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**PROGRAMMATIC ENVIRONMENTAL  
ASSESSMENT**  
FOR THE

**ARLINGTON NATIONAL CEMETERY**  
REAL PROPERTY MASTER PLAN

2014

**HNTB**





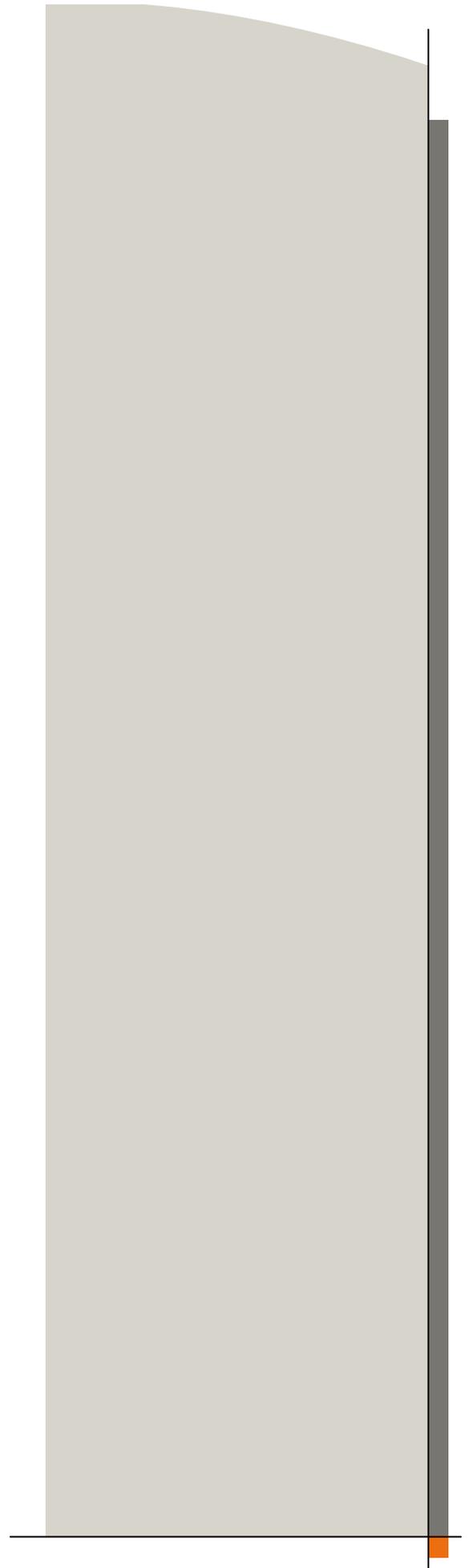
# **PROGRAMMATIC ENVIRONMENTAL ASSESSMENT**

FOR THE  
ARLINGTON NATIONAL CEMETERY  
REAL PROPERTY MASTER PLAN

**SEPTEMBER 2014**

PREPARED BY:  
HNTB - ENGINEERS ARCHITECTS PLANNERS

UNDER CONTRACT TO:  
U.S. ARMY CORPS OF ENGINEERS  
NORFOLK DISTRICT





## **DRAFT**

### **Finding of No Significant Impact for the Arlington National Cemetery Real Property Master Plan Arlington, Virginia**

#### ***Title of Action***

Programmatic Environmental Assessment for the Arlington National Cemetery Real Property Master Plan

#### ***Background***

Arlington National Cemetery (ANC) is an open military cemetery, a popular visitor destination and the headquarters location for the ANC and the Army National Military Cemetery (ANMC) organizations. ANC is a sub-element, along with the U.S. Soldiers' and Airmen's Home National Cemetery, of the ANMC. ANC is located just west of Washington, D.C. in Arlington, Virginia. The cemetery is at the west end of Memorial Avenue and directly across the Arlington Memorial Bridge from the Lincoln Memorial.

ANC prepared the ANC Real Property Master Plan (RPMP) to outline how the cemetery will accommodate future development, sustainment, and operational needs.

ANC must comply with the National Environmental Policy Act of 1969 (NEPA) prior to implementing any of the recommended projects in the RPMP. NEPA requires the evaluation and consideration of the environmental impacts prior to taking federal actions. Therefore, pursuant to the provisions of NEPA, Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508), and Environmental Analysis of Army Actions (32 CFR 651), ANC has prepared a Programmatic Environmental Assessment (EA) to identify the potential environmental consequences of the projects recommended in the ANC RPMP.

The Programmatic EA addresses the broad issues and impacts associated with the No Action and Action Alternatives and allows for future tiering of subsequent environmental analysis, as more site-specific details are known. Each project recommended in the ANC RPMP would be initiated only after site-specific environmental review, as needed, has been completed and any required permits are obtained.

## ***Proposed Action and Alternatives***

### *Proposed Action*

The Proposed Action includes the following projects recommended in the RPMP, grouped by area within the cemetery:

- Arrival Area
  - Transportation Center
  - Reconfigured Administration Building and new Queuing Area
- Former Navy Annex Site Area
  - Interments
  - Landscaping and memorial markers
  - Building and parking
  - Maintenance and operations
- Cemetery Wide
  - Visitor amenities
  - Sustainability measures

### *Alternatives Evaluated*

The No-Action Alternative was considered, as prescribed by the CEQ regulations as the benchmark against which Federal actions are evaluated. The No-Action Alternative represents the cemetery without the implementation of the Proposed Action. The No Action Alternative includes projects that are already underway; these projects are independent of the proposed improvements and have already been evaluated in separate environmental documents.

Four Action Alternatives were considered in the EA:

*Alternative 1 – ANC Including the Southern Expansion Site;*

*Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road;*

*Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement;  
and*

*Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways.*

These alternatives include the same general development but differ in the projects proposed at and near the former Navy Annex site. Alternative 2 includes the development proposed for

Alternative 1, with the addition of converting Southgate Road and Patton Drive into interment areas. Alternative 3 includes the development proposed in Alternative 2 and an easement for a new road between Southgate Road and Columbia Pike. Alternative 4 includes the development proposed in Alternative 3 and development made possible by the proposed realignment of the existing road network around the Southern Expansion Site.

### ***Environmental Effects***

Environmental resources potentially affected by the Action Alternatives were identified and the potential impact (direct, indirect, and cumulative) to each resource was evaluated. The following environmental resource categories were considered: land use and sustainability; air quality; noise; topography, soils and geology; water resources; biological resources; cultural resources; visitor use and experience/ Department of Transportation Act Section 4(f), socioeconomics; traffic and transportation; utilities; solid waste; hazardous materials and waste; and visual and aesthetic resources.

Based on the analyses contained in the Programmatic EA, I find all the Action Alternatives would result in:

- Minor short-term adverse impacts to air quality, noise, water resources, socioeconomics, solid waste, and hazardous waste due to construction.
- Minor long-term adverse impacts to sustainability, air quality, water resources, and solid waste and hazardous waste/materials due to the increase in interment area to maintain.
- Potential noise increases in Foxcroft Heights due to rifle salutes on the redeveloped former Navy Annex site. Additional information is required to assess noise impacts associated with the rifle salutes. It is not anticipated that the noise would exceed the threshold of significance. However, if detailed project design reveals that the noise would be expected to be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.
- Long-term benefits to sustainability, water resources, and biological resources due to the decrease in impervious surfaces and implementation of sustainability measures.
- Long-term benefit to topography and soils due to landscaping and grading.
- Long-term benefits to visitors' use and experience due to the proposed Transportation Center and Interpretive Center.
- Long-term benefit to views of the U.S. Air Force Memorial from the cemetery and views of the cemetery from I-395 due to the redevelopment of the former Navy Annex site.
- ANC determined that creation of the RPMP does not have the potential to cause adverse effects on historic properties. ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.

With respect to traffic impacts, I find that:

- Traffic impacts with Alternatives 1 and 2 would not exceed the threshold of significance,
- The analysis of Alternative 3 demonstrates that the addition of South Nash St. will in some cases reduce the delay. However, if this new street is left unsignalized, it will result in an unacceptable level of service (LOS) in the PM hours under both the 2020 and 2040 projected traffic conditions. The Army would condition the granting of an easement for construction of the new road on proper signalizing of the intersection.
- Traffic impacts with Alternative 4 would be the same as Alternative 3 at six of the seven intersections. As with Alternative 3, provided the intersection of the new road and Columbia Pike is signalized, none of these impacts would exceed the threshold of significance. The Army would condition the granting of an easement for construction of the new road on proper signalizing of the intersection.
- For the seventh intersection, the intersection of S. Joyce St. and Columbia Pike, the magnitude of traffic impacts is unknown at this time, as the specific configuration of a realigned Columbia Pike is not known. Following a determination of the specific configuration of a realigned Columbia Pike and any associated real estate exchange proposal, the Army will conduct a site-specific NEPA analysis on the proposal, to include analyzing any cumulative impacts if it desires to proceed further with Alternative 4. No other environmental impacts associated with implementation of Alternative 4 would be significant, regardless of the configuration of the realignment of Columbia Pike.
- Adverse impact to the bicycle network with Alternatives 2, 3 and 4 due to closure of Southgate Road. This impact would not exceed the threshold of significance.

Based on the information currently available, the direct, indirect and cumulative effects of Alternatives 1, 2, and 3 for the ANC RPMP, are not anticipated to result in significant impacts to the human and natural environments. As noted in the analysis, the effects on several resource categories, such as cultural resources and noise, will require further project level consultation and/or NEPA analysis. Additionally, in the event a specific configuration of a Columbia Pike realignment and real estate exchange proposal are developed, the potential traffic impacts associated with Alternative 4 will be further analyzed, including analyzing cumulative impacts.

### **Public Process**

ANC initiated coordination early in the development of the RPMP and Programmatic EA by conducting scoping. Scoping notifications were sent to key stakeholders to advise them of the Proposed Action and the intent to prepare a Programmatic EA, as well as to request their input. A key stakeholder scoping meeting was held on July 25, 2012. Scoping comments are included in Appendix A of the Programmatic EA.

An agency stakeholder meeting was held on December 7, 2012. The purpose of the meeting was to preview the proposed major planning initiatives in the Draft RPMP. ANC encouraged the

agency stakeholders to review the Draft RPMP and provide comments. Comments submitted to ANC were considered in the development of the RPMP as well as the Programmatic EA.

Interested agencies and members of the public were afforded an opportunity to review the Programmatic EA and the Draft FNSI and provide comments. The Programmatic EA and Draft FNSI were available for public and agency review for 60 days. The comment period began on August 19, 2013 and continued through October 21, 2013. Comments were received from Arlington County, the Arlington Historical Society, the National Capital Planning Commission, the National Park Service and the Virginia Department of Environmental Quality - Office of Environmental Impact Review. The comments and ANC's responses are provided in Appendix D of the Programmatic EA

After having reviewed the comments, ANC decided to revise and re-issue the Programmatic EA and Draft FNSI for public and agency review. The Revised Programmatic EA and Draft FNSI are available for public and agency review for 30 days. All comments received within the specified comment period will be considered prior to signing the Final FNSI

***Finding of No Significant Impact***

Based on the information and analyses contained in the Programmatic EA as well as the foregoing discussion contained in this FNSI, it is anticipated that implementation of Alternatives 1, 2, or 3 for the Proposed Action will not generate significant impacts on the human or natural environment. Therefore, an Environmental Impact Statement, pursuant to Section 102(2)(c) of NEPA, will not be prepared if ANC decides implement Alternatives 1, 2, or 3. Further NEPA analysis is needed to determine whether there would be any significant impacts associated with the implementation of Alternative 4.

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XXXXXX  
XXXXXXXXXX  
Arlington National Cemetery

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Date



## ACRONYMS AND ABBREVIATIONS

ANC	Arlington National Cemetery	FCD	Federal Consistency Determination
ANMC	Army National Military Cemeteries	FCIP	Federal Capital Improvement Program
APA	Abbreviated Preliminary Assessment	FEMA	Federal Emergency Management Agency
APE	Area of Potential Effect	FHWA	Federal Highway Administration
AR	Army Regulation	FIRM	Flood Insurance Rate Map
Army	Department of the Army	FNSI	Finding of No Significant Impact
BMP	Best Management Practice	FOB2	Federal Office Building 2
BRAC	Base Realignment and Closure	GBCI	Green Building Certification Institute
BRT	Bus Rapid Transit	GLUP	General Land Use Plan
CAA	Clean Air Act	HVAC	Heating, Ventilation, and Air Conditioning
CBPA	Chesapeake Bay Preservation Act	HWA	Hemlock Woolly Adelgid
CDG	Cemetery Design Guide	I	Interstate
CEQ	Council on Environmental Quality	ICRMP	Integrated Cultural Resources Management Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	IPaC	Information, Planning and Conservation
CESQG	Conditionally Exempt Small Quantity Generator	IPM	Integrated Pest Management
CFA	U.S. Commission of Fine Arts	ISWMP	Integrated Solid Waste Management Plan
CFR	Code of Federal Regulations	JBM-HH	Joint Base Myer-Henderson Hall
CO	Carbon Monoxide	LEED	Leadership in Energy and Environmental Design
CT	Census Tract	LOS	Level of Service
CWA	Clean Water Act	LUPZ	Land use planning zones
CZMA	Coastal Zone Management Act	MDW	Military Districts of Washington
CZMP	Coastal Zone Management Program	MOA	Memorandum of Agreement
dBa	A-weighted decibel	MOU	Memorandum of Understanding
D.C.	District of Columbia	mph	miles per hour
DHR	Department of Historic Resources	MWAQC	Metropolitan Washington Air Quality Committee
DoD	Department of Defense	MWCOG	Metropolitan Washington Council of Governments
DOT	Department of Transportation		
EA	Environmental Assessment		
EAB	Emerald Ash Borer		
EISA	Energy Independence and Security Act		
EO	Executive Order		
EPA	U.S. Environmental Protection Agency		
EPAAct 2005	Energy Policy Act of 2005		

NAAQS	National Ambient Air Quality Standards	RPMP	Real Property Master Plan
NACP	Northern Atlantic Coastal Plain	Rt.	Route
NAGPRA	Native American Graves Protection and Repatriation Act	SAHNC	Soldiers' and Airmen's Home National Cemetery
NCR	National Capital Region	SHPO	State Historic Preservation Officer
NCPC	National Capital Planning Commission	SIP	State Implementation Plan
NDA	National Defense Authorization Act	SO <sub>2</sub>	Sulfur Dioxide
NEPA	National Environmental Policy Act	SQG	Small Quantity Generator
NHL	National Historic Landmark	SR	State Route
NHPA	National Historic Preservation Act	SWW	Sarix wood wasp
NO <sub>2</sub>	Nitrogen Dioxide	The Comp Plan	Comprehensive Plan for the National Capital
NOAA	National Oceanic and Atmospheric Administration	THPO	Tribal Historic Preservation Officer
NO <sub>x</sub>	Nitrogen Oxides	TIP	Transportation Improvement Plan
NPDES	National Pollutant Discharge Elimination System	TMDL	Total Maximum Daily Load
NPS	National Park Service	tpy	Tons per year
NRCS	National Resource Conservation Service	USACE	U.S. Army Corps of Engineers
NRHP	National Register of Historic Places	USC	U.S. Code
O <sub>3</sub>	Ozone	USDA	U.S. Department of Agriculture
The Old Guard	3 <sup>rd</sup> U.S. Infantry Regiment	USFWS	U.S. Fish and Wildlife Service
OWA	Old Warehouse Area	USGS	U.S. Geological Survey
Pb	Lead	USMC	U.S. Marine Corps
PCB	Polychlorinated Biphenyl	VDCR	Virginia Department of Conservation & Recreation
PEA	Programmatic Environmental Assessment	VDEQ	Virginia Department of Environmental Quality
PK 15(met)	Peak sound pressure level	VDH	Virginia Department of Health
PM <sub>2.5</sub>	Particulate Matter with a diameter of 2.5 microns or less	VDOT	Virginia Department of Transportation
PM <sub>10</sub>	Particulate Matter with a diameter of 10 microns or less	VOC	Volatile Organic Compound
PSA	Public Safety Associates	WHS	Washington Headquarters Services
QA	Quality Assurance	WIP	Watershed Implementation Plan
QC	Quality Control		
RCRA	Resource Conservation and Recovery Act		
RMA	Resource Management Area		
ROI	Region of Influence		
RPA	Resource Protection Area		

# **EXECUTIVE SUMMARY**

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## **ES.1 Introduction**

This Programmatic Environmental Assessment (EA) is being prepared to evaluate recommended actions in the Arlington National Cemetery (ANC) Real Property Master Plan (RPMP). The Programmatic EA evaluates and considers the environmental impacts associated with the proposed federal actions, as required by Army regulations and the National Environmental Policy Act of 1969 (NEPA).

Army regulations require the preparation of NEPA documentation in conjunction with the preparation of a RPMP. ANC elected to prepare a Programmatic EA because the RPMP includes phased and conceptual development. For these types of development projects, information needed to determine specific impacts may not be available at the time the NEPA document is being prepared. In this case, the development is evaluated to the fullest extent possible in the Programmatic EA. When more information about these projects becomes available, site-specific NEPA documentation will be prepared and tiered from this Programmatic EA, as applicable, to avoid redundant or duplicate analysis. In the event that a future site-specific NEPA analysis for a project reveals direct or indirect impacts, the overall cemetery cumulative effects analysis will be re-assessed as appropriate, taking into account those impacts.

## **ES.2 ANC Real Property Master Plan**

The RPMP establishes the foundation for future development. It reflects ANC's primary goal of extending the cemetery's burial capacity in a manner that respects its unique heritage, identity and mission. Thus, the RPMP will guide ANC in executing strategic decisions. The RPMP will also enable the cemetery to better communicate and coordinate across internal directorates, partner organizations and other stakeholders.

The RPMP includes a Cemetery Design Guide (CDG). The CDG presents general policies and design standards for the implementation of the future development recommended in the RPMP.

## **ES.3 Background**

ANC is an open military cemetery located in Arlington, Virginia and is one of the most visited tourist sites in the Washington, D.C. area. Over 400,000 people have been laid to rest at ANC to date, with an average of 27-30 veterans and their family members being laid to rest daily. Additionally, over three million people visit the cemetery annually to honor, remember and explore. The memorials and the impressive landscape provide a sense of peace and beauty for families and visitors.

The cemetery consists of 624 acres of mostly developed area with 70 "sections". Features include memorials and monuments as well as an ordered grid of simple white headstones set amidst grassy fields and a rolling terrain of pastoral tree

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groves. The cemetery is bordered by two future expansion areas: the Millennium Site and the Southern Expansion Site (formerly known as the Navy Annex Site). The Millennium Project was the subject of a separate design effort and EA.

Public Law 106-65, the National Defense Authorization Act (NDAA) of 2000, passed on October 5, 1999, required the Secretary of Defense to transfer the Navy Annex property to the Secretary of the Army for incorporation into ANC. The Navy Annex property was transferred to the Department of the Army on January 1, 2012 and all improvements were removed to prepare the property for cemetery use.

The NDAA also allowed for a transfer of up to 4.5 acres of the Navy Annex Site to Arlington County in exchange for the Southgate right-of-way between ANC and the Navy Annex property. However, following the transfer of the Navy Annex Site to the Department of the Army, the DoD terminated the exchange agreement with Arlington County.

The Department of the Army and Arlington County signed a non-binding Memorandum of Understanding (MOU) in January of 2013 establishing a framework for collaboration on a land exchange agreement. The MOU includes a potentially mutually beneficial exchange alternative that would give ANC the Southgate Road right-of-way in exchange for land given to the County. Obtaining the Southgate Road right-of-way would link ANC and the Southern Expansion Site as contiguous properties.

**ES.4 Purpose and Need for the Proposed Action**

The purpose of the Proposed Action is to extend the operational life of ANC while

honoring the Nation’s fallen military heroes and providing accommodations and services to the next of kin and the public that befit a national shrine.

The need for the Proposed Action has several components:

- Add Burial Capacity
- Facilitate Future Cemetery Operations
- Enhance Family Experiences During Committal Services
- Enhance Visitor Experiences
- Promote Sustainability

**ES.5 Proposed Action**

The Proposed Action, which could be any of the four Action Alternative discussed in Section ES.6, is based on the RPMP including the CDG. The development in the Proposed Action is grouped by area within the cemetery and includes the following:

*Arrival Area* – Transportation Center, Reconfigured Administrative Building and New Queuing Area.

*Southern Expansion Site Area* – divided into parcels: (Parcel A) Interments (B) Landscaping and memorial markers; (C) Building and parking; and (D) Maintenance and operations.

*Cemetery Wide* – Visitor amenities and sustainability.

**ES.6 Alternatives**

Various potential alternatives were identified to meet the needs of ANC. These alternatives were screened and each alternative was either eliminated from further consideration or retained for environmental evaluation. The retained alternatives were combined into four overall

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cemetery alternatives. The four alternatives, or Action Alternatives, vary primarily in how the area in the vicinity of the Southern Expansion Site would be developed. The Proposed Action could be any of the four Action Alternatives evaluated in this EA.

The No Action Alternative must be evaluated per NEPA and the *Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR Parts 1500 – 1508). The No Action Alternative represents the cemetery without any of the ANC RPMP proposed improvements. However, the No Action Alternative does include projects that are underway and have already been evaluated from an environmental impact standpoint.

**Table ES.1** provides a listing of projects included in the No Action Alternative and the four Action Alternatives.

## **ES.7 Affected Environment and Environmental Consequences**

The Programmatic EA addresses the broad issues and impacts associated with the No Action and Action Alternatives and allows for future tiering of subsequent environmental analysis, as more site-specific details are known. Each project resulting from the implementation of the ANC RPMP would be initiated only after completing environmental review and obtaining any required permits.

The existing environment that could be affected by the alternatives under consideration is presented in this Programmatic EA. Many of the impacts to resources would be similar for each of the alternatives: however, the intensity of impacts may vary between alternatives.

Implementation of the No Action Alternative would result in impacts to many of the environmental impact categories evaluated; however, these actions are evaluated under separate environmental review(s). There would be no significant impacts under the Action Alternatives.

**Table ES.2** provides an overview of the environmental impacts associated with the Action Alternatives and the No Action Alternative.

### **ES.7.1 Land Use and Sustainability**

The Action Alternatives include new construction and reconfiguration of an existing structure at ANC, as well as development of the Southern Expansion Site. Alternatives 2, 3 and 4 include transfers of land to ANC. Alternative 2 projects would align with the ANC activity zones, existing local land use and land use plans. Alternatives 3 and 4 include a roadway easement, which would not align with the ANC activity zones. However, due to the small size of the easement it would not result in a substantial alteration of the planned land use in the area.

All of the Action Alternatives would result in both positive and negative impacts to sustainability. The Action Alternatives would enhance sustainability for two reasons. First, all development will be designed in accordance with the CDG. The CDG includes sustainability goals to guide the design and construction of future projects. Second, the proposed development would likely reduce the amount of impervious surface as compared to previous site conditions on the Navy Annex Site with office buildings and large areas covered in pavement.

