V. Environmental Consequences

The reasonably foreseeable environmental consequences of the Proposed Action and the No Action alternative are discussed in this section. The focus of this analysis is upon resources that would be directly, indirectly, or cumulatively affected by the Proposed Action. Possible conflicts between the Proposed Action and the objectives of federal, regional, state, local, and tribal land use plans, policies, and controls for the study area and other unresolved conflicts are also addressed.

The Authority's proposed schedule shows that construction of the Proposed Action is anticipated to begin in the second quarter of 2010 and to be completed in the fourth quarter of 2011. The first full calendar year of Airport operation with the Proposed Action in place would be 2012. Impacts related to construction activities were evaluated as if they would all occur in 2010. Impacts related to Airport operation with the Proposed Action and the No Action alternative were evaluated based on 2012 conditions. Aircraft noise, compatible land use, and air quality impacts were evaluated based on 2012 and 2017 conditions.

5.1 Summary of Potential Impacts

Table V-1 provides a summary of the environmental consequences by resource category. Those resources that would not be affected by the Proposed Action or the No Action alternative are not discussed further in this section, and Table V-1 provides justification for their exclusion. Neither the Proposed Action nor the No Action alternative would impact Wild and Scenic Rivers or Farmlands because these resources do not exist at the Airport. Analysis of environmental consequences of the remaining impact categories determined that 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 below.

5.2 Aircraft Noise

A discussion of existing aircraft noise exposure in the Airport environs is presented in Section 4.3.6 of this document. Please also refer to Appendix D.

5.2.1 Methodology

The noise analysis, prepared for 2012 and 2017, was used to compare the effects of aircraft noise at the Airport on the Airport environs for the Proposed Action and the No Action alternative. Under the Proposed Action, the Authority would extend the Runway 1 and Taxiway J pavement 300 feet to the south. The Proposed Action would not: (a) increase the number of existing or forecast operations by time of day, aircraft type, or stage length; (b) change runway use (the ratio of flights arriving on or departing from each runway compared to the total number of arrivals and departures at the Airport); (c) change the location or use of flight tracks (the paths that pilots fly to arrive at and depart from the Airport); (c) alter departure profiles; or (e) change existing noise abatement procedures.

Table V-1 (1 of 2)

Summary of Environmental Consequences by Resource

Resource Category	Impact Potential	Justification
Aircraft Noise	No Significant Impact	The Proposed Action would not result in a significant increase in aircraft noise compared to the No Action alternative.
Compatible Land Use	No Significant Impact	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.
Air Quality	No Significant Impact	There would be no change in direct or indirect emissions between the alternatives. See also Construction Impacts.
Water Quality	No Significant Impact	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.
Wetlands	No Significant Impact	No fill or alteration of jurisdictional or non-jurisdictional wetlands would occur with the Proposed Action. The Proposed Action is not expected to require dredging and is not expected to result in the placement of fill in the Potomac River.
Floodplains	No Significant Impact	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.
Coastal Resources	No Significant Impact	There are no coastal barrier resources in the vicinity of the Proposed Action. Furthermore, it is believed that there would be no impacts to Virginia coastal resources 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.
Wild and Scenic Rivers	None	There are no Wild and Scenic River resources in the vicinity of the Proposed Action.
Fish, Wildlife, and Plants	No Significant Impact	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 limits of physical disturbance, no rare, threatened, or endangered species; species of concern; or Species of Greatest Conservation Need would be affected by the Proposed Action. There would be no taking or relocation of specimens. There would be no loss of critical terrestrial or aquatic habitat. See also Construction Impacts.
Light Emissions and Visual Impacts	No Significant Impact	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.
Department of Transportation Act, Section 4(f) Lands	No Significant Impact	The Proposed Action would not result in the physical or constructive use of Section 4(f) lands.
Historic, Architectural, Archaeological, and Cultural Resources	No Significant Impact	Documented historic resources are beyond the LOPD. On-Airport historic structures would not be adversely affected, in part because they are aviation-related and are not part of the historical context and environmental setting of the Airport. 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 viewshed; therefore, impacts to historic architecture are not expected. Furthermore, interagency coordination with the District State Historic Preservation Officer determined that it concurred with the conclusion. The VDHR and the Authority have agreed to use the NEPA process to fulfill the Section 106 consultation requirements.

Table V-1 (2 of 2)

Summary of Environmental Consequences by Resource

Resource Category	Impact Potential	Justification
Natural Resources and Energy Supply	No Significant Impact	All of the natural resources and energy supply that would be required to implement the Proposed Action are easily available for use at the Airport, while no resources would be required with the No Action alternative. Similarly, all utilities required to support the Proposed Action are already provided at the Airport. No rare construction materials would be necessary to implement either alternative.
Farmlands	None	No farmland resources are present in the vicinity of the Proposed Action.
Hazardous Material, Pollution Prevention, and Solid Waste	No Significant Impact	The Proposed Action would not require an increase in the use or storage of any hazardous materials, and the operation of the Proposed Action improvements would not generate incremental solid waste. It is possible that the resolution of the South Investigation Site 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 within the site will 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.
Construction Impacts	No Significant Impact	Increased noise from construction vehicles and pile driving is expected as a result of the Proposed Action. The Authority could use vibratory or ultrasound pile driving if noise is an issue. Distance would rapidly attenuate noise levels and there are no noise-sensitive land uses within the vicinity of the Proposed Action. The noise impacts would be temporary and insignificant. Construction air emissions levels between the Proposed Action and No Action alternative would not be significant and various techniques would be used to minimize criteria pollutant emissions during construction activities (see Appendix F). 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. It is possible that the resolution of the South Investigation Site 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 within the SIS will 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.
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	No Significant Impact	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) because the project is contained within Airport boundaries. Furthermore, because the Proposed Action and No Action alternatives would not 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 (see Appendix D).
Secondary (Induced) Impacts	No Significant Impact	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.
Cumulative Impacts	No Significant Impact	The environmental impacts of each alternative would not be considered significant when added to the impacts of other past, present, and reasonably foreseeable future actions.

Sources: Ricondo & Associates, Inc., and Straughan Environmental Services, September 2008.
Prepared by: Ricondo & Associates, Inc., October 2008.

Noise exposure criterion levels of DNL 65, 70, and 75 were selected, as required by FAA Orders 5050.4B and 1050.1E, consistent with those used for environmental assessments and environmental impact statements, as well as in Federal Aviation Regulations (FAR) Part 150 noise compatibility programs. Three ranges of noise exposure were assessed: (a) DNL 65 to 70, (b) DNL 70 to 75, and (c) DNL 75 and higher.

The population, dwelling units, schools, religious facilities, and any other noise sensitive facilities that could be affected by aircraft noise of DNL 65 were identified. If these resources were determined to be present, the affected population and number of facilities were estimated for each noise exposure range for each alternative using GIS software and U.S. Department of Commerce, Bureau of the Census 2000 data.

A change in the location of a noise contour or differences in the number of people exposed to various levels of aircraft noise as a result of an action do not alone indicate a significant change in noise exposure. The FAA defines a significant change in aircraft noise exposure as a DNL change of 1.5 dBA or more on noise-sensitive areas exposed to aircraft noise of DNL 65 and higher.[1] Difference contours calculated using the INM were used to estimate differences in noise exposure between the Proposed Action and the No Action alternative to determine whether significant changes in noise exposure would result from implementation of the Proposed Action. Difference contours identify if and where changes in noise exposure of DNL 1.5 or more would occur within the area exposed to DNL 65 and higher as a result of the Proposed Action. The difference contours are then overlaid onto land use maps to determine whether such changes in noise exposure would occur in areas developed in noise-sensitive land uses. If so, the Federal Interagency Committee on Noise (FICON) further recommends analysis and documentation of DNL changes of 3 dBA or more within areas exposed to DNL 60 to 65.

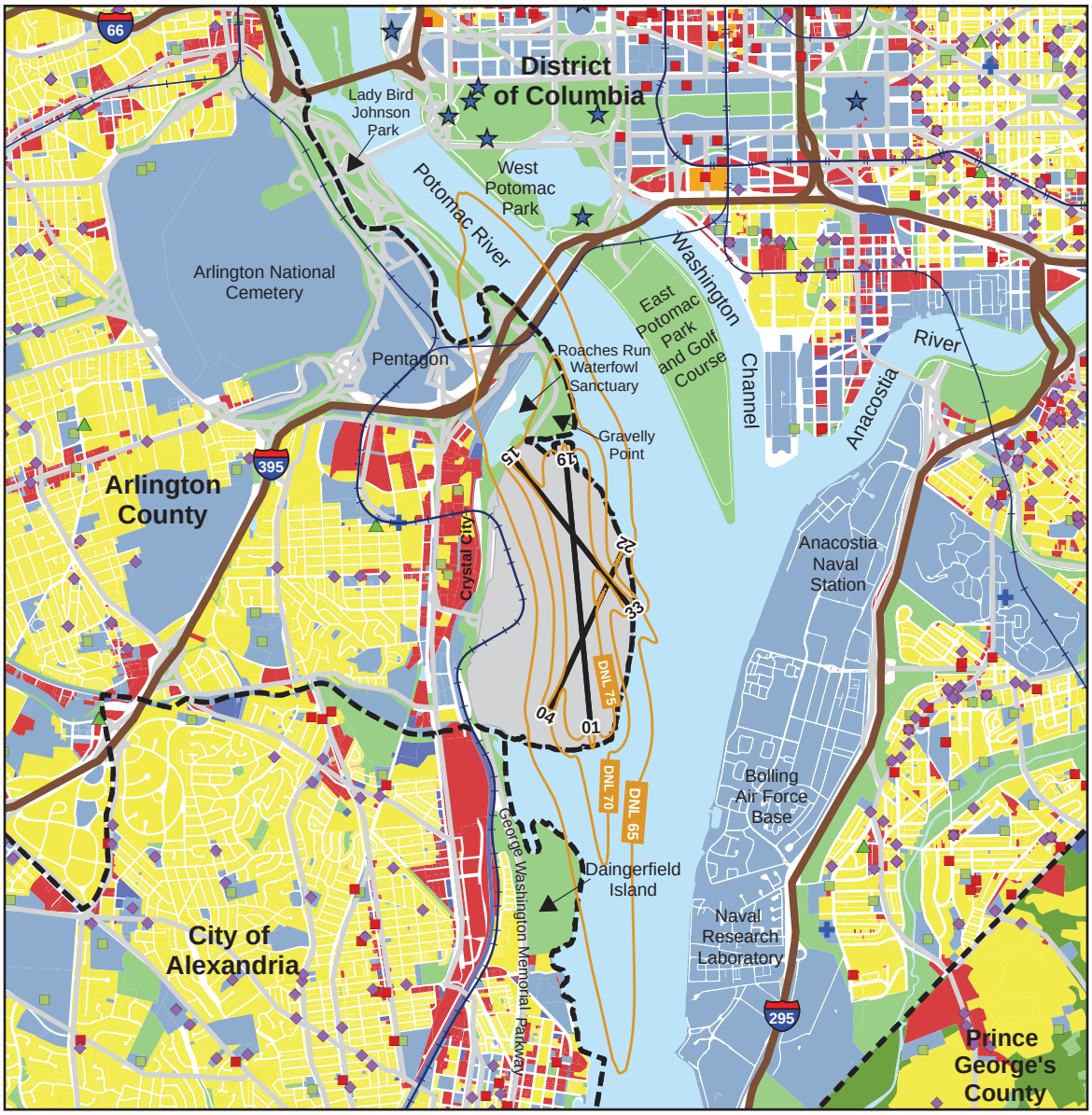
The following sections and Appendix D describe the quantification and comparison of aircraft noise exposure for the Proposed Action and the No Action alternative for 2012 and 2017 and whether significant changes in noise exposure would occur as a result of the Proposed Action.

5.2.2 2012 Impact Potential

5.2.2.1 Noise Exposure under the Proposed Action

Estimated aircraft noise exposure contours for 2012 under the Proposed Action are depicted on **Exhibit V-1**. **Table V-2** summarizes the area within each noise exposure range for 2012 under the Proposed Action. **Table V-3** summarizes the estimated areas exposed to various ranges of aircraft noise by land use category in 2012 under the Proposed Action.

[1] FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, April 28, 2006, Table 7-1.



LEGEND

- Hospital
- School
- Day Care
- Library
- Religious Facility
- Landmark
- Interstate Highway
- Jurisdictional Boundary
- Major Road
- Railroad
- Runways
- 2012 Proposed Action Noise Contours
- Residential
- Commercial
- Mixed Use
- Institutional/ Government
- Parks/Recreation
- Open Space
- Industrial
- Vacant Space
- Water
- Other Roads/Unknown
- Ronald Reagan Washingon National Airport

Sources: Arlington County Department of Environmental Services (land use); City of Alexandria Department of Planning & Zoning, 2008 (land use); Maryland Department of Planning (land use), 2002; District of Columbia Office of Planning (land use), 2002; Virginia Economic Developement Partnership GIS (point data), 2007; Ricondo & Associates, Inc., INM Version 7.0.a; INM Contour Layer: 12paNoise-Contours, September 2008 (noise contours).

Prepared by: Ricondo & Associates, Inc., 2008.

Exhibit V-1

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north

2012 Proposed Action Noise Exposure Map

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Table V-2

Area within Each Range of Noise Exposure – 2012 Proposed Action

DNL Range	Area (acres)
65-70	949.4
70-75	300.1
75+	227.5
Total 65 and Higher	1,477.0

Sources: Ricondo & Associates, Inc., based on calculations using noise exposure contours depicted on Exhibit V-1 using FAA INM Version 7.0a, and data described in Appendix D. Area calculated using ArcGIS version 9.2, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-3

Aircraft Noise Exposure by Land Use Category – 2012 Proposed Action

	Area by Range of Noise Exposure (acres)			
Land Use	DNL 65-70	DNL 70-75	DNL 75+	DNL 65 and Higher
Residential	0.0	0.0	0.0	0.0
Commercial	1.7	0.0	0.0	1.7
Mixed Use	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0
Institutional/Government	37.7	0.0	0.0	37.7
Parks/Recreation	89.5	40.9	0.0	130.4
Water	606.1	91.1	5.9	703.1
The Airport	142.8	163.3	221.4	527.5
Roadways/Rights-of-Way	71.6	4.8	0.2	76.6
Total	949.4	300.1	227.5	1,477.0

Note: Columns and rows may not add to totals shown because of rounding.

Sources: Ricondo & Associates, Inc., plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA INM Version 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure).
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-4 summarizes the estimated numbers of people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, parks, and hospitals that would be exposed to various ranges of aircraft noise in 2012 under the Proposed Action. No people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, or hospitals would be exposed to aircraft noise of DNL 65 and higher in 2012 under the Proposed Action. The eastern portion of Daingerfield Island (southwest of the Airport) would be exposed to aircraft noise between DNL 65 and DNL 70. Gravelly Point (just north-northeast of the Airport) would be exposed to aircraft noise between DNL 70 and DNL 75. The southern portion of Lady Bird Johnson Park (northeast of Gravelly Point) would be exposed to aircraft noise between DNL 65 and DNL 70.

Table V-4

Population, Dwelling Units, and Noise-Sensitive Facilities Exposed to Aircraft Noise – 2012 Proposed Action

Population or Noise-Sensitive Facility	DNL 65-70	DNL 70-75	DNL 75+	Total DNL 65 and Higher
Population	0	0	0	0
Dwelling Units	0	0	0	0
Religious Facilities	0	0	0	0
Convalescent Homes	0	0	0	0
Libraries	0	0	0	0
Day Care Centers	0	0	0	0
Schools	0	0	0	0
Parks	2	1	0	3
Hospitals	0	0	0	0

Sources: Ricondo & Associates, Inc. plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA Version INM 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure); U.S. Department of Commerce, Bureau of the Census, Census 2000, September 2008 (population data).
Prepared by: Ricondo & Associates, Inc., September 2008.

