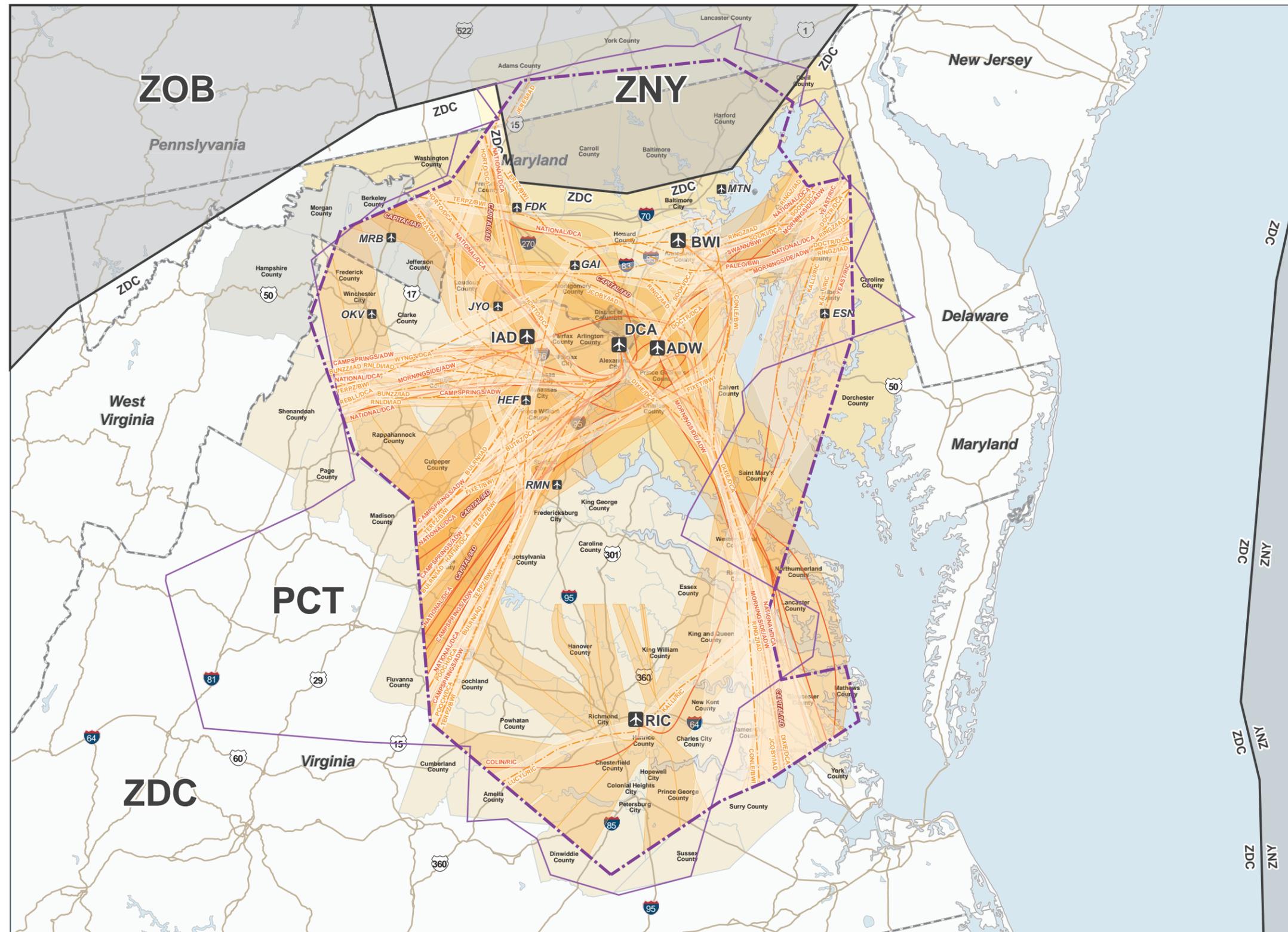
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HEF	Manassas Regional Airport/Harry P. Davis Field
OKV	Winchester Regional Airport
MRB	Eastern WV Regional Airport/Shepherd Field
RNAV	Area Navigation

Projection: Lambert Conformal Conic  
Scale: 1,750,000



Sources: National Atlas of the United States of America: U.S. County Boudaries, 2005; U.S. State Boundaries, 2005; and Water Bodies, 2005; Bureau of Transportation Statistics: National Transportation Atlas Database National Highway Planning Network, 2012; FAA: NFDCA Airport database, 2012; ATAC Corporation: Study Area Boundary, 2013.  
Prepared By: ATAC Corporation, February 2013.