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Table ES.1

**Alternatives Carried Forward for Environmental Analysis**

<b>Cemetery Area</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
<b>Arrival Area</b>	<ul style="list-style-type: none"> <li>Reconfigured Welcome Center basement</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administration Building and queuing area</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administration Building and queuing area</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administrative Building and queuing area</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administrative Building and queuing area</li> </ul>
<b>Southern Expansion Site Area</b>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments</li> <li>Parcel B – Landscaping and memorial markers</li> <li>Parcel C – Building and parking</li> <li>Parcel D - Maintenance and operations</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments</li> <li>Parcel B – Landscaping and memorial markers</li> <li>Parcel C – Building and parking (ANC potentially divests itself of all or a portion of Parcel C)</li> <li>Parcel D - Maintenance and operations</li> <li>Southgate Road right-of-way –interments outside of utility corridor</li> <li>Patton Drive – interments</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments (ANC divests itself of 55 foot strip)</li> <li>Parcel B – Landscaping and memorial markers</li> <li>Parcel C – Building and parking (ANC potentially divests itself of all or a portion of Parcel C)</li> <li>Parcel D - Maintenance and operations</li> <li>Southgate Road right-of-way –interments outside of utility corridor</li> <li>Patton Drive – interments</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments (ANC divests itself of 55 foot strip)</li> <li>Parcels B, C and D – unknown (ANC potentially divests itself of land south of realigned Columbia Pike and acquire property north of realigned Columba Pike)</li> <li>Southgate Rd right-of-way - interments outside of utility corridor</li> <li>Patton Drive – interments</li> </ul>
<b>East of Eisenhower Area</b>	<ul style="list-style-type: none"> <li>Restore Ord-Weitzel and Sheridan Gates</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>
<b>West of Eisenhower Area</b>	<ul style="list-style-type: none"> <li>Develop the Millennium Site</li> <li>Renovate/Restore the Mast of the U.S.S. Maine</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>
<b>Cemetery Wide</b>	<ul style="list-style-type: none"> <li>Install the Electronic Security System</li> <li>Rebuild Internal Roadways</li> </ul>	<ul style="list-style-type: none"> <li>Visitor Amenities</li> <li>Sustainability Measures</li> </ul>	<ul style="list-style-type: none"> <li>Visitor Amenities</li> <li>Sustainability Measures</li> </ul>	<ul style="list-style-type: none"> <li>Visitor Amenities</li> <li>Sustainability Measures</li> </ul>	<ul style="list-style-type: none"> <li>Visitor Amenities</li> <li>Sustainability Measures</li> </ul>

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Negative impacts to sustainability may occur as a result of adding interment area to ANC. Additional pesticides, herbicides, and fertilizer may be applied to maintain the added grounds. The added area could also require additional maintenance equipment use thereby increasing fuel use and hazardous waste associated with vehicle maintenance. However, because the extent of these impacts would be minor in proportion to the entire cemetery operations, it is not anticipated that the impacts would approach the significance threshold.

**ES.7.2 Air Quality**

It is expected that increases in emissions due to vehicular and maintenance activities, would be small compared to the activities that already take place at ANC.

Construction could result in short-term and minor impacts on air quality in the local area due to fugitive dust, and vehicle and equipment emissions. Best Management Practices (BMPs) would be used to reduce construction emissions. The temporary effects of dust and vehicle exhaust emissions on the local air quality would be minor compared to daily traffic emissions in the local area.

Landscape and lawn maintenance would increase. However, the added area would be small when compared to the total area of ANC. Therefore, it is expected that the changes in air emissions would be small.

New stationary sources could include generators and heating, ventilation, and air conditioning (HVAC) systems. Sustainability measures would reduce the increases associated with new stationary sources.

Under Alternative 2 and 3, minor additional changes in vehicle activity as the result of closing Southgate Road would have minimal impact on air emissions. Under Alternative 3, minor additional changes in vehicle activity as the result of adding a new road between Columbia Pike and Southgate Road would have minimal impact on air emissions. Under Alternative 4, air quality impacts may result from changes in vehicle activity due to the realigned roads. These changes would be evaluated in a future project-level NEPA document tiered from this Programmatic EA.

In summary, for all Action Alternatives, both short-term and long-term increases in air emissions would be expected to be minor in comparison to the existing emissions in the area. Recognizing that new stationary sources of emissions, such as generators and HVAC systems, would be reviewed for each project and that all applicable state and federal standards would be observed, it is not anticipated that the aforementioned potential minor changes in emissions, taken together, would approach the significance threshold.

**ES.7.3 Noise**

Short-term increases in noise levels within the cemetery could occur during construction and renovation activities under all four Action Alternatives to slightly varying degrees. Construction-related noise would vary daily depending on the type and location of construction activity. Foxcroft Heights could be subjected to increased noise during construction of the Southern Expansion Project. To reduce the potential for construction noise to affect Foxcroft Heights, construction crews would, as a courtesy to the neighborhood and Arlington County, work in accordance with Arlington

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County's Noise Control Regulations to the maximum extent practicable. Given the urban environment surrounding Foxcroft Heights neighborhood, it is anticipated that the temporary increases in noise due to construction activities would be minor.

For all four Action Alternatives, rifle salutes on the redeveloped Southern Expansion Site could affect noise levels in Foxcroft Heights. Because design has not been initiated, it was not possible to identify where on the site the rifle salutes might occur. Therefore, specific potential impacts on the Foxcroft Heights community could not be assessed.

While additional information is required to assess noise impacts, it is not anticipated that the noise would exceed the threshold of significance. Furthermore, if detailed project design reveals that the noise would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.

**ES.7.4 Topography, Soils and Geology**

The development proposed as part of the Action Alternatives was based on the existing topography of the site. Alternatives 1, 2 and 3 would include remedial stabilization of the failed slope east of the U.S. Air Force Memorial. Additionally, proposed landscaping improvements and reduction in impervious surfaces could reduce soil erosion. Therefore, it is expected that Alternatives 1, 2 and 3 would result in positive impacts to topography and soils.

Alternative 4 would alter the topography between the U.S. Air Force Memorial and the existing cemetery boundary. The topography in this area would no longer be constrained by the alignment of Columbia Pike and the grade would be reduced to allow for interments. As with Alternatives 1, 2 and 3, design would be based on geological investigations, and would include erosion and sediment control BMPs. Again, proposed reductions in impervious surfaces would reduce soil erosion. Therefore, it is expected that Alternative 4 would also positively affect topography and soils.

**ES.7.5 Water Resources**

For all alternatives, no direct impacts to surface water bodies, public drinking water, wetlands, or floodplains are expected. For Alternatives 1, 2 and 3, the proposed development would positively affect water resources by decreasing the impervious surface area when compared to the previous development of the Navy Annex Site. Alternative 4 would also likely decrease the impervious surface area. However, because the layout of the Southern Expansion Site and Columbia Pike are currently conceptual, the amount of impervious surface should be revisited when project-specific NEPA documentation is prepared.

Negative impacts to water quality could result because of the increase in area that would require ground maintenance. All Action Alternatives would result in a larger cemetery area to maintain. Additional pesticides, herbicides, and fertilizer would likely be applied to maintain the added grounds. However, because the extent of these impacts would be minor in proportion to the entire cemetery operations, the impacts are not anticipated to approach the significance threshold.

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New construction and reconfiguration of existing structures would require implementation of stormwater management and erosion and sediment control measures for soils to minimize potential indirect impacts to local surface waters (e.g. Potomac River). ANC will comply with Executive Order (EO) 13514 and Section 438 of the Energy Independence and Security Act (EISA) requirements for management of stormwater through a suitable combination of stormwater BMPs that could include bio retention, permeable pavements and pavers, cisterns, and green roofs. Use of heavy equipment during development activities would slightly increase the potential for contamination of groundwater due to hydraulic leaks from machinery. The potential for such impacts would be temporary and minimized through the use of BMPs.

Projects would be planned and designed to avoid sensitive areas and would be consistent with the Coastal Zone Management Program (CZMP) and the Chesapeake Bay Preservation Action (CBPA) to the maximum extent practicable.

In summary, there would be positive long-term impacts to water resources as a result of the decrease in impervious surfaces. Negative impacts due to maintenance of new areas of the cemetery would not reach the significance threshold. Construction would result in temporary water resource impacts that would be minimized through the use of BMPs and is not expected to exceed the threshold of significance.

#### **ES.7.6 Biological Resources**

All of the Action Alternatives would reduce vegetation as a result of the construction of the committal service queuing area.

However, this reduction would be offset by the development of the Southern Expansion Site. All new turf, trees, shrubs and plant material in planting beds will be compatible with the geographic region. The net increase in vegetation would positively affect biological resources by providing new habitat for native wildlife species.

Alternatives 2, 3 and 4 would further add to the net increase in vegetation because vegetated landscaping would be added to the Southgate Road, Patton Drive and Columbia Pike (Alternative 4) roadway areas.

#### **ES.7.7 Cultural Resources**

Section 106 of the National Historic Preservation of 1966 outlines a historic preservation review process and requires Federal agencies to consider the effects of their undertaking(s) on historic properties. If adverse effects on historic, archaeological, or cultural properties are identified, then agencies must attempt to avoid, minimize, or mitigate these impacts to resources considered important in our Nation's history.

ANC determined that although creation of the RPMP is an undertaking, its preparation does not have the potential to cause adverse effects on historic properties. ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.

Regardless, as this is a Programmatic EA in which the proposed development is to be evaluated to the fullest extent possible, an initial analysis of the potential for adverse effect was conducted. The initial analysis indicated that the Action Alternatives could affect historic resources. Therefore, ANC will complete the Section 106 process prior

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to implementation of the projects included in the Action Alternatives. During project design, ANC will continue consultation and endeavor to avoid and minimize impacts. Should impacts be unavoidable, ANC, the Virginia Department of Historic Resources and the Advisory Council on Historic Preservation, if appropriate, will consult on proper mitigation, enter into a memorandum of agreement and complete the Section 106 process.

Additionally, for Alternative 4, potentially sensitive archeological sites identified along Columbia Pike within the APE may be affected by the proposed realignment of Columbia Pike. Therefore, additional detailed project information is needed to determine whether Alternative 4 would result in an adverse effect.

**ES.7.8 Visitor Use and Experience /  
Section 4(f) Department of  
Transportation Act**

The proposed improvements to the arrival area would improve the visitor experience with all four Action Alternatives. The proposed cemetery-wide amenities would also improve the visitor experience and convenience/comfort. The Interpretive Center would enhance the visitors' understanding of ANC.

While the Interpretive Center itself would enhance the visitor experience, the proposed location at the Southern Expansion Site would not. First, it would not be close to a Metro Station. The nearest station would be the Pentagon Metro Station nearly a mile away. Second, visitors to the Interpretive Center would not experience entering ANC through the impressive, historic path along Memorial Avenue. Third, it would be a longer walk to

the most frequently visited destinations within ANC.

Visitors attending committal services would benefit from the proposed improvements. Expanded committal services facilities and the new queuing area would better accommodate the visitors attending committal services.

Therefore, the Action Alternatives would have an overall effect of improving the visitor experience.

Section 4(f) of the Department of Transportation (DOT) Act states that it is federal policy to consider park and recreation lands, wildlife and waterfowl refuges, and historic sites in the development of transportation projects. Section 4(f) applies to projects that receive funding from or require approval by an agency of the U.S. DOT, and includes publicly owned parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places.

Section 4(f) does not apply to Alternatives 1, 2 or 3. Alternative 4 includes road realignment and would likely involve Federal Highway Administration (FHWA) funding and/or approval. Therefore, a Section 4(f) determination would be required. Based on preliminary review, the road realignment would require the physical use of Section 4(f) resources as land from ANC would be needed to implement the proposed realignment. However, the new alignment of Columbia Pike has not been established. Therefore, the potential for impacts to Section 4(f) resources will be studied under separate environmental review if Alternative 4 is selected.

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**ES.7.9 Socioeconomics**

None of the Action Alternatives would affect demographics, income levels, housing availability, businesses, public services demand or employment.

Environmental justice was considered as part of evaluating socioeconomic effects. Foxcroft Heights was considered a minority community in terms of environmental justice analysis. Due to the proximity of the Foxcroft Heights neighborhood to the Southern Expansion Site, all of the Action Alternatives could result in short and long term impacts to an environmental justice community. It is expected that construction would result in minor short-term impacts particularly during the development of Parcel A. To reduce the potential for construction noise that impacts Foxcroft Heights, construction crews would, as a courtesy to the neighborhood and Arlington County, work in accordance with Arlington County's Noise Control Regulations, to the maximum extent practicable. Given the urban environment surrounding the Foxcroft Heights neighborhood, it is anticipated that the temporary increases in noise due to construction activities would be minor.

Long-term impacts to Foxcroft Heights could be both positive and negative. The redevelopment of the Southern Expansion Site would result in an improved physical setting and improved views. However, the redevelopment of the Southern Expansion Site could increase noise and traffic levels in Foxcroft Heights.

For all four Action Alternatives, rifle salutes on the redeveloped Southern Expansion Site could affect noise levels in Foxcroft Heights. While additional information is required to assess noise impacts, it is not

anticipated that the noise would exceed the threshold of significance. Furthermore, if detailed project design reveals that the noise would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.

The effects of the Action Alternatives on traffic in Foxcroft Heights were assessed. Alternatives 1 and 2 would have similar impacts. With Alternative 1, vehicular traffic on Southgate Road would be temporarily stopped to allow processions to cross from the main cemetery to Parcel A. The resulting delays would likely cause traffic to divert to roads in Foxcroft Heights. In this case, traffic conditions would be similar to the traffic conditions with Alternative 2 when Southgate Road is closed. Traffic analysis of Alternative 2 during peak hours showed that all of the intersections in Foxcroft Heights would operate at an acceptable level of service (LOS).

Impacts to socioeconomics and environmental justice under Alternative 3 would be similar to those described under Alternative 2. Unlike with Alternative 2, Alternative 3 includes an easement for a new access road parallel to and east of South Oak Street. Traffic analysis showed that provided the new intersection of Columbia Pike and the new access road would be signalized, the intersection LOS would improve over the No Action Alternative. Thus, traffic impacts would not exceed the threshold of significance.

For Alternative 4, the realignment of Columbia Pike and ramps between Columbia Pike and Rt. 27 is not sufficiently

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defined to determine the associated traffic impacts. However, based on the proposed concepts for the realignment by Arlington County as of July 15, 2014, the alignment of Columbia Pike would not change west of the entrance to the Air Force Memorial. As the traffic circulation and operations of Alternative 4 are identical to Alternative 3, with the exception of the intersection of Columbia Pike and South Joyce Street, it can be concluded that Alternative 4 would not result in significant traffic impacts in the Foxcroft Heights Neighborhood.

While Alternative 1, 2, 3 and 4 could affect Foxcroft Heights, it is not expected that the impacts would be significant. Therefore, Alternatives 1, 2, 3 and 4 would not result in a disproportionate high adverse impact to children or environmental justice communities.

**ES.7.10 Traffic and Transportation**

All four Action Alternatives would include the preferred dedicated committal procession queuing area alternative. The queuing area would alleviate vehicle congestion and improve pedestrian safety in the vicinity of the Administration Building.

During the construction of the ANC facilities on the Southern Expansion Site, there would be minimal effects on the streets in the Foxcroft Heights neighborhood. Columbia Pike would be the primary truck route to and from the site. Much of the construction traffic would travel west toward the ramps with Washington Boulevard, and not onto the more congested eastern portions of Columbia Pike.

With Alternative 1, vehicular traffic on Southgate Road would be temporarily stopped to allow processions to cross from

the main cemetery to Parcel A. The resulting delays would be expected to cause traffic to divert to roads in Foxcroft Heights. In this case, traffic conditions would be similar to the traffic conditions with Alternative 2 when Southgate Road is closed. Traffic analysis of Alternative 2 during peak hours showed that all of the intersections in Foxcroft Heights would operate at an acceptable level of service (LOS). Therefore, even if the closures of Southgate Road occurred during peak hours, the LOS of all of the intersections would be acceptable and Alternative 1 would not result in a significant impact.

Alternative 2 would include closing Southgate Road to the public. While traffic on Southgate Road is much reduced since the closure of the Navy Annex office buildings, there is concern that the remaining traffic will use the Foxcroft Heights neighborhood streets to access JBM-HH. Traffic analysis showed that all of the intersections would operate at an acceptable LOS with Alternative 2. While the delay at the intersections of Columbia Pike with South Orme Street and South Ode Street would increase by 2040, individual traffic movements would still operate at an acceptable level of service in the PM peak hour.

Alternative 3 would include the closure of Southgate Road along with an easement for a new access road parallel to and east of South Oak Street. This new road, South Nash Drive, would link Columbia Pike and Southgate Road at Hobson Drive, and would carry a majority of the traffic diverted from the closed portion of Southgate Road to JBM-HH.

Traffic analysis included the new intersection at Columbia Pike and South Nash Drive. The new intersection was analyzed as both an unsignalized and signalized intersection. If unsignalized, the intersection of Columbia Pike and South Nash Street would operate at an acceptable LOS in the AM peak hour but an unacceptable LOS in the PM peak hour. Signalizing this intersection would improve the operations to acceptable levels of service in both the AM and PM peak hours.

For Alternative 4, the realignment of Columbia Pike and ramps between Columbia Pike and Rt. 27 is not sufficiently defined to determine the associated traffic impacts. Based on the proposed concepts for the realignment by Arlington County as of July 15, 2014, the alignment of Columbia Pike would not change west of the entrance to the Air Force Memorial. As the traffic circulation and operations of Alternative 4 are identical to Alternative 3, with the exception of the intersection of Columbia Pike and South Joyce Street, it can be concluded that Alternative 4 would not result in significant traffic impacts at six out of the seven study intersections. Therefore, if Alternative 4 is selected, changes at the intersection of Columbia Pike and South Joyce Street and the associated roadways will be analyzed as part of a project-level NEPA evaluation when sufficient information is available.

Alternatives 2, 3 and 4 include removing Southgate Road, and consequently a short section of signed bicycle route. Removal of this signed route would not sever an existing major route for bicycles and therefore would not result in a significant impact. The impact could be minimized by shifting the route to Columbia Pike.

#### **ES.7.11 Utilities**

All public distribution systems, which bring utilities to ANC, are considered adequate to support the proposed development that would occur due to all four Action Alternatives.

#### **ES.7.12 Solid Waste**

Additional solid waste would be generated as a result of the construction associated with all Action Alternatives. In accordance with Army Regulation (AR) 420-1, contracts for construction will include a performance requirement to divert a minimum of 50 percent of construction waste from landfill disposal. Contractors will also be required to submit a construction and demolition waste management plan.

In addition to construction waste, the Action Alternatives could cause an increase in yard waste. In accordance with the Integrated Solid Waste Management Plan (ISWMP) all waste including yard waste will be recycled to the maximum extent possible.

The current diversion rate is approximately 75 percent. Due to diversion and recycling requirements and the implementation of the ISWMP, the increase in solid waste from the Action Alternatives would not likely reduce the diversion rate to less than 50 percent. Accordingly, the Action Alternatives would not exceed the threshold of significance for solid waste impacts.

#### **ES.7.13 Hazardous Materials and Waste**

All Action Alternatives would result in a larger cemetery area to maintain. Maintenance of this area could require use of additional hazardous materials and generate additional hazardous waste.

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Additional hazardous materials such as pesticides and herbicides may be applied to the area. In addition, maintenance equipment use could increase thereby increasing fuel use and hazardous waste generated through equipment maintenance.

Given the relatively small increase in cemetery area:

- Only a minor increase in use of hazardous materials and generation of hazardous waste would occur; and
- ANC would not exceed the small quantity generator (SQG) threshold.

None of the projects included in the Action Alternatives would disturb existing ANC property identified for further hazardous waste study. In addition, none of the Action Alternatives would disturb hazardous materials/waste on the Southern Expansion Site because Washington Headquarters Services (WHS) is obligated to remediate the site prior to transferring it to ANC.

Therefore, hazardous materials and waste impacts would not approach the threshold of significance. Nonetheless, the cemetery will strive to minimize the anticipated potential impacts. For example, potential minimization could include planting pest resistant plants to reduce the need for pesticides and conducting periodic reviews to determine if non-hazardous substances could replace pesticides.

Alternatives 2, 3 and 4 include acquisition of land that has not been studied for presence of hazardous waste: the Southgate Road right-of-way and for Alternative 4 only, properties north of Columbia Pike beyond the extent of the Southern Expansion Site. Therefore, if any of these alternatives are

selected, additional hazardous waste analysis will be required to determine whether hazardous wastes are present.

**ES.7.14 Visual and Aesthetic Resources**

The visual image conveyed by the cemetery is an essential component to fortifying the “hallowed grounds” character and identity. The memorials and the impressive landscape provide a sense of peace and beauty for the many visitors. ANC’s iconic image is captured by its ordered grid of simple white headstones set amidst grassy fields and rolling terrain of pastoral tree groves.

The most prominent long-range views in the cemetery are from the Arlington House, The Robert E. Lee Memorial plateau. From this vantage point, there are long-range views of the Washington D.C. Monumental Core, as well as views into the cemetery below.

There are notable views of ANC from many locations outside the cemetery. The northern wooded skyline is prominent from points within DC, including the U.S. Capitol and the National Mall. There are multiple places along the Potomac’s eastern shoreline that allow a view of almost the entire cemetery, including the Memorial Amphitheater, Arlington House, The Robert E. Lee Memorial, and the Hemicycle.

There are also several important historic views and vistas to and from the Southern Expansion Site. These viewsheds include views of ANC and the Washington D.C. Monumental Core. The higher flat portion of the Southern Expansion Site offers spectacular panoramic views of the Pentagon, which is a National Historic Landmark, and many Washington D.C. landmarks including the U.S. Capitol

Building, the Washington Monument, the Jefferson Memorial, the Lincoln Memorial, and the National Cathedral.

The aesthetics and views from, to and within ANC were considered in evaluating the Alternatives.

All of the Action Alternatives include a proposed Transportation Center and a committal procession queuing area. The proposed new Transportation Center in the tour bus area of the existing parking garage would improve aesthetics. The proposed committal procession queuing area includes proposed landscaping which would improve the view from the Administration Building.

For all of the Action Alternatives, the Southern Expansion Site projects would generally improve views. Views of the U.S. Air Force Memorial from the cemetery and the Pentagon would improve due to the re-development of the Southern Expansion Site. Instead of seeing a large office building, the viewer would see an extension of ANC's visual theme all the way to the U.S. Air Force Memorial. Likewise, views of the cemetery from I-395 would improve. Instead of the large office building in the background, the viewer would see the U.S. Air Force Memorial surrounded by ANC iconic grounds. While the views would generally improve, it was not possible to access the potential effects in detail as part of the EA as no design information was available. Design information about the layout and features of the site including proposed structures, landscaping and circulation is needed to evaluate views in detail.