5.2.2.2 Noise Exposure under the No Action Alternative

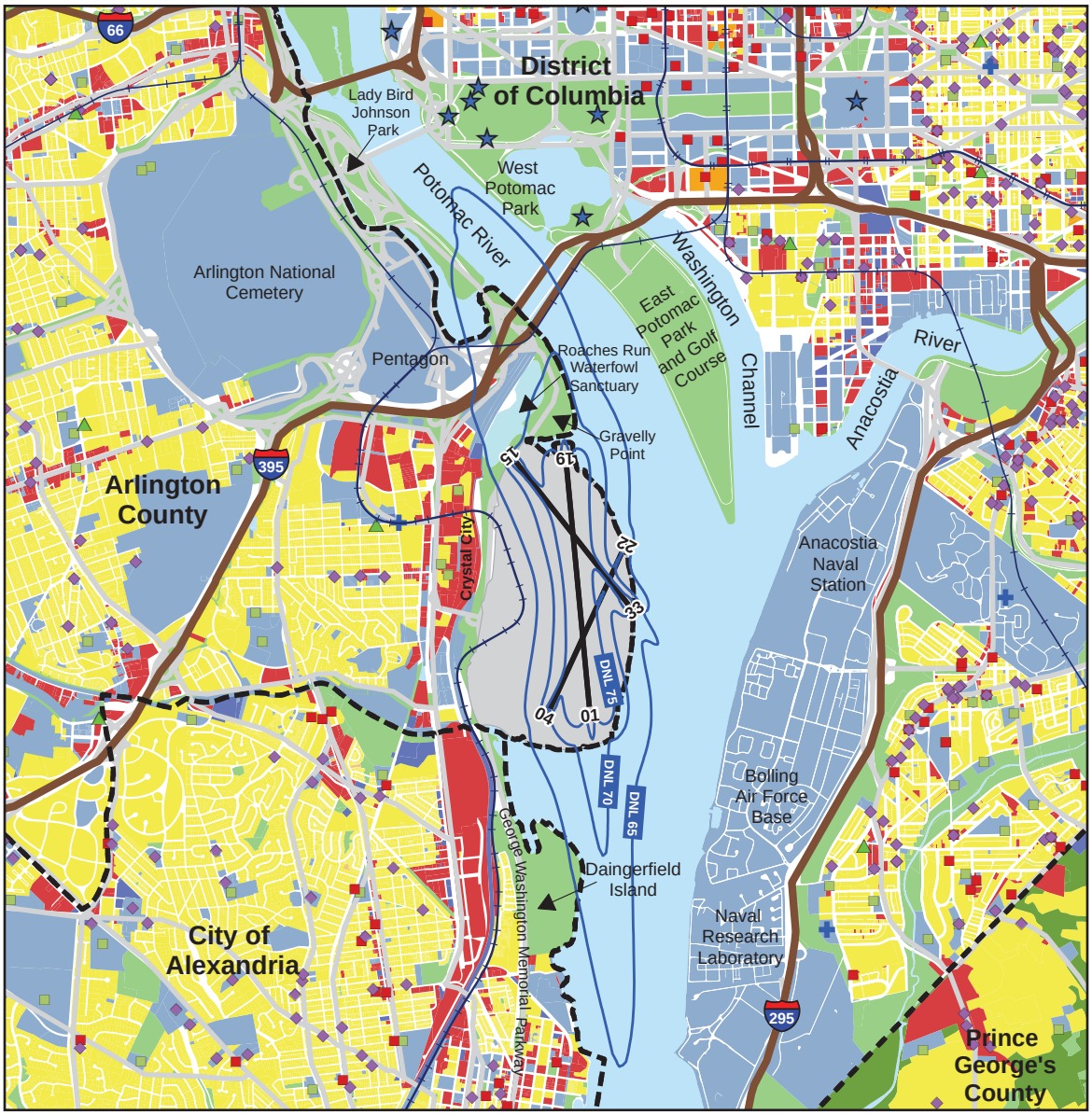
Estimated aircraft noise exposure contours for 2012 under the No Action alternative are depicted on **Exhibit V-2**. **Table V-5** summarizes the area within each aircraft noise exposure range in 2012 under the No Action alternative. **Table V-6** summarizes the estimated areas that would be exposed to various ranges of aircraft noise by land use category in 2012 under the No Action alternative.

Table V-5

Area within Each Range of Noise Exposure – 2012 No Action

DNL Range	Area (acres)
65-70	962.1
70-75	302.8
75+	221.6
Total 65 and Higher	1,486.5

Source: Ricondo & Associates, Inc., based on calculations using noise exposure contours depicted on Exhibit V-2 using FAA INM Version 7.0a, and data described in Appendix D. Area calculated using ArcGIS version 9.2, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.



LEGEND

- Hospital
- School
- Day Care
- Library
- Religious Facility
- Landmark
- Interstate Highway
- Jurisdictional Boundary
- Major Road
- Railroad
- Runways
- 2012 No Action Noise Contours
- Residential
- Commercial
- Mixed Use
- Institutional/ Government
- Parks/Recreation
- Open Space
- Industrial
- Vacant Space
- Water
- Other Roads/Unknown
- Ronald Reagan Washingon National Airport

Sources: Arlington County Department of Environmental Services (land use); City of Alexandria Department of Planning & Zoning, 2008 (land use); Maryland Department of Planning (land use), 2002; District of Columbia Office of Planning (land use), 2002; Virginia Economic Developement Partnership GIS (point data), 2007; Ricondo & Associates, Inc., INM Version 7.0.a; INM Contour Layer: 12naNoise-Contours, September 2008 (noise contours).

Prepared by: Ricondo & Associates, Inc., 2008.

Exhibit V-2

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2012 No Action Noise Exposure Map

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Table V-6

Aircraft Noise Exposure by Land Use Category – 2012 No Action Alternative

	Area by Range of Noise Exposure (acres)			
Land Use	DNL 65-70	DNL 70-75	DNL 75+	DNL 65 and Higher
Residential	0.0	0.0	0.0	0.0
Commercial	1.7	0.0	0.0	1.7
Mixed Use	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0
Institutional/Government	38.2	0.0	0.0	38.2
Parks/Recreation	91.4	43.8	0.0	135.2
Water	616.6	84.1	6.2	706.9
The Airport	143.2	165.9	215.2	524.3
Roadways/Rights-of-Way	71.0	9.0	0.2	80.2
Total	962.1	302.8	221.6	1,486.5

Source: Ricondo & Associates, Inc., plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA INM Version 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure).
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-7 summarizes the estimated numbers of people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, parks, and hospitals that would be exposed to aircraft noise of DNL 65 and higher in 2012 under the No Action alternative. No people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, or hospitals would be exposed to aircraft noise of DNL 65 and higher in 2012 under the No Action alternative. Similar to conditions under the Proposed Action in 2012, the eastern portion of Daingerfield Island (southwest of the Airport) would be exposed to aircraft noise between DNL 65 and DNL 70. Gravelly Point (just north-northeast of the Airport) would be exposed to aircraft noise between DNL 70 and DNL 75. The southern portion of Lady Bird Johnson Park (northeast of Gravelly Point) would be exposed to aircraft noise between DNL 65 and DNL 70.

Table V-7

Population, Dwelling Units, and Noise-Sensitive Facilities Exposed to Aircraft Noise – 2012 No Action

Population or Noise-Sensitive Facility	DNL 65-70	DNL 70-75	DNL 75+	Total DNL 65 and Higher
Population	0	0	0	0
Dwelling Units	0	0	0	0
Religious Facilities	0	0	0	0
Convalescent Homes	0	0	0	0
Libraries	0	0	0	0
Day Care Centers	0	0	0	0
Schools	0	0	0	0
Parks	2	1	0	3
Hospitals	0	0	0	0

Sources: Ricondo & Associates, Inc. plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA INM Version 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure); U.S. Department of Commerce, Bureau of the Census, Census 2000, September 2008 (population data).
Prepared by: Ricondo & Associates, Inc., September 2008.

5.2.2.3 Aircraft Noise Exposure Changes

Exhibit V-3 depicts aircraft noise exposure contours for 2012 under the Proposed Action compared with the No Action alternative. The southern portion of the noise exposure area would extend farther to the south under the Proposed Action than under the No Action alternative because aircraft would be about 15 feet lower over the Potomac River south of the Airport along the final approach to Runway 1 under the Proposed Action as a result of the arrival threshold being shifted 300 feet to the south. Similarly, with aircraft beginning the takeoff roll from Runway 1 at a point 300 feet farther to the south, departures from the runway would be slightly higher north and northwest of the Airport after takeoff under the Proposed Action than under the No Action alternative. The area exposed to aircraft noise of DNL 75 and higher would remain on-Airport or over water under the Proposed Action. Overall, the area exposed to DNL 65 and higher would be less than one percent smaller under the Proposed Action than under the No Action alternative. No noise-sensitive areas exposed to aircraft noise of DNL 65 and higher under the Proposed Action would be expected to experience an increase of DNL 1.5 or more compared with the No Action alternative. Therefore, there would be no significant changes in noise exposure as a result of implementing the Proposed Action.

Table V-8 provides a comparison of the noise exposure areas in 2012 under Proposed Action and No Action conditions. The total area exposed to aircraft noise of DNL 65 and higher would decrease by about 9.5 acres under 2012 Proposed Action conditions compared to the No Action alternative in 2012.

Table V-8

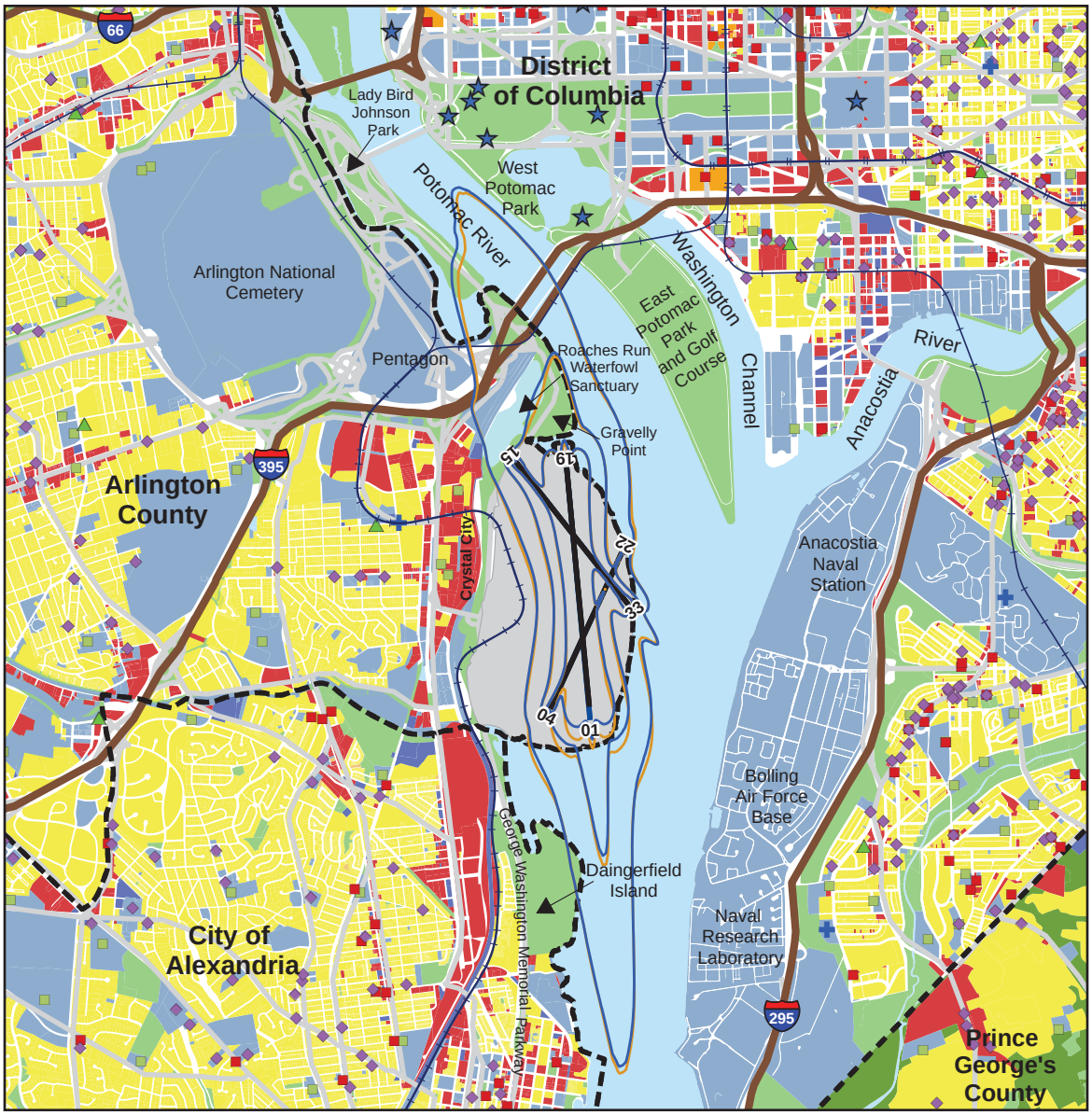
Comparison of Area within Each Range of Noise Exposure – 2012 Proposed Action vs. No Action

DNL Range	Difference in Area under the Proposed Action (acres)
65-70	-12.7
70-75	- 2.7
75+	5.9
Total 65 and Higher	- 9.5

Note: A negative difference indicates that the area would be smaller under the Proposed Action than under the No Action alternative. Conversely, a positive difference indicates that the area would be larger under the Proposed Action than under the No Action alternative.

Source: Ricondo & Associates, Inc., calculated using noise exposure contours depicted on Exhibits V-1 and V-2, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-9 shows the differences in the estimated area that would be exposed to aircraft noise of DNL 65 and higher by land use category under 2012 Proposed Action conditions compared to the No Action alternative in 2012.



LEGEND

- Hospital
- School
- Day Care
- Library
- Religious Facility
- Landmark
- Interstate Highway
- Jurisdictional Boundary
- Major Road
- Railroad
- Runways
- 300 ft. Runway Extension
- 2012 No Action Noise Contours
- 2012 Proposed Action Noise Contours
- Residential
- Commercial
- Mixed Use
- Institutional/ Government
- Parks/Recreation
- Open Space
- Industrial
- Vacant Space
- Water
- Other Roads/Unknown
- Ronald Reagan Washingon National Airport

Sources: Arlington County Department of Environmental Services (land use); City of Alexandria Department of Planning & Zoning, 2008 (land use); Maryland Department of Planning (land use), 2002; District of Columbia Office of Planning (land use), 2002; Virginia Economic Developement Partnership GIS (point data), 2007; Ricondo & Associates, Inc., INM Version 7.0.a; INM Contour Layers: 12paNoise-Contours and 12naNoise-Contour, September 2008 (noise contours).

Prepared by: Ricondo & Associates, Inc., 2008.

Exhibit V-3

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2012 Comparison Between Proposed Action and No Action Noise Exposure

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Table V-9

Comparison of Aircraft Noise Exposure by Land Use Category – 2012 Proposed Action vs. No Action

	Difference in Area by Range of Noise Exposure under the Proposed Action (acres)			
Land Use	DNL 65-70	DNL 70-75	DNL 75+	DNL 65 and Higher
Residential	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0
Mixed Use	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0
Institutional/Government	-0.5	0.0	0.0	-0.5
Parks/Recreation	-2.0	-2.9	0.0	-4.9
Water	-10.6	7.0	-0.3	-3.9
The Airport	-0.3	-2.6	6.2	3.3
Roadways/Rights-of-Way	0.7	-4.2	0.0	-3.5
Total	-12.7	-2.7	5.9	-9.5

Note: A negative difference indicates that the area would be smaller under the Proposed Action than under the No Action alternative. Conversely, a positive difference indicates that the area would be larger under the Proposed Action than under the No Action alternative.

Source: Ricondo & Associates, Inc., based on data reported in Tables V-3 and V-6, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

As shown in Table V-7 compared with Table V-4, there would be no change in the number of people, dwelling units, or other noise-sensitive land uses exposed to DNL 65 and higher in 2012 under the Proposed Action compared with the No Action alternative. As shown in Table V-9, it is anticipated that there would be a reduction of approximately 9.5 acres in the area exposed to aircraft noise of DNL 65 and higher.

No new or existing noise-sensitive areas would be exposed to aircraft noise of DNL 65 and higher in 2012 under the Proposed Action and, therefore, none would be exposed to a change of DNL 1.5 or more compared with the No Action alternative in 2012. Therefore, no significant noise impacts would be anticipated in 2012 with implementation of the Proposed Action.

5.2.3 2017 Impact Potential

5.2.3.1 Noise Exposure under the Proposed Action

Estimated aircraft noise exposure contours for 2017 under the Proposed Action are depicted on **Exhibit V-4**. **Table V-10** summarizes the area within each noise exposure range in 2012 under the Proposed Action. **Table V-11** summarizes the estimated areas exposed to the various ranges of aircraft noise by land use category in 2017 under the Proposed Action.

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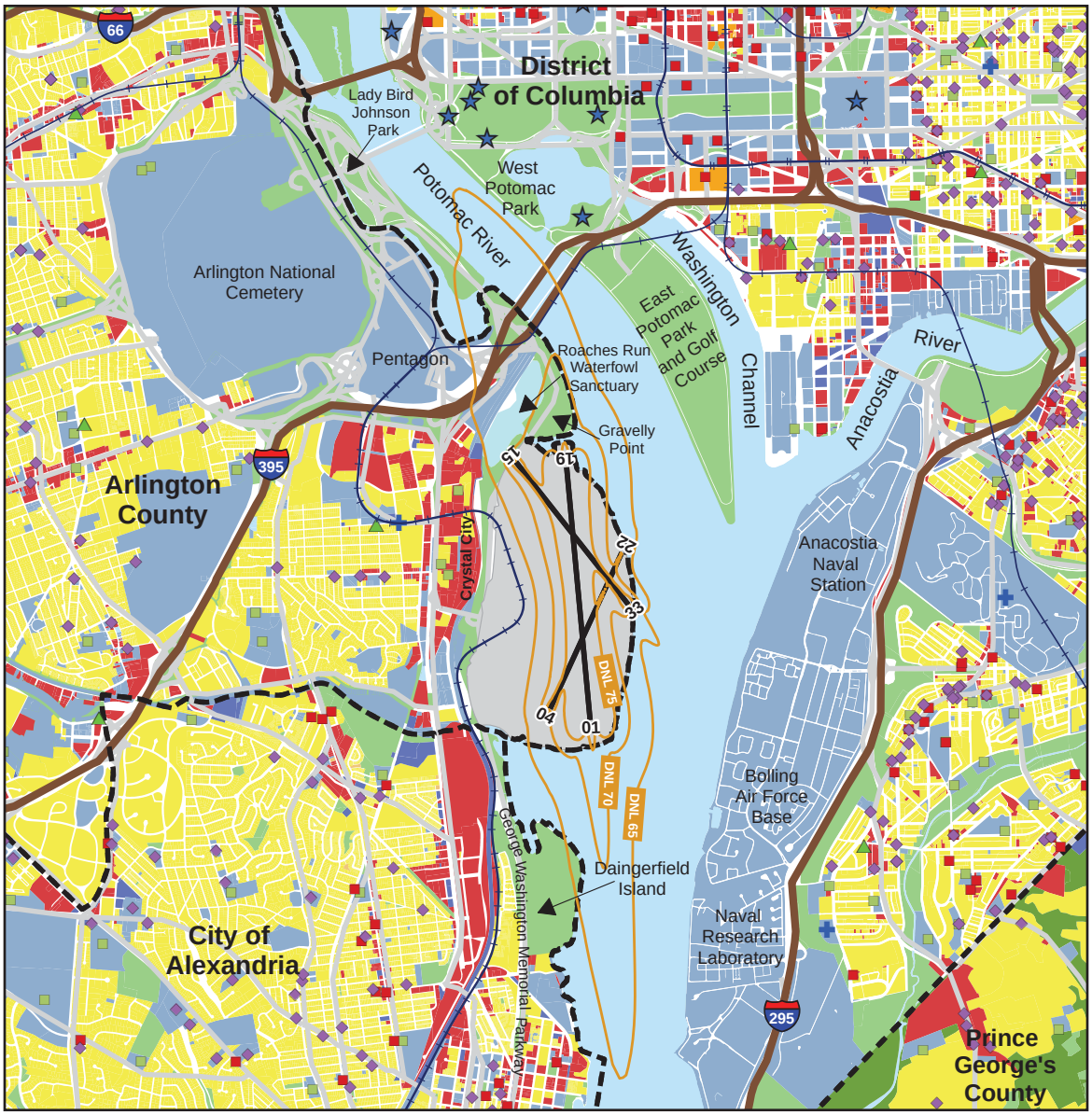

LEGEND

- Hospital
- School
- Day Care
- Library
- Religious Facility
- Landmark
- Interstate Highway
- Jurisdictional Boundary
- Major Road
- Railroad
- Runways
- 2017 Proposed Action Noise Contours
- Residential
- Commercial
- Mixed Use
- Institutional/ Government
- Parks/Recreation
- Open Space
- Industrial
- Vacant Space
- Water
- Other Roads/Unknown
- Ronald Reagan Washingon National Airport

Sources: Arlington County Department of Environmental Services (land use); City of Alexandria Department of Planning & Zoning, 2008 (land use); Maryland Department of Planning (land use), 2002; District of Columbia Office of Planning (land use), 2002; Virginia Economic Developement Partnership GIS (point data), 2007; Ricondo & Associates, Inc., INM Version 7.0.a; INM Contour Layer: 17paNoise-Contours, September 2008 (noise contours).

