I. Executive Summary

1.1 Introduction
The Federal Aviation Administration (FAA) owns and the Metropolitan Washington Airports Authority (the Authority) operates Ronald Reagan Washington National Airport (the Airport), which occupies approximately 733 acres of land and 127 acres of water situated along the western shore of the Potomac River in the Commonwealth of Virginia. The Airport is located in Arlington County, immediately north of the City of Alexandria, Virginia, and across the Potomac River from Washington, D.C. The regional setting of the Airport is shown on Exhibit I-1. The Airport has three runways: primary Runway 1-19 and crosswind Runways 4-22 and 15-33. The current Airport Layout Plan (ALP) is shown on Exhibit I-2.

The Authority prepared this Environmental Assessment (EA) of the potential environmental impacts associated with proposed enhancements to the Runway 4-22 and Runway 15-33 Runway Safety Areas (RSAs). An RSA, which must be kept clear of obstructions, provides a measure of safety in the event of an aircraft excursion from the runway by significantly reducing the extent of personal injury and aircraft damage during overruns, undershoots, or veer-offs.

This EA has been prepared pursuant to the requirements and guidelines of FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*; FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*; and the FAA’s *Environmental Desk Reference for Airport Actions*.

1.2 Purpose and Need
Detailed information on the purpose of and need for the Proposed Action is presented in Section II.

As operator of the Airport, a Federally obligated airport certificated under Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*, the Authority is obligated by FAA Order 5200.8, *Runway Safety Area Program*, and the 2006 U.S. Department of Transportation (DOT) Appropriations Act (House Resolution [HR] 3058.6), to comply with FAA regulatory requirements for RSAs by Federal Fiscal Year (FFY) 2015. In its *Runway Safety Area Determination*¹ published in 2007, the FAA found that the Runway 4-22 and Runway 15-33 RSAs did not comply with FAA Order 5200.8² and FAA Advisory Circular (AC) 150/5300-13³ because the lengths of the RSA beyond the runway ends were shorter than the 1,000 feet required by the FAA design standard by the following distances:

- Runway 4 departures 800 feet
- Runway 22 departures 50 feet
- Runway 15 departures 880 feet
- Runway 33 departures 830 feet

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² Federal Aviation Administration, Order 5200.8, *Runway Safety Area Program*, October 1, 1999.
Ronald Reagan Washington National Airport

Regional Setting

Source: MapPoint 2004.

Exhibit I-1
Ronald Reagan Washington National Airport

Exhibit I-2

Airport Layout Plan
The Authority has determined that constructing enhancements to the RSAs that would comply with FAA Order 5200.8 and FAA Order 5200.9, *Financial Feasibility and Equivalency of Runway Safety Area Improvements and Engineered Material Arresting Systems*[^4], is a reasonable, practicable, and feasible solution. The enhancements will comply with FAA AC 150/5300-13 where practicable.

### 1.2.1 Proposed Action

The Authority’s Proposed Action is described in detail in Section 2.3 and includes the key elements listed in this section. Except for the protrusion of the RSA at the Runway 33 end into the Potomac River, all construction would take place on Airport land. *Exhibits I-3 and I-4* illustrate the Proposed Action for Runways 4-22 and 15-33, respectively.

#### 1.2.1.1 Runway 4-22

The Proposed Action for Runway 4-22 includes:
- Extending the Runway 4 end 460 feet southwest.
- Displacing the Runway 4 landing threshold 200 feet.
- Relocating the Runway 22 end 371 feet southwest.
- Increasing the runway length available for Runway 4 takeoffs from 4,911 feet to 5,000 feet.
- Reducing the runway length available for Runway 4 landings from 4,911 feet to 4,800 feet.
- Reducing the runway length available for takeoffs from and landings on Runway 22 from 4,911 feet to 4,400 feet by designating declared distances[^5].
- Extending Taxiway B to the relocated Runway 4 end.
- Constructing a new taxiway connector to the relocated Runway 22 end.
- Installing EMAS[^6] (170 feet wide by 336 feet long) at the northeast end of the Runway capable of stopping the critical design aircraft (Airbus A-319 with an A-MTOW of 144,500 pounds) that overruns Runway 4 and exits the runway at speeds up to 70 knots.