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**LEGEND**

- General Study Area Boundary
- Study Airport
- District of Columbia
- Maryland County in Study Area
- Pennsylvania County in Study Area
- Virginia County in Study Area
- West Virginia County in Study Area
- State Boundary
- U.S. and Interstate Highways
- Water
- Potomac Consolidated TRACON Boundary
- ARTCC Boundary
- Conventional South Departure
- RNAV South Departure
- Radar Vector South Departure

**Notes:**  
The electronic version of this document is zoomable.  
Corridor shading may vary based on layering of corridors.  
**WIGOL STAR only used during inclement weather and is not depicted on this map.**

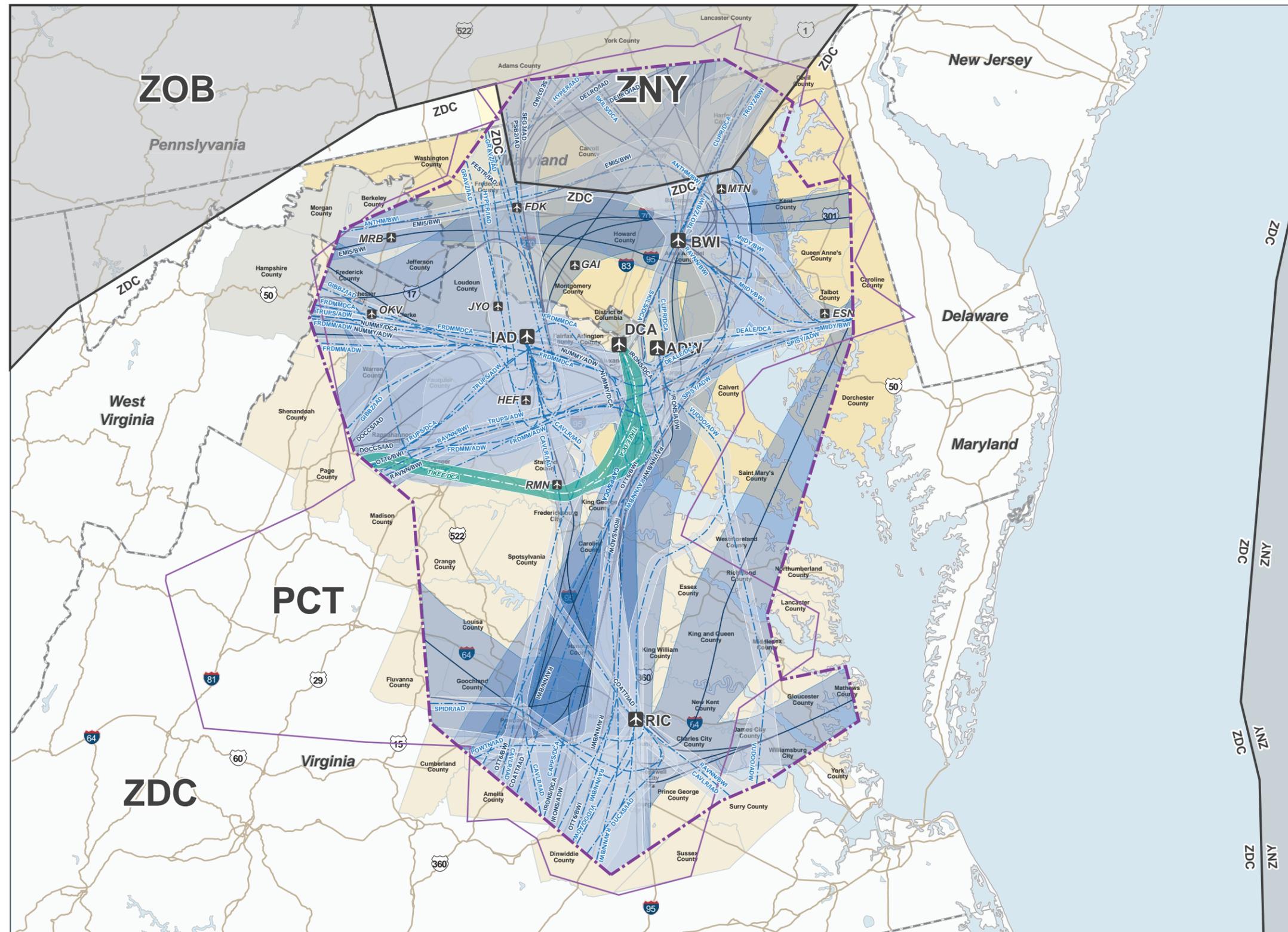
- DCA Ronald Reagan Washington National Airport
- IAD Washington Dulles International Airport
- BWI Baltimore/Washington International Thurgood Marshall Airport
- ADW Joint Base Andrews
- RIC Richmond International Airport
- MTN Martin State Airport
- ESN Easton/Nawnam Field Airport
- FDK Frederick Municipal Airport
- GAI Montgomery County Airpark
- RMN Stafford Regional Airport
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Projection: Lambert Conformal Conic  
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- Water
- Potomac Consolidated TRACON Boundary
- ARTCC Boundary
- Conventional South Arrival
- RNAV South Departure
- Radar Vector South Arrival