Prepared by: Ricondo & Associates, Inc., 2008.

Exhibit V-4

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north

2017 Proposed Action Noise Exposure Map

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Table V-10

Area within Each Range of Noise Exposure – 2017 Proposed Action

DNL Range	Area (acres)
65-70	975.4
70-75	306.4
75+	232.8
Total 65 and Higher	1,514.6

Source: Ricondo & Associates, Inc., based on calculations using noise exposure contours depicted on Exhibit V-4 using FAA INM Version 7.0a, and data described in Appendix D. Area calculated using ArcGIS version 9.2, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-11

Aircraft Noise Exposure by Land Use Category – 2017 Proposed Action

	Area by Range of Noise Exposure (acres)			
Land Use	DNL 65-70	DNL 70-75	DNL 75+	DNL 65 and Higher
Residential	0.0	0.0	0.0	0.0
Commercial	1.7	0.0	0.0	1.7
Mixed Use	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0
Institutional/Government	38.6	0.0	0.0	38.6
Parks/Recreation	92.3	42.4	0.0	134.7
Water	627.9	95.8	6.3	730.0
The Airport	141.5	162.5	226.3	530.3
Roadways/Rights-of-Way	73.4	5.7	0.2	79.3
Total	975.4	306.4	232.8	1,514.6

Source: Ricondo & Associates, Inc., plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA INM Version 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure).
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-12 summarizes the estimated numbers of people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, parks, and hospitals that would be exposed to various ranges of aircraft noise in 2017 under the Proposed Action. No people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, or hospitals would be exposed to aircraft noise of DNL 65 and higher in 2017 under the Proposed Action. The eastern portion of Daingerfield Island (southwest of the Airport) would be exposed to aircraft noise between DNL 65 and DNL 70. Gravelly Point (just north-northeast of the Airport) would be exposed to aircraft noise between DNL 70 and DNL 75. The southern portion of Lady Bird Johnson Park (northeast of Gravelly Point) would be exposed to aircraft noise between DNL 65 and DNL 70.

Table V-12

Population, Dwelling Units, and Noise-Sensitive Facilities Exposed to Aircraft Noise – 2017 Proposed Action

Population or Noise-Sensitive Facility	DNL 65-70	DNL 70-75	DNL 75+	Total DNL 65 and Higher
Population	0	0	0	0
Dwelling Units	0	0	0	0
Religious Facilities	0	0	0	0
Convalescent Homes	0	0	0	0
Libraries	0	0	0	0
Day Care Centers	0	0	0	0
Schools	0	0	0	0
Parks	2	1	0	3
Hospitals	0	0	0	0

Sources: Ricondo & Associates, Inc. plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA INM Version 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure); U.S. Department of Commerce, Bureau of the Census, Census 2000, September 2008 (population data).
Prepared by: Ricondo & Associates, Inc., September 2008.

5.2.3.2 Noise Exposure under the No Action Alternative

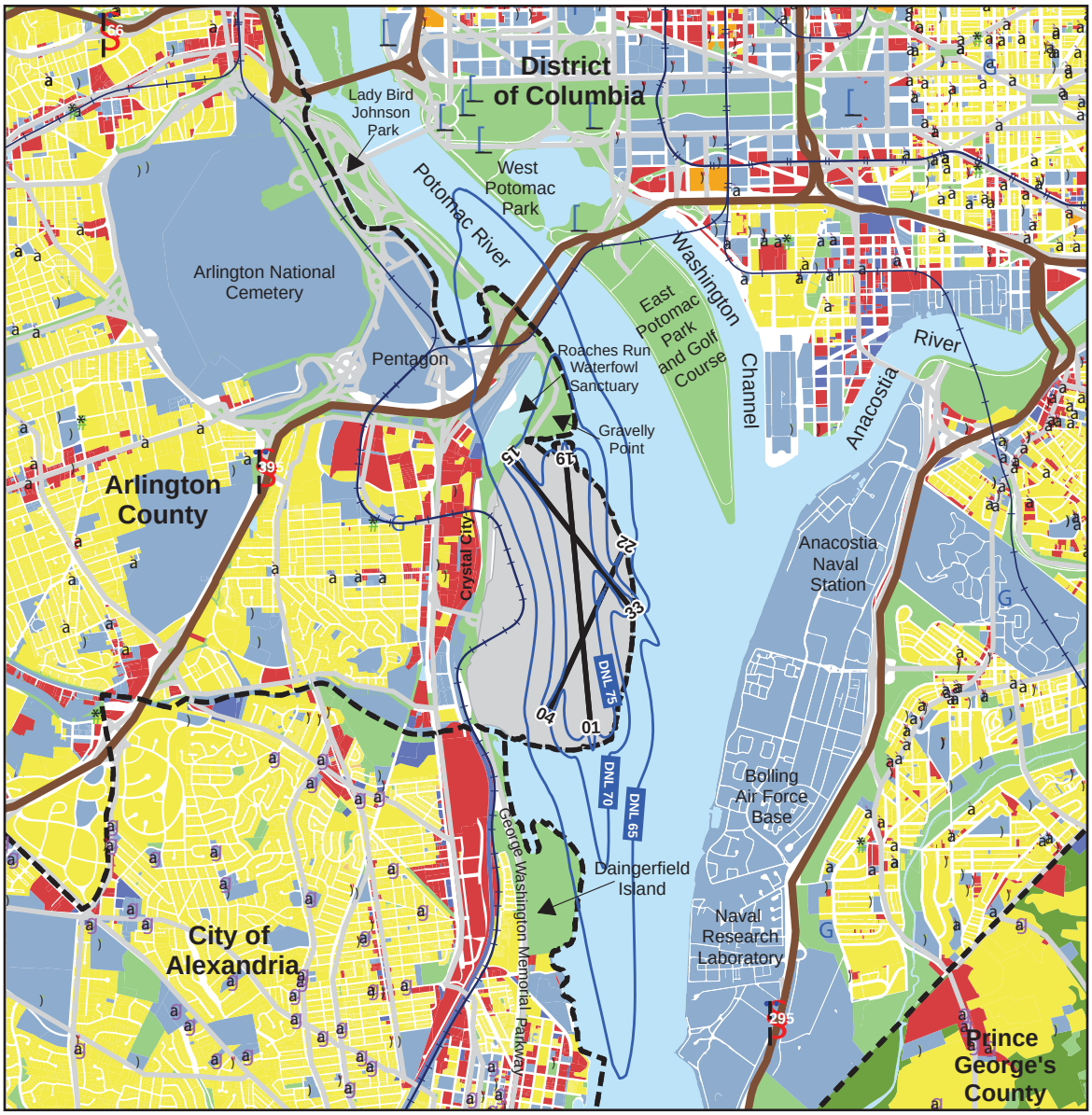
Estimated aircraft noise exposure contours for 2017 under the No Action alternative are depicted on **Exhibit V-5**. **Table V-13** summarizes the area within each aircraft noise exposure range in 2017 under the No Action alternative. **Table V-14** summarizes the estimated areas that would be exposed to various ranges of aircraft noise by land use category in 2017 under No Action conditions.

Table V-13

Area within Each Range of Noise Exposure – 2017 No Action

DNL Range	Area (acres)
65-70	987.5
70-75	309.3
75+	226.7
Total 65 and Higher	1,523.5

Source: Ricondo & Associates, Inc., based on calculations using noise exposure contours depicted on Exhibit V-5 using FAA INM Version 7.0a, and data described in Appendix D. Area calculated using ArcGIS version 9.2, September, 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.



LEGEND

- Hospital
- School
- Day Care
- Library
- Religious Facility
- Landmark
- Interstate Highway
- Jurisdictional Boundary
- Major Road
- Railroad
- Runways
- 2017 No Action Noise Contours
- Residential
- Commercial
- Mixed Use
- Institutional/ Government
- Parks/Recreation
- Open Space
- Industrial
- Vacant Space
- Water
- Other Roads/Unknown
- Ronald Reagan Washingon National Airport

Sources: Arlington County Department of Environmental Services (land use); City of Alexandria Department of Planning & Zoning, 2008 (land use); Maryland Department of Planning (land use), 2002; District of Columbia Office of Planning (land use), 2002; Virginia Economic Developement Partnership GIS (point data), 2007; Ricondo & Associates, Inc., INM Version 7.0.a; INM Contour Layer: 17naNoise-Contours, September 2008 (noise contours).

Prepared by: Ricondo & Associates, Inc., 2008.

Exhibit V-5

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north

2017 No Action Noise Exposure Map

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Table V-14

Aircraft Noise Exposure by Land Use Category – 2017 No Action

	Area by Range of Noise Exposure (acres)			
Land Use	DNL 65-70	DNL 70-75	DNL 75+	DNL 65 and Higher
Residential	0.0	0.0	0.0	0.0
Commercial	1.7	0.0	0.0	1.7
Mixed Use	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0
Institutional/Government	39.0	0.0	0.0	39.0
Parks/Recreation	94.3	45.0	0.0	139.3
Water	638.7	88.7	6.6	734.0
The Airport	141.7	165.2	219.9	526.8
Roadways/Rights-of-Way	72.1	10.4	0.2	82.7
Total	987.5	309.3	226.7	1,523.5

Source: Ricondo & Associates, Inc., plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA Version INM 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure).
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-15 summarizes the estimated numbers of people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, parks, and hospitals exposed to aircraft noise of DNL 65 and higher in 2017 under the No Action alternative. No people, dwelling units, religious facilities, convalescent homes, libraries, day care centers, schools, or hospitals would be exposed to aircraft noise of DNL 65 and higher in 2017 under the No Action alternative. Similar to conditions under the Proposed Action, the eastern portion of Daingerfield Island (southwest of the Airport) would be exposed to aircraft noise between DNL 65 and DNL 70. Gravelly Point (just north-northeast of the Airport) would be exposed to aircraft noise between DNL 70 and DNL 75. The southern portion of Lady Bird Johnson Park (northeast of Gravelly Point) would be exposed to aircraft noise between DNL 65 and DNL 70.

Table V-15

Population, Dwelling Units, and Noise-Sensitive Facilities Exposed to Aircraft Noise – 2017 No Action

Population or Noise-Sensitive Facility	DNL 65-70	DNL 70-75	DNL 75+	Total DNL 65 and Higher
Population	0	0	0	0
Dwelling Units	0	0	0	0
Religious Facilities	0	0	0	0
Convalescent Homes	0	0	0	0
Libraries	0	0	0	0
Day Care Centers	0	0	0	0
Schools	0	0	0	0
Parks	2	1	0	3
Hospitals	0	0	0	0

Sources: Ricondo & Associates, Inc. plan drawings developed based on land use data from Arlington County Department of Environmental Services, City of Alexandria Department of Planning & Zoning, 2008, Maryland Department of Planning, District of Columbia Office of Planning, 2002 (existing land use); Ricondo & Associates, Inc., calculated using FAA Version INM 7.0a and data described in Appendix D, September 2008 (aircraft noise exposure); U.S. Department of Commerce, Bureau of the Census, Census 2000, September 2008 (population data).
Prepared by: Ricondo & Associates, Inc., September 2008.

5.2.3.3 Aircraft Noise Exposure Changes

Exhibit V-6 depicts the aircraft noise exposure contours for 2017 under the Proposed Action compared with the No Action alternative. The southern portion of the noise exposure area would extend farther to the south under the Proposed Action than under the No Action alternative because aircraft would be about 15 feet lower over the Potomac River south of the Airport along the final approach to Runway 1 under the Proposed Action as a result of the arrival threshold being shifted 300 feet to the south. Similarly, with aircraft beginning the takeoff roll from Runway 1 at a point 300 feet farther to the south, departures from the runway would be slightly higher north and northwest of the Airport after takeoff under the Proposed Action than under the No Action alternative. The area exposed to aircraft noise of DNL 75 and higher would remain on-Airport or over water under the Proposed Action. Overall, the area exposed to DNL 65 and higher under the Proposed Action would be less than one percent smaller than under the No Action alternative. No noise-sensitive areas exposed to aircraft noise of DNL 65 and higher under the Proposed Action would be expected to experience an increase in aircraft noise of DNL 1.5 or more under the Proposed Action compared with the No Action alternative. Therefore, there would be no significant changes in noise exposure as a result of implementing the Proposed Action.

Table V-16 provides a comparison of the area that would be exposed to aircraft noise under Proposed Action and No Action conditions in 2017. The total area that would be exposed to aircraft noise of DNL 65 and higher would decreases by about 9 acres in 2017 under the Proposed Action compared to the No Action alternative in 2017.

Table V-16

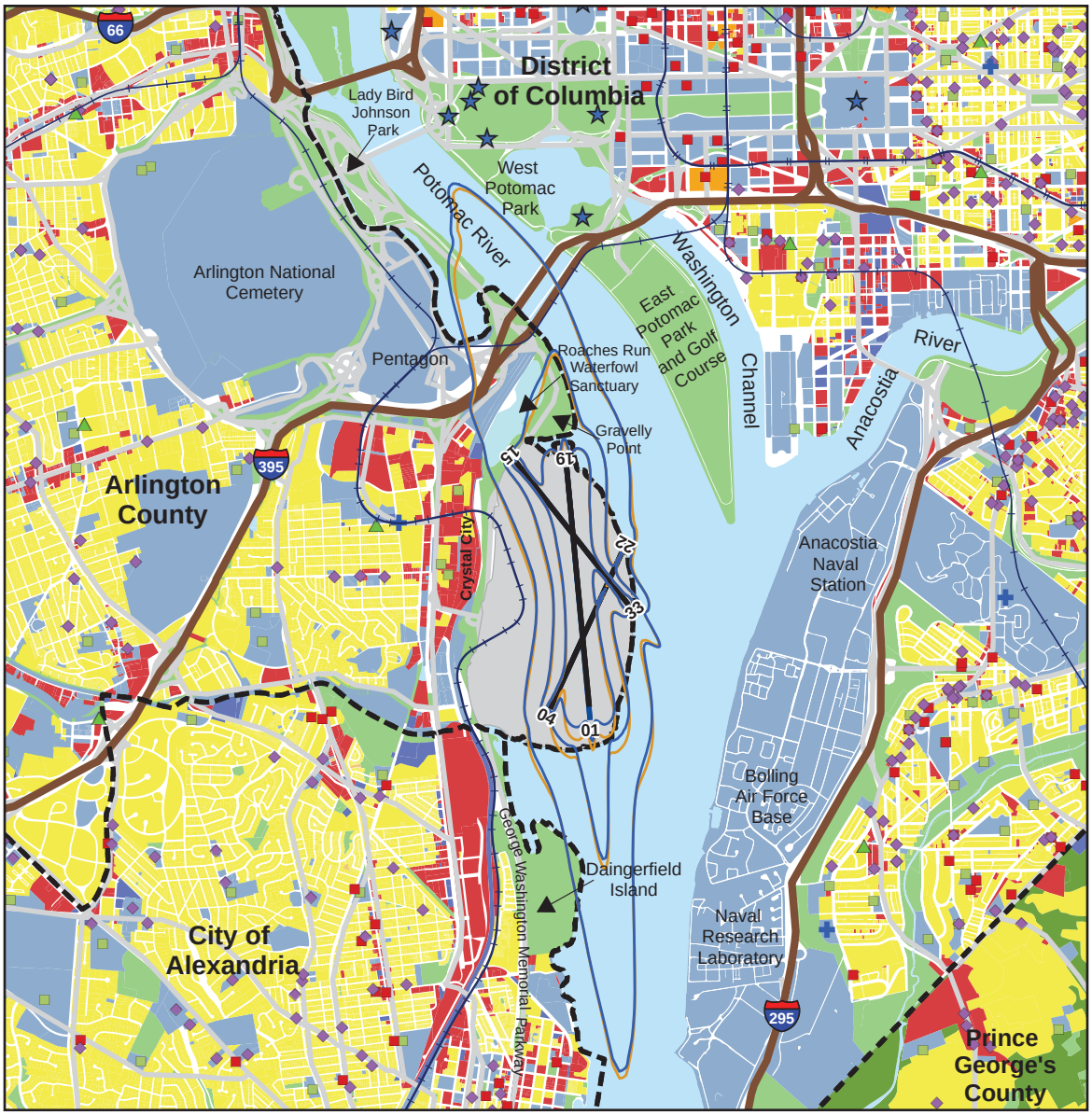
Comparison of Area within Each Range of Noise Exposure – 2017 Proposed Action and No Action

DNL Range	Difference in Area under the Proposed Action (acres)
65-70	-12.1
70-75	-2.9
75+	6.1
Total 65 and Higher	-8.9

Note: A negative difference indicates that the area would be smaller under the Proposed Action than under the No Action alternative. Conversely, a positive difference indicates that the area would be larger under the Proposed Action than under the No Action alternative.