#### 1.2.1.2 Runway 15-33

The Proposed Action for Runway 15-33 includes:
- Shifting Runway 15-33 270 feet southeast.
- Installing EMAS (170 feet wide by 353 feet long) at the relocated Runway 15 end, capable of stopping the critical design aircraft (A-319) that overruns Runway 33 and exits the runway at speeds up to 70 knots.
- Installing EMAS (170 feet wide by 140 feet long) at the relocated Runway 33 end, capable of stopping the critical design aircraft (Embraer EMB-145) that overruns Runway 15 and exits the runway at speeds up to 40 knots.
- Constructing new taxiway connectors to the relocated runway ends.
- Placing up to 5.3 acres of fill in the Potomac River to support the Runway 33 RSA.


[^5]: A declared distance is the runway length an airport operator declares as available for aircraft takeoff and landing regardless of the runway pavement length available.

[^6]: EMAS uses materials of closely controlled strength and density placed at the end of a runway to stop or greatly slow an aircraft that overruns the runway.
March 2012

Sources: Aerials Express, 2007 (Aerial); Airport Design Consultants, Inc., September 2010 (Proposed Action).

Exhibit I-3

Proposed Action - Runway 4-22

Final Environmental Assessment
Runway 4-22 and Runway 15-33 RSA Enhancements
Executive Summary

March 2012
Proposed Action - Runway 15-33

Shift Runway 33 End 270 Feet South
Add Taxiway Connector
Reroute Service Road
Install EMAS Bed
Add Fill in Potomac River
Nonstandard RSA

Shift Runway 15 End 270 Feet South
Add Taxiway Connector
Reroute Service Road
Install EMAS Bed
Remove Taxiway Pavement

Install EMAS Bed
Reroute Service Road
Remove Taxiway Pavement
Add Taxiway Connector

Sources: Aerials Express, 2007 (Aerial); Airport Design Consultants, Inc., September 2010 (Proposed Action).

Exhibit I-4
1.2.1.3 Approach Aids

Visual Approach Slope Indicators (VASIs) and Precision Approach Path Indicators (PAPIs) are systems of lights that help pilots establish a stabilized approach when approaching the runway. As a result of the relocation of the runway ends or landing thresholds, the Proposed Action includes relocating or replacing existing VASIs and PAPIs, which are in the vicinity of the runway ends. The FAA’s Runway End Identifier Lights (REILs) for all four runway ends would also be relocated.

1.2.1.4 Other Elements

The Proposed Action also involves rerouting existing service roads in the vicinity of the RSA enhancements at Runway ends 4, 15, and 33.

1.2.2 Federal Actions

The FAA actions being requested by the Authority are discussed in Section 2.4 and include:

- Approval of the updated ALP for Ronald Reagan Washington National Airport, depicting the proposed airfield;
- Determinations relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP);
- Determination that the Proposed Action is reasonably necessary for use in air commerce or in the interest of national defense;
- Establishment of flight procedure modifications;
- Determination that the Proposed Action would meet the federal Clean Air Act requirements;
- Continued close coordination with the Authority and appropriate FAA program offices as required for safety during construction;
- Approval of the appropriate amendments to the Airspace Certification Manual;
- Appropriate amendments to air carrier operating specifications; and
- FAA determination of the effects on the safe and efficient use of airspace, including a review of changes to air traffic procedures for consistency with the Potomac Terminal Radar Approach Control (TRACON) Environmental Impact Statement.

1.2.3 Timeframe of the Proposed Action

The Authority submitted the Final EA for the proposed improvements at the Airport to the FAA in the fourth quarter of 2011 and anticipates that the FAA could issue its finding shortly thereafter. If the EA schedule is met and the FAA issues a favorable finding, the Authority plans to initiate construction of the Runway 15-33 RSA enhancements in the first quarter of 2013, and to complete construction by the fourth quarter of 2014, and to initiate construction of the Runway 4-22 RSA enhancements in the first quarter of 2015, and to complete construction by the end of 2015.