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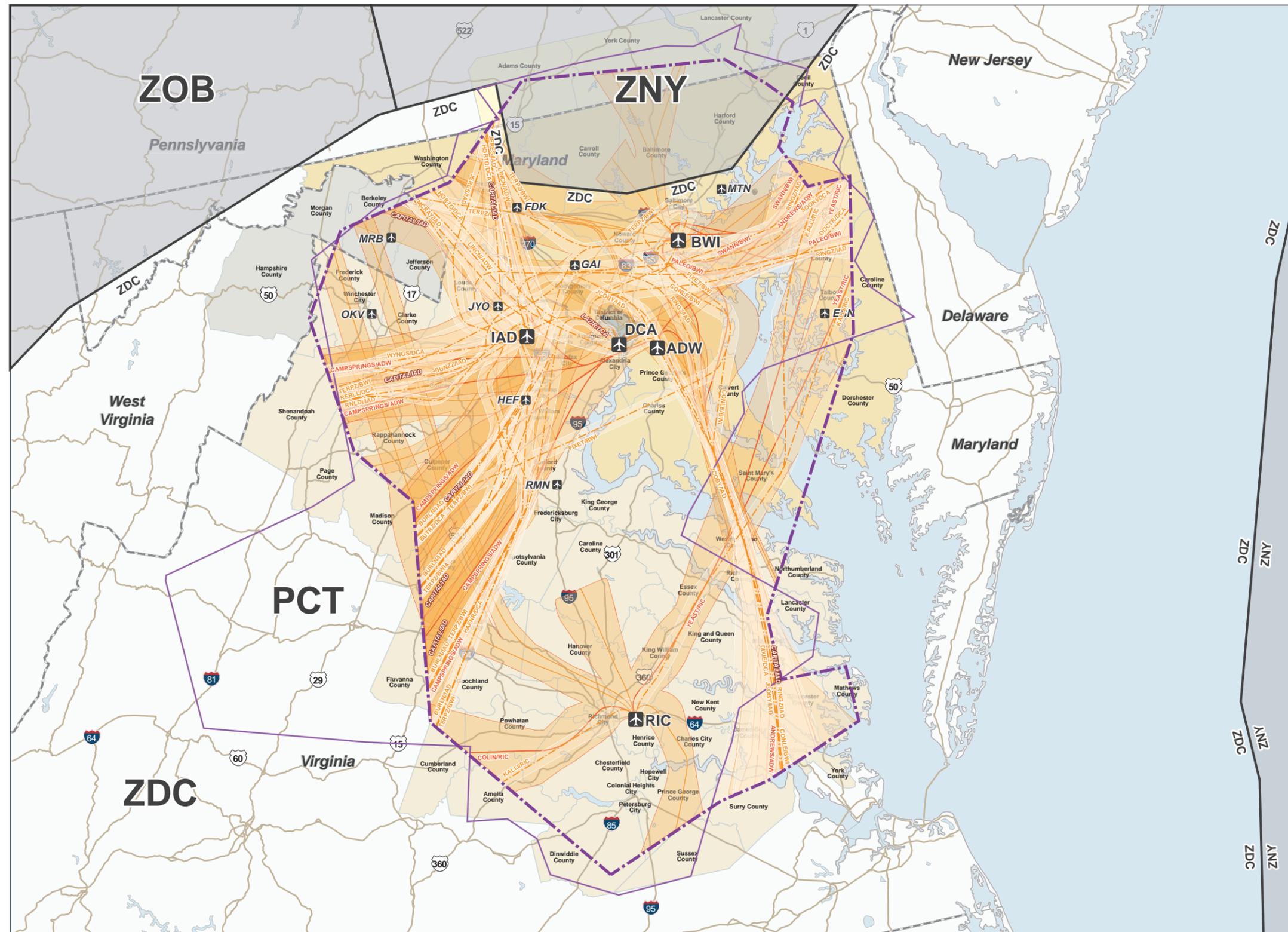