Source: Ricondo & Associates, Inc., based on data reported in Tables V-10 and V-13, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

Table V-17 shows the differences in the estimated area that would be exposed to aircraft noise of DNL 65 and higher by land use category in 2017 under the Proposed Action compared to the No Action alternative.



LEGEND

- Hospital
- School
- Day Care
- Library
- Religious Facility
- Landmark
- Interstate Highway
- Jurisdictional Boundary
- Major Road
- Railroad
- Runways
- 300 ft. Runway Extension
- 2017 No Action Noise Contours
- 2017 Proposed Action Noise Contours
- Residential
- Commercial
- Mixed Use
- Institutional/ Government
- Parks/Recreation
- Open Space
- Industrial
- Vacant Space
- Water
- Other Roads/Unknown
- Ronald Reagan Washingon National Airport

Sources: Arlington County Department of Environmental Services (land use); City of Alexandria Department of Planning & Zoning, 2008 (land use); Maryland Department of Planning (land use), 2002; District of Columbia Office of Planning (land use), 2002; Virginia Economic Developement Partnership GIS (point data), 2007; Ricondo & Associates, Inc., INM Version 7.0.a; INM Contour Layers: 17paNoise-Contours and 17naNoise-Contour, September 2008 (noise contours).

Prepared by: Ricondo & Associates, Inc., 2008.

Exhibit V-6

0 4,500ft.

north

2017 Comparison Between Proposed Action and No Action Noise Exposure

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Table V-17

Comparison of Aircraft Noise Exposure by Land Use Category – 2017 Proposed Action and No Action

	Difference in Area by Range of Noise Exposure under the Proposed Action (acres)			
Land Use	DNL 65-70	DNL 70-75	DNL 75+	DNL 65 and higher
Residential	0.0	0.0	0.0	0.0
Commercial	0.0	0.0	0.0	0.0
Mixed Use	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0
Institutional/Government	-0.4	0.0	0.0	-0.4
Parks/Recreation	-2.0	-2.6	0.0	-4.6
Water	-10.8	7.1	-0.3	-4.0
The Airport	-0.2	-2.7	6.4	3.5
Roadways/Rights-of-Way	1.3	-4.7	0.0	-3.4
Total	-12.1	-2.9	6.1	-8.9

Note: A negative difference indicates that the area would be smaller under the Proposed Action than under the No Action alternative. Conversely, a positive difference indicates that the area would be larger under the Proposed Action than under the No Action alternative.

Source: Ricondo & Associates, Inc., based on data reported in Tables V-11 and V-14, September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

As shown in Table V-15 compared with Table V-12, there would be no change in the number of people, dwelling units, and other noise-sensitive areas exposed to DNL 65 and higher in 2017 under the Proposed Action compared with the No Action alternative. As shown in Table V-16, it is anticipated that there would be a reduction of approximately 9 acres in the area exposed to aircraft noise of DNL 65 and higher in 2017 under the Proposed Action compared with the No Action alternative.

No new or existing noise-sensitive areas would be exposed to aircraft noise of DNL 65 and higher in 2017 under the Proposed Action and, therefore, none would be exposed to a change of DNL 1.5 or more compared with the No Action alternative in 2017. No significant noise impacts would be anticipated in 2017 with implementation of the Proposed Action.

5.3 Compatible Land Use

The current land uses in the Airport environs are discussed in Section 4.3.2 of this document.

5.3.1 Methodology

The Proposed Action requires an FAA update of air traffic control and airspace management procedures designed to effect the safe and efficient movement of aircraft to and from the proposed relocated Runway 1 threshold. The conclusions of the aircraft noise analysis presented in Section 5.2 were reviewed to determine whether the Proposed Action would result in a significant land use impact compared to the No Action alternative.

In addition to evaluating land use compatibility in relation to aircraft noise, the proximity of landfills, wetlands, and wetland mitigation sites to the Airport were also considered, as these land uses attract wildlife species and can pose a hazard to aviation.

5.3.2 2012 Impact Potential

5.3.2.1 Proposed Action

As discussed in Section 5.2.2.3, Aircraft Noise Exposure Changes, implementation of the Proposed Action would not result in significant noise exposure impacts in 2012 compared to the No Action alternative. Therefore, it was concluded that the Proposed Action would not result in significant effects in terms of land use compatibility with aircraft noise. The Proposed Action does not conflict with applicable land use plans or policies. The Authority will seek the FAA approval of revisions to the ALP to reflect the final layout of the elements of the Proposed Action. Additionally, as identified in the Section 4.3.8.3, Solid Waste, the nearest landfill is 18 miles from the Airport and would, therefore, not present a land use compatibility concern. Also, as identified in Section 4.4.1, Water Resources, and Section 4.5.1, Fish, Wildlife, and Plants, although the Airport is surrounded by water resources, a significant impact to these resources would not occur under the Proposed Action compared to the No Action alternative (see Sections 5.5, Water Quality; 5.6, Wetlands and Waters of the U.S.; and 5.9, Fish, Wildlife, and Plants), so compatible land use impacts resulting from the Proposed Action would not be considered significant.

5.3.2.2 No Action

The No Action alternative does not include any actions that would change the aircraft noise exposure area. Therefore, no significant effects on compatible land use would result from the No Action alternative in 2012.

5.3.3 2017 Impact Potential

5.3.3.1 Proposed Action

As discussed in Section 5.2.3.3, Aircraft Noise Exposure Changes, implementation of the Proposed Action would not result in significant noise exposure impacts in 2017 compared to the No Action alternative. Therefore, it was concluded that the Proposed Action would not result in significant impacts in terms of land use compatibility with aircraft noise. The Proposed Action does not conflict with applicable land use plans or policies. The Authority will seek the FAA approval of revisions to the ALP to reflect the final layout of the elements of the Proposed Action. Additionally, as identified in Section 4.3.8.3, Solid Waste, the nearest landfill is 18 miles from the Airport and would, therefore, not present land use compatibility concerns. Also, as identified in Section 4.4.1, Water Resources, and Section 4.5.1, Fish, Wildlife, and Plants, the Airport is surrounded by water resources; however, a significant impact to these resources would not occur under the Proposed Action compared to the No Action alternative, as also described in later sections. Therefore, compatible land use impacts would not be considered significant in 2017 under the Proposed Action.

5.3.3.2 No Action

The No Action alternative does not include any actions that would change the aircraft noise exposure area. Therefore, no significant effects to compatible land use would result from the No Action alternative in 2017.

5.4 Air Quality

Current air quality in the Airport environs is discussed in Section 4.4.3 of this document and Appendix F provides additional details regarding the air quality analysis. Potential air quality impacts associated with (a) construction of the Proposed Action and (b) changes in airport

operational emissions under the Proposed Action compared to the No Action alternative are discussed in this section.

5.4.1 Methodology

NEPA requires consideration of the relationship of any proposed FAA action to air quality. The primary sources of guidance for NEPA compliance are FAA Orders 1050.1E and 5050.4B, the *Environmental Desk Reference for Airport Actions*,[2] and the *Air Quality Procedures for Civilian Airports and Air Force Bases* (Airport Air Quality Handbook).[3] Typically, an emissions inventory is prepared for each reasonable alternative and the no action alternative. Additional analyses, including dispersion modeling or roadway intersection hot spot analyses, are not typically required if the estimated emissions of each criteria pollutant do not exceed thresholds listed in the general conformity regulations (discussed below). Information presented in the Airport Air Quality Handbook can be used as a guide to determine whether an NAAQS assessment[4] should be performed for a proposed action; however, the nature of the project should also be considered in consultation with state or regional air quality regulatory agencies.

The CAAA require federal agencies to ensure that their actions conform to the appropriate SIP (see Section 4.4.3). Conformity is defined as demonstrating that a project or action conforms to the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS, and achieving expeditious attainment of such standards. Federally funded and approved actions at airports are subject to the U.S. EPA's general conformity regulations. The U.S. EPA has published a final rule regarding general conformity determinations.[5] The final rule includes annual emissions thresholds for nonattainment areas and maintenance areas that trigger the need for a general conformity determination, and defines projects that are typically excluded from general conformity.

A conformity determination is required if one of the following occurs: (a) the total direct and indirect pollutant emissions[6] resulting from a project are above *de minimis*[7] emissions threshold levels specified in the conformity regulations, and/or (b) pollutant emissions from the project would be regionally significant (i.e., the project would contribute 10 percent or more of the region's total emissions for a criteria pollutant). A conformity determination is not required if the differences in emissions between the proposed action and the no action alternative are below the applicable *de minimis* threshold levels. If a conformity determination is required, the regulation identifies the

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2 Federal Aviation Administration, Office of Airports, Office of Airport Planning and Programming, Airports Planning and Environmental Division, APP-400, *Environmental Desk Reference for Airport Actions*, October 2007.

3 Federal Aviation Administration, *Air Quality Procedures for Civilian Airports and Air Force Bases*, Report No. FAA-AEE-97-03, Washington, D.C., April 1997, including the addendum, Report No. FAA-AEE-04-03, September 2004.

4 When a Proposed Action could cause or contribute to an exceedance of the National Ambient Air Quality Standards (NAAQS), pollutant concentrations are estimated for criteria pollutants of interest through air dispersion modeling. The FAA's Emissions and Dispersion Modeling System (EDMS) incorporates algorithms from the U.S. EPA's AERMOD dispersion model.

5 U.S. Environmental Protection Agency, 40 Code of Federal Regulations Part 93 Subpart B, *Determining Conformity of Federal Actions to State or Federal Implementation Plans*, November 30, 1993, as amended.

6 Total direct and indirect emissions are the sum of the emissions increases and decreases associated with a proposed project, or the net change in emissions anticipated to occur as a result of the proposed project (40 CFR §93.152).

7 Emissions are so small as to be negligible or insignificant. If a project/action has *de minimis* emissions, a conformity determination/NAAQS assessment pursuant to the CAAA is not required (40 CFR §93.153c).

approaches for showing that an action/project conforms to the appropriate SIP. Federal *de minimis* standards for nonattainment areas are listed in **Table V-18**.

Table V-18

De Minimis Thresholds

Pollutant	Nonattainment status	Tons per year
PM_{10}	Moderate	100
	Serious	70
$PM_{2.5}$	All Areas	100
CO	All Areas	100
Ozone (VOCs or NO_x)	Serious	50
	Severe	25
	Extreme	10
	Other-outside OTR	100
	Marginal and Moderate inside OTR	VOC: 50; NO_x:100
SO_2 or NO_2	All Areas	100

Note:
OTR = Ozone Transport Region

Source: U.S. Congress, *Clean Air Act*, as amended. Public Law 91-604 and Public Law 101-549.
Prepared by: Ricondo & Associates, Inc., September 2008.

5.4.2 2010 Impact Potential

5.4.2.1 Emissions Inventory

An inventory of criteria pollutant emissions resulting from construction activities was developed for the Proposed Action. Emission sources considered include:

- Diesel-powered Trucks
- Diesel-powered Construction Equipment
- Construction Employee Vehicles (gasoline)
- Land Development
- Asphalt Paving Operations

Construction activities associated with the Proposed Action would be expected to begin in 2009 and to be completed in 2011; however, for purposes of the air quality assessment, it was conservatively assumed that all construction activities would occur in 2010. Construction-related emissions were analyzed using standard industry methodologies and techniques. The specific techniques used to estimate construction-related emissions under the Proposed Action are described in Appendix F.

Construction-related emissions of criteria pollutants in 2010 under the Proposed Action are summarized in **Table V-19**. Also presented in Table V-19 are the net changes in emissions that would result from implementation of the Proposed Action compared with the No Action alternative. The differences in construction-related emissions under the Proposed Action and No Action alternative would be less than significant. The net change in construction-related emissions would be below the *de minimis* thresholds presented in Table V-18. Consistent with FAA guidance, detailed dispersion modeling is not required to assess construction-related air quality impacts associated with

the Proposed Action. Implementation of the Proposed Action would not be expected to cause or contribute to an exceedance of the NAAQS.

Table V-19

2010 Construction Emissions Inventory – Proposed Action (tons per year)

	CO	VOC [a/]	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Proposed Action – Construction Emissions	2.024	2.918	4.195	0.120	2.315	0.168
Net Change in Construction Emissions – Proposed Action vs. No Action	2.024	2.918	4.195	0.120	2.315	0.168

Note:
a/ Following standard industry practice, ozone was evaluated by evaluating emissions of VOC and NO_X, which are precursors in the formation of ozone.

Source: Ricondo & Associates, Inc., 2008, based on the results of the construction emissions analysis documented in Appendix F.
Prepared by: Ricondo & Associates, Inc., November 2008.

5.4.2.2 General Conformity Applicability Analysis

The results of a general conformity applicability analysis performed for the Proposed Action is described below. The Airport is located in Arlington County, which has been designated by the U.S. EPA as being in nonattainment of the fine particulate ($PM_{2.5}$) and 8-hour ozone standards. Arlington County is also designated as an attainment/maintenance area for carbon monoxide. Therefore, the applicable *de minimis* thresholds for general conformity purposes are 100 tons per year of $PM_{2.5}$, VOC[8], NO_X, and CO.

The applicability analysis was based on the emissions inventories presented above. The differences in $PM_{2.5}$, VOC, NO_X, and CO emissions under the Proposed Action and the No Action alternative were computed and compared against applicable *de minimis* thresholds.

Table V-20 presents the net change in construction-related emissions in 2010 resulting from implementation of the Proposed Action and a comparison of those emissions with the *de minimis* thresholds. As presented in Table V-20, the net change in emissions in 2010 would be below established *de minimis* thresholds. In addition, the Proposed Action would not be considered regionally significant (10 percent or more of regional emissions)—project-related emissions in 2010 would represent a minute fraction of total emissions in the region. A general conformity determination is not required for the Proposed Action. No adverse air quality impacts would be expected to result from implementation of the Proposed Action.

[8] Following standard industry practice, the presence of ozone was evaluated by evaluating emissions of VOC and NO_X, which are precursors in the formation of ozone.

Table V-20

2010 General Conformity Applicability Analysis

	Relevant Criteria Pollutant Emissions (tons per year)			
	CO	VOC	NO_X	$PM_{2.5}$
Net Change in Emissions – Proposed Action	2.024	2.918	4.195	0.168
De minimis threshold	100.000	100.000	100.000	100.000
Are emissions below *de minimis threshold*?	Yes	Yes	Yes	Yes

Source: Ricondo & Associates, Inc., 2008, based on the results of the construction emission analyses documented in Appendix F.
Prepared by: Ricondo & Associates, Inc., September 2008.

5.4.3 2012 Impact Potential

The Proposed Action would result in a shift in the location of the Runway 19 threshold, but would not affect the number of operations or the type of aircraft using the Airport in the future. Similarly, the Proposed Action would have a negligible effect on aircraft operating parameters, including runway use and average taxiing times. Although aircraft departing on Runway 1 would taxi 300 feet farther under the Proposed Action compared to the No Action alternative, the effects of any additional taxiing would be offset by the increased efficiency gained by the presence of an expanded Runway 1 Hold Apron under the Proposed Action. Future Airport activity levels and operating patterns would be the same under the Proposed Action and the No Action alternative; therefore, emissions from aircraft, ground support equipment, passenger motor vehicles, and other "operational" sources of emissions were not quantified or evaluated in this EA. Emissions from Airport operational sources are anticipated to increase in the future (generally in proportion to increases in Airport activity), but emissions levels would not be expected to be materially different under the Proposed Action compared to the No Action alternative.

5.4.4 2017 Impact Potential

The Proposed Action would result in a shift in the location of the Runway 19 threshold, but would not affect the number of operations or type of aircraft using the Airport in the future. Similarly, the Proposed Action would have a negligible effect on aircraft operating parameters, including runway use and average taxiing times. Although aircraft departing on Runway 1 would taxi 300 feet farther under the Proposed Action compared to the No Action alternative, the effects of any additional taxiing would be offset by the increased efficiency gained by the presence of an expanded Runway 1 Hold Apron under the Proposed Action. Future Airport activity levels and operating patterns would be the same under the Proposed Action and the No Action alternative; therefore, emissions from aircraft, ground support equipment, passenger motor vehicles, and other "operational" sources of emissions were not quantified or evaluated in this EA. Emissions from Airport operational sources are anticipated to increase in the future (generally in proportion to increases in Airport activity), but emissions levels would not be expected to be materially different under the Proposed Action compared to the No Action alternative.

5.4.5 Summary of Findings

Criteria pollutant emissions, including CO, SO_X, PM_{10}, $PM_{2.5}$, and the ozone precursor pollutants (NO_X and VOC) would be higher in 2010 under the Proposed Action than under the No Action

alternative during the construction period; however, the differences in emissions levels between the Proposed Action and No Action alternative would be less than significant. Construction-related emissions under the Proposed Action would not exceed applicable *de minimis* thresholds and would not be regionally significant. Airport operational emissions (e.g., emissions from aircraft, ground support equipment, and motor vehicles) are anticipated to be the same under the Proposed Action and No Action alternative and any change in emissions resulting from implementation of the Proposed Action would be negligible and less than significant. The Proposed Action would not be expected to cause or contribute to an exceedance of the NAAQS. A general conformity determination is not required for the Proposed Action. Mitigation measures would not be required.

