Why are we here?

- The FAA is here to discuss a proposed new departure route from Ronald Reagan Washington National Airport (DCA).
- This Workshop consists of interactive stations where you may ask questions of Subject Matter Experts.
- The proposed route is referred to as Alternative B (LAZIR-B) and was modified to increase aircraft time over water and to avoid P56 (a restricted area of airspace over the White House and surrounding monuments).
- The proposed route is the option selected by the Reagan National Community Noise Working Group (Working Group).
- The Working Group voting stakeholders include community members appointed by elected officials from Washington, D.C., Maryland, Virginia, and airline representatives.
- The FAA attends Working Group meetings regularly and supports the Working Group with technical input and information. The FAA is not a voting member on the Working Group.
- The FAA is here to inform the public of the proposal and collect comments/concerns to determine the appropriate level of environmental review. The FAA will collect comments tonight and for 30 days following this meeting on the FAA web site at http://www.faa.gov/nextgen/communityengagement/dc/
Roles and Responsibilities

FAA

The Federal Aviation Administration is responsible for the safety of civil aviation, and the steward of the National Airspace System. This includes:

- Regulating civil aviation to promote safety
- Encouraging and developing civil aeronautics, including new aviation technology
- Developing and operating a system of air traffic control and navigation for both civil and military aircraft
- Researching and developing the National Airspace System and civil aeronautics
- Developing and carrying out programs to control aircraft noise and other environmental effects of civil aviation
- Regulating U.S. Commercial Space Transportation

fAA.gov/about/mission/activities

MWAA

The Airports Authority operates a two-airport system that provides domestic and international air service for the mid-Atlantic region. The organization consists of more than 1,400 employees in a structure that includes central administration, airports management and operations, and police and fire departments. In addition to operating Reagan National and Dulles, the Airports Authority is responsible for capital improvements at both airports.

mwAA.com/about/mwAA-history-and-facts

DCA Working Group

A Reagan National Community Noise Working Group was established in October 2015 to engage broad-based community participation to identify practical aircraft noise solutions and provide recommendations to the FAA.

Working Group voting stakeholders include community members appointed by elected officials from local jurisdictions, and two airline representatives:

- Airlines: American Airlines, Metropolitan Washington Airlines Committee
- D.C.: Wards 2, 3, 6, 7, 8
- Maryland: Montgomery County - District 1, Prince George’s County - District 8
- Virginia: Arlington County, City of Alexandria, Fairfax County - Dranesville,
- Fairfax County - Mount Vernon

The Airports Authority serves as the facilitator for Working Group meetings and recommendations. The Airports Authority and FAA serve as non-voting, advisory Working Group members. The Airports Authority will forward recommendations approved and endorsed by the Working Group to the FAA for consideration and action.

Topics considered by the Working Group include issues related to:

- D.C. Metroplex - Standard Arrival and Standard Instrument Departure Procedures
- North and South Flow Operating Conditions
- Early-morning and Late-night Airline Schedules
- DCA Nighttime Noise Rule History and Enforcement
- Airline Fleet Mix
- Noise Monitoring System

FlyReagan.com/dCA/community-working-group
Environmental Fact Sheet

National Environmental Policy Act (NEPA)

The National Environmental Policy Act of 1969 (NEPA), together with the Council on Environmental Quality (CEQ) implementing regulations, establish a broad national policy to protect and enhance the quality of the human environment by requiring Federal agencies to consider the potential environmental consequences of their proposed actions. More specifically, NEPA and the CEQ regulations require preparation of an environmental impact statement when, after a careful and delineated process of review has been conducted, it is determined that a proposed action significantly affect the quality of the human environment. As with other Federal agencies, the FAA has developed its own policies and procedures for complying with NEPA and the CEQ regulations as outlined in FAA Order 1050.1f, Environmental Impacts: Policies and Procedures.

For additional information, visit:
FAA Order 1050.1f, Environmental Impacts: Policies and Procedures
http://www.faa.gov/about/office_org/headquarters_offices/apl/
environ_policy_guidance/policy/faa_nepa_order/

National Environmental Policy Act Council on Environmental Quality Regulations and Guidance
https://ceq.doe.gov/ceq_regulations/regulations.html

FAA NEPA Noise Metric and Noise Significance Criteria

When evaluating noise during an environmental review, the Day-Night Average Sound Level (DNL) is used by the FAA as the standard metric for purposes of NEPA and is the primary noise metric used by the FAA to determine levels of significance on and around the airport environs.

DNL has been continually recommended by technical experts as the best available metric for evaluating long-term noise exposure, and is the only noise metric supported by a substantial body of scientific survey data focused on community reaction to aircraft noise exposure.

Key characteristics of the DNL metric include:
- DNL level increases with both the loudness and duration of noise events
- DNL takes into account the number of noise events during a 24-hour day
- DNL calculations take into account the increased sensitivity to noise

The FAA uses thresholds that serve as indicators of significant impacts for some environmental impact categories and has identified the following as a significance threshold for noise:
- The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB.