1.3 Alternatives

A detailed discussion of the identification and evaluation of alternatives is presented in Section III and Appendix D.
Within the context of the requirements of FAA Order 5200.8 and FAA AC 150/5300-13, the Authority conducted a number of studies to consider various RSA enhancement scenarios in terms of operational capabilities, potential environmental impacts, effectiveness, and practicability. The Authority developed and evaluated twenty-seven alternatives for Runway 4-22 and twenty-three alternatives for Runway 15-33 that included one or more of the following features:

- Constructing a standard RSA (i.e., a traditional graded RSA that complies with the FAA RSA design standard prescribed by FAA AC 150/5300-13)
- Relocating, shifting, and/or realigning the runway
- Reducing the length of the runway
- Implementing a combination of relocating, shifting, and/or realigning the runway and reducing runway length
- Using declared distances
- Using EMAS

More detailed descriptions of these alternatives are included in Appendix D. Sections D.2.2.1, D.2.2.2 and D.2.2.3.

The Authority conducted a first level of screening, during which twenty-four of the twenty-seven alternatives for Runway 4-22 and fifteen of the twenty-three alternatives for Runway 15-33 defined in Appendix D were eliminated because those alternatives would not meet the stated purpose of and need for the Proposed Action (i.e. to bring the Runway 4-22 and Runway 15-33 RSAs into compliance with FAA Order 5200.8 and FAA AC 150/5300-13 for Airport Reference Code (ARC) C-III aircraft, where practicable).

Because of its extreme impacts and probable costs, the Authority also eliminated one additional alternative for Runway 15-33 (Alternative 1533-H, as discussed in Section 2.2.2 and Table D-10).

After the initial screening, the following Preliminary EA Action Alternatives for Runway 4-22 and Runway 15-33 were retained for further environmental analysis.

- Three Preliminary EA Action Alternatives for Runway 4-22—Alternatives 4-22A, 0422-A and 0422-O, depicted on Exhibit I-5 as Preliminary EA Action Alternatives 0422-1, 0422-2 and 0422-3 respectively.

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7 Declared distances are the distances an airport operator declares available for an aircraft’s takeoff run, takeoff distance, accelerate-stop distance, and landing distance requirements. (See Federal Aviation Administration, Advisory Circular 150/5300-13, Airport Design, Paragraph 2, September 29, 1989.)

8 Each runway is assigned an Airport Reference Code that consists of two components — the Aircraft Approach Category and the Airplane Design Group (ADG), which is based on the tail height and wingspan of an aircraft. The Airbus A-319 and Embraer are ARC C-III aircraft that operate at the Airport.
The development of alternatives occurred over several years. During that timeframe, the FAA revised its RSA design standard for ARC C-III aircraft. Changes in the types of aircraft that operate at the Airport and the numbers of operations by runway and aircraft type resulted in changes to the critical design aircraft used to model the EMAS installations. This EA evaluated the Preliminary EA Action Alternatives using the current FAA RSA design standard and the critical EMAS design aircraft developed during the preparation of the EA, as discussed in Appendix D, Section D.2.1.5.

The second level of screening of the Preliminary EA Action Alternatives is discussed in Appendix D, Section D.3.2. The second level screening criteria were established on the basis of consultation with the FAA regarding compliance with FAA Orders 5200.8 and 5200.9 and the selection of the critical EMAS design aircraft and with the FAA and the airlines operating at the Airport regarding the types of aircraft that currently operate on or are expected to operate on Runway 4-22 and Runway 15-33, and included:

- Providing an RSA at the southwest end of Runway 4-22 that would comply with FAA RSA design standard for Airport Reference Code (ARC) C-III aircraft for Runway 4 undershoots and Runway 22 overruns.
- Providing an RSA at the northeast end of Runway 4-22 that would comply with FAA RSA design standard for ARC C-III aircraft for Runway 22 undershoots and Runway 4 overruns or including an EMAS installation at the northeast end of Runway 4-22 that would stop the critical EMAS design aircraft (A-319 with an A-MTOW of 144,500 pounds) exiting the Runway at speeds up to 70 knots.
- Providing an RSA at the northwest end of Runway 15-33 that would comply with FAA RSA design standard for ARC C-III aircraft for Runway 15 undershoots and Runway 33 overruns or including an EMAS installation at the northwest end of Runway 15-33 that would stop the critical EMAS design aircraft (A-319 with an A-MTOW of 138,000 pounds) exiting the Runway at speeds up to 70 knots.
- Providing an RSA at the southeast end of Runway 15-33 that would comply with FAA RSA design standard for ARC C-III aircraft for Runway 33 undershoots and Runway 15 overruns or including an EMAS installation at the southeast end of Runway 15-33 that would stop the critical EMAS design aircraft (EMB-145 with an 80 percent maximum landing weight [MLW] of 34,000 pounds) exiting the Runway at speeds up to 40 knots.
- Avoiding, minimizing or mitigating impacts on Waters of the United States (i.e., the Potomac River) and wetlands. Of the environmental impact categories prescribed by FAA, in FAA Order 1050.1E, Waters of the United States and wetlands had the greatest potential to distinguish among the remaining alternatives for screening purposes. Avoidance, minimization or mitigation of impacts on Waters of the United States and wetlands is required under Executive Order 11990, Protection of Wetlands, and U.S. DOT Order 5660.1A, Preservation of the Nation’s Wetlands. The impact analysis in Section V did consider all environmental impact categories, however.

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9 The design standard for ARC C-III aircraft used in this EA and referred to as the “current FAA RSA design standard” was first established by the Federal Aviation Administration in Advisory Circular 150/5300-13, Airport Design, Change 8, September 30, 2004 and continues in effect through Change 18, December 30, 2011.
Ronald Reagan Washington National Airport

- Avoiding or minimizing significant adverse impacts on airport operations caused by reductions in runway lengths available for takeoffs or landings. Reductions in the length of Runway 4-22 or Runway 15-33 would increase weight penalties (i.e., carrying fewer passengers and/or less cargo per operation) and could have an adverse impact on Airport operations.

- Avoiding construction costs in excess of the limit of practicability (i.e., $38 million as established by the Authority and accepted by the FAA).

The results of the second level of screening of the Preliminary EA Action Alternatives for Runway 4-22 using the criteria specified above are reported in Table I-1.

### Table I-1
Results of Screening of Runway 4-22 Preliminary EA Action Alternatives

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Alternative 0422-1</th>
<th>Alternative 0422-2</th>
<th>Alternative 0422-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides standard RSA for ARC C-III aircraft at the southwest end of the Runway</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Provides standard RSA for ARC C-III aircraft at the northeast end of the Runway</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Includes standard EMAS installation capable of stopping critical design aircraft exiting the northeast end of Runway 4-22 at speeds up to 70 knots</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Impacts on Potomac Riverbed (acres)</td>
<td>0.0</td>
<td>13.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Changes in Available Runway Length (feet)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Runway 4 takeoffs</td>
<td>-1,171</td>
<td>0</td>
<td>+89</td>
</tr>
<tr>
<td>Runway 4 landings</td>
<td>-1,171</td>
<td>0</td>
<td>-111</td>
</tr>
<tr>
<td>Runway 22 takeoffs</td>
<td>-171</td>
<td>0</td>
<td>-511</td>
</tr>
<tr>
<td>Runway 22 landings</td>
<td>-771</td>
<td>0</td>
<td>-511</td>
</tr>
<tr>
<td>Estimated construction cost (millions 2008 dollars)</td>
<td>NR</td>
<td>14.6</td>
<td>15.2</td>
</tr>
<tr>
<td>Retain for further environmental analysis</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes:
- ARC: Airport Reference Code
- EMAS: Engineered Material Arresting System
- NR: Not reported
- RSA: Runway Safety Area


Because the Authority considered the reductions in the available runway lengths for takeoffs from and landings on Runway 4 to be unacceptable for the types of aircraft operating on the runway, Alternative 0422-1 was eliminated from further environmental analysis. The Authority eliminated Alternative 0422-2 because this Alternative would result in impacts on 13.8 acres in the Potomac River, whereas, Alternative 0422-3 would not result in impacts on the Potomac River. The Authority retained Alternative 0422-3 for further environmental analysis because it met each of the second level screening criteria.
The results of the second level of screening of the Preliminary EA Action Alternatives for Runway 15-33 using the criteria reported above are reported in **Table I-2**. Six alternatives were eliminated from further environmental analysis for the reasons discussed below:

- **Alternative 1533-1** would result in the greatest reductions in available runway length for takeoffs from and landings on each runway. The reduced runway lengths would have an adverse impact on Airport operations.