5.5 Water Quality

Water resources and existing water quality are discussed in Section 4.4.1. Potential water quality impacts typically associated with airfield improvement projects include soil erosion and sediment transport, increased storm water runoff, and a decreased groundwater recharge rate. Water quality impacts associated with a proposed project can occur as a result of operational changes and from construction activity related to implementation of the Proposed Action. The potential for water quality impacts associated with the Proposed Action compared to the No Action alternative are presented in this section. The potential impacts on water quality and water resources associated with construction of the Proposed Action are presented in Section 5.15.2 of this EA.

5.5.1 Methodology

The information and data gathered regarding water quality and the locations of water resources were compared to the LOPD to identify potential impacts to any surface or groundwater resources. Aircraft operational procedures associated with the Proposed Action compared to the No Action alternative were also evaluated for any potential impacts to water quality and water resources.

5.5.2 2012 Impact Potential

5.5.2.1 Proposed Action

The Proposed Action is unlikely to have adverse impacts on water quality. The same number of aircraft operations would occur under the Proposed Action and the No Action alternative; therefore, the total amount of any contaminants to be controlled in the runoff from new impervious surfaces would not increase as a result of the Proposed Action.

Non-point source water pollution control measures are discussed in Section 5.15.2.2. In terms of point source water pollution control, the U.S. EPA manages the overall NPDES program and regulates point-source storm water discharges from the Airport into the Potomac River, Roaches Run, and Four Mile Run. All operational activities at the Airport are managed in accordance with the provisions and requirements of the Airport's existing NPDES permit. As part of the NPDES permit, the Authority maintains a Storm Water Pollution Prevention Plan (SWPPP) that includes all major Airport tenants as co-permittees. The proposed additional impervious surface resulting from the Proposed Action would be designed to manage storm water runoff in accordance with the storage and pre- and post-flow requirements of the *Virginia Stormwater Management Handbook*[9] as well as the guidance in FAA AC 150/5320-5C, *Surface Drainage Design* (or current version), and the *Northern*

[9] Virginia Department of Conservation, 1999, http://www.dcr.virginia.gov/soil_&_water/stormwat.shtml (accessed August 28, 2008).

Virginia BMP Handbook.[10] Depending on the ultimate design of the proposed facilities and any subsequent changes to the storm water characteristics or outfalls, a modification to the existing NPDES permit and SWPPP may be required.

5.5.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. There would be no changes to existing storm water management conditions. All potential effects from existing and projected Airport operations would be managed as required by the Airport's existing NPDES permit and SWPPP for the Airport. No changes in impacts to water quality would occur under the No Action alternative.

5.6 Wetlands and Waters of the United States

Wetlands and Waters of the United States, as well as resources regulated by other resource agencies within the affected environment, are discussed in Section 4.5.3 of this document.

5.6.1 Methodology

The locations of these resources were compared to the LOPD for the Proposed Action to identify any potential impacts to wetlands or Waters of the United States.

5.6.2 2012 Impact Potential

5.6.2.1 Proposed Action

No wetlands regulated by the U.S. Army Corps of Engineers, Virginia Department of Environmental Quality, or Virginia Marine Resources Commission are located on Airport land within the LOPD.[11]

The Potomac River is classified as a navigable, tidally influenced Water of the United States. The LOPD associated with the Proposed Action includes the placement of additional piles to support the three relocated approach light bars at the 800-foot, 900-foot, and 1,000-foot positions along the ALSF pier and the placement of approximately 50 piles to repair the ALSF pier. At this time, it is not expected that the piles would involve dredging or the placement of fill into the Potomac River. However, this expectation could change depending on the ultimate construction method selected for the placement of additional piles along the existing ALSF pier for relocation of the approach lights. While driven wooden piles would not require a Section 404 permit from the U.S. ACE, nor a corresponding District of Columbia Water Quality Certification, concrete caisson piles would likely be considered fill, thus requiring a permit. During detailed future design of the Proposed Action, should caissons become the preferred method, the Authority would apply for a Section 404 permit and would abide by the terms of the permit and accompanying water quality certifications. Significant impacts are not expected. Additionally, because the Potomac River is navigable, a Section 10 permit under the Rivers and Harbors Act may be required from the U.S. ACE for relocation of the approach light system.

[10] Northern Virginia Planning District Commission, November 6, 1992, http://www.novaregion.org/index.asp?NID=250 (accessed August 28, 2008).

[11] Theresita Crockett-Augustine, Project Manager, Northern Virginia Regulatory Section, U.S. ACE, Norfolk District, "Northern Virginia Regulatory Section, NAO-2008-02979 (National Airport)," letter to Metropolitan Washington Airports Authority c/o Justin Haynes, Straughan Environmental Services, Inc., October 23, 2008.

5.6.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no impacts to wetlands or Waters of the United States would occur under the No Action alternative.

5.7 Floodplains

Floodplains within the affected environment are discussed in Section 4.4.2 of this document.

5.7.1 Methodology

The information and data regarding the location of floodplains gathered during the inventory of resources were compared to the LOPD to identify potential impacts to the existing floodplains associated with the Proposed Action.

5.7.2 2012 Impact Potential

5.7.2.1 Proposed Action

The Proposed Action would result in grading, stabilization, and the placement of fill (i.e., runway, taxiway, hold apron, the new ductbank for the relocated electrical vault, and access road pavement) within portions of the 100-year floodplain of the Potomac River near the south end of Runway 1-19. Considering the tidal influence and vast expanse of the Potomac River in this area and the location of the proposed improvements relative to Four Mile Run (see Exhibit IV-7), the Proposed Action would not increase the 100-year flood elevation nor would it present any barriers to floodflow passage. Due to the large storage capacity of this unconstrained tidal floodplain and the +/- 3 foot tidal range of the Potomac River, the proposed amount of fill would have negligible, if not indiscernible, impacts to the lateral extent, depth, or duration of flooding, and would not increase the flood risk at the Airport or on adjacent properties upstream or downstream of the Airport.

Moreover, as there are already a significant amount of facilities within the floodplain, the theoretical 100-year storm could force operations to be altered or facilities to be closed even under existing conditions. The Proposed Action would therefore not increase flood risk at the Airport or on adjacent properties upstream or downstream of the Airport. Considering the manmade nature of the airport peninsula, the existing development and maintained land uses, and the airfield's stormwater management system, the floodplain within the LOPD does not have substantial natural or beneficial values (i.e., carry and store floodwaters; sustain agriculture, aquaculture, or aquatic or terrestrial organisms; provide for groundwater recharge; provide recreation opportunities; or maintain water quality), thereby minimizing any potential environmental effect of the Proposed Action.

Executive Order 11988, Floodplain Management, requires that alternatives be considered to avoid floodplain impacts. Because the southern end of the Airport and much of the airfield is located within the 100-year floodplain, there is no operationally practical alternative location for the placement of the proposed facilities that would have less impact on the floodplain. To locate the hold apron and taxiway outside of the floodplain would result in either shortening the runways, incurring additional runway crossings and longer taxi times, or loss of terminal apron space. While most of the Proposed Action would be developed within the 100-year floodplain, the creation of this manmade peninsula was intended to support airport facilities and operations as evidenced by the several existing facilities that are also within these floodplain limits.

FAA design criteria dictates specific geometries for runways, taxiways, and hold aprons, including allowable pavement profiles and cross slopes. The Proposed Action would be designed in accordance with these criteria. For aircraft safety and system preservation, the pavement elevations and storm water management systems would be designed to keep the pavement free of standing water for the design storm specified in FAA AC 150/5320-5C, "Surface Drainage Design." As stated in Section 4.2.2, the Airport is not subject to Arlington County floodplain regulations; therefore, there would be no local floodplain requirements. Conversations with the Virginia Department of Conservation and Recreation also indicated that there would be no Commonwealth floodplain permitting requirements due to the tidal nature of the Potomac River at the Airport.[12] The Proposed Action would be designed to conform to all state and local stormwater management guidelines and best management practices.

In summary, while elements of the Proposed Action would occur within the floodplain, the Proposed Action would not result in a new or increased threat to health, human life, or the airport facilities, including NAVAIDS. According to FAA Order 1050.1E, a floodplain impact is significant if it "results in notable adverse impacts on natural and beneficial floodplain values." The effects of the Proposed Action would not trigger a significant impact to the 100-year floodplain under NEPA.

5.7.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no impacts to floodplains would occur under the No Action alternative.

5.8 Coastal Resources

The coastal resources within the affected environment are discussed in Section 4.5.4 of this document, which states that no coastal barrier resources exist within the vicinity of the Proposed Action.

5.8.1 Methodology

The information and data regarding the locations of coastal resources gathered from the various resource management agencies were mapped and compared with the LOPD for the Proposed Action to identify potential impacts to any coastal resources.

5.8.2 2012 Impact Potential

5.8.2.1 Proposed Action

Pending a Virginia Coastal Resources Management Program consistency determination from the VDEQ, it is reasonable to conclude that there would be no impacts to coastal resources resulting from the Proposed Action so long as (a) the Proposed Action is designed and constructed in accordance with the applicable local, state, and federal guidelines described throughout this document; (b) all construction pollution prevention measures are employed; and (c) any corresponding storm water permits and pollution prevention plans are updated accordingly. The following describes the resources governed under the nine enforceable programs of the VCP and the rationale for this conclusion. At this time, the District of Columbia does not have a commensurate coastal zone management program.

[12] David Gunn, P.E., Virginia Department of Conservation and Recreation, Telephone conversation with Kevin Clarke, September 2008.

Fisheries Management

The LOPD for the Proposed Action is predominantly within the Airport boundary and on land. The associated relocation of portions of the existing approach light system would take place along the existing ALSF pier in the District of Columbia section of the Potomac River south of Runway 1. Recreational fishing in the Potomac River would not be affected by the relocation of the approach light system. In July 2008, the NMFS indicated that the Proposed Action would not affect aquatic resources in the Potomac River under its jurisdiction.[13] The NMFS stated that the current plan for relocation of the approach lights would minimize any potential shading impacts to waters beneath the ALSF pier, including SAV that may grow there. The NMFS also indicated that no Essential Fish Habitat is located in the vicinity of the Airport, referring to those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity.[14] There are no commercial fishery activities near the Airport. The Authority helps manage water quality in the waters surrounding the Airport through storm water management and pollution prevention programs, including maintenance of the NPDES permit for the Airport (see also Section 5.5, Water Quality). The Proposed Action would not affect the fishery resources in the Potomac River.

Subaqueous Lands Management

There are no Commonwealth-owned river bottomlands within the LOPD. Managed by the VMRC, this program does, however, provide VMRC with the ability to exert regulatory authority over any structures built in the Potomac River appurtenant to the shore of the Commonwealth. The relocation of portions of the approach light system and the repairs to the ALSF pier, while placing additional piles into the river bottom, would not have any adverse effect on fishery resources, tidal wetlands, adjacent properties, or water quality.

Wetlands Management

The potential impacts to wetlands and Waters of the United States are discussed in Section 5.6 of this document.

Dunes Management

There are no primary dunes within or near the LOPD, which is supported by the fact that Arlington County is not covered by Virginia's Coastal Primary Sand Dune Act. The Proposed Action would not impact jurisdictional dune resources.

Non-Point-Source Water Pollution Control

The potential impacts in this category are discussed in Section 5.5 and Section 5.15 of this document.

Point-Source Water Pollution Control

The potential impacts in this category are discussed in Section 5.5 and Section 5.15 of this document.

[13] John Nichols, NOAA-NMFS, "Reagan National Airport, Runway 1-19 improvements," e-mail to Environmental Comments (Metropolitan Washington Airports Authority), July 28, 2008.

[14] John Nichols, NOAA-NMFS, telephone conversation with Rob Savidge, Straughan Environmental Services, Inc., August 1, 2006.

Shoreline Sanitation

There are no septic tanks in the vicinity of the Proposed Action, and the Proposed Action would not include the installation of any new or relocated septic tanks.

Air Pollution Control

The Proposed Action would not create a new point source of air pollutant emissions or modify an existing point source. Potential air quality impacts are discussed in Section 5.4 and Section 5.15 of this document.

Coastal Lands Management

As described in Section 4.5.4, under the Chesapeake Bay Preservation Act and the Arlington County Chesapeake Bay Preservation Ordinance, all of Arlington County is classified as a Resource Management Area. Portions of Airport property lie within 100 feet of the mean high water mark of the Potomac River and would, by definition, be considered to be within a Resource Protection Area. No area within the LOPD lies within the Resource Protection Area. Considering that the Airport is constructed on a manmade peninsula, specifically developed for airport use, and that the proposed improvements would be designed and constructed in accordance with the general performance standards of the Chesapeake Bay Preservation Act, as well as the Arlington County implementing ordinances, the Proposed Action would be consistent with the VCP and would have no impact on coastal lands.

5.8.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. All potential effects from existing and future Airport operations would be managed as required by the Airport's existing NPDES permit and SWPPP. Therefore, no impacts to coastal resources would occur as a result of the No Action alternative.

5.9 Fish, Wildlife, and Plants

The existing habitats for fish, wildlife, and plants within the affected environment are discussed in Section 4.5.1.

5.9.1 Methodology

The information gathered during the inventory of resources and through consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the District of Columbia Department of the Environment's Fisheries and Wildlife Division regarding the occurrence of plant and animal species and associated habitat was compared to the LOPD to identify any potential impacts to fish, wildlife, and plant species and their associated habitats.

5.9.2 2012 Impact Potential

5.9.2.1 Proposed Action

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 would possibly use the habitats within and or near the LOPD, no rare, threatened, or endangered species; species of concern; or Species of Greatest Conservation Need would be affected by the Proposed Action. There would be no taking or relocation of species. There would be no loss of critical terrestrial or aquatic habitat. Any change in

aircraft approach and departure profiles (i.e., the aircraft's height above ground) for operations on Runway 1-19 associated with the Proposed Action would be negligible and would not affect the use of off-Airport habitat resources (including Roaches Run Waterfowl Sanctuary) by species known to exist or visit the area. In fact, for northerly departures, aircraft would be slightly higher over the sanctuary under the Proposed Action than under the No Action alternative. Roaches Run Waterfowl Sanctuary would not be affected by the Proposed Action.

As described in Section 5.5, the Proposed Action would not affect water quality and all storm water management controls would be designed and implemented in accordance with state and local regulations for controlling pollution. Any associated updates to the Authority's NPDES permit would require a certification of compliance with the District's water quality regulations from the District of Columbia Department of the Environment.

Installation of additional piles in the Potomac River for relocation of the approach light bars and repairs to the ALSF pier has the potential to temporarily result in increased turbidity. Mitigation measures would be implemented in accordance with any required permit conditions and District of Columbia Water Quality Certification requirements. Considering the fluctuating locations and levels of SAV within the Potomac River, it is possible that SAV may be present near the existing ALSF pier at the time of construction. As stated previously, the NMFS indicated that the relocated approach light structures would minimize any potential shading impacts to waters beneath the ALSF pier, including SAV that may grow there.[15]

5.9.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no species or habitats would be lost or relocated. Impacts to fish, wildlife, or plants and their associated habitats would not occur.

5.10 Light Emissions and Visual Impacts

Existing light emissions and visual impacts within the affected environment are discussed in Section 4.3.7 of this document.

5.10.1 Methodology

The potential effects of relocating the Runway 1 approach lighting system on residential areas or nearby light-sensitive sites were evaluated for the Proposed Action and the No Action alternative. The sites potentially sensitive to light emissions are identified on **Exhibit V-7.**

According to the FAA's *Environmental Desk Reference for Airport Actions,* evaluation of the effects of light emissions should include consideration of whether or not an action's light emissions would create annoyance to or interfere with normal activities. In evaluating visual impacts, consultation with federal, state, or local agencies, tribes, or the public should also be considered to determine if the effects of an action contrasted with the existing environment would be objectionable.

Because the runway approach lighting system consists of a series of lights extending 2,400 feet beyond the Runway 1 end, the light nearest the light-sensitive facility or viewshed being evaluated was considered, along with the orientation of light emissions and whether the facilities are in a high-light or low-light environment. Additionally, the impact of structural facilities on area viewsheds was reviewed.

[15] John Nichols, NOAA NFMS, telephone conversation with Rob Savidge, Straughan Environmental Services, Inc., August 1, 2006.

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Sources: Aerials Express, 2007 (Aerial); Ricondo & Associates, Inc., September 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

Exhibit V-7

0 1,800 ft.

north

Potential Light Sensitive Areas South of the Airport

Drawing: Z:\MWAA\DCA\RSA EAs\Task 1-RW 1-19\1.2 PDEA Number 1\AutoCAD Files\Exhibit V-7 Potential Light Sensitive Areas South of the Airport.dwg Layout: 8.5 x 11L_Mar 05, 2009, 4:36pm

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5.10.2 2012 Impact Potential

5.10.2.1 Proposed Action

Implementation of the Proposed Action would include the relocation of the existing Runway 1 approach lighting system 300 feet to the south.

The ALSF-2 lights are oriented skyward and south, down the extended runway centerline and the Potomac River. Currently, all centerline and side row bars up to and including the 1,000-foot bar are located on Airport land, while the centerline bars and flashers located from 1,100 feet to 2,400 feet beyond the runway end are located on the ALSF pier structure extending into the Potomac River.

The relocated ALSF-2 would result in the centerline and side row bars currently at positions from 800 to 1,000 feet being moved from their current positions on land to positions on the ALSF pier structure (requiring additional piles to support the side row bars). At the end of the ALSF-2, the centerline bars and flashers would be located at three positions (at 100-foot intervals) farther south than their existing location along the FAA's existing ALSF pier structure. The ALSF-2 lights are oriented skyward and south, down the extended runway centerline and the Potomac River.

The new piles to support the approach light platforms would be positioned within 300 feet of Airport land and would result in minor structural changes to the ALSF pier, but would not be anticipated to affect any viewsheds in the vicinity of the south end of the Airport.

The repairs to the ALSF pier would involve the placement of approximately 50 piles in 25 locations where piles currently exist. The number and locations of the new piles will be determined during the final design of the repairs. The new piles used to repair the ALSF pier would be installed adjacent to existing piles and would not be anticipated to affect any viewsheds in the vicinity of the south end of the Airport.