### **ES.7.15 Summary of Environmental Consequences**

**Table ES.2** summarizes the environmental impact (if any) associated with the Action Alternatives and No Action Alternative. **Table ES.3** summarizes the commitments for the Action Alternatives by environmental resource category (if any). Based on the information currently available, the direct, indirect and cumulative effects of the ANC RPMP, taking into account all potential projects in the four Action Alternatives, are not anticipated to result in significant impacts to the human and natural environments. As noted in the analysis, the effects on several resource categories, such as cultural resources and noise, will require further project level NEPA analysis. In the event a future project-specific NEPA analysis reveals direct or indirect impacts, the cumulative effects analysis, taking into account those impacts, will be re-assessed as appropriate.

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Table ES.2  
**Summary of Environmental Consequences**

<b>Impact Category</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Land Use & Sustainability	No significant impacts - No change to land use outside ANC	No significant impacts - Minor impacts to sustainability	No significant impacts - Minor impacts to sustainability	No significant impacts - Minor impacts to sustainability	No significant impacts - Minor impacts to sustainability
Air Quality	No significant impacts - Temporary emission increases during construction	No significant impacts - Minor temporary and long-term emission increases	No significant impacts - Minor temporary and long-term emission increases	No significant impacts - Minor temporary and long-term emission increases	No significant impacts - Minor temporary and long-term emission increases
Noise	No significant impacts - Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction
Topography, Soils & Geology	No significant impacts - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts
Water Resources	No significant impacts - Positive impacts due to stream restoration	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts
Biological Resources	No significant impacts - Minor impacts	No significant impacts - Positive impacts	No significant impact - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts

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Table ES.2

**Summary of Environmental Consequences**

<b>Impact Category</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Cultural Resources	No significant impacts - Impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts
Visitor Use and Experience / Section 4(f)	No significant impacts - Impacts may occur to visitor use and experience; however, actions are evaluated under separate environmental review(s)	No significant impacts - Positive impacts to visitor use and experience	No significant impacts - Positive impacts to visitor use and experience	No significant impacts - Positive impacts to visitor use and experience	No significant impacts - Positive impacts to visitor use and experience, a Section 4(f) determination may be required
Socioeconomics	No significant impacts	No significant impacts	No significant impact	No significant impacts	No significant impacts
Traffic & Transportation	No significant impacts - Minimal short-term impacts during construction	No significant impacts	No significant impacts	No significant impacts provided the new intersection is signalized	No significant impacts provided the new intersection is signalized
Utilities	No significant impacts	No significant impacts - Positive impact			
Solid Waste	No significant impacts - impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts	No significant impacts	No significant impacts	No significant impacts

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Table ES.2

**Summary of Environmental Consequences**

<b>Impact Category</b>	<b>No Action Alternative</b>	<b>Alternative 1 <i>ANC Including the Southern Expansion Site</i></b>	<b>Alternative 2 <i>ANC Including the Southern Expansion Site and Southgate Road</i></b>	<b>Alternative 3 <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i></b>	<b>Alternative 4 <i>ANC Including the Southern Expansion Site with Realigned Roadways</i></b>
Hazardous Materials & Waste	No significant impacts - Impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts - Minimal impacts	No significant impacts - Minimal impacts	No significant impacts - Minimal impacts	No significant impacts - Minimal impacts
Visual and Aesthetic Resources	No significant impacts - Impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts - Positive impact	No significant impacts - Positive impact	No significant impacts - Positive impact	No significant impacts - Positive impact

Notes:

No Action Alternative: Impacts may occur; however, actions are evaluated under separate environmental review(s).

Minor Impact /Minimal Impact – the Alternative would have little effect on the resource and therefore would not exceed the applicable threshold of significance.

No significant impacts – the effect of the Alternative on the resource would not exceed the applicable threshold of significance.

Positive Impact – the alternative would have a beneficial effect on the subject resource.

Source: HNTB analysis, 2014.

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Table ES.3  
**Summary of Commitments**

<b>Impact Category</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Land Use & Sustainability	None	None	None	None
Air Quality	None	None	None	Road realignment and associated changes in traffic volumes will be analyzed as part of a project-level NEPA evaluation when sufficient information is available.
Noise	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.
Topography, Soils & Geology	None	None	None	None
Water Resources	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.  The potential effects of the roadway realignment on water resources will be analyzed as part of a project-level NEPA evaluation when sufficient information is available.
Biological Resources	None	None	None	None

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Table ES.3  
**Summary of Commitments**

<b>Impact Category</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Cultural Resources	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.
Visitor Use and Experience / Section 4(f)	None	None	None	A Section 4(f) determination will be required if FHWA approval/funding is needed.
Socioeconomic	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.  The potential for the roadway realignment to result in socioeconomic and environmental justice impacts will be studied as part of a project-level NEPA evaluation when sufficient information is available.
Traffic & Transportation	None	None	Signalize new intersection.	Road realignment and associated changes in traffic volumes will be analyzed as part of a project-level NEPA evaluation when sufficient information is available. Signalize new intersection.
Utilities	None	None	None	None

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Table ES.3  
**Summary of Commitments**

<b>Impact Category</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Solid Waste	None	None	None	None
Hazardous Materials & Waste	None	Additional hazardous materials analysis will be conducted to determine whether hazardous materials are present within the Southgate Road right-of-way.	Additional hazardous materials analysis will be conducted to determine whether hazardous materials are present within the Southgate Road right-of way.	Additional hazardous materials analysis will be conducted to determine whether hazardous materials are present within the Southgate Road right-of way and the land north of the realigned Columbia Pike.
Visual and Aesthetic Resources	None	ANC will analyze the potential effects in detail when design information is available for the Southern Expansion Project.	ANC will analyze the potential effects in detail when design information is available for the Southern Expansion Project.	ANC will analyze the potential effects in detail when design information is available for the Southern Expansion Project.

Source: HNTB analysis, 2014.

## **ES.8 Public and Agency Involvement**

ANC initiated coordination early in the development of the RPMP and Programmatic EA. Scoping was conducted with anticipated stakeholders and federal, state and local agencies to advise them of the Proposed Action, the intent to prepare a Programmatic EA, and to solicit input. Responses were received from a number of stakeholders. These responses as well as the scoping notifications are included in **Appendix A, Scoping**. Summaries of comments from the stakeholders scoping meeting, held in July 2012, as well as the attendance sheets and scoping presentation are also included in *Appendix A*.

An agency stakeholder meeting was held on December 7, 2012. The purpose of the meeting was to preview the proposed major planning initiatives in the Draft RPMP. ANC encouraged the agency stakeholders to review the Draft RPMP and provide comments. Comments submitted to ANC were considered in the development of the RPMP as well as this Programmatic EA.

Interested agencies and members of the public were afforded an opportunity to review the Programmatic EA and Draft Finding of No Significant Impact (FNSI) between August 19 and October 21, 2013. See **Appendix D, Public/Agency Review Summary**, for relevant letters, e-mails and notices.

Five agencies submitted comments: Arlington County, the Arlington Historical Society, the National Capital Planning Commission (NCPC), NPS and the Virginia Department of Environmental Quality (VDEQ). The comments and ANC's responses are provided in *Appendix D*.

In addition to providing responses to comments, ANC decided to revise and re-issue the Programmatic EA and Draft FNSI for public and agency review. The Revised Programmatic EA and Draft FNSI are available for public and agency review for 30 days. All comments received within the specified comment period will be considered prior to signing the Final FNSI.

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Appendix E:	Memorandum of Understanding Between Department of the Army and County Board of Arlington County, Virginia
Appendix F:	Traffic Impact Assessment

# Chapter 1:

## PURPOSE AND NEED FOR THE PROPOSED ACTION

---

A Real Property Master Plan (RPMP) was developed for the Arlington National Cemetery (ANC or the cemetery). In order to implement the projects in the RPMP, ANC must first comply with the National Environmental Policy Act of 1969 (NEPA). NEPA requires the evaluation and consideration of the environmental impacts of proposed federal actions. Army regulations require the preparation of NEPA documentation in conjunction with the preparation of a RPMP.<sup>1</sup> Therefore, ANC prepared an Environmental Assessment (EA) in tandem with the RPMP to determine whether there will be significant environmental impacts from the Proposed Action. The Proposed Action could be any of the four Action Alternatives discussed in more detail throughout the EA.

ANC elected to prepare a Programmatic EA because the RPMP includes phased and conceptual development. For these types of development projects, information needed to determine specific impacts may not be available at the time the NEPA document is being prepared. In this case, the development is evaluated to the fullest extent possible in the Programmatic EA. When more information about these projects becomes available, site-specific NEPA documentation will be prepared which will be tiered from this Programmatic EA, as applicable, to avoid redundant or duplicate analysis. In the event that a future site-specific NEPA analysis for a project reveals direct or indirect impacts, the overall

cemetery cumulative effects analysis, taking into account those impacts, will be re-assessed as appropriate.

### 1.1 Document Organization

This EA was prepared in accordance with 32 Code of Federal Regulations (CFR) Part 651, *Environmental Analysis of Army Actions*. According to these regulations, an EA includes brief discussions of the need for the proposed action, alternatives to the proposed action, environmental impacts, and a listing of persons and agencies consulted.<sup>2</sup> Therefore, this EA is organized in the following manner:

Chapter 1: Purpose and Need for the Proposed Action – provides background information, describes why the Proposed Action is needed and summarizes the primary regulatory requirements.

Chapter 2: Description of the Proposed Action and Alternatives – defines the Proposed Action and discusses the alternatives considered and why they are either dismissed or carried forward for detailed environmental analysis.

Chapter 3: Description of Affected Environment and Environmental Consequences – describes the existing conditions of potentially impacted environmental resources and discloses the potential environmental impacts of the alternatives carried forward for detailed analysis.

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Chapter 4: List of Persons and Agencies Consulted – provides the names of the persons and agencies consulted.

Chapter 5: References – provides information on referenced materials.

Chapter 6: List of Preparers – lists the document preparers along with their experience.

### 1.2 Background

ANC is an open military cemetery, a popular visitor destination and the headquarters location for ANC and the Army National Military Cemetery (ANMC) organizations. ANC is a sub-element, along with the U.S. Soldiers' and Airmen's Home National Cemetery, of the ANMC.

ANC is located just west of Washington, D.C. in Arlington, Virginia. **Figure 1-1** illustrates the location of the cemetery. The cemetery is at the west end of Memorial Avenue and directly across the Arlington Memorial Bridge from the Lincoln Memorial.

ANC is the most hallowed burial ground of our Nation's fallen and where, to date, over 400,000 people have been laid to rest. This military cemetery continues to honor the fallen through burial, on average, of 27-30 veterans or their family members each day. The cemetery memorializes history, as it is the final resting place for the heroes and patriots who built, preserved and protected our nation through military service from every American conflict, including the Revolutionary War and Civil War to the most recent wars in Afghanistan and Iraq. However, this cemetery represents more than just history. "From the Soldiers of The Old Guard stepping in solemn vigilance before the Tomb of the Unknown Soldiers, to the gravesites of heroes and presidents,

to the funerals for our veterans and families of ongoing conflicts and wars long over, the memorials and acres of neatly lined white markers serve as a vivid remembrance of the price so many have paid to keep our nation safe and free."<sup>3</sup>

ANC is also one of the most visited tourist sites in the Washington, D.C. area. Over three million people visit annually to honor, remember and explore.<sup>4</sup> The memorials and the impressive landscape provide a sense of peace and beauty for the many visitors. ANC's iconic image is captured by its ordered grid of simple white headstones set amidst grassy fields and rolling terrain of pastoral tree groves.

The cemetery consists of a 624 acre mostly developed area bordered by two future expansion areas. **Figure 1-2** shows the cemetery including the two future expansion areas. The developed area includes 70 cemetery sections and features many memorials and monuments as well as somber rows of white headstones.

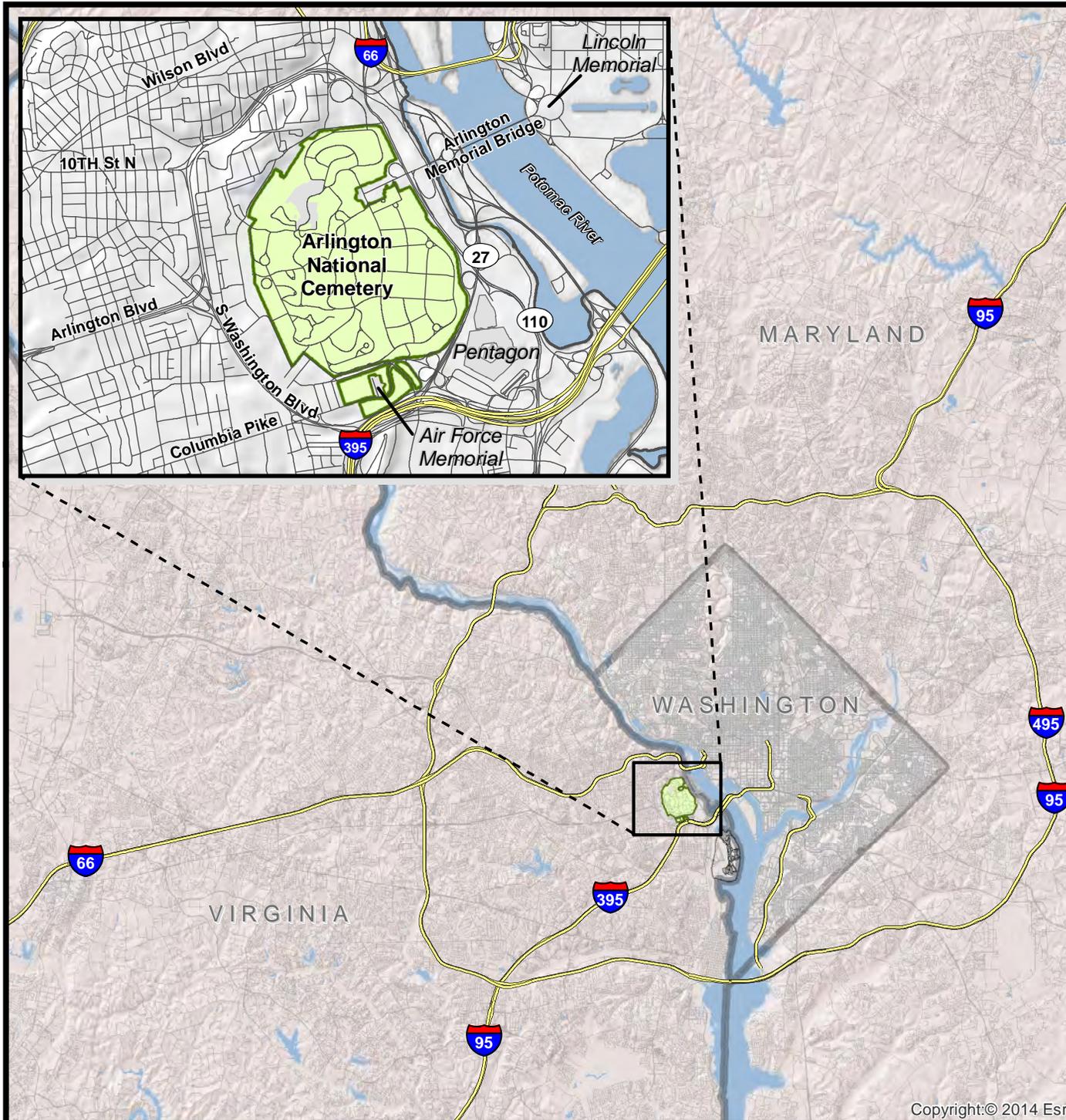
The two expansion areas are referred to as the Millennium Project Site and the Southern Expansion Site (formerly the Navy Annex Site). The 27-acre Millennium Site consists of land transferred to ANC from Fort Myer and the National Park Service (NPS), as well as ANC land known as the Old Warehouse Area (OWA). The Millennium Site Project was the subject of a separate EA, which is reflected in the cumulative impact analysis of the Programmatic EA.

The Southern Expansion Site includes three parcels of land totaling approximately 37 acres. The parcels are bounded on the south by Interstate 395 (I-395), on the north by Southgate Road, on the west by the Foxcroft Heights neighborhood and the

**Figure 1-1  
Vicinity and Location**

**LEGEND**

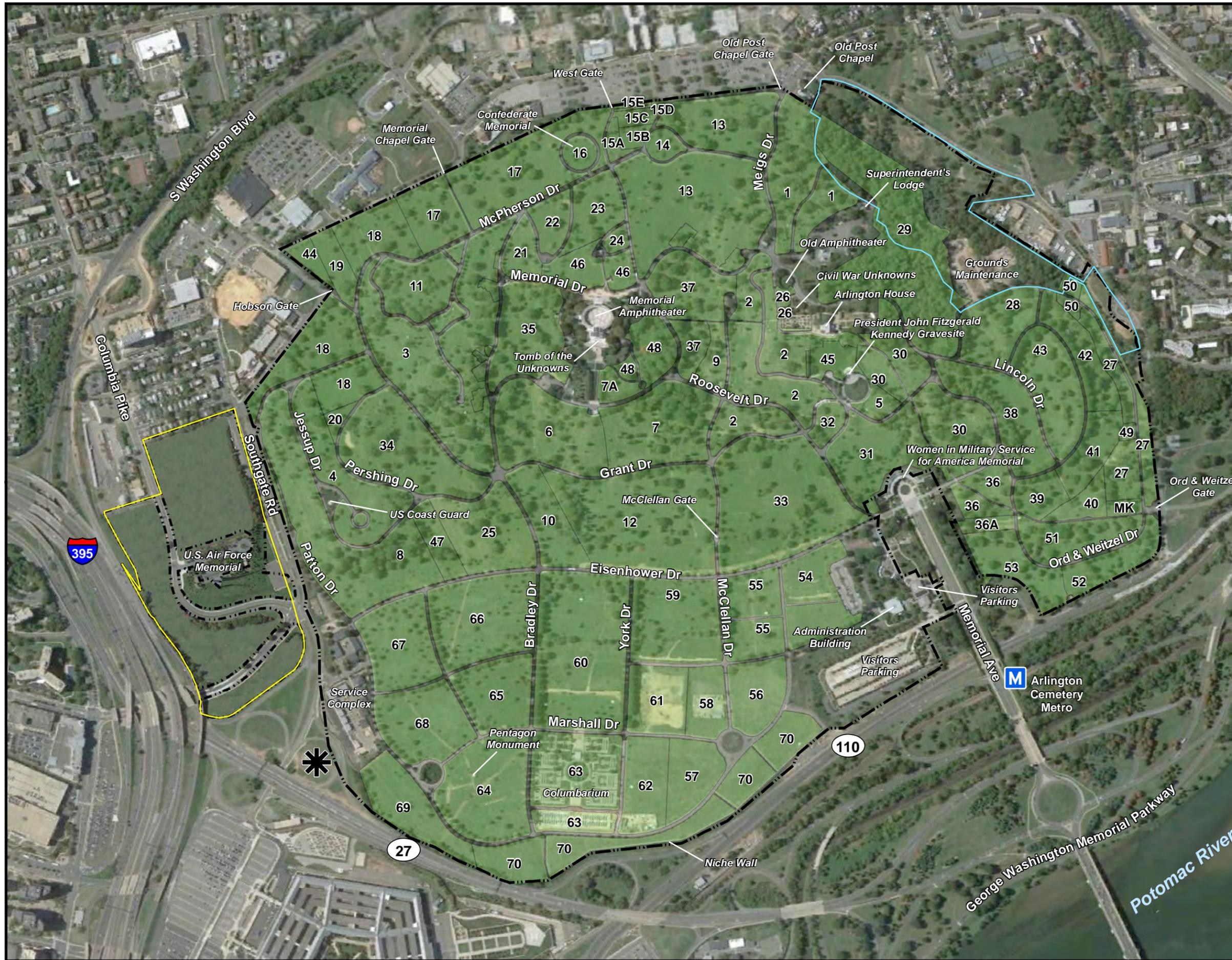
-  Arlington National Cemetery
-  Interstate
-  State Boundary



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**Figure 1-2  
Arlington National Cemetery**



**LEGEND**

-  Arlington National Cemetery
-  Southern Expansion Site
-  Millennium Project Site
-  Future 9/11 Pentagon Visitor Education Center

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Sources:  
ANC Master Plan, ANC GIS, Google Earth



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Virginia Department of Transportation (VDOT) Maintenance Yard, and on the east by the ramps connecting Columbia Pike to Route 27.

Public Law 106-65, *the National Defense Authorization Act (NDAA) of 2000*, passed on October 5, 1999, required the Secretary of Defense to transfer the Navy Annex property to the Secretary of the Army for incorporation into ANC.<sup>5</sup> The NDAA of 2000, Section 2881 as amended by NDAA of 2002 (Section 2863), NDAA of 2003 (Section 2851), NDAA of 2005 (Section 2881), NDAA of 2008 (Section 2871), and NDAA of 2009 (Section 2851) not only provided for the transfer of property, it also required the Department of Defense (DoD) to remove all improvements from the Navy Annex property. An EA was completed to evaluate the land transfer and removal of improvements in December of 2011 resulting in a finding of no significant impact.<sup>6</sup> The Navy Annex property was transferred to the Department of the Army on January 1, 2012 and all improvements were removed to prepare the property for cemetery use.

The NDAA of 2005 allowed for conveyance of up to 4.5 acres of the Navy Annex Site to Arlington County in exchange for the Southgate Road right-of-way between ANC and the Navy Annex property. As a result, Arlington County and the DoD Washington Headquarters Service (WHS) entered into a land exchange agreement in 2008.<sup>7</sup> Under the agreement, the Arlington County-owned Southgate Road right-of-way would be transferred to the USA and a portion of the Navy Annex Site north of Columbia Pike would be transferred to Arlington County. In April of 2012, after the transfer of the Navy Annex Site to the Secretary of the Army, the DoD WHS terminated the

exchange agreement with Arlington County.<sup>8</sup>

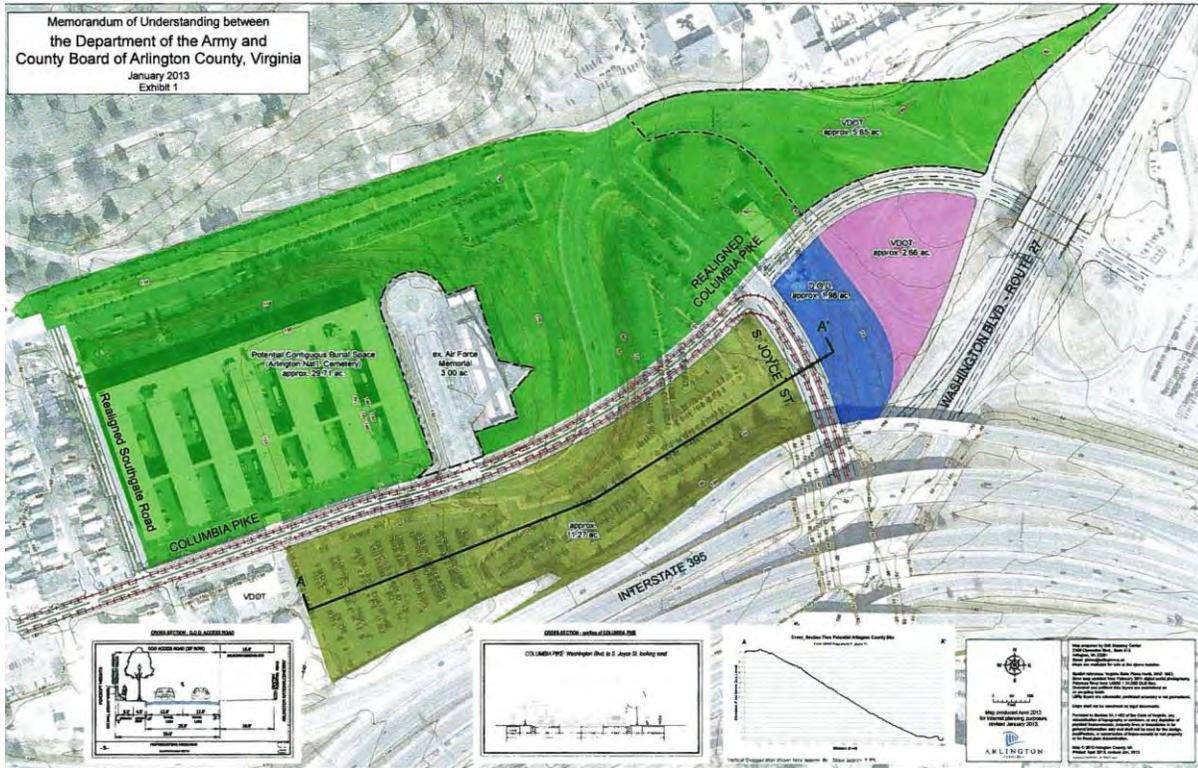
The Department of the Army and Arlington County are collaborating on a new land exchange agreement. In January of 2013, both parties signed a non-binding Memorandum of Understanding (MOU) that established a framework for collaboration. The properties under consideration for exchange and the key objectives of the Army and Arlington County are described in the MOU. The MOU is provided in **Appendix E**, *Memorandum of Understanding Between Department of the Army and County Board of Arlington County, Virginia*.