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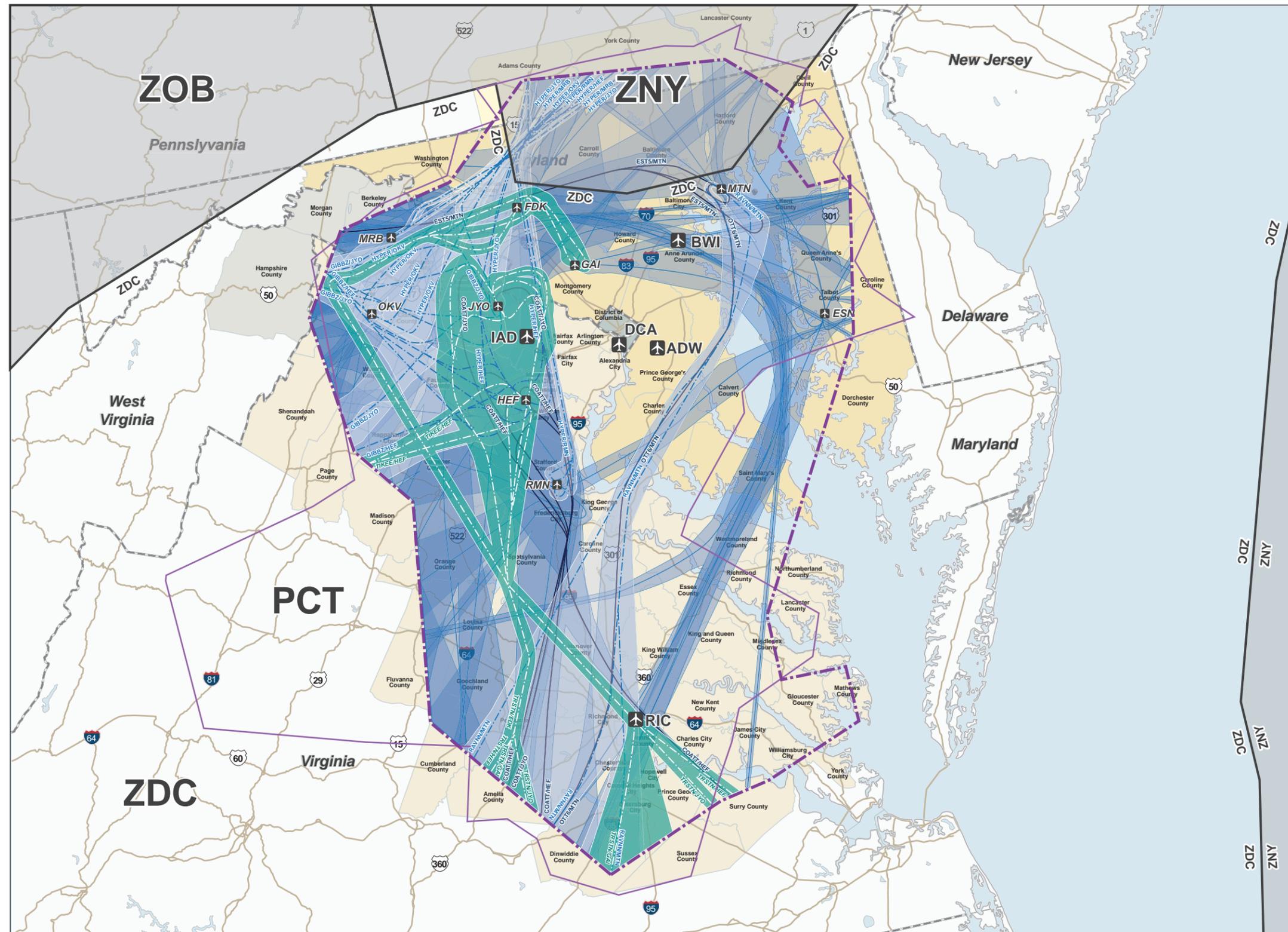