Shifting the ALSF-2 in a southerly direction would alter the extent of light emissions within the viewsheds of facilities located south of the Airport, in particular, the GWMP and parallel Mount Vernon Trail as well as the Washington Sailing Marina and Indigo Landing Restaurant on Daingerfield Island. Other GWMP sites and the Monumental Core of the nation's capital are located north of the Airport and visitors would not be expected to be able to distinguish the distant shift of the approach light system, because the shift would be in the direction away from these facilities. Further, the high-light environment of the airfield lies between the proposed relocated ALSF-2 and the facilities potentially sensitive to light north of the Airport.

The views toward the Potomac River from both the Mount Vernon Trail (and parallel GWMP) and the north end of Daingerfield Island (representing the Washington Sailing Marina and Indigo Landing Restaurant) include the existing ALSF pier structure (unchanged with the Proposed Action) and across the Potomac River toward Bolling Air Force Base. Exhibit V-7 illustrates the locations of these two facilities ("A" illustrating a representative location along the trail and parallel GWMP and "B" illustrating a representative location between the Indigo Landing Restaurant and the Washington Sailing Marina on Daingerfield Island). Views from these facilities currently include light emissions from the Runway 1 approach lighting system as well as light emissions from the adjacent airfield. The Airport is within an urban environment with high ambient light emissions. Shifting the approach lighting system 300 feet to the south would not be expected to affect these viewsheds and would not be anticipated to distract from the current use of these areas south of the Airport. Furthermore:

- The viewshed from the Mount Vernon Trail toward the Potomac River includes a side view of the existing ALSF pier structure supporting the Runway 1 approach lighting system. The distance from the closest point along the trail to the approach lighting system is more than 2,500 feet. Because the lights are oriented parallel to the trail, relocating the ALSF-2 would not move lights closer to the trail, but emissions from these light sources would span a slightly greater portion of the view across the Potomac River and toward Bolling Air Force Base than they currently do. The ALSF-2 lights are oriented skyward and south, down the extended runway centerline and the Potomac River and would not be positioned to shine directly toward the trail. Modifications to the ALSF pier structure (extra piles adjacent to Airport land or adjacent to existing piles at approximately 25 other locations along the ALSF pier) would not change the expanse of the ALSF pier viewed from this location.
- The closest (southernmost) light on the ALSF pier structure would be 120 feet closer to the Indigo Landing Restaurant (adjacent to the Washington Sailing Marina), from 1,932 feet distant to 1,812 feet distant. Because the ALSF-2 lights are oriented skyward and south, down the extended runway centerline and the Potomac River, the restaurant and the marina would not likely experience a notable change in light emissions. As noted above, the light emissions from the relocated ALSF-2 lights as viewed from the Daingerfield Island facilities would span a slightly greater portion of the views from the Island across the Potomac River toward Bolling Air Force Base. Modifications to the ALSF pier structure (extra piles adjacent to the Airport land or adjacent to existing piles at approximately 25 other locations along the ALSF pier) would not change the expanse of the ALSF pier viewed from this location.

No visual effects to the District-area viewshed, including the Monumental Core, would be anticipated as a result of implementation of the Proposed Action. Most of the related improvements included in the Proposed Action (i.e., runway pavement extension, taxiway extension, rerouted service road, hold apron expansion, and new ductbank for the relocated vault) are at-grade improvements and would not result in any changes to the viewshed. The relocated electrical vault is an aboveground structure; however, its tentative site is in the immediate vicinity of the Airport Beacon, four aboveground fuel tanks, and several buildings. Therefore, the relocated electrical vault is not expected to affect the area viewshed. The relocated glide slope is an above-grade antenna that is not expected to affect the area viewshed.

With the proposed improvements in place, operation of the airfield with the relocated Runway 1 end would cause aircraft to wait for departure at a slightly different point on the airfield than under current operating conditions. However, departing aircraft are located at the runway end temporarily and would not be considered to negatively affect the views from surrounding facilities.

5.10.2.2 No Action

No changes in approach lights or other facilities would occur under the No Action alternative. Therefore, no light emissions or visual impacts would occur under the No Action alternative.

5.11 Department of Transportation Act, Section 4(f) and 6(f) Lands

The DOT Section 4(f) lands within the affected environment are discussed in Section 4.3.4 of this document.

5.11.1 Methodology

The information gathered during the inventory of resources, and information from the NPS, was mapped and compared with the LOPD for the Proposed Action to identify potential impacts to any Section 4(f) or 6(f) lands. Aircraft operational changes associated with the Proposed Action were also evaluated for any potential off-Airport effects.

5.11.2 2012 Impact Potential

5.11.2.1 Proposed Action

The Airport is bordered to the north and west by publicly owned parks, recreation areas, and a wildlife/waterfowl refuge. Public lands are also located east of the Airport, across the Potomac River. Public lands near the Airport include the GWMP, Gravelly Point, Roaches Run Waterfowl Sanctuary, Mount Vernon Trail, Daingerfield Island, and East Potomac Park. None of these public lands was purchased with Section 6(f) Land and Water Conservation program funds. There are no national forests, wilderness areas, or wild and scenic rivers on or adjacent to the Airport. As described below, the Proposed Action would have no effect on Section 4(f) or 6(f) lands.

The LOPD is on Airport property, including the relocated approach light bars that would be installed in the Potomac River, within 300 feet of the shoreline. As described in Section 4.3.5, no historic, archaeological, architectural, or cultural resources are located within the LOPD. There would be no physical use of Section 4(f) or 6(f) lands as a result of the Proposed Action.

The Proposed Action would not result in increased aircraft activity. Any change in aircraft approach and departure profiles (i.e., the aircraft's height above the ground) for operations on Runway 1-19 associated with the 300-foot relocation of the Runway 1 threshold to the south would be negligible and would not affect the use or operation of any publicly owned resources north or south of the Airport, including Roaches Run Waterfowl Sanctuary and Daingerfield Island. Northerly departures would be slightly higher over the Roaches Run Wildlife Sanctuary and Gravelly Point as a result of the Proposed Action. Relocation of the approach light bars would not alter the operation of the Washington Sailing Marina because the relocated light bars at the south end of the approach lighting system would be positioned on an existing ALSF pier structure and the additional ALSF pier structure needed to support the 800-, 900-, and 1,000-foot light bars would be located adjacent to the existing ALSF pier and close to the Airport's shoreline. Potential visual effects to users of the Mount Vernon Trail associated with relocation of the light bars would likely be unnoticeable. There would be no constructive use of Section 4(f) or 6(f) lands as a result of the Proposed Action.

5.11.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no impacts to Section 4(f) or 6(f) lands would occur under the No Action alternative.

5.12 Historic, Archaeological, Architectural, and Cultural Resources

As described in Section 4.3.5, several federal and state programs document and strive to preserve resources deemed important to the historic context of localities, states, regions, or the nation. As the nation's capital, the Washington, D.C., metropolitan area contains many such resources, including several on and near the Airport.

5.12.1 Methodology

The locations of documented historic, archaeological, architectural, and cultural resources were compared with the LOPD to identify any potential effects to those resources. The District of Columbia Historic Preservation Office (DCHPO) and the Virginia Department of Historic Resources were contacted to identify any potential agency concerns relevant to the Proposed Action.

5.12.2 2012 Impact Potential

5.12.2.1 Proposed Action

On-Airport historic resources consist of structures and an archaeological site within the terminal and hangar areas. The nearest off-Airport historic resource is the GWMP. These resources are well beyond the LOPD for the Proposed Action. On-Airport historic architectural resources would not be adversely affected by the Proposed Action, in part because they are aviation-related and are part of the historic context and environmental setting of the Airport. Considering that the peninsula on which the airfield was constructed is predominantly manmade, and the landside facilities are heavily developed, there is very little potential for any as yet unknown resources to be affected. As a result of early interagency project scoping activities, the DCHPO concluded that "…this undertaking will have no 'adverse effect' on historic properties and. . .no further review or comment from the DCHPO will be necessary."[16] VDHR and the Authority have agreed to use the NEPA process to fulfill the requirements of the 1987 *Programmatic Memorandum of Agreement among the United States Department of Transportation (USDOT), the Virginia State Historic Preservation Officer (VASHPO), and the Advisory Council on Historic Preservation (ACHP)*, regarding Section 106 of the NHPA. The Draft EA, which includes detailed information on historic properties in the vicinity of the Cumulative Impact Actions (see Section 5.18, Cumulative Impacts), was provided to the VDHR for comment. The 300-foot runway extension and relocation of the approach light bars are consistent with development and land use of the Airport and would have no adverse visual effects on any nearby resources, including the GWMP (see Section 5.10). According to the aircraft noise analysis (see Section 5.2), aircraft noise levels are not expected to change significantly as a result of the Proposed Action; therefore, the eligible National Register of Historic Places sites identified on Exhibit IV-4 would not be significantly affected by aircraft noise. VDHR concurs in the Authority's Determination of No Historic Properties Affected

5.12.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no impacts to historic, archaeological, architectural, or cultural resources would occur under the No Action alternative.

5.13 Natural Resources and Energy Supply

5.13.1 Methodology

The Proposed Action and the No Action alternative were reviewed for their potential to place large demands on local existing or planned utilities, their need to use scarce or rare materials in

[16] C. Andrew Lewis, D.C. State Historic Preservation Office, letter to Charles Baummer, Metropolitan Washington Airports Authority, August 5, 2008.

construction, their potential to result in increased aircraft fuel consumption, and their potential to affect local or regional smart growth[17] requirements.

5.13.2 2012 Impact Potential

5.13.2.1 Proposed Action

The Proposed Action is not anticipated to require the use of scarce or rare materials for construction. Materials to be used for the major project elements generally include asphalt and concrete for relocated or extended portions of pavement, which are assumed to be readily available.

The Runway 1 end would be located 300 feet farther from the terminal area under the Proposed Action, which would extend the taxiing distance of aircraft departing from Runway 1. This increased distance is not expected to be significant, especially considering that aircraft landing on Runway 1 may exit the runway at an earlier point with the relocated Runway 1 landing threshold, potentially reducing the total taxiing distance from the runway to the terminal area. In addition, expansion of the Runway 1 Hold Apron would enhance efficiency and reduce the need for aircraft to wait at the runway end for takeoff. Therefore, increases in aircraft fuel consumption are not anticipated.

Because the Proposed Action would not affect off-Airport development, would not result in significant changes in noise exposure on noise-sensitive facilities, and would not cause a change in the number of aircraft operations at the Airport, the Proposed Action would not be expected to affect local or regional smart growth plans.

The Proposed Action would result in a minor increase in electricity consumption to support airfield lighting system components along the extended portions of the Runway 1 and Taxiway J pavement. These runway and taxiway edge lights are evenly spaced and line each side of the runway and taxiway. Under the Proposed Action, an additional 300 feet of runway and taxiway edge lighting would be provided along the sides of Runway 1 and Taxiway J. The Runway 1 approach lighting system would be shifted 300 feet south under the Proposed Action, but would not include the addition of new lights. The increased area of the Runway 1 Hold Apron would require some additional lighting. Given that the airfield is a well-lit environment, the addition of lights to support the extended pavement areas would not be expected to affect the ability of local utilities to supply electricity.

5.13.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. The No Action alternative would not change the noise environment, change the number of aircraft operations, or affect development patterns in other ways; therefore, the No Action alternative would not affect local or regional smart growth plans. No impacts on natural resources or energy supply would result from the No Action alternative.

5.14 Hazardous Materials, Pollution Prevention, and Solid Waste

The presence of hazardous materials and disposal of solid waste within the affected environment are discussed in Sections 4.3.8 and 4.4.4 of this document.

[17] The smart growth movement promotes infrastructure investment and redevelopment of city centers to address economic and environmental concerns regarding urban sprawl development patterns. See www.smartgrowth.org for additional information on the smart growth movement.

5.14.1 Methodology

The information on known hazardous material sites at the Airport, as described in Section 4.4.4, was compared to the LOPD for the Proposed Action to identify the potential of known contaminants to be disturbed and dispersed further into the environment.

5.14.2 2012 Impact Potential

5.14.2.1 Proposed Action

The Proposed Action would not require an increase in the use or storage of any hazardous materials. Similarly, operation of the Proposed Action improvements would not generate incremental solid waste. The potential hazardous materials and solid waste impacts associated with construction of the Proposed Action are discussed in Section 5.15.4.

The fill material used to construct Airport property south of Levee Road is known to have contained hazardous substances and includes the CERCLIS site identified in Section 4.4.4.3. The FAA is investigating this area, known as the South Investigation Site (SIS), to characterize the nature and extent of contamination and to determine if further remedial action is warranted. 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 within 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.

5.14.2.2 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. The FAA would continue to coordinate with the U.S. EPA and the Authority regarding its investigation of the SIS. No impacts associated with hazardous materials and solid waste would occur under the No Action alternative.

5.15 Construction Impacts

5.15.1 Air Quality

The air quality assessment conducted for this EA is intended to show any differences in criteria pollutant emissions that would result from implementation of the Proposed Action compared to the No Action alternative. Potential effects on air quality associated with the proposed action and the reasonable alternatives must be analyzed for compliance with NEPA and the CAA, as amended by the CAAA.

5.15.1.1 Methodology

The methodology used in the air quality assessment is described in Section 5.4.1. The specific techniques used to estimate construction-related emissions related to the Proposed Action are described in Appendix F.

5.15.1.2 Proposed Action

Construction-related emissions of criteria pollutants in 2010 under the Proposed Action are summarized in Table V-19.

Criteria pollutant emissions, including CO, SO_X, PM_{10}, $PM_{2.5}$, and the ozone precursor pollutants (NO_X and VOC) would be higher in 2010 under the Proposed Action than under the No Action alternative during the construction period; however, the differences in emissions levels between the Proposed Action and No Action alternative would be less than significant.

5.15.1.3 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no impacts to air quality would occur under the No Action alternative.

5.15.2 Water Resources

5.15.2.1 Methodology

The conceptual design and construction procedures for the Proposed Action were evaluated relative to the location of water resources and governing regulations to identify potential construction-related impacts.

5.15.2.2 Construction Year (2010) Impact Potential

During construction, the Proposed Action would have the potential to temporarily affect localized water quality conditions due to soil erosion, storm water runoff, and disturbance of Potomac River bottom sediments. Potential adverse impacts include increased suspended sediment in the water column and resuspension and redeposition of contaminants. These temporary effects would be localized to the immediate vicinity of pile driving. Because of the volume, current, and tidal action of the Potomac River, any increase in suspended sediment would be expected to dissipate shortly after completion of the sediment-disturbing activity. Similarly, any contaminants released to the water column as a result of sediment disturbance would be expected to dissipate rapidly and would not be expected to result in any long-term impacts to water quality. It should be noted that similar sediment disturbance in the area of the LOPD would likely occur during storm water flow events from both the Airport and Four Mile Run.

The VDCR administers Virginia's Erosion and Sediment Control Law. The Authority's design and construction program requires any project that involves excavation, landfilling, or soil disturbance to include erosion and sediment control measures in accordance with that law and the latest version of the *Virginia Erosion and Sediment Control Handbook*.[18] Individuals who administer the Authority's program are certified by VDCR as Combined Program Administrators. Under this program, individual erosion and sediment control plans approved by the Authority's Building Codes/Environmental Department are required for each separate construction project. All construction plans and contracts would be prepared in accordance with FAA AC 150/5370-10C, *Standards for Specifying Construction of Airports*, which includes requirements for temporary air and water pollution, soil erosion, and siltation control. All necessary erosion and sediment control measures would be implemented prior to beginning each element of construction. In accordance with the Airport's NPDES permit, any construction related storm water discharges into the Potomac River would require a Notice of Intent (NOI) to be filed with the U.S. EPA.

Although the Proposed Action would include approximately 650,000 square feet of soil-disturbing activities and the placement of approximately 471,000 square feet of additional pavement, the

[18] Virginia Department of Conservation, 1992, http://www.dcr.virginia.gov/soil_&_water/e&s-ftp.shtml (accessed August 28, 2008).

improvements would be designed and constructed so as to reduce soil erosion and decrease potential inputs of chemical nutrients and sediments to the adjacent receiving waters (i.e., the Potomac River and Roaches Run) and, ultimately, the Chesapeake Bay. Installation of additional piles along the existing ALSF pier in the Potomac River (to accommodate the relocated approach light bars and repairs to the ALSF pier) has the potential to result in sediment and dissolved constituent release and a localized temporary increase in turbidity.

During installation of the piles (to accommodate the relocated approach light bars and repairs to the ALSF pier), recreational use of the Potomac River near the existing ALSF pier could be temporarily affected due to the construction work zone. Depending on the method of construction, a barge may need to be temporarily placed near the ALSF pier for installation of the piles. Early coordination with the Washington Sailing Marina and the NPS (relative to potential, temporary Section 4(f) impacts) would be pursued to promote safety and maintain access to the marina.

With the closest groundwater recharge area located west of I-395, near Arlington National Cemetery, the Proposed Action would have no adverse effect on groundwater resources.

5.15.2.3 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. Therefore, no impacts to water quality and water resources would occur under the No Action alternative.

5.15.3 Fish, Wildlife, and Plants

5.15.3.1 Methodology

The conceptual design and construction procedures were evaluated relative to the location of various habitats within or near the LOPD of the Proposed Action and any species known to use them.

5.15.3.2 Construction Year (2010) Impact Potential

As a result of the existing operational use of Airport property, and the transient nature of any species that would use the habitats within or near the LOPD, construction activities would present only a temporary disruption of any wildlife activities. During in-water construction, potential impacts to fish and macroinvertebrates from increases in suspended sediment and noise associated with the pile driving would also be localized and temporary in nature. Fish and mobile macroinvertebrates would temporarily avoid the area where bottom disturbing activities are occurring and similar suitable alternative habitats are available. Due to the hydrodynamic environment near the Airport, contaminants within the disturbed sediments are expected to rapidly dissipate and redeposit and not result in any long-term adverse impacts to benthic macroinvertebrates or bottom fish.