The MOU includes a conceptual diagram of a potentially mutually beneficial exchange alternative. The MOU diagram is shown in **Figure 1-3**. With this potential exchange alternative, ANC would retain the portion of the former Navy Annex Site north of the realigned Columbia Pike, and obtain Southgate Road right-of-way as well as other land north of the realigned Columbia Pike. In exchange, Arlington County would obtain a 55-foot wide easement along the western-most boundary of the Navy Annex Site for the purposes of building a new street from Columbia Pike to Joint Base Myer-Henderson Hall (JBM-HH). In addition, the land south of the realigned Columbia Pike would be conveyed to Arlington County. According to the MOU, the Army and Arlington County agreed to evaluate and consider this potential exchange alternative.

New legislation would be required for the proposed land transfer to Arlington County. While legislation to allow the transfer has been proposed, it has not yet been passed.

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Figure 1-3  
MOU Conceptual Diagram



1.2.1 Terminology

This document includes terminology specific to cemeteries and burials. A few of these terms may be unfamiliar. Therefore, for reader ease, the following terms are defined as they are used in this document:

- Cremaains – Cremated human remains.
- Niche – Hollowed out space in a wall made to place urns containing cremaains.
- Inurnment – Act of placing an urn into a niche.
- Columbarium – A structure, room or other space in a building or structure containing niches. **Photo 1** shows a columbarium at ANC.

Photo 1: Columbarium at ANC



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Niche Wall – A type of columbarium with rows of niches in a wall. **Photo 2** depicts part of the niche wall at ANC.

**Photo 2: Niche Wall at ANC**



Interment – The standard definition is the act of placing a dead human body in the ground. However, in this EA this term encompasses all methods of “burying” or placing human remains in their final resting place including placing a casket or urn in the ground, and an urn in a niche.

First Interment – The term first interment refers to the first use of an interment site. At ANC, eligible family members may be interred in the same gravesite or niche as the eligible military person. A gravesite can accommodate up to four individuals<sup>9</sup> and a standard niche can accommodate two urns.<sup>10</sup>

### **1.2.2 Mission**

ANC is administered and operated in accordance with 10 US Code (USC) Chapter 446, 24 USC Chapter 7, and 38 USC Chapter 24. Regulations to implement these laws, 32 CFR Part 553.13, direct the Department of Army to observe the following standards:

- (a) As permanent national shrines provided by a grateful nation to the

honored dead of the Armed Forces of the United States, the standards for construction, maintenance, and operation of Army national cemeteries will be commensurate with the high purpose to which they are dedicated.

- (b) Structures and facilities provided for Army cemet[er]ies will be permanent in nature and of a scope, dignity, and aesthetic design suitable to the purpose for which they are intended.
- (c) Cemeteries will be beautified by landscaping and by means of special features based on the historical aspects, location, or other factors of major significance.
- (d) Accommodations and services provided to the next of kin of the honored dead and to the general public will be of high order.

Accordingly, the ANC mission is, “On behalf of the American people, lay to rest those who have served our nation with dignity and honor, treating their families with respect and compassion, and connecting guests to the rich tapestry of the cemetery's living history, while maintaining these hallowed grounds befitting the sacrifice of all those who rest here in quiet repose.”<sup>11</sup>

The Army National Cemetery Campaign Plan (Campaign Plan) was developed to carry out the stated mission. The Campaign Plan is a detailed roadmap to ensure that the cemetery remains a place where every generation may honor, remember and explore the depths of the creation of this nation and the heroes who made incredible sacrifices for freedom. The roadmap ensures success by identifying focused objectives with measurable standards.

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**1.2.3 Arlington National Cemetery Real Property Master Plan**

Title 10 USC Chapter 446 and Army Directive 2010-04 require that the Executive Director formulate and implement a master plan for ANC. The master plan, at a minimum, must address interment and inurnment capacity, visitor accommodation, operations and maintenance, capital requirements, preservation of the cemetery's special features, and other matters the Executive Director considers appropriate.<sup>12</sup>

The RPMP was prepared by analyzing existing conditions, key functional requirements, and alternatives. Based on this analysis, recommendations were identified for five-year time increments spanning the next 25 years.

The resulting RPMP establishes the foundation for future development. It reflects ANC's primary goal of extending the cemetery's burial capacity in a manner that respects its unique heritage, identity and mission. Thus, the RPMP will guide ANC in executing strategic decisions. The RPMP will also enable the cemetery to better communicate and coordinate across internal directorates, partner organizations and other stakeholders.

A Cemetery Design Guide (CDG) was also prepared as part of the master plan process. The CDG presents general policies and design standards for the implementation of the future development recommended in the RPMP.

32 CFR §651.14, requires the preparation of NEPA documentation concurrent with the preparation of a master plan. One of the first steps in preparing NEPA documentation is to specify why the federal agency is proposing an action. This is referred to as the statement of purpose and need.

**1.3 Statement of Purpose and Need**

"The purpose and need statement is essentially the foundation of the NEPA decision-making process."<sup>13</sup> Defining the purpose and need is imperative to documenting a sound justification for a proposed action as well as developing and evaluating alternatives.

In the case of ANC, the purpose of the proposed action is to extend the operational life of ANC while honoring the Nation's fallen military heroes and providing accommodations and services to the next of kin and the public that befit a national shrine.

The need for the proposed action has several components each of which are described in the following sub-sections.

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**Purpose:**

*Extend the operational life of Arlington National Cemetery while honoring the Nation's fallen military heroes and providing accommodations and services to the next of kin and the public that befit a national shrine.*

**Needs:**

- *Add Burial Capacity*
- *Facilitate Future Cemetery Operations*
- *Enhance Family Experiences During Committal Services*
- *Enhance Visitor Experiences*
- *Promote Sustainability*

### **1.3.1 Add Burial Capacity**

The primary need is to expand the burial capacity at ANC. The ANC leadership recognized this need in developing the Campaign Plan. One of the Campaign Plan objectives is to prepare ANC for beyond 2025. By meeting this objective, ANC will remain one of the Nation's premier military cemeteries for as far into the future as possible.

The cemetery experiences continued demand for burials as the population of veterans eligible for interment at ANC age and the military adds new members to its ranks. At ANC's request, the Center for Army Analysis created a model in 2011 to help forecast the remaining capacity for first interments at ANC. Based on demand, approved cemetery land use plans and existing eligibility standards, the modeling showed that available above ground and in-ground first interment spaces would be exhausted by 2016 and 2025, respectively.<sup>14</sup> In response, ANC accelerated the construction of Columbarium Court #9, which added more than 20,000 niches for inurnments, extending above ground first interment space availability to 2024. In addition, ANC moved forward with the Millennium Project.

Construction of the Millennium Project is underway. According to the model developed by the Center for Army Analysis, this site will provide the first interment niche and in-ground spaces necessary to meet demand through 2037 and 2035, respectively.<sup>15</sup> Therefore, the burial capacity of the cemetery must be increased to accommodate interment demand beyond 2037 and meet the objectives of the Campaign Plan.

### **1.3.2 Facilitate Future Cemetery Operations**

Two areas currently used for on-going cemetery operations will be converted to interment areas because of the need to add burial capacity.

#### **1.3.2.1 Spoils Area**

The traditional interment method generates a large amount of surplus soils at the time of interment. Prior to a traditional first interment, soil is excavated to create a cavity for the interment vault. The excavated soils are referred to as spoils. Spoils are either hauled away immediately or stockpiled at the cemetery until they can be hauled away or re-used. Currently, spoils are stockpiled and processed on the east side of Section 61. This section will

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ultimately be used for in-ground interments and spoils storage will no longer be possible at this location.

Interments in the cemetery expansion areas will not generate large amount of spoils because a different interment method will be used. For the expansion areas, pre-set in-ground interment vaults will be constructed. Spoils will be removed during construction and not prior to each individual interment. With pre-set in-ground interment vaults, only the top 18 inches of soil is excavated at the time of interment. After the interment, the soil is replaced. Therefore, once space in the existing cemetery is exhausted, the spoils area will no longer be needed.

#### 1.3.2.2 Grounds Maintenance Contractor Area

Current cemetery grounds maintenance contracts allow for on-site storage of contractor equipment and materials such as mulch, top soil and plants. Ground maintenance contract costs are reduced because on-site storage is allowed. The on-site storage area is referred to as the grounds maintenance contractor area.

The existing grounds maintenance contractor area is located on Section 58. This space is suitable for interments and thus will eventually be converted to burial space. Without a grounds maintenance contractor area at the cemetery, the contract costs for the grounds maintenance work would increase. Accordingly, designating a new area for grounds maintenance contractor storage is prudent.

However, unless the grounds maintenance contractor area can be relocated to a site that is not suitable for interments, the demand for interment space will ultimately outweigh the benefits of on-site storage. In

this case, the grounds maintenance contractor will have to provide, off-site storage.

#### 1.3.3 Enhance Family Experiences During Committal Services

ANC's most important mission is to "Honor the Fallen" by laying to rest those who have served our nation with dignity and honor, and treating their families with respect and compassion. On most days, ANC welcomes dozens of families and veterans attending their loved ones' committal services. The committal services usually begin at the Administration Building. Veterans, families and friends gather at the Administration Building and queue their vehicles to prepare to drive to the committal service site as part of a procession. Depending on the type and location of interment, the committal service is held at the in-ground interment site, along the niche wall, or in a committal shelter at the Columbarium Courts.

Deficiencies related to the committal services are described in the following paragraphs.

##### Support Facilities

Providing support to those attending committal services is part of "Honor the Fallen". Currently, support facilities are provided in the Administration Building. These facilities include family waiting rooms and Chaplains' offices. However, these support facilities are undersized. The family waiting room space is limited and often inadequate, particularly for committal services with large numbers of attendees. Additionally, the Chaplains' offices lack spaces to provide private counseling and facilities to prepare for committal services.

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Therefore, more space is needed to support those attending committal services.

### Queuing Area

Queuing for committal services processions causes traffic congestion near the Administration Building. ANC conducts 27 to 30 committal services daily. Committal services are scheduled to begin at one of six times, 9 am, 10 am, 11 am, noon, 1 pm, 2 pm or 3 pm. Consequently, multiple committal service processions queue-up near the Administration Building several times daily.

Committal service attendees queue their vehicles along existing roadways near the Administration Building. Typical queuing areas include King Drive and Halsey Drive; Eisenhower Drive and Memorial Avenue are also used for larger processions. Given the number of processions that queue-up at one time, traffic congestion results in an area where congestion is already a problem. In addition, for larger processions, queued vehicles can extend into the parking lot driving lanes thereby blocking other processions from exiting the parking lot. Therefore, a dedicated queuing area is needed to accommodate committal service processions.

### **1.3.4 Enhance Visitor Experiences**

Deficiencies that detract from the visitors experience are described in the following paragraphs.

#### Welcome Center

The Welcome Center is undersized for the number of people that visit ANC. The Welcome Center located on Memorial Avenue serves as ANC's "front door". Visitors typically start their visit at the Welcome Center after parking in the

adjacent parking structure, disembarking from tour buses or walking from the Metro. The Welcome Center provides information services, a bookstore, restrooms, a tour vehicle ticket counter and limited exhibits. The Welcome Center is crowded particularly when there is a large influx of visitors from multiple tour buses. Therefore, additional facilities are needed to accommodate visitors.

#### Interpretive Center

The cemetery lacks an interpretive center. Part of ANC's mission is to connect guests to the rich tapestry of the cemetery's living history. Many historic sites have interpretive centers to achieve this mission. Interpretive centers are modern museums where visitors' interest is stimulated through multi-media interactive exhibits. The Welcome Center does not function as an interpretive center. Therefore, an interpretive center is needed to connect guests to the historical and cultural importance of ANC.

#### Amenities

The cemetery lacks certain amenities that would enhance the visitor experience. Walking distances at ANC tend to be significant. Given the walking distances, not enough resting places are provided. Also, signage in the cemetery is inconsistent and understated making way finding difficult.

### **1.3.5 Promote Sustainability**

Sustainable design, construction practices and operations are key requirements for ANC. Not only because some sustainability initiatives such as decreasing energy use and stormwater runoff are regulated, but also because ANC is committed to integrating sustainability initiatives across its organization.

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Both federal legislation and executive orders promote sustainability. These include the Energy Policy Act of 2005 (EPA05); Executive Order (EO) 13423, Strengthening Federal Environmental, Energy, and Transportation Management; the Energy Independence and Security Act (EISA) of 2007; and EO 13514 Federal Leadership in Environmental, Energy, and Economic Performance. EPA05 encourages energy conservation and efficiency. EO 13423 includes established goals for federal agencies to improve energy efficiency, reduce greenhouse gas emissions and decrease water consumption.<sup>16</sup> EISA reinforces the EO 13423's energy reduction goals for federal agencies and introduces more aggressive sustainability requirements.<sup>17</sup> EO 13514 "expands on the energy reduction and environmental performance requirements for Federal agencies identified in EO 13423."<sup>18</sup> EO 13514 requires that federal agencies increase energy efficiency, conserve water, reduce waste, and support sustainable communities.<sup>19</sup>

ANC is committed to integrating environmental sustainability into all of its day-to-day operations, including expansion, operational planning, and environmental management efforts to reduce the environmental impact and resource consumption throughout the cemetery. For example, ANC has created "sustainable" landscape beds that include native plants like River birch, bayberry, blue flag Iris and swamp milkweed. These landscape beds not only require less water, pesticides and fertilizers, but also attract pollinators and absorb storm water runoff.<sup>20</sup>

## **1.4 NEPA Requirements**

NEPA established the national policy for the environment and the Council on Environmental Quality (CEQ). To implement the NEPA policies, CEQ promulgated the *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR Parts 1500-1508, referred to as the CEQ Regulations). Both NEPA and the CEQ Regulations require that federal agencies establish procedures to comply with the intended purpose of NEPA. Both also require federal agencies to encourage and facilitate public involvement as part of the NEPA process.

### **1.4.1 Department of the Army NEPA Procedures**

The Department of the Army (Army) procedures to comply with NEPA are set forth in 32 CFR Part 651, *Environmental Analysis of Army Actions*. As such, these regulations establish the Army policies and responsibilities to integrate environmental considerations early in the decision making process. Instructions on preparing NEPA documentation and carrying out public and agency coordination are provided in the subject regulations.

### **1.4.2 Public and Agency Coordination**

ANC coordinated with stakeholders throughout the preparation of the Programmatic EA.

#### **1.4.2.1 Scoping**

ANC initiated coordination early in the development of the RPMP and Programmatic EA by conducting scoping. Scoping is the process of soliciting information from interested parties for the

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purposes of identifying issues, alternatives and potentially impacted resources.

Different approaches can be used to conduct scoping. Scoping can range from simply sending letters requesting input from a few interested parties to conducting multiple agency and public meetings/workshops. The anticipated stakeholder interest and potential environmental impacts were considered in conducting scoping for this Programmatic EA. The RPMP is of interest to several stakeholders because ANC is the Nation's premier military cemetery and is a major tourist attraction. Also, some stakeholders are particularly interested in the transfer of the former Navy Annex Site to ANC. Therefore, scoping included sending e-mail notices to a broad list of parties and conducting a scoping meeting for the key stakeholders.

Scoping notices were sent to federal, state and local agencies as well as other primary stakeholders. The notices advised recipients of the intent to prepare a Programmatic EA and requested input. The scoping notices also provided preliminary information regarding the Proposed Action including:

- Purpose of and need for the Proposed Action;
- Alternatives to the Proposed Action; and
- Environmental impact categories most likely affected by the Proposed Action.

A number of stakeholders provided input in response to the scoping notices. The responses as well as the scoping notices are included in **Appendix A, Scoping**.

The stakeholder-scoping meeting was held on July 25, 2012 at the ANC Welcome Center. The meeting included a brief presentation by the project team followed by a question/answer/comment period. Summaries of comments from the scoping meeting as well as the attendance sheets and scoping presentation are included in **Appendix A, Scoping**.

### 1.4.2.2 Agency Stakeholder Meeting

An agency stakeholder meeting was held on December 7, 2012. The purpose of the meeting was to preview the proposed major planning initiatives and solicit comments. The Draft RPMP was provided to stakeholders attending the meeting. In addition, the Draft RPMP was made available via a web portal for interested stakeholders. ANC encouraged the agency stakeholders to review the Draft RPMP and provide comments. Several agency stakeholders provided comments. These comments were considered in the development of the RPMP as well as this Programmatic EA.

### 1.4.2.3 Programmatic EA Review

Interested agencies and members of the public were afforded an opportunity to review the Programmatic EA and Draft Finding of No Significant Impact (FNSI) between August 19 and October 21, 2013. Letters and/or e-mails were sent to agencies to advise them of the availability of the Programmatic EA and Draft FNSI and to request comments. Public availability of the documents was announced in the Arlington Connection and on the ANC Web site. See **Appendix D, Public/Agency Review Summary**, for relevant letters, e-mails and notices.

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Five agencies submitted comments: Arlington County, the Arlington Historical Society, the National Capital Planning Commission (NCPC), NPS and the Virginia Department of Environmental Quality (VDEQ). The comments and ANC's responses are provided in *Appendix D*.

### 1.4.2.4 Revised Programmatic EA Review

In addition to providing responses to comments, ANC decided to revise and re-issue the Programmatic EA and Draft FNSI for public and agency review. The Revised Programmatic EA and Draft FNSI are available for public and agency review for 30 days. All comments received within the specified comment period will be considered prior to signing the Final FNSI.

## 1.5 National Capital Planning Act and Commission of Fine Arts Regulations

To preserve and enhance the important historical, cultural and natural features of the National Capital, the National Capital Planning Act established the NCPC as the federal government's central planning agency in the National Capital Region.<sup>21</sup> The NCPC coordinates all federal planning activities in the National Capital Region, which includes Washington, D.C. and the surrounding communities in Maryland and Virginia, including Arlington.

The NCPC's principal responsibilities include:

- Developing the Comprehensive Plan for the National Capital Region;
- Preparing long-range plans and policies;
- Formulating the annual Federal Capital Improvement Program (FCIP); and

- Reviewing federal and District of Columbia development projects.<sup>22</sup>

To meet these responsibilities, NCPC requests that federal agencies prepare agency-wide systems plans and installation master plans, as appropriate, to provide a long-range planning context for proposed projects. NCPC uses installation master plans in its review of plans for individual federal projects. It also reviews these long-range installation plans for consistency with NCPC policies and other development policies. This review includes an evaluation of whether the quality, character, and extent of facilities proposed within an installation's master plan is in keeping with the installation's assigned mission, as well as other plans and programs of the agency.<sup>23</sup> NCPC is unlikely to recommend favorably on projects on installations for which there is no approved master plan.<sup>24</sup>

Federal agencies submit their specific development proposals for site acquisitions, building construction or renovation, site development, street and road extensions and improvements, modifications to parking, and all types of commemorative works to NCPC as required under Section 5 of the National Capital Planning Act and other statutes. NCPC reviews these projects for conformity with applicable plans and policies including the *Comprehensive Plan for the National Capital: Federal Elements* and adopted Installation Master Plans.<sup>25</sup>

NCPC also reviews proposed federal projects when formulating the annual FCIP in accordance with Section 7 of the National Capital Planning Act. Federal agencies submit planned projects for the next six years to the NCPC annually. The NCPC reviews the projects and includes their recommendations and comments in the FCIP. The FCIP recommendations are

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considered by the Office of Management and Budget in developing the President's annual budget.<sup>26</sup>

The U. S. Commission of Fine Arts (CFA) was established to guide the architectural development of Washington D.C.<sup>27</sup> "The Commission's mission, as design proposals are brought before it, is to safeguard and improve the appearance and symbolic significance of Washington, D.C. as a capital for the benefit of the citizens of the United States and foreign visitors. Specifically, the Commission provides knowledgeable advice on matters pertaining to architecture, landscape architecture, sculpture, painting, and the decorative arts to all branches and departments of the Federal and District of Columbia governments when such matters affect the National Capital."<sup>28</sup> The CFA conducts two levels of review for proposed development, concept and final. Early consultation prior to submitting for the conceptual review is encouraged.<sup>29</sup>

Army regulations address coordination of the RPMP with both the NCPC and the CFA. Army Regulation (AR) 210-20, *Real Property Master Planning for Army Installations*, states that projects in the National Capital Region will be coordinated with the NCPC and CFA.<sup>30</sup> AR 420-1 is more explicit. AR 420-1 states, "The NCPC requires the review and approval of master plans .... for Army installations located in the National Capital Region."<sup>31</sup> Concerning the CFA, AR 420-1 states, "The CFA also reviews and approves master plans ...for installations in the District of Columbia; Arlington National Cemetery; and Fort Myer, VA."<sup>32</sup>

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**Endnotes**

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- <sup>1</sup> Department of the Army, Army Regulation 210-20, *Real Property Master Planning for Army Installations*, May 16, 2005, paragraph 2.7a.
- <sup>2</sup> 32 CFR Part 651, *Environmental Analysis of Army Actions*, March 29, 2002, § 651.20 (d).
- <sup>3</sup> U.S. Army, *Army National Cemeteries Program Campaign Plan 2012*, January 1, 2012, 1.a.(1).
- <sup>4</sup> U.S. Army, *Army National Cemeteries Program Campaign Plan 2012*, January 1, 2012, 1.a.(3).
- <sup>5</sup> Public Law 106-65, National Defense Authorization Act for Fiscal Year 2000, October 5, 1999, Section 2881.
- <sup>6</sup> Department of Defense Washington Headquarters Services, *Navy Annex Federal Office Building #2 Land Transfer Plan Environmental Assessment*, December 2011, ES-1.
- <sup>7</sup> Department of the Army and County Board of Arlington County, Virginia, *Memorandum of Understanding*, January 2013, p.1
- <sup>8</sup> Department of the Army and County Board of Arlington County, Virginia, *Memorandum of Understanding*, January 2013, p.1
- <sup>9</sup> ANC, *Arlington National Cemetery Master Plan*, 1998, p. 23.
- <sup>10</sup> ANC, *Administrative Guide to Information and Burial at Arlington National Cemetery*, 17 May 2012, p. 10.
- <sup>11</sup> U.S. Army, *Army National Cemeteries Program Campaign Plan 2012*, January 1, 2012.
- <sup>12</sup> 10 USC § 4724, 01/03/12, (b)(7).
- <sup>13</sup> ICF Consulting, *Executive Order 13274 Purpose and Need Work Group Baseline Assessment Report*, March 15, 2005, p.2.
- <sup>14</sup> U.S. Army, *Army National Cemeteries Program Campaign Plan 2012*, January 1, 2012, 1.c.(5).
- <sup>15</sup> Center for Army Analysis, *ANC Burial Capacity*, December 26, 2012.
- <sup>16</sup> Executive Order 13423, *Strengthening Federal Environmental, Energy and Transportation Management*, 1/24/07, Section 2, p.1.
- <sup>17</sup> EPA, Laws & Regulations, *Summary of the Energy Independence and Security Act*, <http://www2.epa.gov/laws-regulations/summary-energy-independence-and-security-act>, accessed 3/7/14.
- <sup>18</sup> FedCenter.gov, Federal Facilities Environmental Stewardship Compliance Assistance Center, Sustainability Program Area, <https://www.fedcenter.gov/programs/sustainability/>, accessed 3/10/14.
- <sup>19</sup> The White House, Council on Environmental Quality, *Federal Leadership in Environmental, Energy and Economic Performance – Executive Order 13514*, <http://www.whitehouse.gov/administration/eop/ceq/sustainability>, accessed on 10/19/12.