- **Alternative 1533-2** would result in the largest area of impacts on the Potomac River riverbed (38.5 acres) and the cost to construct this alternative would exceed the limit practicability by $7.2 million.

- **Alternatives 1533-3, 1533-4, 1533-5 and 1533-6** do not provide a standard RSA for ARC C-III aircraft and do not include EMAS installations at the northwest end of the Runway capable of stopping the current critical EMAS design aircraft as defined in the evaluation criteria exiting the Runway at speeds up to 70 knots. The cost to construct Alternative 1533-3 would exceed the limit practicability by $10.2 million. The lengths of the EMAS installations at the southeast end of the Runway would exceed the length of EMAS required to stop the current critical EMAS design aircraft as defined in the evaluation criteria exiting the Runway at speeds up to 40 knots.

The Authority retained **Alternative 1533-7** for further environmental analysis because it met each of the second level screening criteria.

No alternatives outside the jurisdiction of the FAA would meet the stated purpose of or need for the Proposed Action. The No Action alternative was carried forward in the EA pursuant to Council on Environmental Quality (CEQ) regulations and FAA Orders 1050.1E and 5050.4B.

### 1.4 Affected Environment and Environmental Consequences

**Table I-3** provides a summary of the potential environmental impacts by resource category. Through analysis of the potential environmental impacts determined that with specific mitigation measures described in Section 1.5, no significant impacts are expected to result from implementing the Proposed Action compared to the No Action alternative. The analysis and conclusions by impact category are discussed in more detail in Section V.

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10 In the No Action Alternative, none of the improvements include in the Proposed Action would be constructed.
### Table I-2

Results of Screening of Runway 15-33 Preliminary EA Action Alternatives

<table>
<thead>
<tr>
<th>Criteria</th>
<th>1533-1</th>
<th>1533-2</th>
<th>1533-3</th>
<th>1533-4</th>
<th>1533-5</th>
<th>1533-6</th>
<th>1533-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides standard RSA for ARC C-III aircraft at northwest end of the Runway</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Provides standard RSA for ARC C-III aircraft at southeast end of the Runway</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Includes EMAS installation capable of stopping critical design aircraft exiting the northwest end of Runway 15-33 at speeds up to 70 knots</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Includes EMAS installation capable of stopping critical design aircraft exiting southeast end of Runway 15-33 at speeds up to 40 knots</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Impacts on Potomac Riverbed (acres)</td>
<td>NR</td>
<td>38.5</td>
<td>5.1</td>
<td>3.3</td>
<td>1.9</td>
<td>2.9</td>
<td>5.3</td>
</tr>
<tr>
<td>Reductions in Available Runway Length (feet)</td>
<td>-1,124</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-204</td>
<td>0</td>
</tr>
<tr>
<td>Runway 15 takeoffs</td>
<td>-1,627</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-204</td>
<td>0</td>
</tr>
<tr>
<td>Runway 15 landings</td>
<td>-903</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-204</td>
</tr>
<tr>
<td>Runway 33 takeoffs</td>
<td>-1,627</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-204</td>
</tr>
<tr>
<td>Runway 33 landings</td>
<td>45.2</td>
<td>48.2</td>
<td>34.0</td>
<td>19.7</td>
<td>36.9</td>
<td>29.3</td>
<td></td>
</tr>
<tr>
<td>Estimated construction cost (millions 2008 dollars)</td>
<td>NR</td>
<td>45.2</td>
<td>48.2</td>
<td>34.0</td>
<td>19.7</td>
<td>36.9</td>
<td>29.3</td>
</tr>
<tr>
<td>Retain for further environmental analysis</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes:
- ARC: Airport Reference Code
- EMAS: Engineered Material Arresting System
- NR: Not reported
- RSA: Runway Safety Area