If any SAV were present within the LOPD associated with the approach light relocation, construction activities could result in localized plant damage. Because of the wide annual fluctuation of SAV locations and densities, it is impossible to predict at this time whether any construction-related impacts would occur. However, if they were to occur, they would be localized to the near-shore section of the existing ALSF pier. As described in Section 4.5.1, the design of the relocated approach light structures would minimize any potential shading impacts to waters beneath the ALSF pier, including SAV that may grow there; therefore, the site would still be capable of supporting future SAV growth.

5.15.3.3 No Action

No construction activities would occur under the No Action alternative. Therefore, no construction-related impacts would occur under the No Action alternative.

5.15.4 Hazardous Materials and Solid Waste

5.15.4.1 Methodology

The information on known hazardous material sites at the Airport, as described in Section 4.4.4, was compared to the LOPD for the Proposed Action to identify the potential for known contaminants to be disturbed and dispersed further into the environment. Additionally, conceptual construction strategies were evaluated for their potential to generate solid waste.

5.15.4.2 Construction Year (2010) Impact Potential

Construction of the southern section of the additional Runway 1 pavement, most of the Runway 1 blast pad, the southern sections of new taxiway and hold apron pavement, a portion of the new ductbank to the relocated electrical vault, nearly all of the access road relocation and any grading and stabilization associated with the Proposed Action would take place within or immediately adjacent to the SIS (refer to Section 4.4.4 and Exhibit IV-9) and has the potential to disturb the hazardous materials, if any, currently existing at the SIS.

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 within the SIS would be disposed of off-Airport, and would be tested prior to disposal. Any material found to be hazardous waste would be transported and disposed of in accordance with federal and state requirements including, but not limited to 40 CFR parts 260-280 (management of hazardous waste) and 49 CFR parts 171-199 (transportation of hazardous waste). In-water construction would be conducted in accordance with permit conditions. Under these conditions, any hazardous material located within the SIS would not affect the construction phasing of the Proposed Action. The Authority has considered pollution prevention and control as required by Executive Order 12088, *Federal Compliance with Pollution Control Standards.* Specific FAA Advisory Circulars and other guidance pertainng to pollution prevention and control are included in Section VI of this EA. (See the discussion regarding the South Investigation Site in Section 5.18.2.13).

The potential for increased water pollution would be controlled through storm water system design; compliance with federal, state, and local requirements; and the application of engineering best management practices. A Virginia Pollutant Discharge Elimination System General Permit for Construction Activities would be required. The NPDES operating permit for the Airport, as well as the SWPPP and Spill Containment and Countermeasures Plan would be updated as needed to reflect the new facilities. A certification of compliance that the Proposed Action is in accordance with the District's water quality standards would also be required from the District of Columbia Water Quality Division.

During construction, petroleum products would be used to power and lubricate the construction equipment. FAA AC 150/5370-10C requires that the contractor shall "…take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter." In support of this, the Advisory Circular also contains contract provisions for construction controls to prevent air and water pollution.

As described in Section 4.4.1, sediment sampling indicates that some contaminants exist in portions of the LOPD within the Potomac River. Therefore, any dredging or pile-driving activities in the Potomac River near the Airport would have the potential to release pollutants that may be trapped in the sediment for transport downstream. Arsenic, lead, and low levels of other contaminants were identified in the sediment samples. At this time, the Proposed Action is not anticipated to require any dredging.

The millings resulting from the resurfacing of Runway 1-19 would be disposed of or used off site at a state-permitted solid waste disposal facility.

At the time this EA was released, the plans for resolving the SIS were still being developed. Specific permits will be identified in the course of finalizing those plans. At this time, it is unlikely that the construction of the Runway 1-19 RSA and the rest of the Proposed Action will require the use of recycled or recyclable products within the SIS. Solid waste storage, transport, and disposal are discussed in Section 5.14.

Construction of the Proposed Action, which is the only practicable alternative, will involve construction within the SIS. However, adequate controls would be implemented to ensure the existing hazardous materials within the SIS will be managed, transported, and disposed of in accordance with applicable federal and state laws and regulations. In addition, adequate controls would be established to prevent new hazardous materials pollution during the construction of the Proposed Action. Remediation of any existing contamination located within the SIS is not included in this EA; such remediation would be required regardless of whether the Proposed Action is constructed or not.

A review of the EPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) confirmed that the SIS is not on the EPA's National Priorities List. No other CERCLIS Sites exist within the LOPD.

Consultation among the FAA, the Authority, and the EPA relative to the SIS are ongoing. At this time, a formal agreement has not been reached. If a formal agreement is reached prior to the publication of the Final EA, the agreement will be included in the Final EA or incorporated by reference, as appropriate.

In the event previously unknown contaminants are discovered during construction, or a spill occurs during construction, the Authority would direct the contractor to stop work until the National Response Center (NRC) is notified.

5.15.4.3 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. The FAA would continue to coordinate with the U.S. EPA and the Authority regarding the investigation of the South Investigation Site. No construction-related impacts associated with hazardous materials would occur under the No Action alternative.

5.15.5 Construction Noise

5.15.5.1 Methodology

Increased noise from construction of the Proposed Action was evaluated relative to the distance of noise-sensitive land uses from the vicinity of the construction areas and the existing background noise level.

5.15.5.2 Construction Year (2010) Impact Potential

Increased noise from construction vehicles and the installation of the piles to relocate the approach light platforms and repair the ALSF pier is expected as a result of the Proposed Action. The Authority could use vibratory or ultrasound pile driving if noise is an issue. Distance would rapidly attenuate noise levels and there is an absence of noise-sensitive land uses in the vicinity of the construction areas. The noise impacts would be temporary and insignificant.

5.15.5.3 No Action

None of the improvements included in the Proposed Action would be constructed under the No Action alternative. No construction-related noise impacts would occur under the No Action alternative.

5.16 Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks

The evaluation of whether or not a proposed action results in social impacts includes consideration of the action's effects on health and safety risks to children, as well as socioeconomic impacts, such as moving homes or businesses, dividing or disrupting established communities, changing surface transportation patterns, disrupting orderly or planned development, or creating a notable change in employment.

Statutes and regulations relevant to evaluating social impacts include:

- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970[19] – establishes requirements for an airport action that requires purchasing real property or displacing people or businesses.
- Executive Order 13055, *Protection of Children from Environmental Health Risks and Safety Risks* – defines risks attributable to products or substances that children may touch or ingest, including examples such as the quality of air, water, and soil.
- Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*[20] – requires identification of potential disproportionately high and adverse impacts on low-income or minority populations.
- U.S. Department of Transportation Order 5610.2, *Environmental Justice in Minority and Low-Income Populations*[21] – outlines the DOT's commitment to the principles of environmental justice and presents a program for DOT-wide implementation.
- Council on Environmental Quality, *Environmental Justice: Guidance under the National Environmental Policy Act*[22] – presents the CEQ's guidance on assessing environmental justice under NEPA.

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19 42 USC § 4601, *et seq.* PL 91-646, amended by the Surface Transportation and Uniform Relocation Act Amendments of 1987, Title IV of PL 100-17, and PL 105-117; and 49 CFR Part 24 (Implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970).

20 59 Federal Register 7629, February 11, 1994.

21 DOT Order 5610.2, *Environmental Justice in Minority and Low-Income Populations*, April 15, 1997.

22 Council on Environmental Quality, *Environmental Justice: Guidance under the National Environmental Policy Act*, December 10, 1997.

- U.S. Environmental Protection Agency, *Final Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews*[23] – provides U.S. EPA's guidance on environmental justice.

5.16.1 Methodology

The following categories were evaluated to determine the potential social and economic impacts on affected communities under the Proposed Action and the No Action alternative.

- The resource categories of aircraft noise (refer to Section 5.2) and land use (refer to Section 5.3) were reviewed for potential social and environmental justice impacts to residences and businesses.
- The resource categories of air quality (refer to Section 5.4) and water quality (refer to Section 5.5) were reviewed for potential impacts in the areas of environmental justice and children's healthy and safety risks.
- Surface transportation patterns were considered.
- Disruptions to orderly or planned development were considered.
- The potential for the creation of a noticeable change in employment was considered.
- Adverse impacts to historic or cultural resources were considered.

5.16.2 2012 Impact Potential

5.16.2.1 Proposed Action

The LOPD is located entirely within Airport property limits, including the area in the Potomac River in which the relocated approach light bars would be installed. Three approach lights that would be installed beyond the Airport property limits but on the FAA's existing ALSF pier structure do not involve soil or river bottom disturbance and thus are outside of the LOPD. In addition, Section 5.2 documents that the Proposed Action would not cause a significant impact on residences, businesses, or other noise-sensitive facilities. Therefore, the Proposed Action would not require the relocation of residences or businesses, and existing and planned communities would not be affected by the Proposed Action, For these reasons, the Proposed Action would not result in social impacts. Because the Proposed Action would not result in social impacts, no disproportionate impacts on low-income or minority populations would occur.

The Proposed Action would not increase the capacity of the Airport or involve improvements to Airport or local roadways. Therefore, no increases or changes in surface traffic would result from the Proposed Action compared to the No Action alternative that could affect surface traffic patterns or disrupt established communities.

The Proposed Action would not adversely affect cultural or historic resources; therefore, no disproportionate effects to low-income or minority populations related to cultural or historic resources would occur.

The Proposed Action would not result in adverse potential impacts to air quality or water quality; therefore, no impacts to low-income or minority populations or risks to children's health or safety

[23] U.S. Environmental Protection Agency, *Final Guidance for Consideration of Environmental Justice in Clean Air Act 309 Reviews*, July 1999.

would be anticipated to result from the Proposed Action. The Washington Sailing Marina provides sailing lessons to children in the vicinity of the northern end of Daingerfield Island. The ALSF pier structure supporting the Runway 1 approach lighting system is located in that vicinity. The Proposed Action includes the addition of ALSF pier supports adjacent to the existing ALSF pier structure; however, these additional supports would not be expected to cause a safety risk to children participating in these lessons.

5.16.2.2 No Action

No changes to existing Airport facilities or activities would occur and no construction would occur under the No Action alternative. Therefore, no socioeconomic impacts or effects related to environmental justice or children's health and safety risks would occur under the No Action alternative.

5.17 Secondary (Induced) Impacts

The potential for the Proposed Action to cause induced or secondary socioeconomic impacts on surrounding communities, such as shifts in patterns of population movement and growth, public service demands, changes in business and economic activities, or other factors identified by the public, is discussed in this section. Induced socioeconomic impacts can be significant when significant impacts in resource categories linked to socioeconomic impacts occur.

5.17.1 Methodology

The evaluation of potential secondary or induced impacts depends on whether or not significant impacts in other resource categories relating to social impacts occur. Therefore, the conclusions of the analyses of resource categories with potential social impacts, including aircraft noise (refer to Section 5.2), land use (refer to Section 5.3), and socioeconomic impacts (refer to Section 5.14) were considered. Potential impacts identified in these categories were evaluated for project-induced shifts in population movement patterns, public service demands, and business and economic activities.

5.17.2 2012 Impact Potential

5.17.2.1 Proposed Action

The Proposed Action would not cause significant impacts related to aircraft noise or land use compatibility, nor would significant social impacts be expected. Therefore, the Proposed Action would not affect the surrounding community by causing shifts of or growth in population, increased public service demands, or changed business or economic activity.

5.17.2.2 No Action

No changes related to the Proposed Action would occur under the No Action alternative. Therefore, no changes in secondary (induced) impacts related to the Proposed Action would occur under the No Action alternative.

5.18 Cumulative Impacts

5.18.1 Methodology

To further determine whether the Proposed Action would have a significant environmental impact, the impacts on resources caused by the Proposed Action and impacts on the same resources caused by past, present, and reasonably foreseeable future actions were reviewed to determine if any

significant impacts would occur when the Proposed Action's impacts are added to the impacts of those other actions (see FAA Order 1050.1E, Paragraphs 405(f)(1)(c) and 500(c) and FAA Order 5050.4B, Paragraph 706(h)). The CEQ defines a cumulative impact as the impact on the environment that results from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions.[24]

The cumulative impacts analysis was focused only on construction-related impacts because the Proposed Action would not result in impacts on the environmental categories listed in FAA Order 1050.1E, Appendix A, except during the construction period.

5.18.1.1 Timeline

Construction of the Proposed Action is anticipated to begin in the first quarter of 2010 and to be completed by the third quarter of 2011. Therefore, other actions with construction periods within this timeframe were considered.

5.18.1.2 Actions Considered

The effects of the actions listed below were considered in this EA. These actions are referred to collectively as the Cumulative Impact Actions.

- The Proposed Action.
- Additional Levels to Garages A and B/C – This project is under construction and is expected to be completed in the second quarter of 2010. The project consists of the addition of parking decks to Parking Garages A and B/C at the Airport. The purpose of the project is to create additional parking facilities at the Airport to accommodate the projected increases in parking demand associated with forecast increases in passenger demand at the Airport. This project qualified for a Categorical Exclusion.
- Overlay of Runway 15-33 and Rehabilitation of Taxiways – Rehabilitation of Runway 15-33 will consist of milling and overlay, and rehabilitation of the taxiways will also consist of milling and overlay, with the possibility of full/partial depth repair in some areas. Construction of this project is expected to begin in the second quarter of 2009 and to be completed during the fourth quarter of 2009. The project is intended to extend the useful life of the runway and taxiway pavements and would be completed before construction of the Proposed Action begins.

5.18.1.3 Actions Not Considered and Why

As noted in Section 2.6, the Authority is continuing to develop and evaluate reasonable, feasible and practicable alternatives for bringing RSAs for the Runway 4-22 and Runway 15-33 (the crosswind runways) into compliance with the guidelines in FAA Order 5200.8 and FAA AC 150/5300-13. The operational, environmental, effectiveness, and practicability issues associated with bringing the RSAs for the crosswind runways into compliance are considerably more challenging than those associated with Runway 1-19, as addressed by the Proposed Action. The Authority has not yet identified a preferred alternative for the RSAs for the crosswind runways. Therefore, future actions associated with the RSA enhancements for the crosswind runways are not ripe for decision. In addition, the enhancements to the RSAs for the crosswind runways are not expected to begin until after

[24] Council on Environmental Quality, *Regulations for Implementing NEPA*, Section 40 CFR 1508.7.

completion of the Proposed Action discussed in this EA. The impacts of the RSA enhancements for the crosswind runways will be evaluated in a separate environmental assessment.

The following actions were not considered in this EA although they occurred in proximity to the same environmental resources that would be affected by the Proposed Action. The impacts of the other actions have either concluded or will conclude when the respective construction periods conclude, which is expected to occur prior to the start of construction of the Proposed Action:

- ARFF Station 301 – This project consists of construction of a new Aircraft Rescue and Fire Fighting (ARFF) Facility Station 301 to replace the existing ARFF station in the southern area of Airport. The new ARFF station will provide facilities crucial to the support of fire and rescue activities both in areas where aviation operations occur and in those public areas used by air travelers. The station will house ARFF equipment and staff required to respond to aircraft emergencies. In addition, the station will house both structural and Emergency Medical Service units that support the landside and terminal areas of the Airport. This project was found to qualify for a Categorical Exclusion from preparation of a formal environmental assessment. Construction was completed in the fourth quarter of 2008 and, therefore, will not overlap with construction of the Proposed Action.
- Authority Office Building Expansion – This project consists of expansion of the Authority Office Building and construction of an enclosed pedestrian connector bridge between the Authority Office Building and Hangar 11. The expansion will provide 5,000 square feet of office space at ground level and a 5,000-square-foot second story. This project was found to qualify for a Categorical Exclusion from preparation of a formal environmental assessment. The project was completed in 2008.
- Consolidation of the Communications Center – This project involves fitting-out the interior of Hangar 5. Installation of the equipment is expected to be complete by the second quarter of 2009.

Two projects that previously received environmental approval are not being pursued at this time and the commencement dates of these projects are not reasonably foreseeable. Therefore, the cumulative effects of the two projects described below were not considered in this EA:

- Regional Carrier Concourse – This project consists of an airside concourse building and related apron and supporting facilities to serve regional airlines at the Airport. The concourse was designed to accommodate up to 10 regional aircraft parking positions that would be served via passenger loading bridges. The facility is to be constructed north of Terminals B and C and east of Hangar 11 and the Authority offices. Access to the facility is to be provided via an underground pedestrian tunnel equipped with moving walkways.
- In-Line Baggage Screening – Building Modifications – This project includes the installation of an in-line baggage screening system at the Airport to expedite passenger check-in and enhance security measures. The project is to be constructed as an expansion on the landside of the terminal, consisting of building modifications to add a new landside baggage room.

The two projects listed below were mentioned in recent planning studies. These projects, on Airport property, are not being pursued at this time and the commencement dates of these projects are not reasonably foreseeable. Therefore, the cumulative effects of these two projects are not considered in this EA:

- Expansion of the passenger terminal and demolition of associated facilities.

- Modification/completion of the roadway system, including the grade-separated interchange at State Route 233 with the GWMP and Smith Boulevard on Airport property.

Other projects in the vicinity of the Airport include:

- Future improvements at Gravelly Point (connection to Arlington County's North Tract Park Area) – The County's master plan to be implemented for the North Tract includes an aquatics health and fitness center, athletic fields, walking trails, playgrounds, paddle boats, and open lawn areas.
- Future development of Potomac Yard – The redevelopment plan for the Alexandria portion of the site includes a new Town Center with office space, a hotel, neighborhood retail space, and approximately 1,900 residential units. The plan for the Arlington County site includes office space, a hotel, neighborhood retail space, and approximately 1,000 residential units. The plan also calls for a 25-acre park north of Crystal City that will be owned by Arlington County. As of 2006, portions of the Potomac Yard Complex were under construction, beginning with One and Two Potomac Center.
- Future transit improvements for Crystal City and Potomac Yard – The Crystal City/Potomac Yard Transit Improvements Implementation Project included an evaluation of alternatives for providing public transit service to the redeveloping Crystal City and Potomac Yard areas. Near-term transit service would be provided by bus, with intentions to expand to a future higher capacity transit system, such as bus rapid transit, light rail transit, or a new Metrorail station. The bus-related improvements were covered by a Categorical Exclusion in 2007.