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- <sup>20</sup> ANC Web site, *Photo of the Week April 23, 2012*, <http://www.arlingtoncemetery.mil/Gallery/PhotoOfTheWeek.aspx?Y=2012&M=4>, accessed 3/10/14.
- <sup>21</sup> National Capital Planning Commission (NCPC), *Legislative Authorities* [http://www.ncpc.gov/ncpc/Main\(T2\)/About\\_Us\(tr2\)/About\\_Us\(tr3\)/LegislativeAuthorities.html](http://www.ncpc.gov/ncpc/Main(T2)/About_Us(tr2)/About_Us(tr3)/LegislativeAuthorities.html), accessed 12/01/12.
- <sup>22</sup> NCPC, *About Us*, [http://www.ncpc.gov/ncpc/Main\(T2\)/About\\_Us\(tr2\)/AboutUs.html](http://www.ncpc.gov/ncpc/Main(T2)/About_Us(tr2)/AboutUs.html), accessed 02/13/13.
- <sup>23</sup> NCPC, *Federal Capital Improvements Program for the National Capital Region, FYs 2012-2017*, Adopted November 3, 2011, p. 8.
- <sup>24</sup> NCPC, *Site Plans and Development Projects*, Approved October 3, 1991 and amended April 1, 2004, Section 1, paragraph D. 2. [http://www.ncpc.gov/ncpc/Main\(T2\)/ProjectReview\(Tr2\)/ProjectReview\(Tr3\)/SubmissionGuidelines.html](http://www.ncpc.gov/ncpc/Main(T2)/ProjectReview(Tr2)/ProjectReview(Tr3)/SubmissionGuidelines.html), accessed, 2/13/13.
- <sup>25</sup> NCPC, *Federal Capital Improvements Program for the National Capital Region, FYs 2012 -2017*, Adopted November 3, 2011, p. 8.
- <sup>26</sup> NCPC, *Federal Capital Improvements Program for the National Capital Region, FYs 2012 -2017*, Adopted November 3, 2011, p. 7.
- <sup>27</sup> CFA, *About the Commission of Fine Arts*, <http://www.cfa.gov/print/about/index.html>, accessed March 20, 2013.
- <sup>28</sup> CFA, *Budget Justifications Fiscal Year 2013*, p. 2.
- <sup>29</sup> CFA, *Federal and District Government Projects*, <http://www.cfa.gov/print/federal/index.html>, accessed March 21, 2013.
- <sup>30</sup> Headquarters Department of the Army, AR 210-20, *Real Property Master Planning for Army Installations*, 16 May 2005, 2-8 d(1).
- <sup>31</sup> Headquarters Department of the Army, AR 420-1, *Army Facilities Management*, 12 February 2008, 4-5.a.(3).
- <sup>32</sup> Headquarters Department of the Army, AR 420-1, *Army Facilities Management*, 12 February 2008, 4-5.a.(4).



# Chapter 2: PROPOSED ACTION AND ALTERNATIVES

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Arlington National Cemetery (ANC) prepared a new Real Property Master Plan (RPMP) and a Cemetery Design Guide (CDG). The recommended improvements in the RPMP and CDG are together referred to as the Proposed Action. The first section of this Chapter provides information regarding the Proposed Action.

An Environmental Assessment (EA) must also include consideration of alternatives to the proposed action per the Council on Environmental Quality (CEQ) and Army Regulations.<sup>1</sup> Section 2.2 discusses the identification and screening of alternatives.

## 2.1 Proposed Action

The Proposed Action, which could be any of the four Action Alternatives discussed in detail beginning in Section 2.2, is based on the RPMP including the CDG. The development in the Proposed Action, grouped by area within the cemetery, includes the following:

- Arrival Area
  - Transportation Center
  - Reconfigured Administration Building and new Queuing Area
- Southern Expansion Site Area
  - Interments
  - Landscaping and memorial markers
  - Building and parking
  - Maintenance and operations

- Cemetery Wide
  - Visitor amenities
  - Sustainability measures

Information regarding the individual development projects is provided as part of the alternatives discussion in the following sections.

Development of the Millennium Site is not included in the Proposed Action. This site was identified as a future growth area for ANC in the previous Master Plan. An independent environmental assessment was completed and construction of the Millennium Project is underway. Therefore, the Millennium Project will be considered in the evaluation of cumulative impacts.

## 2.2 Alternatives

Alternatives were identified to address each of the following needs for the Proposed Action:

- Add Burial Capacity
- Facilitate Future Cemetery Operations
- Enhance Family Experiences During Committal Services
- Enhance Visitor Experiences
- Promote Sustainability

The alternatives identified for each of these needs were screened to determine if they

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would be retained for detailed review or eliminated from further consideration.

In the following sub-sections, the need is identified, the development of potential alternatives to meet that need is described, and the screening process is explained.

**2.2.1 Add Burial Capacity**

The primary need at ANC is to expand the burial capacity. Alternatives to add burial capacity to ANC were identified by considering available areas. The only cemetery area not already committed to in-ground interments, columbaria, memorials, monuments, structures and infrastructure is the former Navy Annex Site now referred to as the Southern Expansion Site. Therefore,

the alternatives to add burial capacity were limited to different concepts for developing the Southern Expansion Site.

The surrounding roadways and site topography are suitable for dividing the Southern Expansion Site into four development parcels. See **Figure 2-1** for an illustration of the parcels.

Parcel A is the generally flat plateau on the west side of the site. Parcel B is the steeply sloped land located just east of the U.S. Air Force Memorial. Parcel C, located south of Columbia Pike, was an asphalt parking lot. Parcel D is the low land east of Columbia Pike and east of Joyce Street, where an old gas station was located.

**Figure 2-1  
Southern Expansion Site Parcels**



Photo 1: Caisson



Alternatives for adding burial capacity by developing these parcels were considered. Constructability and accessibility were the driving factors in evaluating these parcels. Constructability was principally related to topography and the ability to accommodate in-ground and above ground interments and inurnments. The evaluation of accessibility was primarily related to the ability of a horse-drawn caisson to reach the interment and inurnment areas. Caisson refers to a former gun carriage that carries the human remains to the interment or inurnment site. The caisson pictured in **Photo 1** may be used for committal services of service members who meet certain eligibility criteria. All new interment and inurnment areas must be accessible by the horse-drawn caisson.

Alternative 1 – Southern Expansion Site

Each of the Southern Expansion Site parcels was considered for potential to accommodate interments. Parcel A is well suited for both above and below ground interments because it is relatively level. Parcel A is also reasonably accessible via

the horse-drawn caisson. While the horse-drawn caisson would have to cross Southgate Road, the crossing was considered possible because of the small volume of traffic on Southgate Road, but not desirable. Finally, per ANC's interpretation of the National Defense Authorization Act (NDAA) of 2000, Parcel A must be used for interment type functions.

Parcel B is too steep to allow for in-ground casketed interments. The steep slope also limits the ability of caissons to access Parcel B. Finally the proximity of a public road, Columbia Pike, is not conducive to conducting interment ceremonies. Therefore, Parcel B was not considered suitable for interments. However, as with Parcel A, per ANC's interpretation of the NDAA, Parcel B must be used for interment type functions.

Both parcels C and D are located south of Columbia Pike. Columbia Pike is an urban arterial. The horse-drawn caisson would have to cross this roadway in order to reach parcels C or D. Crossing Columbia Pike was not considered acceptable in terms of

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ensuring safety and maintaining traffic flow. Therefore, Parcel C and D were not considered suitable for interments.

Therefore, only Parcel A was deemed suitable for interments.

Since Parcels B, C and D were considered unsuitable for interments, other development options were explored. Parcel B would be suitable for only memorial markers and landscaping because of the topography. Parcel C is relatively large and level. Therefore, Parcel C is suitable for a building such as an interpretive center or administration building and related parking. Parcel D is narrow. The narrow shape is not conducive to building development. However, given its proximity to the Service Complex it is a good location for maintenance and operations uses.

In summary, Alternative 1 would include the following land uses for each of the Southern Expansion Site parcels:

Parcel A – interments

Parcel B – memorial markers and landscaping

Parcel C – building and associated parking

Parcel D – maintenance and operations

Alternative 1 is shown on **Figure 2-2**.

As is evident from the discussion of Alternative 1, the existing road network constrains the ability to develop the individual parcels for optimum burial capacity. Also, a contiguous cemetery is preferred for ease of caisson access. Three other development alternatives were explored.

**Figure 2-2  
Alternative 1 – Southern Expansion Site**



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Alternative 2 – Southern Expansion Site with Southgate Road

Under Alternative 2, ANC would acquire the Southgate Road right-of-way and potentially divest itself of land south of Columbia Pike. With the acquisition of Southgate Road, Parcel A would be contiguous with the main cemetery. A contiguous cemetery allows for the horse-drawn caisson and cemetery operation and maintenance crews to access Parcel A without crossing a public road.

Another advantage of acquiring the Southgate Road right-of-way is the resulting potential for burial capacity expansion. The Southgate Road right-of-way was evaluated for potential for burial capacity expansion. The use of the right-of-way for interments is somewhat limited by the utility corridor that runs underneath Southgate Road. Interments over utility corridor easements are not permitted because of the potential need to access the utility lines. Additionally, some of the utilities cannot be removed as they serve the surrounding communities. Therefore, only the portion of the Southgate Road right-of-way outside the utility easement was deemed as suitable for interments.

The acquisition of Southgate Road offers another opportunity for burial capacity expansion. If the area over the utility easement remains a road, the nearby parallel Patton Drive becomes redundant. Only one of the roads is needed to provide circulation within this part of the cemetery. Therefore, Patton Drive could be removed and the land could be committed to interments.

In summary, Alternative 2 would include the following land uses for the Southern Expansion Site, Southgate Road and Patton Drive:

Parcel A – interments

Parcel B – memorial markers and landscaping

Parcel C – building and associated parking (ANC may potentially divest itself of all or a portion of Parcel C)

Parcel D – maintenance and operations

Southgate Road right-of-way – utilities and interments outside of utility corridor

Patton Drive - interments

Alternative 2 is illustrated on **Figure 2-3**.

Alternative 3 – Southern Expansion Site with Southgate Road and an Easement

Alternative 3 is similar to Alternative 2 in that ANC would acquire the Southgate Road right-of-way. However, with Alternative 3, ANC would divest itself of a 55-foot-wide easement along the western-most boundary of Parcel A and potentially land south of Columbia Pike. The easement would allow for the construction of a road from Columbia Pike to Southgate Road.

In summary, Alternative 3 would include the following land uses for the Southern Expansion Site, Southgate Road and Patton Drive:

Parcel A – interments with a 55-foot-wide easement along the western most boundary

Parcel B – memorial markers and landscaping

Parcel C – building and associated parking (ANC may potentially divest itself of all or a portion of Parcel C)

Parcel D – maintenance and operations

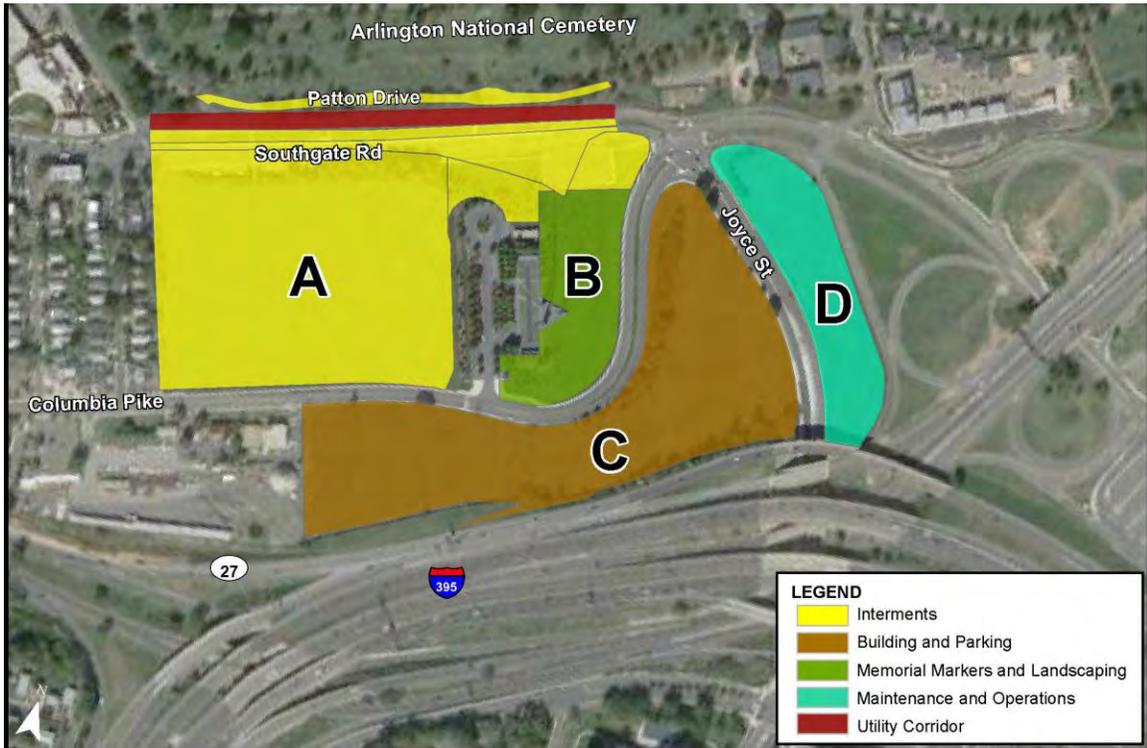
Southgate Road right-of-way – utilities and interments outside of utility corridor

Patton Drive – interments

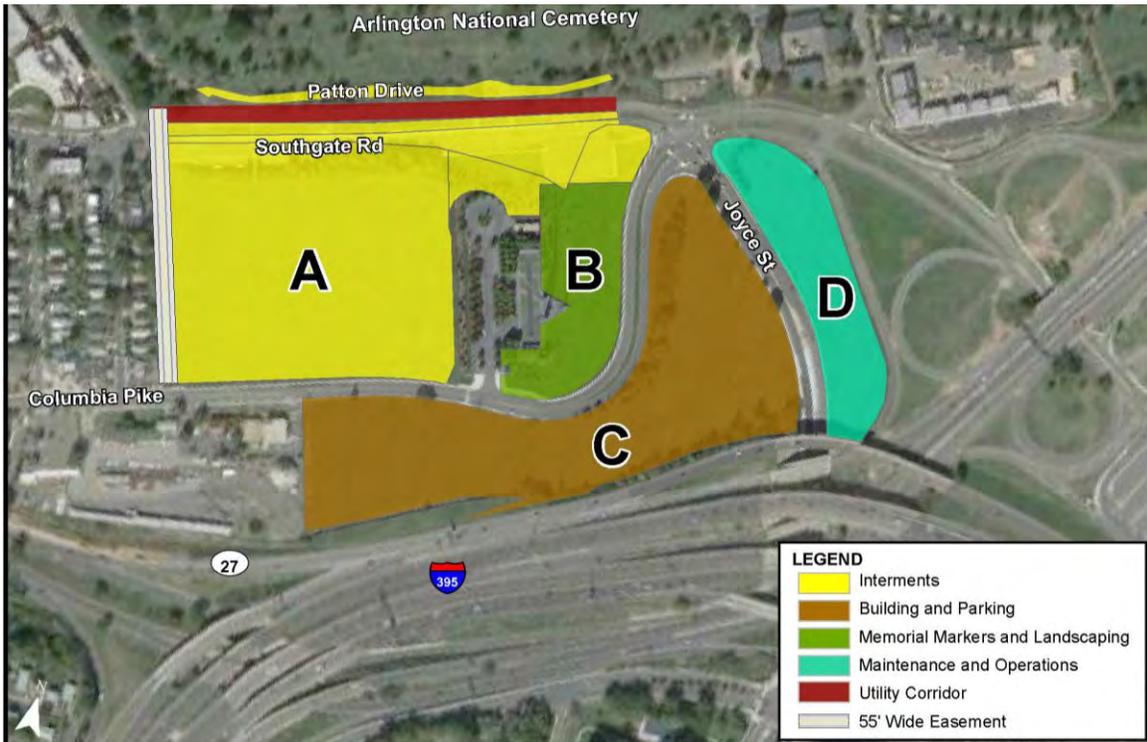
Alternative 3 is illustrated on **Figure 2-4**.

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**Figure 2-3  
Alternative 2 – Southern Expansion Site with Southgate Road**



**Figure 2-4  
Alternative 3 – Southern Expansion Site with Southgate Road and an Easement**



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Alternative 4 – Southern Expansion Site with Realigned Roadways

The development of Alternative 4 focused on expanding ANC burial capacity by taking advantage of the proposed realignment of Columbia Pike. The realigned road could allow for additional land to be contiguous with the main cemetery. Thus, more area could become suitable for interments.

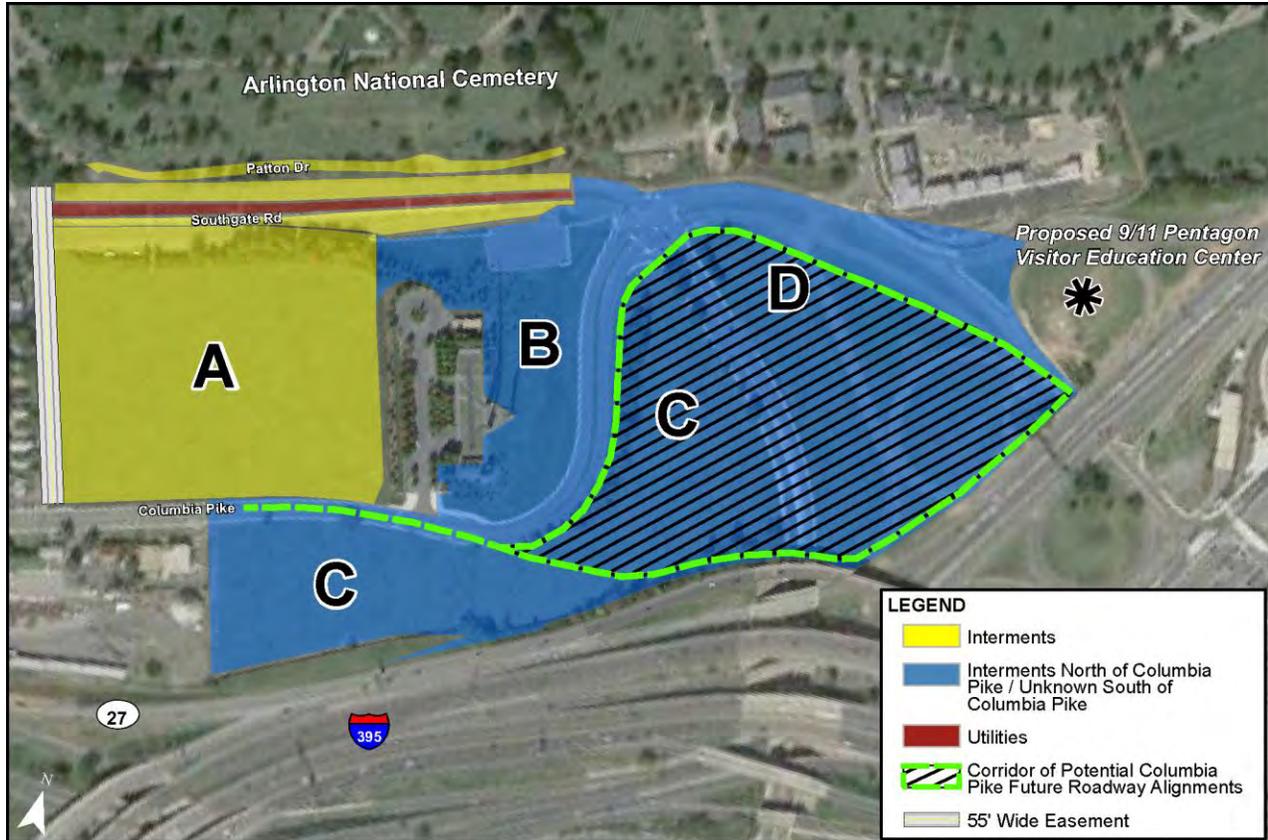
The design of the realignment of Columbia Pike near Joyce Street is in the preliminary stage. A conceptual alignment was shown in the Memorandum of Understanding (MOU) between the Army and Arlington County. However, as part of preliminary design, various alignments are being

considered. Therefore, for the purposes of this EA, a corridor of potential alignments was considered. The northern boundary of the corridor is the existing Columbia Pike alignment. The southern boundary is the edge of Rt. 27. **Figure 2-5**, illustrating Alternative 4, shows the corridor of potential alignments. The MOU conceptual alignment falls within this envelope.