### Table I-3 (1 of 4)

Summary of Potential Environmental Impacts by Resource Category

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Impact Potential</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft Noise</td>
<td>No Significant Impact</td>
<td>The Proposed Action would not result in a significant increase in aircraft noise compared to the No Action alternative.</td>
</tr>
<tr>
<td>Compatible Land Use</td>
<td>No Significant Impact</td>
<td>No significant impacts in dependent resource categories of aircraft noise; water resources; and fish, wildlife, and plants. Additionally, no landfills are located near the Airport.</td>
</tr>
<tr>
<td>Air Quality</td>
<td>No Significant Impact</td>
<td>There would be no change in direct or indirect emissions between the alternatives. See also Construction Impacts.</td>
</tr>
<tr>
<td>Water Quality</td>
<td>No Significant Impact</td>
<td>The amount of water contaminants potentially affecting storm water runoff would be unchanged between the Proposed Action and the No Action alternative. The Proposed Action improvements would be designed and constructed to reduce soil erosion and decrease potential inputs of chemical nutrients and sediments to the adjacent receiving waters. See also Construction Impacts.</td>
</tr>
<tr>
<td>Wetlands and Waterways</td>
<td>Impacts to be Offset by Mitigation</td>
<td>No fill or alteration of jurisdictional or nonjurisdictional vegetated wetlands would occur on land with the Proposed Action. The Proposed Action would require dredging and result in the placement of 5.3 acres of fill in the Potomac River, thereby causing an impact to a Water of the United States. (See Section VI, Mitigation.)</td>
</tr>
<tr>
<td>Floodplains</td>
<td>No Significant Impact</td>
<td>Although the Proposed Action would encroach upon a 100-year floodplain, due to the large storage capacity of this unconstrained tidal floodplain, the Proposed Action would have negligible impacts to the lateral extent, depth, or duration of flooding, and would not increase flood risk at the Airport or on adjacent properties upstream or downstream of the Airport. There are no practicable alternatives that would fulfill the purpose of and need for the Proposed Action and avoid encroachment upon the floodplains.</td>
</tr>
<tr>
<td>Coastal Resources</td>
<td>No Significant Impact</td>
<td>There are no coastal barrier resources protected by the Coastal Barrier Resources Act of 1982 in the vicinity of the Proposed Action. Furthermore, it is believed that there would be no impacts to Virginia coastal resources protected by the Coastal Zone Management Act so long as the Proposed Action is designed and constructed in accordance with the local, state, and Federal guidelines described throughout this EA and any corresponding storm water permits and pollution prevention plans are updated accordingly.</td>
</tr>
<tr>
<td>Wild and Scenic Rivers</td>
<td>None</td>
<td>There are no wild and scenic river resources in the immediate vicinity of the Proposed Action.</td>
</tr>
</tbody>
</table>
Table I-3 (2 of 4)