The above actions would not affect the same resources that would be affected by the Authority's Proposed Action. Further, the Authority's Proposed Action would not eliminate any alternatives from consideration in the separate NEPA analyses being conducted for those other actions. Therefore, the cumulative effects of the future actions at Gravelly Point, Potomac Yard, and the transit improvements for Crystal City and Potomac Yard were not considered in this EA.

The FAA is identifying needed repairs, replacements, or modifications of the ALSF pier for Runway 1 in addition to and separate from the modifications or enhancements to the ALSF pier required to implement the Proposed Action. The extent of additional, separate repairs, replacements, or modifications is unknown at this time. The FAA contracted with Jacobs Facilities, Inc. (JFI) to inspect the ALSF pier for Runway 1. JFI subcontracted portions of the inspection to Halcrow, Inc. (Halcrow) and Wood Advisory Services, Inc. (WAS). JFI summarized the findings and conclusions of the inspection in a memorandum to the FAA. Among other things, JFI and its subcontractors concluded that although the ALSF pier substructure below the water line is generally in Fair condition below elevation +4.0 feet, there is no useable service life remaining in the wood piles above the water line along the entire length of the ALSF pier. After considering alternatives for replacing and rehabilitating the ALSF pier, JFI recommended that the FAA implement a rehabilitation/maintenance program which would involve the replacement of 50 of the pier's 175 piles.

5.18.2 Impacts

5.18.2.1 Noise

Increased noise from construction vehicles is expected as a result of the Cumulative Impact Actions. The additional levels in Parking Garages A and B/C qualified for a Categorical Exclusion. The increase in construction-related noise resulting from the airside projects would be difficult to discern given the background noise of aircraft operations. Distance would rapidly attenuate noise levels and

there is an absence of noise-sensitive land uses in the vicinity of the construction areas. The noise impacts would be temporary and insignificant.

5.18.2.2 Compatible Land Use

All of the Cumulative Impact Actions would occur on Airport property or on the FAA's existing ALSF pier structure south of Runway 1 for the approach lights. Construction-related noise impacts would be temporary and insignificant.

5.18.2.3 Air Quality

Although construction activities associated with the Proposed Action are expected to begin in 2010 and to be completed in 2011, for purposes of the air quality assessment in this EA, it was conservatively assumed that all construction activities would occur in 2010. The construction-related air quality impacts are included in the Proposed Action data in the table below. **Table V-21** presents a comparison of construction-related emissions of criteria pollutants, with their respective *de minimis* thresholds, for the Cumulative Impact Actions.

Construction-related emissions related to the Cumulative Impact Actions would not exceed the applicable *de minimis* thresholds and are not regionally significant. The Cumulative Impact Actions are not expected to cause or contribute to an exceedance of the NAAQS. A general conformity determination is not required. The construction-related air quality cumulative impacts would be temporary and insignificant.

Table V-21

Emissions Inventory – Other Construction Projects in 2010 (tons per year)

Project	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Proposed Action	2.02	2.92	4.20	0.12	2.32	0.17
Runway 15-33 Overlay and Taxiway Rehabilitation Project	1.37	0.66	2.05	0.19	0.24	0.00
Additional Decks –Parking Garages A and B/C	4.72	0.90	7.53	0.60	0.95	0.00
De minimis Threshold	100.00	100.00	100.00	n.a.	n.a.	100.00
Are emissions below *de minimis* threshold?	Yes	Yes	Yes	n.a.	n.a.	Yes

Note: n.a. = Not applicable

Source: U.S. Congress, *Clean Air Act*, as amended (Public Laws 91-604 and 101-549).
Prepared by: Ricondo & Associates, Inc., September 2008.

5.18.2.4 Water Quality

As for the Proposed Action, the Cumulative Impact Actions would be implemented using appropriate procedures to control soil erosion and decrease potential inputs of chemical nutrients and sediments to the adjacent receiving waters. The Authority's erosion and sediment control program requires any project that would involve excavation, landfilling, or disturbance of the existing ground to have erosion and sediment control measures in place in accordance with the *Virginia Erosion and Sediment Control Handbook.*[25] The individuals who administer the Authority's compliance with this handbook and the Virginia Erosion and Sediment Control Law have been certified by the VDCR. A

[25] Virginia Department of Conservation, 1992, http://www.dcr.virginia.gov/soil_&_water/e&s-ftp.shtml (accessed August 28, 2008).

Virginia Pollutant Discharge Elimination System General Permit for Construction Activities would be required from the VDCR. This permit would require the construction site operator to develop and implement an SWPPP that uses best management practices for erosion and sediment control at the construction site. The permitting process allows applicants to satisfy identical pollution prevention plan requirements by simply referencing the approved Erosion and Sediment Control Plan. All construction plans and contracts would be prepared in accordance with FAA AC 150/5370-10C, which includes requirements for temporary air and water pollution, soil erosion, and siltation control. All necessary erosion and sediment control measures would be implemented prior to beginning each element of construction. In accordance with the Airport's NPDES permit, any construction-related storm water discharges into the Potomac River would require an NOI to be filed with the U.S. EPA.

Installation of additional piles along the existing ALSF pier in the Potomac River (to accommodate the relocated approach light bars and repairs to the ALSF pier included in the Proposed Action) has the potential to result in sediment release and a localized temporary increase in turbidity. The overlay of Runway 15-33, rehabilitation of associated taxiways, and the additional levels in Parking Garages A and B/C would not involve construction in the Potomac River.

With the closest groundwater recharge area located west of I-395, near Arlington National Cemetery, the Cumulative Impact Actions would have no adverse effect on groundwater resources. The construction-related cumulative impacts on water quality would be temporary and insignificant.

5.18.2.5 Wetlands and Waterways

Jurisdictional Waters of the United States exist on and adjacent to the Airport site: Four Mile Run, Roaches Run, and the Potomac River run south of the Airport along a portion of the ALSF pier. These waters also include delineated wetlands, waterways, and special aquatic sites. In accordance with the U.S. ACE *Wetlands Delineation Manual*, wetlands and Waters of the United States on and near the Airport were identified through a combination of document research and field investigation.

No wetlands regulated by the U.S. ACE, VDEQ, or VMRC are located in the LOPD on Airport land.[26] Resources identified within the study areas surrounding the RSAs for Runways 4-22 and 15-33 were confirmed by a U.S. ACE jurisdictional determination in January 2008. The limits of these resources were compared to the conceptual LOPD for the Cumulative Impact Actions to identify any potential impacts to wetlands or Waters of the United States.

All elements of the Cumulative Impact Actions would occur on Airport property on land, with the exception of the relocated approach light bars included in the Proposed Action, which would be installed in the Potomac River river bottom. No wetlands regulated by the U.S. ACE, VDEQ, or VMRC are located on Airport land within the LOPD for the Cumulative Impact Actions. Therefore, no fill or alteration of jurisdictional wetlands would occur on land.

The Potomac River is classified as a navigable, tidally influenced Water of the United States. As currently planned, the Proposed Action would involve the placement of wooden piles in the Potomac River to support the three relocated approach light bars and to repair the ALSF pier; dredging to place the piles is not anticipated. The design of the Proposed Action and selection of the

[26] Theresita Crockett-Augustine, Project Manager, Northern Virginia Regulatory Section, U.S. ACE, Norfolk District, "Northern Virginia Regulatory Section, NAO-2008-02979 (National Airport)," letter to Metropolitan Washington Airports Authority c/o Justin Haynes, Straughan Environmental Services, Inc., October 23, 2008.

construction methods are not complete. Should the ultimate design and selection of construction methods involve the use of caissons instead of wooden piles, the caissons could be considered fill and a Section 404 permit may be required from the U.S. ACE, along with a corresponding District of Columbia Water Quality Certification. Additionally, because the Potomac River is navigable, under the Rivers and Harbors Act, a Section 10 permit may be required from the U.S. ACE for relocation of the approach light system and repairs to the ALSF pier. As the environmental impacts would be temporary and localized, and the piles or caissons would be in close proximity to the existing ALSF pier and its existing piles, it is reasonable to expect that the Authority would be able to secure the necessary permits. Additional information on the measures that would be taken to prevent pollutants, chemical nutrients, and sediments from reaching a Water of the United States is provided in Section 5.15.2.2.

The construction-related cumulative impacts on wetlands and Waters of the United States would be temporary and insignificant.

5.18.2.6 Floodplains

The Proposed Action would result in grading, stabilization, and the placement of fill (i.e., runway pavement extension, taxiway extension, hold apron expansion, new ductbank for the relocated electrical vault, and access road pavement) within the 100-year floodplain. Considering the tidal influence of the Potomac River in this area, and the location of the proposed improvements relative to Four Mile Run, it has been determined that the proposed improvements would not be located within, or impede the flow of, any portions of the floodplain that may be considered floodway, as shown on Exhibit IV-7. FAA design criteria dictate specific geometries for runways, taxiways, and aprons, including allowable pavement profiles and cross slopes. The Proposed Action would be designed in accordance with these criteria. For aircraft safety, the pavement elevations and storm water management systems would be designed to keep the pavement free of standing water for the design storm specified in FAA AC 150/5320-5C, "Surface Drainage Design." Although this fill could theoretically result in a loss of floodplain storage volume, because of the ±3-foot tidal range of the Potomac, any potential impacts would be indiscernible on Airport property. The Proposed Action would not affect flood elevations on adjacent properties, either upstream or downstream of the Airport. See Section 5.7.2.1 for more detailed documentation in support of the finding that the Proposed Action does not cause a significant impact upon the 100-year floodplain. The addition of levels to Parking Garages A and B/C and the runway and taxiway resurfacing/rehabilitation improvements included in the Cumulative Impact Actions would not place any new materials within the floodplain. Construction-related impacts to floodplains would be insignificant.

5.18.2.7 Coastal Resources

There are no coastal barrier resources in the vicinity of the Cumulative Impact Actions. As noted in Section 5.8.2.1, the Proposed Action is not expected to result in a significant impact to coastal resources. The addition of levels to Parking Garages A and B/C and the runway and taxiway resurfacing/rehabilitation improvements included in the Cumulative Impact Actions would not occur in the vicinity of resources protected by the VCP. Construction-related impacts to coastal resources would be insignificant.

5.18.2.8 Fish, Wildlife, and Plants

A variety of federal and state agencies, and local wildlife organizations, manage and monitor wildlife and their habitats in and along the Potomac River near the Airport. These agencies work cooperatively to ensure the continued survival of the District's and Virginia's natural diversity. This

setting contains a diversity of aquatic and terrestrial habitats for fish, wildlife, and plants. Many identified species could exist, or have been observed, within this setting. Some of those species have been listed as endangered, threatened, or species of concern by the U.S. FWS, VDGIF, or the VDCR. Some have been listed as Species of Greatest Conservation Need in the District of Columbia's *Wildlife Action Plan*. While many of these species could be present within the general vicinity, no known site-specific studies confirm that these endangered, threatened, or species of concern use the habitats on or immediately adjacent to the Airport other than on an occasional transient basis.

The Potomac River provides a migratory pathway and spawning grounds for several species of fish. Based on consultation with the NMFS, it was determined that no Essential Fish Habitat is located within the vicinity of the Airport. While SAV has been documented in the vicinity of the Airport, the distribution, abundance, and species composition can vary greatly from year to year based on many factors, including precipitation, turbidity, temperature, salinity, and water quality.

As a result of the location and extent of the Cumulative Impact Actions, the existing operational use of Airport property, and the transient nature of any species that could use the habitats within or near the LOPD, the Cumulative Impact Actions are not expected to impact rare, threatened, or endangered species; species of concern; or Species of Greatest Conservation Need. The Cumulative Impact Actions would not involve the taking or relocation of specimens and there would be no loss of critical terrestrial or aquatic habitat. The Cumulative Impact Actions would not affect water quality and all storm water management controls would be designed and implemented in accordance with state and local regulations for controlling pollution.

Installation of additional piles for relocation of the approach light bars and repairs to the ALSF pier has the potential to temporarily result in increased turbidity in the Potomac River. Mitigation measures would be developed during final design in accordance with any required permit conditions and/or District of Columbia Water Quality Certification requirements. Considering the fluctuating locations and levels of SAV within the Potomac River, it is possible that SAV may be present near the existing ALSF pier at the time of construction. Should SAV be present, additional coordination with the U.S. ACE, NMFS, and VDCR may be required.

Construction-related impacts to fish, wildlife, and plants would be temporary and insignificant.

5.18.2.9 Light Emissions and Visual Impacts

As noted in Section 5.10.2.1, the Proposed Action is not expected to cause significant light emission or visual impacts. The addition of levels to Parking Garages A and B/C qualified for a Categorical Exclusion. The runway and taxiway resurfacing/rehabilitation improvements would occur on the airfield and would not involve new lighting. Construction-related light emission and visual impacts would be insignificant.

5.18.2.10 Department of Transportation Act, Section 4(f) and 6(f) Lands

As noted in Section 5.11.2.1, there are no Section 6(f) lands on the Airport and the Proposed Action is not expected to cause significant impacts to Section 4(f) lands. The addition of levels to Parking Garages A and B/C and the runway and taxiway resurfacing/rehabilitation improvements would not occur on or adjacent to Section 4(f) lands and would not require a direct or indirect taking of Section 4(f) lands. Construction-related impacts to DOT Section 4(f) and 6(f) lands would not occur.

5.18.2.11 Historic, Archaeological, Architectural, and Cultural Resources

As noted in Section 5.12.2.1, on-Airport resources consist of structures and an archaeological site within the terminal and hangar areas. The nearest off-Airport resource is the GWMP. These resources are beyond the limits of physical disturbance of the Cumulative Impact Actions. Considering that the peninsula on which the airfield was constructed is predominantly manmade, and the landside facilities are heavily developed, there is very little potential for any as yet unknown resources to be affected. The District Historic Preservation Office concluded that "…this undertaking will have no 'adverse effect' on historic properties and. . .no further review or comment from the DCHPO will be necessary."[27] The VDHR and the Authority have agreed to use the NEPA process to conduct the required Section 106 consultation. The Draft EA, which includes detailed information on historic properties in the vicinity of the Cumulative Impact Actions, was provided to the VDHR for comment. The Cumulative Impact Actions are consistent with development and land use of the Airport. The Cumulative Impact Actions are not expected to impact historic, archaeological, architectural, or cultural resources. VDHR concurs in the Authority's Determination of No Historic Properties Affected

5.18.2.12 Natural Resources and Energy Supply

As noted in Section 5.13.2.1, the Proposed Action would not cause a significant impact to natural resources or energy supplies. The addition of levels to Parking Garages A and B/C and the runway and taxiway resurfacing/rehabilitation improvements included in the Cumulative Impacts Actions would not use scarce or rare materials for construction. Materials of the major project elements generally include asphalt and concrete for relocated or extended portions of pavement, which are assumed to be readily available. Because the Cumulative Impact Actions would not affect off-Airport development, would not result in noise impacts to noise-sensitive facilities, and would not cause a change in the number of aircraft operations at the Airport, the Cumulative Impact Actions are not expected to affect local or regional smart growth plans. Construction-related impacts to natural resources and energy supply are not anticipated to occur.

5.18.2.13 Hazardous Materials, Pollution Prevention, and Solid Waste

The entire Airport area south of Levee Road and east of the Ogden Equipment Building is referred to as the South Investigation Site, or SIS. The SIS is listed on the Federal Agency Hazardous Waste Compliance Docket and has not yet received the designation of "No Further Remedial Action Planned" from the U.S. EPA. The SIS is being investigated by the FAA to characterize the nature and extent of contamination, and whether further remedial action is warranted. 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 within the SIS will 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.

Petroleum products would, however, be used to power and lubricate the construction equipment used for each of the Cumulative Impact Actions. FAA AC 150/5370-10C requires that the contractor: "…take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from

[27] C. Andrew Lewis, D.C. State Historic Preservation Office, letter to Charles Baummer, Metropolitan Washington Airports Authority, August 5, 2008.

particulate and gaseous matter." In support of this requirement, the Advisory Circular also contains contract provisions for construction controls to prevent air and water pollution.

The Authority plans to mill and overlay Runways 1-19 and 15-33. The Authority further plans to mill and overlay taxiways associated with Runway 15-33 or, if necessary, make full or partial depth repairs to these taxiways. The millings and unsuitable materials excavated in conjunction with the Cumulative Impact Actions would be disposed of off site at a state permitted solid waste disposal facility or reused.

Construction-related cumulative impacts would be temporary and insignificant.

5.18.2.14 Socioeconomic Impacts, Environmental Justice, Children's Health and Safety

Section 5.16.2.1 documents that the Proposed Action would not cause socioeconomic impacts, environmental impacts, or risks to children's health and safety. With respect to the addition of levels to Parking Garages A and B/C and the airside pavement resurfacing/rehabilitation projects included in the Cumulative Impact Actions, no residences, businesses, or other noise-sensitive facilities would be affected by construction-related noise. The relocation of residences or businesses would not be required, existing and planned communities would not be affected, and disproportionate impacts on low-income or minority populations would not occur. The Cumulative Impact Actions would not increase the capacity of the Airport or involve improvements to Airport or local roadways that would change surface traffic. The Cumulative Impact Actions would not result in potential impacts to air quality or water quality; therefore, no air quality or water quality impacts to low-income or minority populations or risks to children's health or safety would be anticipated.

5.18.2.15 Secondary (Induced) Impacts

The Cumulative Impact Actions would not affect the surrounding community by causing shifts of or growth in population, increased public service demands, or changed business or economic activity. Construction-related secondary (induced) impacts are not anticipated to occur.