Based on the corridor of potential Columbia Pike alignments, Alternative 4 would include the following land uses:

- Parcel A - interments with a 55 foot easement along the western most boundary
- Parcels B, C and D – unknown because the land use depends on the location of the

**Figure 2-5  
Alternative 4 – Southern Expansion Site with Realigned Roadways**



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realigned Columbia Pike. Generally parcels contiguous to the cemetery (north of the realigned Columbia Pike) would be used for interments. (ANC may potentially divest itself of land south of realigned Columbia Pike and acquire property north of realigned Columbia Pike.)

Southgate Road right-of-way – utilities and interments outside of utility corridor

Patton Drive - interments

**2.2.2 Facilitate Future Cemetery Operations**

Areas used for on-going cemetery operations will ultimately be converted to interment areas. A portion of Section 61 is used for storage of cemetery spoils and Section 58 is used as a ground maintenance contractor storage area. Both Sections are suitable for in-ground interments. Therefore, recognizing that the primary need is to expand burial capacity, these Sections are slated for conversion to in-ground interments.

Relocation of the spoils storage and the grounds maintenance contractor area was considered. Under existing conditions, approximately 2 acres are needed for spoils storage and processing and a minimum of 1.5 acres are needed for the grounds maintenance contractor area. Potential alternative on-site locations with sufficient area for spoils and/or contractor storage were identified. Because of the importance of expanding burial capacity at ANC, sites ideally suited for interment such as the Southern Expansion Site Parcel A were eliminated from consideration. As a result two potential relocation sites were identified and evaluated. The locations of these two alternatives are shown on **Figure 2-6**.

In addition to relocation alternatives, discontinuing on-site spoils / grounds maintenance contractor storage was considered.

Alternative 1 - Ord-Weitzel Gate Repair Construction Staging Area

Alternative 1 is to use Ord-Weitzel Gate repair construction staging area for spoils and/or maintenance contractor staging. The approximately 1.5 acre site is located adjacent to the Service Complex.

The size and shape of this site limit its usability for spoils storage and processing, and grounds maintenance contractor storage. At approximately 1.5 acres, this site does not provide the area needed for spoils storage and processing. Based strictly on total acreage, the subject area is large enough to accommodate grounds maintenance contractor storage requirements. However, the shape of the site is triangular and not all of the 1.5 acres is usable for staging activities. Therefore, the site is also not suited for grounds maintenance contractor storage. In addition, this alternative could limit the options available to connect Eisenhower Drive with Southgate Road should Southgate Road become part of the cemetery. Therefore, due to the site's limited size and functionality as well as the potential limitations on future connectivity, this alternative was eliminated from further consideration.

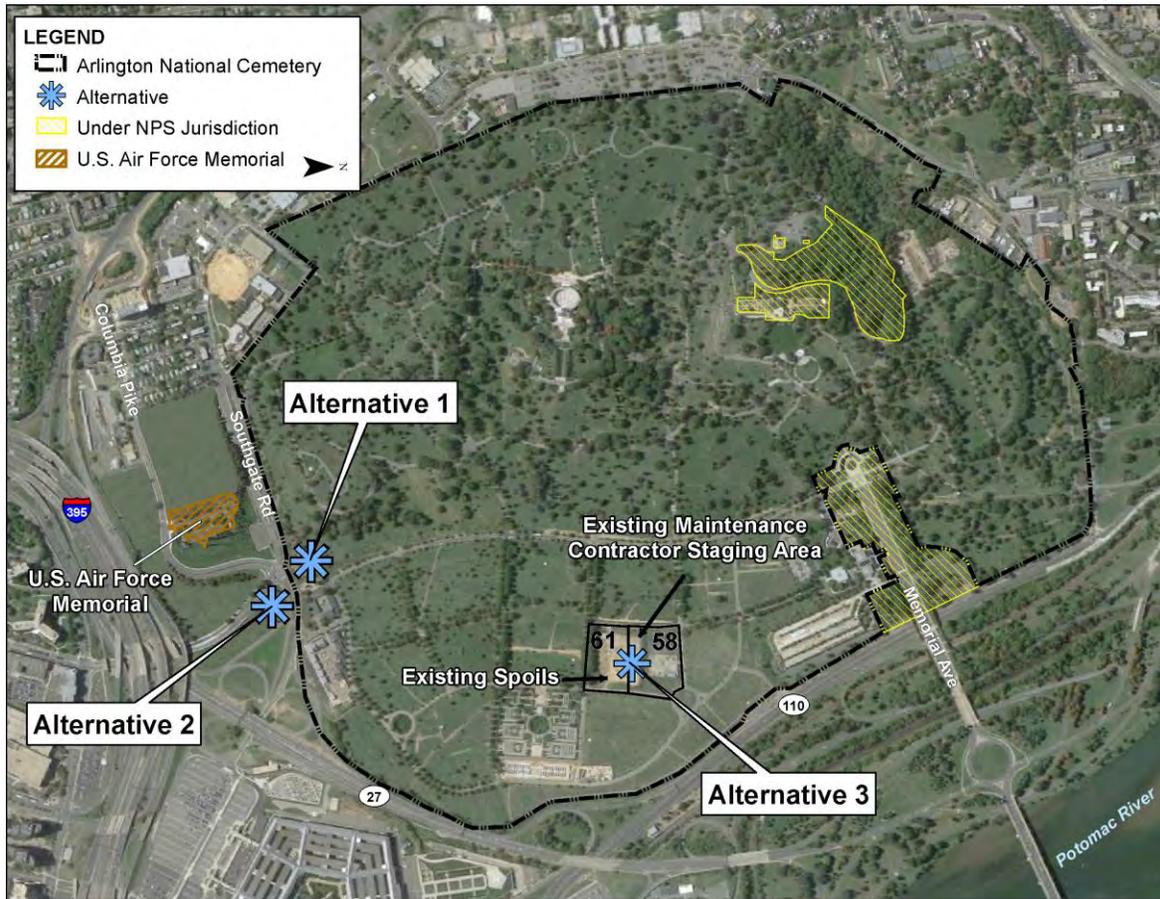
Alternative 2 – Southern Expansion Site Parcel D

Alternative 2 is to use Parcel D of the Southern Expansion Site for spoils and grounds maintenance contractor storage. Parcel D is of sufficient size to support both uses.

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**Figure 2-6**

**Alternative Locations for Spoils and Grounds Maintenance Contractor Storage**



Alternative 2 has some operational disadvantages and advantages because Parcel D is not contiguous with the cemetery. One disadvantage is that maintenance vehicles and trucks would have to use public streets, Joyce Street, and Columbia Pike, to travel between Parcel D and the Service Complex gate. Another disadvantage is that visual screening may be required due to the high visibility of Parcel D. Finally, ANC may be burdened with additional operational responsibilities to keep Joyce Street and Columbia Pike free from debris. However, a major advantage is that noise and dust generated on Parcel D would not affect committal services because Parcel D is

separated from the cemetery. Therefore, Alternative 2 was carried forward for further consideration.

**Alternative 3 - Discontinue On-Site Spoils/  
Grounds Maintenance Contractor Storage**

The need for spoils storage is expected to diminish over time. As explained in Chapter 1, interments in the cemetery expansion areas will generate little or no spoils. Also, ANC could eliminate on-site grounds maintenance contractor storage in future maintenance contracts. Therefore, considering that Sections 61 and 58 are not needed for burials in the immediate future, ANC could continue to use Sections 61 and 58 for the purposes of spoils and grounds

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maintenance storage until such time that the need for spoils storage diminishes and they can contractually eliminate on-site grounds maintenance contractor storage.

Summary

Of the three alternatives considered for cemetery spoils and maintenance contractor staging, Alternatives 2 and 3 were retained for further consideration. Alternatives 2 and 3 are the only alternatives that are feasible.

**2.2.3 Enhance Family Experiences  
During Committal Services**

Alternatives to enhance the experiences of those attending committal services were considered.

***Expand Committal Services Support Areas***

Services to support those attending committal services are provided in the existing Administration Building. The space dedicated to committal services support is insufficient. More and larger family waiting areas are needed. In addition, chaplains need facilities to provide private counseling and prepare for committal services.

*Alternative 1 – Repurpose the Administration Building*

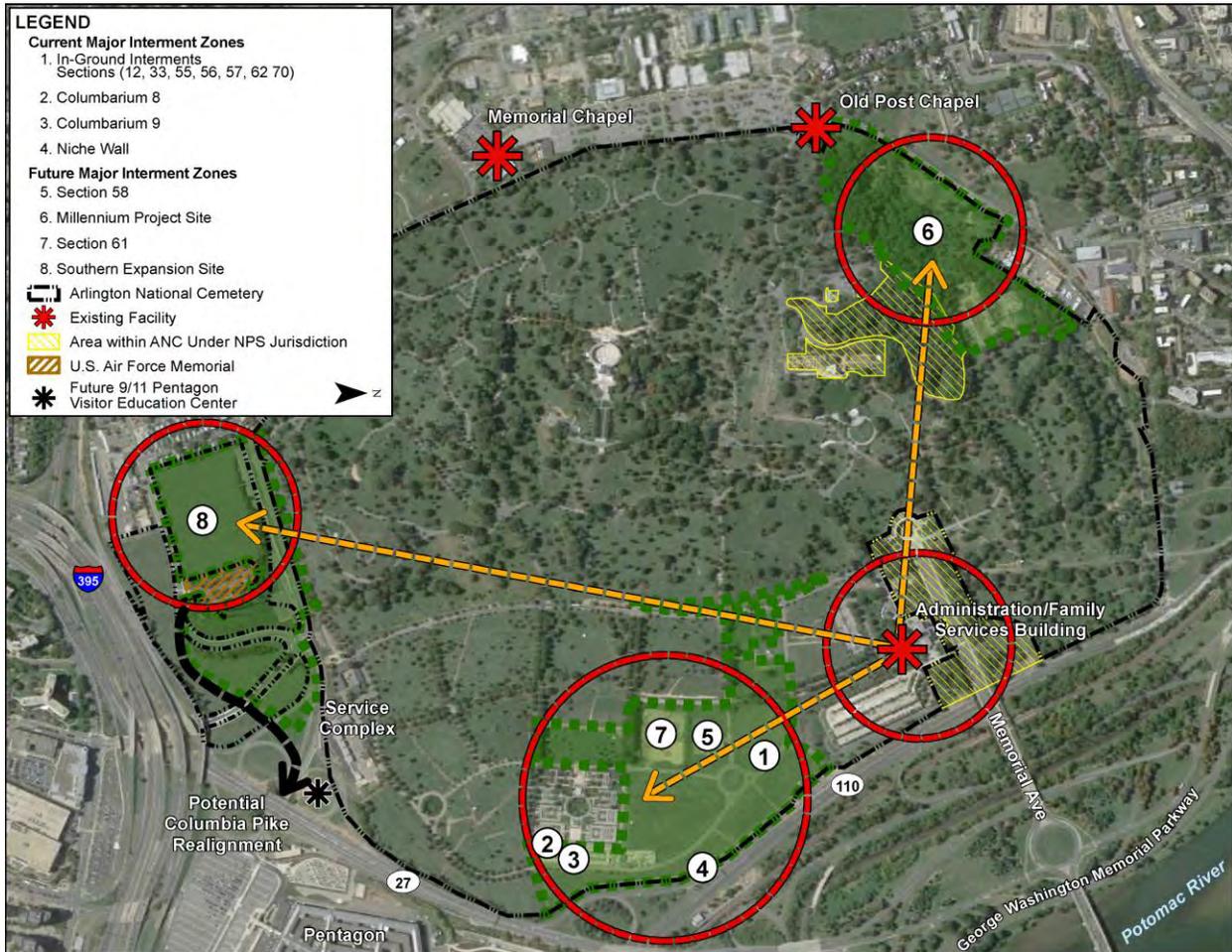
The Administration Building originally housed both administration and committal services support functions. Recently, ANC decided to repurpose the Welcome Center basement and move the administrative staff to the repurposed space. As a result, there will be space available in the Administration Building to expand the committal services support functions. The main level could be used exclusively for those attending committal services and the lower level could accommodate the chaplains' needs.

Not only will the Administration Building have available space, it is ideally situated for the purposes of providing support services. The centrally located Administration Building is close to the three primary areas for interments in the short and mid-term future. **Figure 2-7** shows the location of the Administration Building relative to these areas. Furthermore, access to the Administration Building is through the traditional, iconic ANC entrance. Traveling on Memorial Avenue to the ANC entrance is an important part of the overall committal service experience. Therefore, alternatives to move the committal services support function to another building or to construct new facilities were eliminated from consideration.

The alternative to provide additional committal services support space by repurposing the Administration Building was the only alternative carried forward.

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**Figure 2-7  
Primary Interment Areas**



***Provide Dedicated Committal Procession Queuing Area***

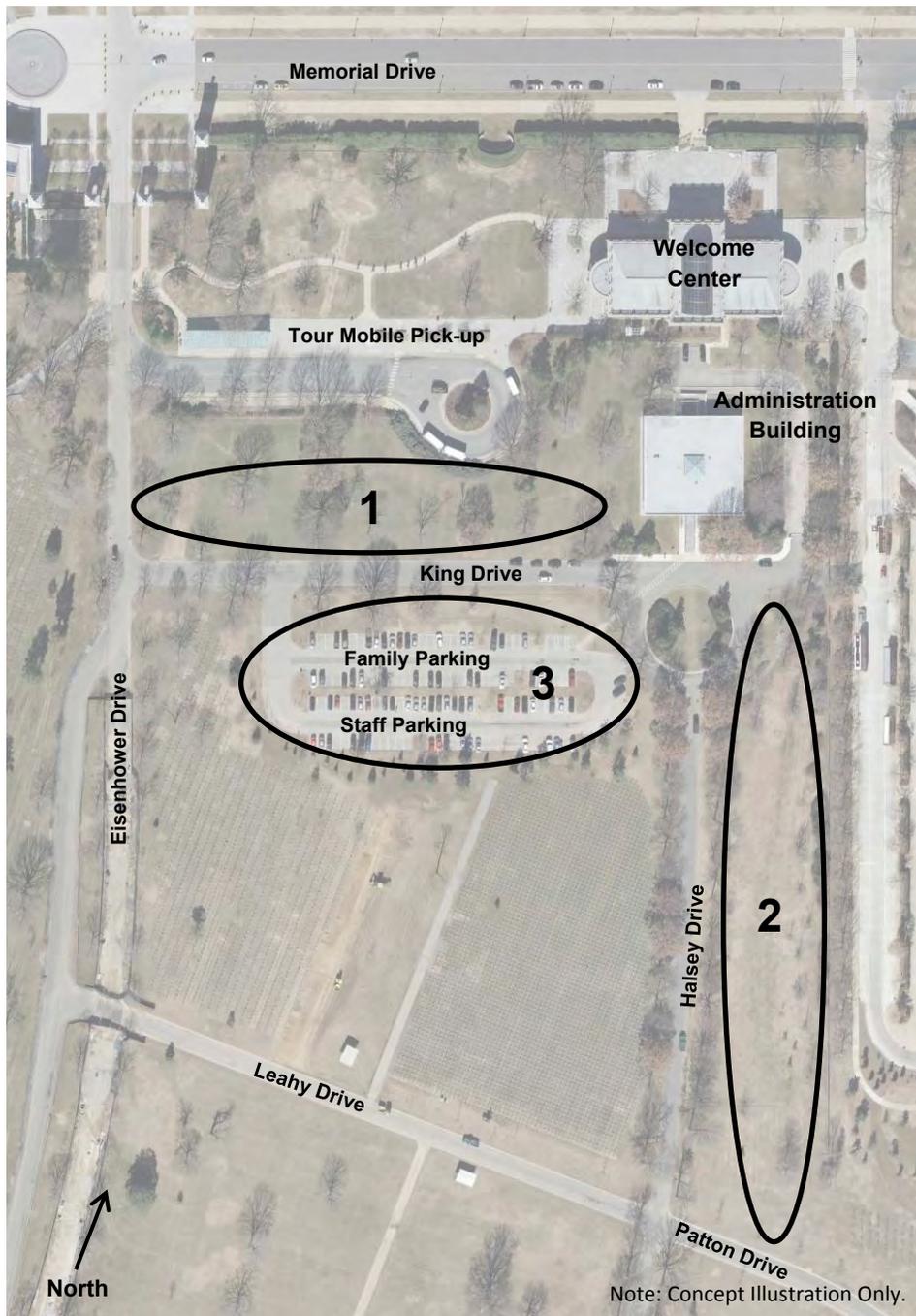
A dedicated queuing area is needed in order to stage vehicles for multiple concurrent committal processions without causing congestion. The queuing area must consist of at least four queuing lanes to accommodate the typical number of concurrent committal processions.

Two criteria were considered in determining alternative locations for the queuing area. First, the queuing area must be near the Administration Building as this is where families and friends gather prior to the

committal procession. Second, because the primary need at ANC is to expand the burial capacity, areas already committed to interment spaces were not considered appropriate for the new queuing area. Only the three areas shown on **Figure 2-8** met these criteria. Therefore, alternatives to provide a dedicated committal procession queuing area were developed using the areas north of King Drive, the area east of Halsey Drive and/or the existing Administration Building parking lot.

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Figure 2-8  
Dedicated Committal Procession Queuing Alternative Areas



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Alternative 1 – King Drive

Alternative 1 represents constructing a dedicated queuing area immediately to the west of the Administration Building and to the north of King Drive as illustrated in **Figure 2-9**. This alternative would provide space for four lanes with 20 cars per lane. Vehicles would access the queuing area via King Drive.

Alternative 2 – Halsey Drive

Alternative 2 represents constructing a dedicated queuing area parallel to and directly east of Halsey Drive, as illustrated in **Figure 2-10**. Alternative 2 would provide space for four to five lanes of at least 30 cars per lane. Vehicles would access the queuing area via Leahy Drive.

Alternative 3- Administration Building Parking Lot

Alternative 3, illustrated in **Figure 2-11**, represents constructing a dedicated queuing area where the existing Administrative Building parking lot is located. Staff parking would be moved to the area east of Halsey Drive, and the area north of King Drive would serve as another parking area with multiple parking spaces for persons with disabilities. Alternative 3 would provide space for four queuing lanes of between 22 to 27 cars per lane. Committal service attendees would access the queuing area via King Drive. Staff would access their parking area via Patton and Halsey Drives.

**Figure 2-9**

**Dedicated Committal Procession Queuing Area – Alternative 1 King Drive**

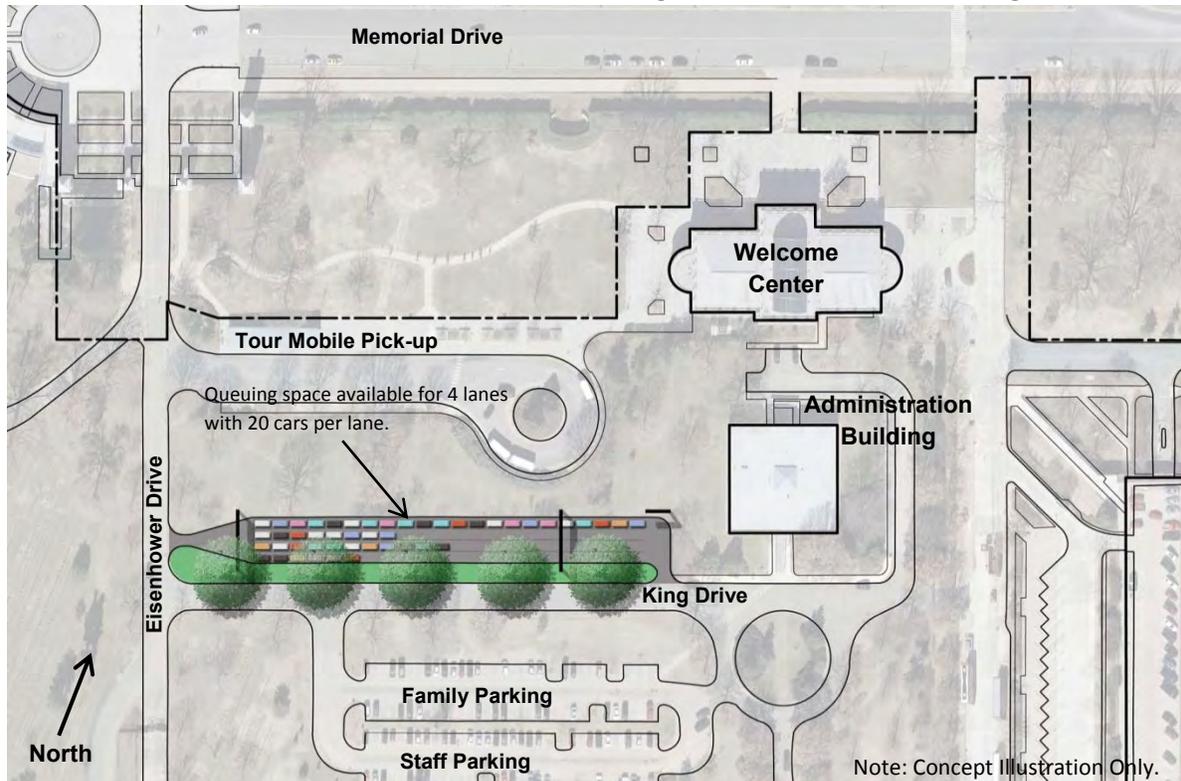


Figure 2-10

Dedicated Committal Procession Queuing Area – Alternative 2 Halsey Drive

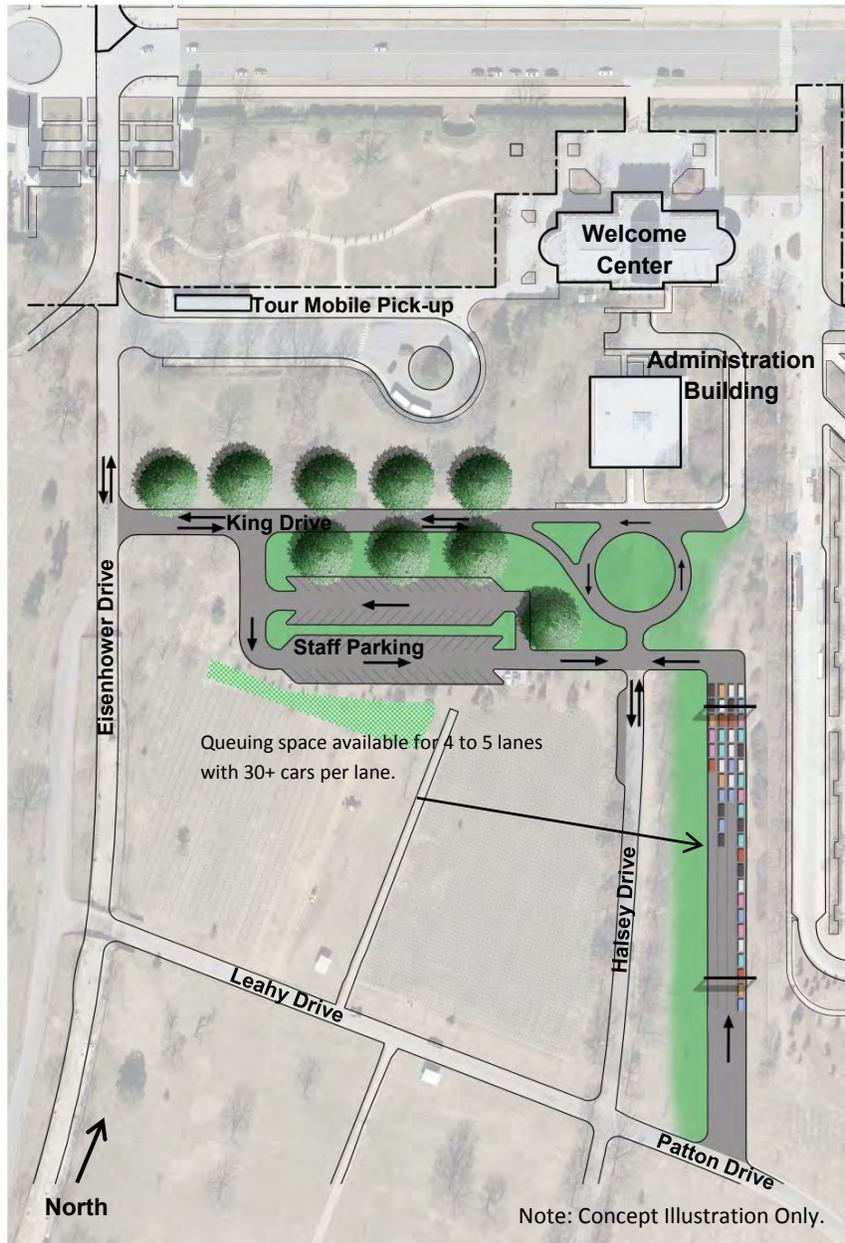


Figure 2-11

Dedicated Committal Procession Queuing Area –  
Alternative 3 Administration Building Parking Lot



Summary

All three Alternatives would provide for a dedicated queuing area. However, Alternative 3 would offer three key advantages over Alternatives 1 and 2.