Summary of Potential Environmental Impacts by Resource Category

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Impact Potential</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish, Wildlife, and Plants (Biotic Resources and Threatened and Endangered Species)</td>
<td>No Significant Impact</td>
<td>Because of the location and extent of the proposed improvements, the existing operational use of the Airport property, and the transient nature of any species that could use the habitats within or near the LOPD, it is believed that rare, threatened, or endangered species; species of concern; or Species of Greatest Conservation Need would not be affected by the Proposed Action. There would be no taking or relocation of specimens. There would be no loss of critical terrestrial habitat. The FAA submitted an Essential Fish Habitat Assessment to NMFS on March 4, 2011. In a letter dated April 4, 2011, NMFS stated that the Proposed Action would adversely affect 5.3 acres of documented spawning and nursery ground for several important anadromous fish prey species. However, advised the Authority that NMFS would not object to the Proposed Action for Runway 15-33 provided adequate compensatory mitigation is provided for impacts to the subtidal waters of the Potomac River. A copy of the EFH Assessment and the NMFS letter is included in Appendix J, Attachment J-10. On March 18, 2011, the FAA submitted a BA discussing the potential impacts of the Proposed Action on habitat for Atlantic and Shortnose sturgeon to the NMFS. The FAA determined that the Proposed Action is unlikely to affect these species. NMFS concurred with the FAA determination on June 4, 2011. A copy of the BA, FAA determination and NMFS concurrence are included in Appendix J, Attachment J-9.</td>
</tr>
<tr>
<td>Light Emissions and Visual Impacts</td>
<td>No Significant Impact</td>
<td>The Proposed Action is not anticipated to affect the viewshed in the vicinity of the Airport or result in light emissions that would affect nearby land uses or marine navigation.</td>
</tr>
<tr>
<td>Department of Transportation Act, Section 4(f) Lands</td>
<td>No Significant Impact</td>
<td>The Proposed Action would not result in the physical or constructive use of Section 4(f) Lands.</td>
</tr>
<tr>
<td>Land and Water Conservation Funds Act, Section 6(f) Lands</td>
<td>None</td>
<td>There are no Section 6(f) Lands in the vicinity of the Proposed Action.</td>
</tr>
<tr>
<td>Historic, Architectural, Archaeological, and Cultural Resources</td>
<td>No Significant Impact</td>
<td>The SHPOs for the Commonwealth of Virginia and the District of Columbia concur that the Proposed Action would not cause an adverse effect on historic resources. Considering that the peninsula on which the airfield was constructed is predominantly manmade, and that the landside facilities are heavily developed, there is very little potential for any yet unknown resources to be affected. An assessment of light emissions and visual impacts concluded that the Proposed Action would not affect nearby land uses or the District area viewed; therefore, impacts to historic architecture are not expected.</td>
</tr>
<tr>
<td>Natural Resources and Energy Supply</td>
<td>No Significant Impact</td>
<td>The natural resources and energy supply required by the Proposed Action are easily available at the Airport; no resources would be required with the No Action alternative. Utilities required to support the Proposed Action are already provided at the Airport. Rare construction materials are not needed to implement either alternative.</td>
</tr>
<tr>
<td>Farmlands</td>
<td>None</td>
<td>No farmland resources are present in the vicinity of the Proposed Action.</td>
</tr>
</tbody>
</table>
### Table I-3 (3 of 4)

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Impact Potential</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Material, Pollution Prevention, and Solid Waste</td>
<td>No Significant Impact</td>
<td>The Proposed Action would not require an increase in the use or storage of any hazardous materials, and operation of the Proposed Action improvements would not generate incremental solid waste. Hazardous materials may exist within the SIS in the vicinity of the RSA improvements at the Runway 4 end. It is possible that the resolution of the SIS may not occur prior to the Authority starting construction of the RSA enhancements and the rest of the Proposed Action. If so, all material excavated from the SIS would be disposed of off-Airport, and would be tested prior to disposal. Any material found to be hazardous waste would be disposed of in accordance with Federal and state requirements. In-water construction would be conducted in accordance with permit conditions. See also Construction Impacts.</td>
</tr>
<tr>
<td>Construction Impacts</td>
<td>No Significant Impact</td>
<td>Increased noise from construction vehicles and equipment is expected as a result of the Proposed Action. Distance would rapidly attenuate noise levels and no noise-sensitive land uses are located within the vicinity of the Proposed Action. The noise impacts would be temporary and insignificant. Construction air pollutant emissions caused by the Proposed Action would not be significant and various techniques would be used to minimize criteria pollutant emissions during construction activities (see Appendix H). Water quality impacts from potential erosion and sediment issues would be controlled by adherence to Virginia’s Erosion and Sediment Control Law. Construction activities would present only a temporary disruption to any wildlife activities. Hazardous materials may exist within the SIS in the vicinity of the RSA improvements at the Runway 4 end. It is possible that the resolution of the SIS may not occur prior to the Authority starting construction of the RSA enhancements and the rest of the Proposed Action. If so, all material excavated from the SIS would be disposed of off-Airport, and would be tested prior to disposal. Any material found to be hazardous waste would be disposed of in accordance with Federal and state requirements. In-water construction would be conducted in accordance with permit conditions.</td>
</tr>
</tbody>
</table>
Table I-3 (4 of 4)