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Prepared By: ATAC Corporation, February 2013.

Exhibit 3-22

**Proposed Action - Major Study Airports Departures, North Flow**

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Prepared By: ATAC Corporation, February 2013.

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### 3.3 Proposed Action Procedure Adjustments

Following publication of the Draft EA, in response to concerns raised by the New York ARTCC, the Design and Implementation Team (D&I Team) adjusted routes for two flight procedures, the FSTER ONE Standard Terminal Arrival Route (STAR) and GRAVZ ONE RNAV STAR. The GRAVZ ONE RNAV STAR will be assigned to aircraft arriving to Dulles International Airport (IAD) from the north. The FSTER ONE is a conventional STAR that overlays the GRAVZ ONE RNAV STAR, and will be used by non-RNAV equipped aircraft. The procedures remain the same as those evaluated in the Draft EA with the exception of an adjustment to the GRAVZ ONE STAR and an addition to both the GRAVZ ONE and FSTER ONE STARs of an enroute transition from the northeast. The new enroute transition occurs outside the EA General Study Area.

The additional adjustment to the GRAVZ ONE STAR changes the Runway 01R runway transition based on criteria governing the issuance of the runway transitions in a timely manner. The version assessed in the Draft EA routed aircraft south after entering Potomac Terminal Radar Approach Control (PCT TRACON) airspace. Aircraft were then kept east of IAD until being directed to turn to the west to join the final approach to the runway. The amended version directs aircraft to continue southwest after entering PCT TRACON airspace until reaching a point approximately 44 nautical miles (nmi) north/northwest of IAD (near Smithsburg, MD). Aircraft landing on Runway 01R will then proceed southeast until reaching a point approximately 28 nmi north of IAD (two nmi east of Fredrick, MD). Aircraft routed to the south will stay east of IAD along the same route planned for the previous version. The adjustments described all take place above 7,000 feet AGL. For more details related to the reasoning for the adjustment, and a depiction of the route, refer to the updated design submittal sheets for the GRAVZ ONE and FSTER ONE STAR included in the *DC OAPM Design and Implementation Team Technical Report – Update* version (available on the OAPM Project website [<http://www.oapmenvironmental.com>]).

Although the adjustments take place above 7,000 feet AGL (the altitude level for arriving aircraft established as the cut-off point for purposes of noise analysis purposes), the FAA conducted an aircraft noise screening analysis to determine if the adjustment to the GRAVZ ONE STAR would cause a reportable increase in Day/Night Average Sound Levels (DNL) for areas beneath the route. The Draft EA noise analysis includes a route similar to the adjustment; therefore, the screening analysis was based on potential changes related to moving operations from the original design to the adjusted route, which is adding more operations to a route that was modeled. The increase in the number of average annual day arrivals (AAD) is low (less than 20 operations a day.) The noise screening analysis found no potential for a reportable noise increase of DNL 5.0 dB or higher. The FAA also reviewed the results of the noise analysis conducted for the Proposed Action as part of the Draft EA, and found that DNL levels are well below DNL 45 dB for the areas expected to be overflowed by aircraft on the proposed Runway 01R transition route.

In conclusion, the potential environmental impact findings associated with aircraft noise as documented in the Draft EA remain unchanged.

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