First, the width of the Alternative 3 queuing area would allow for “pull through” queuing as opposed to the “inline queuing” envisioned for Alternatives 1 and 2. With Alternative 3, committal service attendees would park in angled spaces, walk to the Administration Building, return to their vehicles and pull into the queuing line if they so choose. With Alternatives 1 and 2, committal service attendees would park in the queuing line as they arrive. Thus, all of the vehicles in the line would have to leave the queuing area when it comes time to proceed to the committal site. This limits the flexibility for attendees to leave their vehicle and ride with other attendees to the committal site.

Second, with Alternative 3, emergency access would be maintained at all times. With Alternatives 1 and 2, emergency vehicles may not be able to access all of the vehicles in the queues.

Third, Alternative 3 would provide better facilities for wounded warriors and disabled persons. Special parking spaces and direct ADA compliant access to the Administration Building would be available with Alternative 3. With Alternatives 1 and 2, wounded warriors and disabled persons would likely park in the existing parking area and would have to cross two roads to reach the Administration Building.

Therefore, because Alternative 3 would offer three key advantages over Alternatives 1 and 2, only Alternative 3 was retained for further consideration.

**2.2.4 Enhance Visitor Experiences**

Various alternatives were considered to enhance the ANC visitor experiences.

***Improve the Welcome Center***

The Welcome Center is undersized particularly when there is a large influx of visitors from multiple tour buses. Additional facilities are needed to accommodate visitors. Therefore, alternatives to provide additional visitor facilities were assessed.

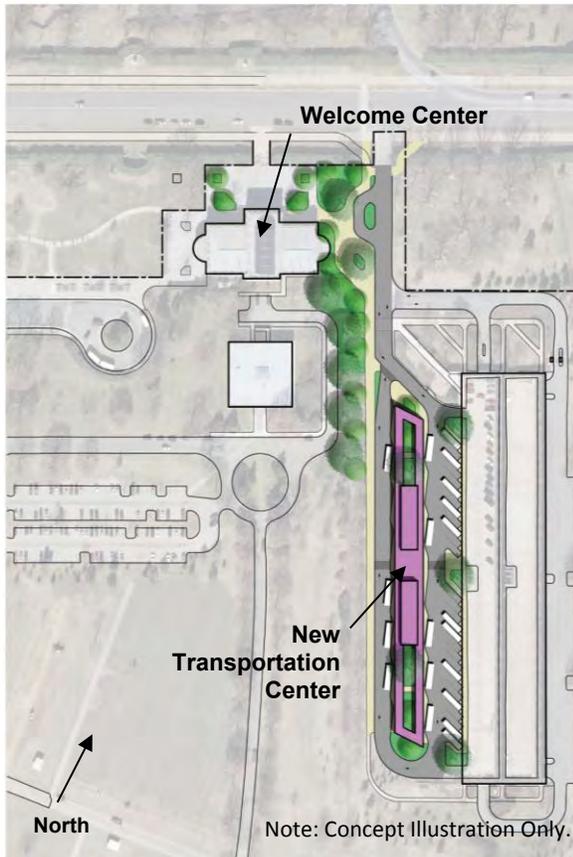
*Alternative 1 - Expand the Welcome Center*

Expansion of the existing Welcome Center onto adjacent vacant land was considered. There is sufficient vacant land immediately to the west of the Welcome Center. While the land is vacant, it is not under ANC’s jurisdiction. Therefore, this alternative was eliminated from further consideration.

*Alternative 2 - Construct a Transportation Center*

The Transportation Center alternative was developed to target the primary cause of overcrowding at the Welcome Center; multiple tour groups arriving at ANC simultaneously. The concept of a transportation center is to provide facilities to meet visitors’ needs at the tour bus parking location as opposed to the Welcome Center. As such, the Transportation Center would be constructed in the tour bus area of the existing parking garage and include restrooms, tour vehicle ticketing, and tour group waiting areas. Since the proposed Transportation Center would address the current overcrowding and improve the visitor experience for all visitors, Alternative 2 was retained for further consideration. **Figure 2-12** shows the location of the proposed Transportation Center.

**Figure 2-12  
Transportation Center**



### ***Develop an Interpretive Center***

An interpretive center is needed to connect guests to the historical and cultural importance of ANC.

Two siting criteria were used to identify potential sites for an interpretive center. First, because the primary need at ANC is to expand the burial capacity, potential sites were limited to areas deemed unsuitable for interments. Second, the site must be suited for building construction. As a result, one existing building and two vacant sites were identified as potential alternatives: the Welcome Center, an area adjacent to the Welcome Center and Parcel C. Parcel D was also considered because it is not suitable for interments. However, Parcel D is narrow and thus not conducive to building

development. Therefore, Parcel D did not meet the siting criteria.

The following sections describe the assessment of the interpretive center alternatives. The locations of the alternatives are shown on **Figure 2-13**.

### ***Alternative 1 – Within the Welcome Center***

The ability to renovate the existing Welcome Center to accommodate interpretive exhibits was considered. In the previous master plan, the basement space of the Welcome Center was to include an interpretive center.<sup>2</sup> However, the basement space is currently being repurposed for administration staff. The first floor level, committed to visitor services, is already overcrowded and does not have space available for interpretive exhibits. Therefore, because the space within the Welcome Center is already dedicated to other uses, Alternative 1 was eliminated from further consideration.

### ***Alternative 2 - Adjacent to the Welcome Center***

Alternative 2 is to construct a new interpretive center adjacent to the Welcome Center. There is sufficient vacant land immediately to the west of the Welcome Center. While the land is vacant, it is not under ANC's jurisdiction. Therefore, Alternative 2 was eliminated from further consideration.

### ***Alternative 3 - Parcel C of the Southern Expansion Site***

Alternative 3 is to construct a new interpretive center on Parcel C of the Southern Expansion Site. Parcel C is the only sufficiently sized site that is both under ANC jurisdiction and unsuitable for interments.

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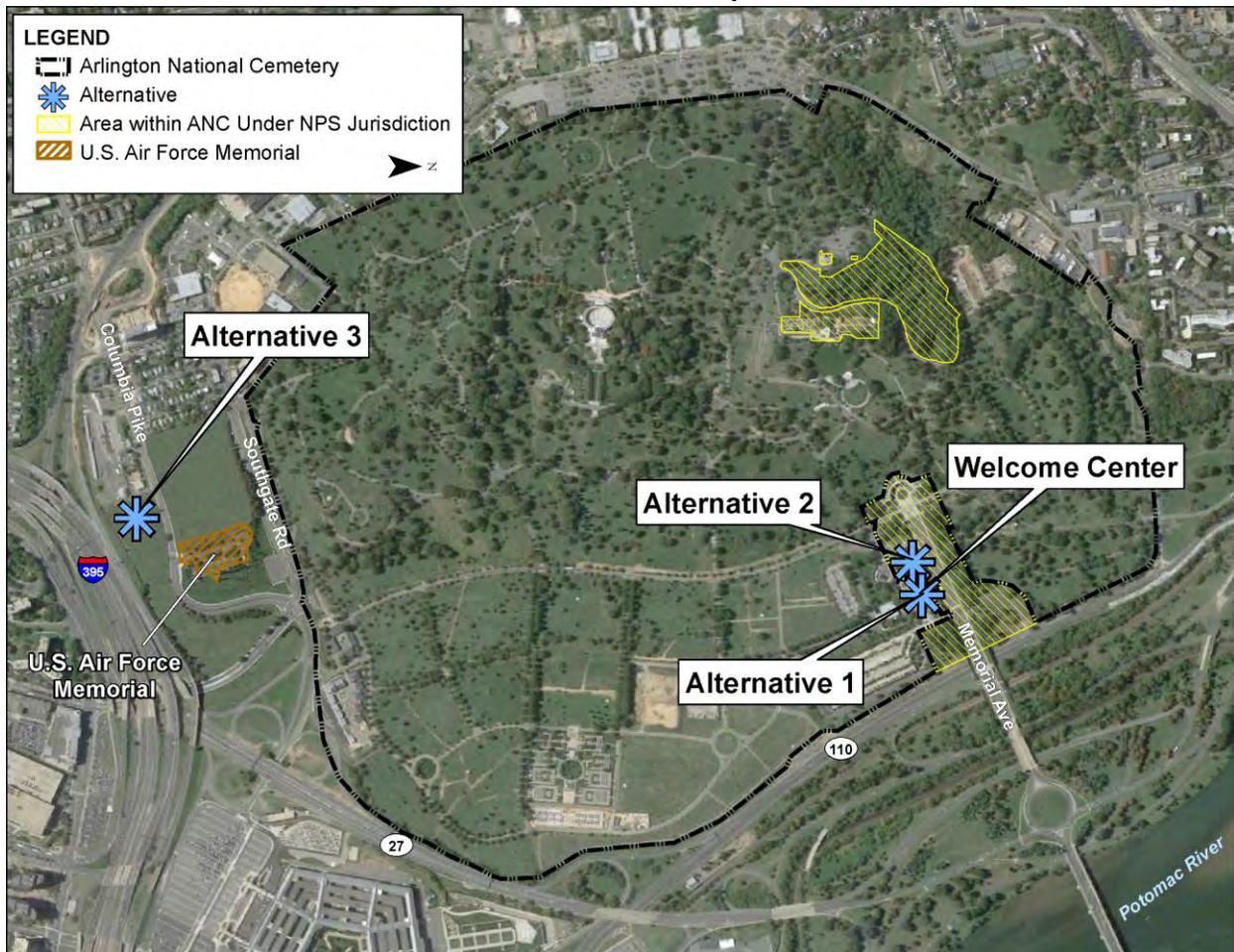
The advantage of locating an interpretive center on Parcel C is that it could serve as a regional interpretive facility. Proposed interpretive centers/museums such as the Pentagon Memorial Interpretive Center and Freedman’s Village Museum could be combined with the proposed ANC interpretive center. There are also disadvantages to using this site for an interpretive center. First, unlike the Welcome Center, it would not be close to a Metro Station. The nearest station would be the Pentagon Metro Station nearly a mile

away. Second, visitors to the Interpretive Center would not experience entering ANC through the impressive, historic path along Memorial Avenue. Third, as compared to the Welcome Center, the interpretive center would be farther from the most frequently visited destinations; the Memorial Amphitheater/Tomb of the unknowns, Arlington House and the President John F. Kennedy Gravesite.

Despite the disadvantages, Alternative 3 was retained for further consideration because it is the only feasible alternative.

**Figure 2-13**

**Alternative Locations for Interpretive Center**



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***Provide Additional Visitor Amenities***

Improvements to amenities are needed to enhance the visitors' experience. Walking distances at ANC tend to be significant. Given the walking distances, not enough resting places are provided. Also, signage in the cemetery is inconsistent and understated, making way-finding difficult. Therefore, the following Alternative is proposed to improve the visitors' experience:

**Alternative 1 – Provide New Resting Places**

Additional benches and seating are proposed to increase visitor's comfort. Benches would be added in areas of high pedestrian use. Potential sites include pedestrian nodes along primary walkways, and at major building entryways, courtyards, and tour vehicle stops. Benches would not be placed in or adjacent to interment areas so as not to detract from the solemn character of these locations.

Wherever possible, seating would be incorporated into planter boxes or retaining walls, particularly at building entrance areas. Seating walls would be integrated into the overall area design and the pedestrian circulation system.

Additional resting places would obviously enhance the visitors' experience; therefore Alternative 1 was retained for further consideration.

**Alternative 2 – Install Standardized Way-finding Guidance:**

Signage would be standardized in accordance with the CDG to facilitate movement and provide a sense of orientation. Signage would serve as a unifying element throughout the cemetery, visually tying the cemetery themes together

and building a reference and continuity throughout the cemetery grounds. Therefore, Alternative 2 was also retained for further consideration.

**2.2.5 Promote Sustainability**

Sustainable design, construction practices and operations are a key requirement for all federal agencies. The ANC is committed to integrating environmental sustainability into all of its day-to-day operations, including expansion, operational planning, and environmental management efforts to reduce the environmental impact across the cemetery and reduce resource consumption providing operational cost savings.

Two alternatives were considered to promote sustainability.

**Alternative 1 – Capture, Store and Reuse Stormwater**

Alternative 1 is the major sustainability measure conceived as part of the RPMP. This Alternative evolved based on the concept that stormwater is a water resource. It was recognized that there was potential to ultimately capture, store and reuse the stormwater currently piped off the cemetery. Stormwater would be collected or intercepted and piped/pumped to underground storage cisterns. The cisterns could be tied to the cemetery's localized irrigation system and thus reduce the use of potable water for irrigation purposes. Capturing the stormwater for reuse would also serve to reduce the impacts of pollutants from stormwater runoff on regional water systems, namely the Potomac River. This Alternative is very preliminary and requires further engineering evaluation. Regardless, Alternative 1 was carried forward for further consideration because of its potential to promote sustainability.

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Alternative 2 – Implement the CDG  
Sustainability Measures

Alternative 2 consists of the sustainability measures provided in the CDG. The CDG includes an extensive list of measures to build upon the sustainability practices already in place at ANC. The measures are grouped under two categories: ground maintenance and new projects.

Sustainable grounds management involves using sustainable practices that enhance the natural functions of the site and surrounding ecology. Highlights of the ground maintenance sustainability measures include:

- Use harvested stormwater to reduce or eliminate the amount of potable water used for irrigation.
- Perform irrigation between 6 am and 10 am to minimize evaporation.
- Apply fertilizer on an as needed basis in lieu of a calendar approach.
- Do not apply fertilizer when heavy rains are expected.
- Use organic and natural materials to the greatest extent possible. If synthetic fertilizers are used, choose slow release formulations.
- Reduce the impervious area through the use of pervious paving.
- Include infiltration swales, retention ponds, and planted vegetated filter strips in the landscape design.
- Use only biodegradable and low impact cleaning products.
- Clean headstone without using chemicals; use only clean water and brushing.

New projects must meet sustainability goals and receive Silver Level Leadership in Energy and Environmental Design (LEED) certification under the Green Building Certification Institute's LEED rating system. The following are highlights of the new building sustainability goals:

- Reduce Water Use — use only captured rainwater, recycled wastewater, recycled gray water, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation. As an alternative, install landscaping that does not require permanent irrigation systems.
- Reduce the Environmental Impact of Materials – collect recyclables, specify requirements for recycle content of new materials, recycle and salvage construction waste, do not use ozone depleting compound refrigerants in heating and cooling systems.
- Optimize Energy Performance - use roofing materials that reflect sunlight or install a vegetated green roof, use on-site renewable energy systems to offset building energy costs, use solar hot water heaters for at least 30 percent of the hot water demand.
- Enhance the Working Environment – Provide building interiors with adequate, evenly distributed natural light to enhance the working environment and reduce the need for electrical lighting. Use paints, coatings, adhesives, sealants, flooring elements, composite wood and agrifiber products, gypsum board, insulation, acoustical ceiling systems and wall coverings that have low levels of volatile organic emissions, provide air ventilation systems that

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incorporate particle filters or air cleaning devices to clean outdoor air prior to its introduction to occupied spaces.

Alternative 2 was likewise carried forward for further consideration because of its potential to promote sustainability.

**2.2.6 No Action Alternative**

Consideration of the No Action Alternative is required by the National Environmental Policy Act per CEQ Regulations. This alternative serves as a basis of comparison with other alternatives retained for detailed analysis.

The No Action Alternative represents the cemetery without any of the proposed improvements. The No Action Alternative includes projects that are already underway. These projects are independent of the proposed improvements and have already been evaluated from an environmental impact standpoint. The No Action Alternative includes the following projects:

Welcome Center – Repurpose the basement to accommodate administrative staff.

Millennium Site – Development of the Millennium Site to increase burial capacity.

Electronic Security System – Provide an integrated physical security system including electronic entry control systems, intrusion detection systems, closed-circuit television and a mass-notification system.

Mast of the U.S.S. Maine – Renovate/restore the mast, granite turret and support wires.

Internal Roadways – Rebuild and pave the crumbling road structure in ANC.

Ord-Weitzel and Sheridan Gates – Restore the historic stone columns that were once used for the gates at the cemetery’s eastern boundary.

**Figure 2-14** shows the vicinity of each of the No Action projects.

**2.2.7 Alternatives Retained for Further Consideration**

Various potential alternatives were identified to meet the needs of ANC. These alternatives were screened and either eliminated from further consideration or carried forward for environmental evaluation. **Table 2.1** shows the results of the identification and screening of alternatives.



**Figure 2-14  
No Action Projects**

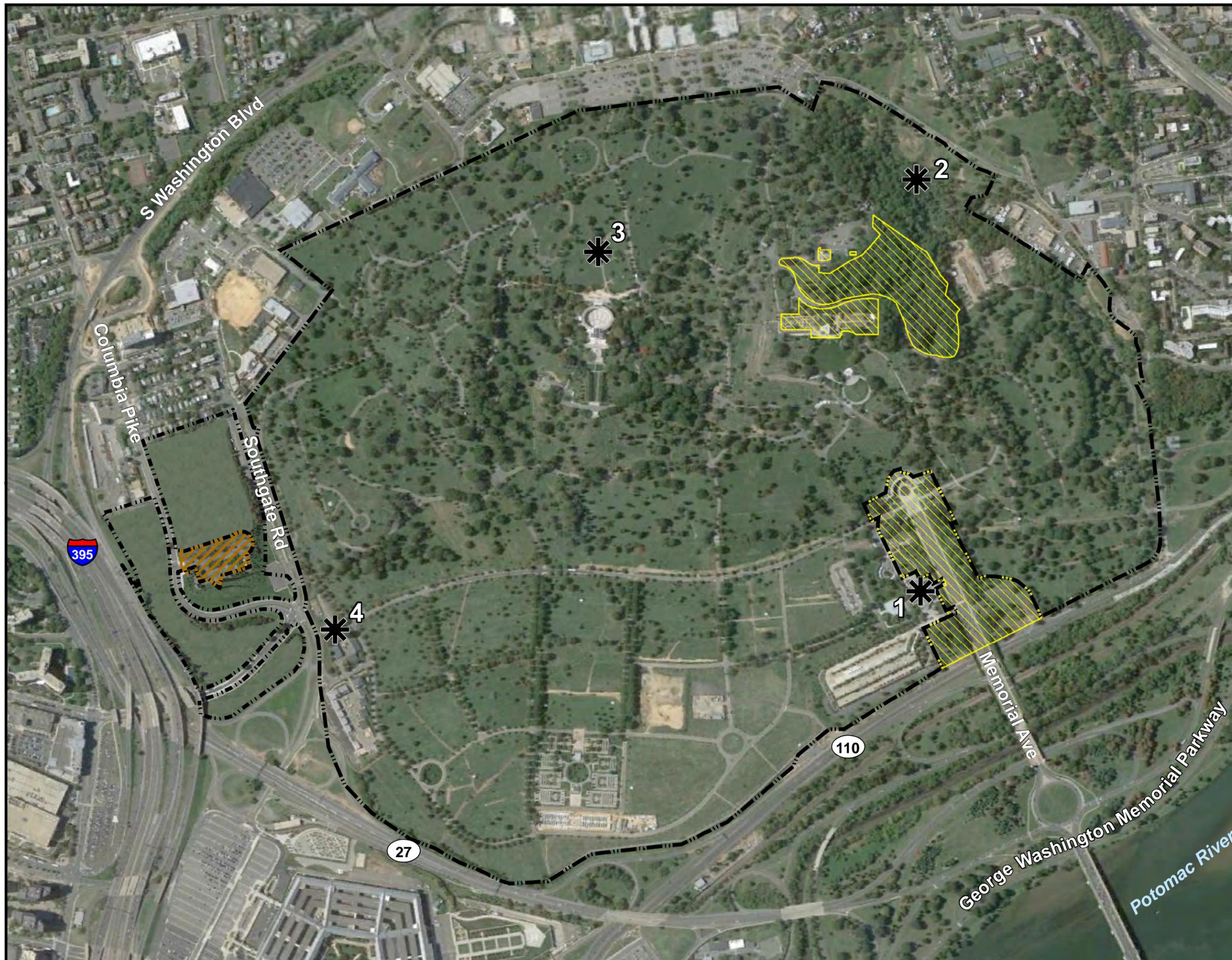
**LEGEND**

1. Repurpose Welcome Center Basement
2. Develop Millennium Project Site
3. Renovate/Restore Mast of the U.S.S. Maine
4. Restore Ord Weitzel and Sheridan Gates

**Cemetery Wide**

- Rebuild Roadways
- Install Electronic Security System

-  Arlington National Cemetery
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial



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Real Property Master Plan**

**Programmatic  
Environmental Assessment**



Sources:  
ANC Master Plan, National Park Service, Google Earth



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Table 2.1

**Summary of Alternative Analysis**

Need	Alternative Considered	Carried Forward	Not Carried Forward
<b>Add Burial Capacity</b>			
	1 Southern Expansion Site	X	
	2 Southern Expansion Site with Southgate Road	X	
	3 Southern Expansion Site with Southgate Road and an Easement	X	
	4 Southern Expansion Site and Realigned Roadways	X	
<b>Facilitate Future Cemetery Operations</b>			
	1 Ord-Weitzel Gate Repair Construction Staging Area		X
	2 Southern Expansion Site - Parcel D	X	
	3 Discontinue On-Site Spoils/ Ground Maintenance Contractor Storage	X	
<b>Enhance Family Experiences During Committal Services</b>			
<i>Expand Committal Service Support Areas</i>	1 Repurpose the Administration Building	X	
<i>Provide Dedicated Funeral Procession Queuing Area</i>	1 King Drive		X
	2 Halsey Drive		X
	3 Administration Building Parking Lot	X	
<b>Enhance Visitor Experiences</b>			
<i>Improve the Welcome Center</i>	1 Expand the Welcome Center		X
	2 Construct a Transportation Center	X	
<i>Develop an Interpretive Center</i>	1 Within the Welcome Center		X
	2 Adjacent to the Welcome Center		X
	3 Southern Expansion Site – Parcel C	X	
<i>Provide Additional Visitor Amenities</i>	1 Provide New Resting Places	X	
	2 Install Standardized Way-finding Guidance	X	
<b>Promote Sustainability</b>			
	1 Capture, Store and Reuse Stormwater	X	
	2 Implement CDG Sustainability Measures	X	

Source: HNTB analysis, 2014.