NEPA Process

NEPA requires Federal agencies to use an interdisciplinary approach in planning and decision-making for proposed actions that may adversely impact the environment. NEPA also requires that a process be established for incorporating public involvement and integrating the requirements of other applicable environmental laws and regulations into the Federal decision-making and planning process. This requires the FAA evaluate the environmental and related social and economic effects of a proposed action and provide opportunities for public involvement, where appropriate.

For Air Traffic procedure actions, FAA first conducts an internal, preliminary review of any potential environmental impacts, including a noise screening assessment. For the DCA alternative LAZIR “B” procedure proposed action, a Noise Screening Report was prepared (see TARGETS AEDT Environmental Plug-In Report for Ronald Reagan Washington National Airport KDCA Arlington, VA).

The FAA is currently seeking public input into the DCA alternative “B” procedure as part of the scoping process under NEPA. Input from the public will be used to assist the FAA in determining the appropriate level of NEPA review.
Based on the preliminary screening, the FAA then determines the appropriate level of NEPA review. The three levels of NEPA review are:

Categorical Exclusion (CATEX)
- A CATEX may apply to categories of actions that normally do not individually or cumulatively have significant adverse effects on the human environment. A CATEX must however take into account any extraordinary circumstances, as defined in Paragraph 5-2 of FAA Order 1050.1F, in which a normally categorically excluded action may have a significant environmental effect.

Environmental Assessment (EA)
- An EA is a concise document which evaluates the expected environmental effects of a proposed action to determine if there is a potential for significant impacts. An EA summarizes the most important facts and conclusions surrounding the proposed action and its reasonable alternatives, as well as document all technical and supporting materials and make this information available for public comment. If, at the conclusion of an EA, it is determined that there are no significant impacts, a Finding of No Significant Impacts (FONSI) is prepared. The FAA may also decide to prepare a formal decision document called a Record of Decision (ROD). When combined with the FONSI it may be referred to as a FONSI/ROD.

Environmental Impact Statement (EIS)
- An EIS is a detailed written statement that must be prepared for proposed actions that have significant impacts. The EIS allows the FAA to evaluate the environmental impacts that the no action, the proposed action, and its reasonable alternatives would cause. The EIS must fully document all technical and supporting materials and make them available for public comment. At the conclusion of the EIS, the FAA prepares a ROD that explains what is being proposed and why, identifies actions the FAA or any other Federal agencies must take, explains the alternatives analyzed and which one is environmentally preferred, and identifies required mitigation measures.
Next Steps: Provide Feedback to this Engagement Session

Feedback on the proposed changes will be accepted the following ways:

Provide Feedback Today

- A documentarian is present at the session to record your comments.
- A laptop is available for online submissions at the Community Engagement session.
- Physical forms are available at this session for those wanting to leave a written comment today.

Provide Feedback After the Session

Visit faa.gov/nextgen/communityengagement/dc/ to provide feedback online, or send comments directly to 9-asd-dca-fltprcdrs@faa.gov.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

All comments pertaining to the proposed changes will be read and considered in on-going analysis and project planning. Individuals will not receive direct responses.

Introduction

This document was prepared in response to questions regarding development of LAZIR procedures at DCA, including how and when these procedures have periodically been utilized.

Background

This is an historical overview of RNAV north-flow departure procedure development at DCA and an analysis of the operations flown.

The NATIONAL is a conventional navigation departure procedure that has been used at DCA for more than 20 years. When DCA is in a north-flow operation using runways 01 and 33, pilots on northwest departures are instructed to comply with a noise abatement procedure. The instruction reads, “Follow the Potomac River until abeam the Georgetown reservoir or the DCA VOR D4.0 [DME], then join the DCA VOR R-328.”

On March 10, 2011, the LAZIR RNAV departure serving runways 01 and 33 was published. The LAZIR defined a route of flight that generally guides aircraft along the Potomac River to reduce noise exposure to surrounding communities. The initial waypoints include ADAXE, BEBLE, and COVTO. For reference, COVTO is approximately seven nautical miles (NM) northwest of the airport.

Soon after implementation, the Federal Aviation Administration observed several navigation system irregularities that were unacceptable to Air Traffic Control (ATC). This included the possibility of a pilot violating Prohibited Area-56 (P-56) airspace, which encompasses airspace around the U.S. Capitol and White House, when LAZIR was flown. As a result, LAZIR was seldom used in the first four years after its publication until technical and procedural solutions were found.

Minor changes were made to LAZIR (e.g., LAZIR 2, LAZIR 3, LAZIR 4, LAZIR 5) over the next few years in an attempt to address navigation system compatibility issues and to revise chart notes. In March 2015, the FAA began flight validation activities using the published LAZIR 5. During flight validation, data was collected for revising the north flow RNAV departure procedures by (1) increasing flight time over the Potomac River to mitigate noise and (2) increasing the distance between aircraft and Prohibited Area 56 (P-56). The list of participating operators was captured in a Letter of Understanding (LoU) kept on file with DCA Tower. The LoU has been updated periodically as airlines were granted approval, or voluntarily declined, to use the LAZIR procedure. Pilots of aircraft participating in the flight validation accepted the LAZIR RNAV departure clearances in lieu of the normally issued NATIONAL conventional departure. Non-participating aircraft continued to fly NATIONAL.