Summary of Potential Environmental Impacts by Resource Category

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Impact Potential</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks</td>
<td>No Significant Impact</td>
<td>Neither alternative would result in socioeconomic impacts (e.g., residential or business relocations, division or disruption of established communities, alteration of surface transportation patterns, disruption of orderly planned development, or appreciable change in employment). The EA considered potential impacts on development in Potomac Yard based on changes to the Small Area Plan adopted by the City of Alexandria in 2010 and revisions to urban design standards and zoning approved by the City in 2010. None of the improvements included in the Proposed Action would occur with the No Action alternative. With the exception of the RSA enhancements in the Potomac River beyond the Airport property line, the Proposed Action is contained within Airport boundaries. Furthermore, because neither alternative would result in aircraft noise impacts on residential land uses or noise-sensitive facilities, no disproportionate impacts to minority or low-income populations or children are anticipated.</td>
</tr>
<tr>
<td>Secondary (Induced) Impacts</td>
<td>No Significant Impact</td>
<td>Neither alternative would affect the surrounding community by causing shifts of or growth in population, increased public service demands, or changed business or economic activity.</td>
</tr>
<tr>
<td>Cumulative Impacts</td>
<td>No Significant Impact</td>
<td>The environmental impacts of each alternative, with specific mitigation measures for the Propose Action, would not be considered significant when added to the impacts of other past, present, and reasonably foreseeable future actions.</td>
</tr>
</tbody>
</table>

Notes:
BA Biological Assessment
EA Environmental Assessment
FAA Federal Aviation Administration
NMFS National Marine Fisheries Service
RSA Runway Safety Area
SHPOs State Historic Preservation Officers
SIS South Investigation Site


1.5 Mitigation

The LOPD associated with the Proposed Action includes approximately 5.3 acres of riverbed in the Potomac River from which structurally unsuitable riverbed material would be compressed prior to placing new fill or, would be removed (dredged) and replaced with material (fill) structurally suitable for supporting the RSA and EMAS at the Runway 33 end. Approximately 3.8 acres of the Potomac River, a Water of the United States, would be lost. The area of impacts on the riverbed exceeds the area of impacts on the Potomac River because the material placed in the River to support the RSA would slope away from the RSA.

The FAA prepared and submitted an Essential Fish Habitat (EFH) Assessment for the proposed Runway 4-22 and Runway 15-33 Runway Safety Area (RSA) Enhancements discussing the potential impacts of the Proposed Action on fish habitat in the vicinity of the LOPD. The National Marine Fisheries Service (NMFS) stated it would not object to the Proposed Action for Runway 15-33, as presented in the EFH Assessment, provided adequate compensatory mitigation is provided for impacts to the subtidal waters of the Potomac River. A copy of the EFH Assessment and the NMFS letter is included in Appendix J, Attachment J-10.
During detailed future design of the Proposed Action, the Authority will:

- Obtain a Section 404 Clean Water Act permit and a Section 10 permit under the Rivers and Harbors Act and submit a Joint Permit Application to the Virginia Marine Resources Commission for review.
- Abide by all permit terms, including mitigation for the impacts on submerged aquatic vegetation.

During the implementation of the Proposed Action, the Authority will:

- Develop and implement erosion and sediment control measures in accordance with the latest version of the *Virginia Erosion and Sediment Control Handbook*\(^{11}\) and Virginia Stormwater Management Laws and Regulations\(^{12}\).
- Abide by the conditions of the Virginia Department of Environmental Quality’s concurrence with the Coastal Consistency Certification, including completion of a Water Quality Impact Assessment. A copy of VDEQ’s concurrence is included in Appendix J, Attachment J-11.
- Design and construct the project in accordance with the general performance standards of the Chesapeake Bay Preservation Act.
- Use best management practices to reduce air quality pollution during construction.
- Dispose of all material excavated from within the South Investigation Site (SIS) off-airport and test the material prior to disposal and dispose of any hazardous material in accordance with state and federal requirements.
- Coordinate with the U.S. Coast Guard regarding any lighting requirements.

### 1.6 Agencies and People Consulted

Section VII of this EA provides a description of the consultation process used throughout the preparation of this Draft EA. Copies of the correspondence received from the agencies and the public are included in Appendices B and J of this EA.

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\(^{12}\) Code of Virginia Title 10.1, Chapter 6, Article 1.1, and Section 4VAC3-20 of the Virginia Administrative Code.