On April 30, 2015, three new DCA RNAV departures were published for multiple runways, including 01 and 33. Nearly two months later, on June 25, six more RNAV departures, serving all runways, were published for DCA. This publication brought the total number of northbound RNAV departures serving runways 01 and 33 at DCA to 10. Each of these RNAV departures share the same initial routing for the respective runway transitions until waypoint COVTO. This initial routing through COVTO is identical to the LAZIR 5 routing. Each procedure then diverges to different terminal airspace exit points.

The final version of LAZIR 5 was removed from the procedure inventory on October 15, 2015. The other nine RNAV departures remained and retain common initial routing from runways 01 and 33. These nine procedures have the following names: “CLTCH,” “JDubB,” “HORTO,” “REBLL,” “SCRAM,” “WYNs,” “BOOck,” “DOCTR,” and “SO0KI.”

The vast majority of all turbojet departure operations in a north-flow configuration at DCA are assigned either the sole conventional departure (NATIONAL) or an RNAV departure. Between March 2011 and April 2015, the only available RNAV departure was LAZIR. From May 2015 through June 2015, aircraft proceeding eastbound received the RNAV Standard Instrument Departure (SID) associated with their destination, while westbound aircraft received the LAZIR. From July 2015 onward, aircraft were assigned a published RNAV departure corresponding to the filed route of flight.

Methodology

The data used for this analysis includes radar tracks spanning five years between March 1, 2011 and January 1, 2016. Due to missing or corrupt data, 78 days of the 1,767 days of data was not used.

A computational algorithm was used to assess conformance of flight tracks to RNAV departure procedures off runways 01 and 33. Flight tracks that conformed closely to the initial charted route common to all ten RNAV departures were categorized as RNAV operations. Per DCA operational practices described above, all non-conforming aircraft were considered conventional operations flying the NATIONAL departure. This track level analysis was required since the SID information is not consistently available in the filed flight plan.

This algorithm measures cross-track distance along each leg in the procedure and cross-track thresholds were computed. Thresholds were then validated using a visual inspection of 25 weeks of RNAV tracks, which is detailed in the validation section below. Once a threshold was chosen, each track point was considered “on” the leg if its cross track distance fell under this threshold.

The total amount of time below the cross track threshold compared to the total time on each leg was used as a second parameter to determine conformance to that leg. This parameter was also selected with the aid of the same 25 weeks of visually identified RNAV departures. A flight was only considered to be on a RNAV procedure if the conformance thresholds were met for all three legs in question. The parameters are shown in Table 1.
Table 1: Algorithm Parameters

<table>
<thead>
<tr>
<th>Leg Type</th>
<th>Leg Name</th>
<th>Cross Track Threshold (NM)</th>
<th>Ratio of Time Conforming</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF</td>
<td>To ADAXE</td>
<td>0.234</td>
<td>0.436</td>
</tr>
<tr>
<td>TF</td>
<td>ADAXE-BEBLE</td>
<td>0.205</td>
<td>0.782</td>
</tr>
<tr>
<td>TF</td>
<td>BEBLE-COVTO</td>
<td>0.362</td>
<td>0.085</td>
</tr>
</tbody>
</table>

Validation

The counts of flights identified by the algorithm were compared against the visually identified RNAV departures. The counts over the 25 week period from March 16, 2015 to September 5, 2015 were found to be within one percent difference. The average difference over each week was less than six percent for the entire date range. Random samples outside of this validation period were also visually examined and were found to correctly identify flights on the RNAV procedure.

Results

A count of the number of departures from runway 01 or 33 by month is shown in the following figure. The total number of operations, as well as the RNAV operations, are included.

The last four months of 2015 (indicated by a dotted vertical line in Figure 1) demonstrate high RNAV usage that is expected to continue. In this period, 27,518 out of 32,207 flights (85 percent) departing from runway 01 or 33 flew the RNAV procedure.

A summary of the yearly counts (March 1, 2011 through the end of 2015) is shown in Table 2 below.

Table 2: Yearly Departure Counts

<table>
<thead>
<tr>
<th>Year</th>
<th>Total RWY 01/33</th>
<th>Conventional</th>
<th>RNAV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 (Mar. – Dec.)</td>
<td>60,957</td>
<td>49,711</td>
<td>11,246</td>
</tr>
<tr>
<td>2012</td>
<td>85,091</td>
<td>71,447</td>
<td>13,644</td>
</tr>
<tr>
<td>2013</td>
<td>84,312</td>
<td>81,344</td>
<td>2,968</td>
</tr>
<tr>
<td>2014</td>
<td>90,410</td>
<td>87,642</td>
<td>2,768</td>
</tr>
<tr>
<td>2015</td>
<td>91,403</td>
<td>40,070</td>
<td>51,333</td>
</tr>
</tbody>
</table>