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For discussion of environmental consequences, the retained alternatives were combined into four overall cemetery alternatives. The four alternatives, or Action Alternatives, are based on the nature of the development of the Southern Expansion Site and nearby roadways. The Action Alternatives vary primarily in how the area in the vicinity of the Southern Expansion Site is developed. The Proposed Action could be any of the four Action Alternatives evaluated in this EA.

Alternative 1 – ANC including the Southern Expansion Site is illustrated in **Figure 2-15**, Alternative 2 – ANC including the Southern Expansion Site and Southgate Road is illustrated in **Figure 2-16**, Alternative 3 – ANC including the Southern Expansion Site, Southgate Road and Easement is illustrated in **Figure 2-17** , and Alternative 4 – ANC including the Southern Expansion Site with Realigned Roadways is illustrated in **Figure 2-18**. Figures illustrating the Action Alternatives using U.S. Geological Survey (USGS) topographic maps as the base maps are provided in **Appendix C, USGS Topographic Maps**.

**Table 2.2** provides a comparison of the No Action and four Action Alternatives that were retained and carried forward for detailed environmental analysis.

**Figure 2-15**  
**Alternative 1 - ANC Including**  
**the Southern Expansion Site**

**LEGEND**

**Arrival Area**

- 1. Transportation Center
- 2. Reconfigured Administration Building
- 3. New Queuing Area

**Southern Expansion Site Area**

- Interments
- Landscaping and Memorial Markers
- Building and Parking
- Maintenance and Operations

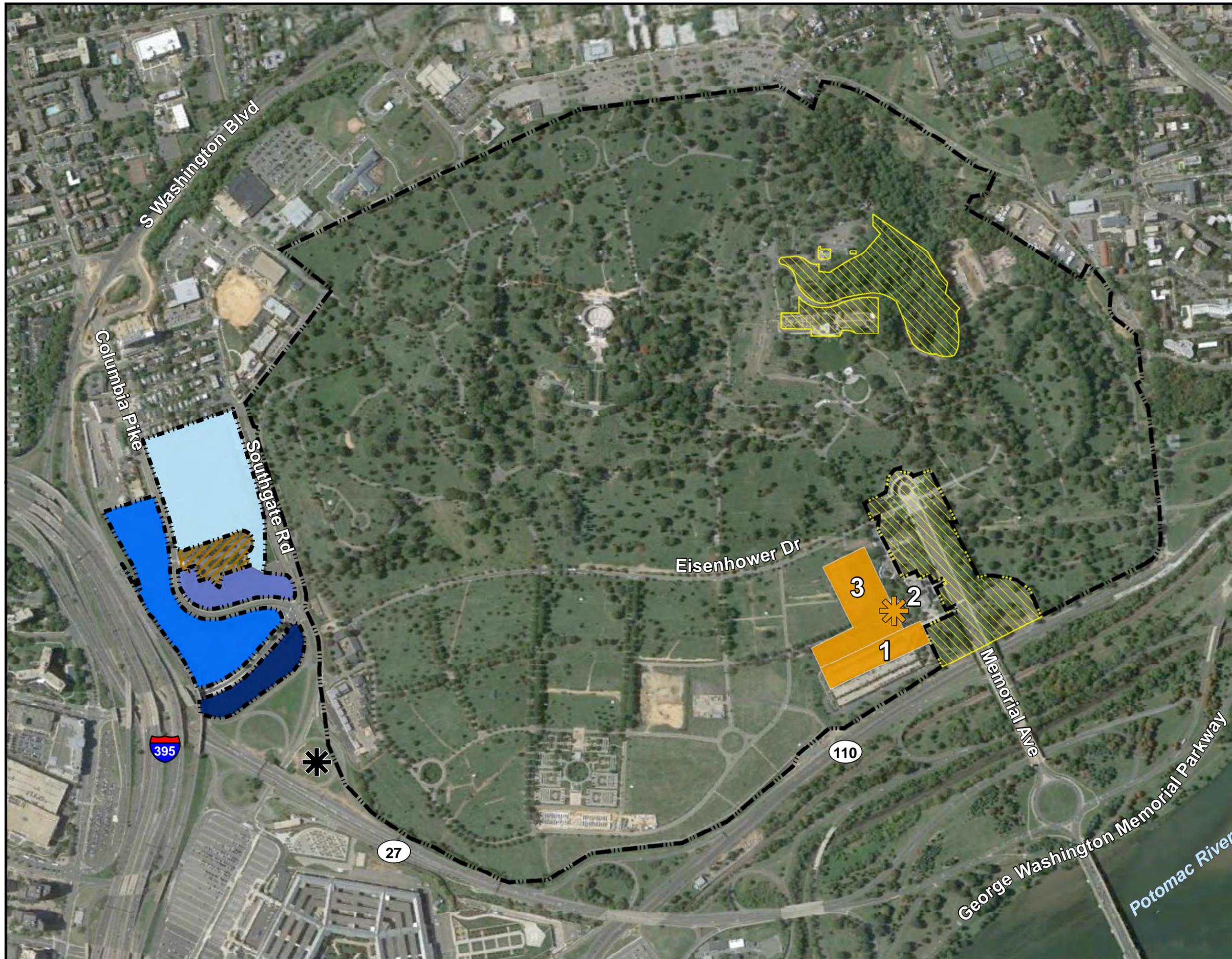
- Arlington National Cemetery
- Area within ANC Under NPS Jurisdiction
- U.S. Air Force Memorial
- Future 9/11 Pentagon Visitor Education Center

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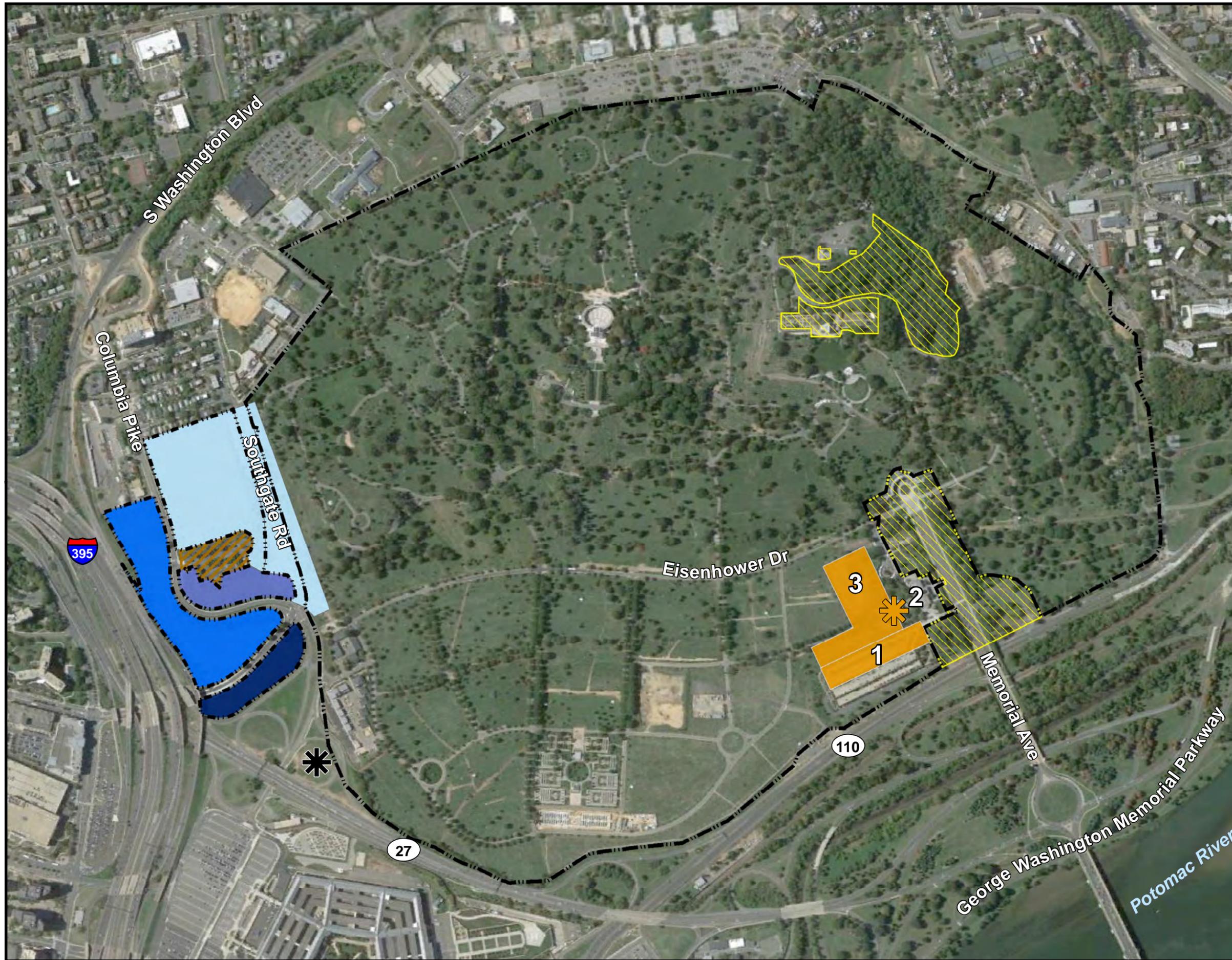


Sources:  
 ANC Master Plan, National Park Service, Google Earth





**Figure 2-16**  
**Alternative 2 - ANC Including**  
**the Southern Expansion Site**  
**and Southgate Road**



**LEGEND**

**Arrival Area**

- 1. Transportation Center
- 2. Reconfigured Administration Building
- 3. New Queuing Area

**Southern Expansion Site Area**

- Interments
- Landscaping and Memorial Markers
- Building and Parking
- Maintenance and Operations

- Arlington National Cemetery
- Area within ANC Under NPS Jurisdiction
- U.S. Air Force Memorial
- Future 9/11 Pentagon Visitor Education Center

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Sources:  
 ANC Master Plan, National Park Service, Google Earth



**Figure 2-17**  
**Alternative 3 - ANC Including**  
**the Southern Expansion Site,**  
**Southgate Road and Easement**

**LEGEND**

**Arrival Area**

- 1. Transportation Center
- 2. Reconfigured Administration Building
- 3. New Queuing Area

**Southern Expansion Site Area**

- Interments
- Landscaping and Memorial Markers
- Building and Parking
- Maintenance and Operations
- 55' Wide Easement

- Arlington National Cemetery
- Area within ANC Under NPS Jurisdiction
- U.S. Air Force Memorial
- Future 9/11 Pentagon Visitor Education Center



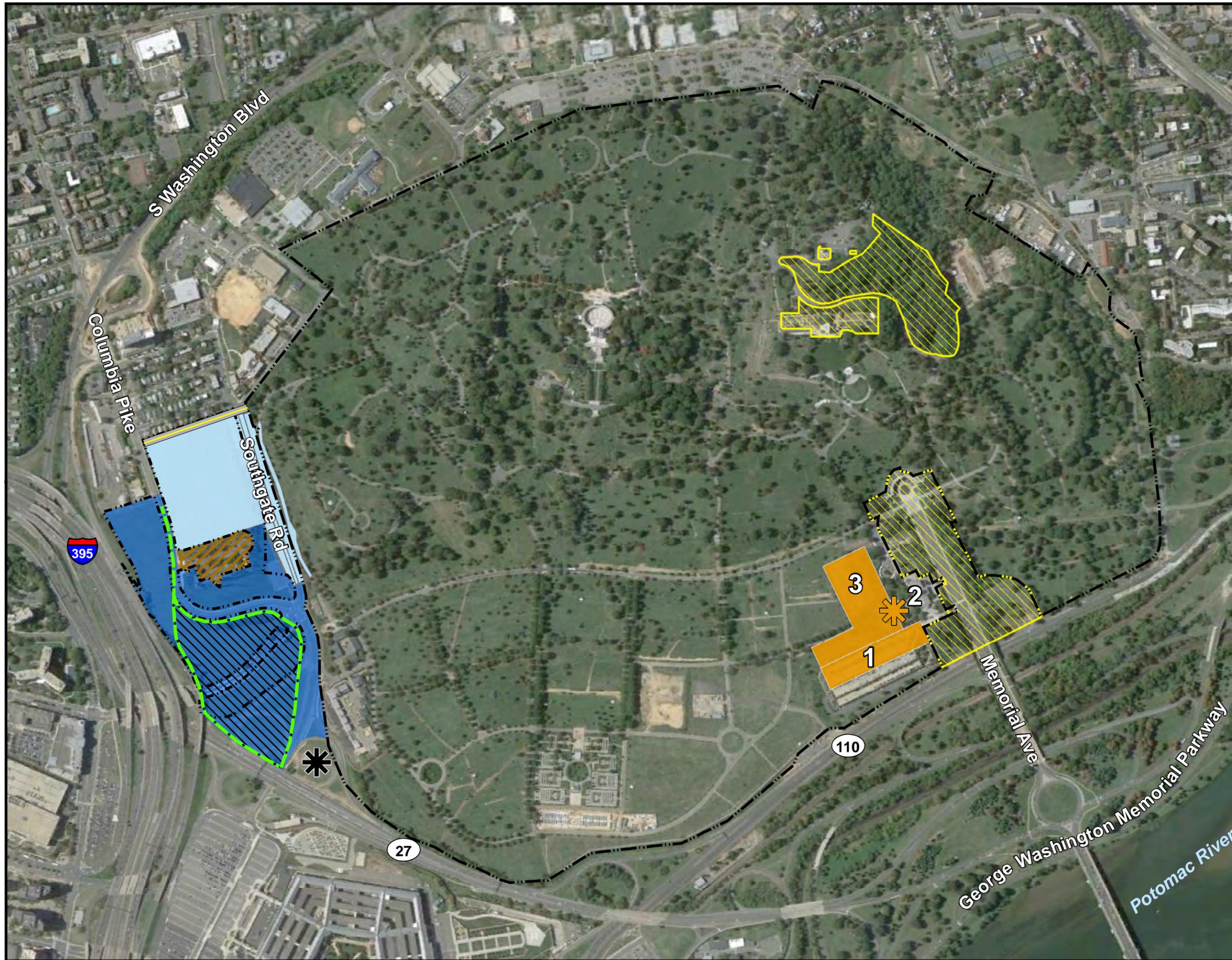
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Sources:  
 ANC Master Plan, National Park Service, Google Earth





**Figure 2-18**  
**Alternative 4 - ANC Including**  
**the Southern Expansion Site**  
**with Realigned Roadways**

**LEGEND**

**Arrival Area**

- 1. Transportation Center
- 2. Reconfigured Administration Building
- 3. New Queuing Area

**Southern Expansion Site Area**

- Interments
- Interments North of Columbia Pike / Unknown South of Columbia Pike
- 55' Wide Easement
- Corridor of Potential Columbia Pike Future Roadway Alignments
- Arlington National Cemetery
- Area within ANC Under NPS Jurisdiction
- U.S. Air Force Memorial
- Future 9/11 Pentagon Visitor Education Center

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Sources:  
 ANC Master Plan, National Park Service, Google Earth



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Table 2.2  
**Alternatives Carried Forward for Environmental Analysis**

<b>Cemetery Area</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
<b>Arrival Area</b>	<ul style="list-style-type: none"> <li>Reconfigured Welcome Center basement</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administration Building and queuing area</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administration Building and queuing area</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administration Building and queuing area</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Center</li> <li>Reconfigured Administration Building and queuing area</li> </ul>
<b>Southern Expansion Site Area</b>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments</li> <li>Parcel B – Landscaping and memorial markers</li> <li>Parcel C – Building and parking</li> <li>Parcel D - Maintenance and operations</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments</li> <li>Parcel B – Landscaping and memorial markers</li> <li>Parcel C – Building and parking (ANC potentially divests itself of all or a portion of Parcel C)</li> <li>Parcel D - Maintenance and operations</li> <li>Southgate Road right-of-way –interments outside of utility corridor</li> <li>Patton Drive – interments</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments (ANC divests itself of 55 foot strip)</li> <li>Parcel B – Landscaping and memorial markers</li> <li>Parcel C – Building and parking (ANC potentially divests itself of all or a portion of Parcel C)</li> <li>Parcel D - Maintenance and operations</li> <li>Southgate Road right-of-way –interments outside of utility corridor</li> <li>Patton Drive – interments</li> </ul>	<ul style="list-style-type: none"> <li>Parcel A – Interments (ANC divests itself of 55 foot strip)</li> <li>Parcels B, C and D – unknown (ANC potentially divests itself of land south of realigned Columbia Pike and acquire property north of realigned Columba Pike)</li> <li>Southgate Rd right-of-way - interments outside of utility corridor</li> <li>Patton Drive – interments</li> </ul>
<b>East of Eisenhower Drive Area</b>	<ul style="list-style-type: none"> <li>Restore Ord-Weitzel and Sheridan Gates</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>n/a</li> </ul>

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Table 2.2  
**Alternatives Carried Forward for Environmental Analysis**

<b>Cemetery Area</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
<b><i>West of Eisenhower Drive Area</i></b>	<ul style="list-style-type: none"> <li>• Develop the Millennium Site</li> <li>• Renovate/Restore the Mast of the U.S.S. Maine</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>
<b><i>Cemetery Wide</i></b>	<ul style="list-style-type: none"> <li>• Install Electronic Security System</li> <li>• Rebuild Internal Roadways</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor Amenities</li> <li>• Sustainability Measures</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor Amenities</li> <li>• Sustainability Measures</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor Amenities</li> <li>• Sustainability Measures</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor Amenities</li> <li>• Sustainability Measures</li> </ul>

Source: HNTB analysis, 2014.

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**Endnotes**

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<sup>1</sup> Council on Environmental Quality Regulations for Implementing NEPA, 40 CFR Parts 1500-1508, §1508.9, 2013, and Environmental Analysis Of Army Actions 32 CFR Part 651, §651.34, 2013.

<sup>2</sup> USACE, *Arlington National Cemetery Master Plan*, 1998, p.83.



# Chapter 3:

## AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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The purpose of this chapter is to identify the affected environment at Arlington National Cemetery (ANC) and to disclose the potential environmental consequences of the alternatives. The affected environment describes the existing conditions of the environmental resources potentially impacted by the alternatives. Once the affected environment is identified, the potential effects of the alternatives on that affected environment are assessed.

Several terms are used to describe effects also referred to as impacts in this document. The effect may be described as positive or adverse. “Positive” meaning that the alternative would have a beneficial effect on the subject resource. The level of adverse or negative effect is described relative to the established threshold of significance. Adverse or negative impacts described as minimal or minor would have little effect on the resource and therefore would not exceed the applicable threshold of significance.

The threshold of significance is resource specific and established by considering context and intensity. Both context and intensity are considered because the level of intensity deemed significant may differ based on context. For instance, the threshold of significance for noise impacts would likely be different in a large city as compared to a remote national park.

The assessment of effects is limited to those alternatives retained for further consideration. As described in Chapter 2, the alternatives retained for further consideration are the No Action Alternative, Alternative 1 – ANC Including the Southern Expansion Site, Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road, Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement and Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways. These alternatives have the potential to affect the following environmental resource categories:

- Land Use
- Air Quality
- Noise
- Topography, Soils and Geology
- Water Resources
- Biological Resources
- Cultural Resources
- Visitor Use and Experience/ Department of Transportation Act Section 4(f)
- Socioeconomics
- Traffic and Transportation
- Utilities
- Solid Waste
- Hazardous Materials and Waste
- Visual and Aesthetic Resources
- Cumulative Effects

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Therefore, the affected environment and potential effects of the No Action and Action Alternatives relative to these categories are described in the following subsections.

### **3.1 Land Use**

The land uses in and around ANC and the potential for the alternatives to impact these land uses are described in the following sections.

#### **3.1.1 Affected Environment**

##### **3.1.1.1 Existing Land Use at ANC**

ANC land use can be characterized by activity zones related to interments; visitor accommodations and destinations; and cemetery operations. The three major types of activity zones are shown on **Figure 3-1**: (1) Arrival Zones, (2) Interment Zones and (3) Cemetery Operations Zones.

The *Arrival Zone*, located at the ANC entrance where visitors and families typically enter ANC via Memorial Avenue, consists of a parking garage, the Welcome Center and the Administration Building, where families gather at the beginning of a committal service.

There are three *Interment Zones* located in the southern portion of ANC. The three zones include a discontinuous area for in-ground interments, and Columbarium Court #9 and the Niche Wall for inurnments. Future interment zones are located just south of ANC (at the Southern Expansion Site), and at the northwest corner of ANC (Millennium Site).

The *Cemetery Operations Zones* consist of areas primarily used for daily cemetery operations and include the Service Complex at the western edge of ANC, the spoils area

in Section 61 and the grounds maintenance contractor staging area in Section 58.

There are five primary visitor destinations in the cemetery. These include: the Women in Military Service for America Memorial; the Kennedy Grave Sites; Arlington House, The Robert E. Lee Memorial (Arlington House); the Tomb of the Unknowns; and the Memorial Amphitheater.

The National Park Service (NPS) has a significant presence within and adjoining the cemetery, including key facilities such as the main ceremonial entrance along Memorial Avenue and the Arlington House.

##### **3.1.1.2 Local Land Use**

Located on 624 acres of land in Arlington County, Virginia,<sup>1</sup> ANC is situated one mile west of Washington, D.C. at the western terminus of Memorial Avenue, directly across the Arlington Memorial Bridge from the Lincoln Memorial, and eight miles northwest of the City of Alexandria. The Potomac River lies just east of the cemetery. The cemetery is surrounded by various transportation corridors and regional highways to include Interstate 395 (I-395), Route (Rt.) 110 (the Jefferson Davis Highway), Rt. 27 (Washington Boulevard), and the George Washington Memorial Parkway. Arlington County designates ANC as "Public" on the County's General Land Use Plan (GLUP).

**Figure 3-2** shows the land use in the vicinity of ANC. Government uses border ANC to the south, southeast and west. Adjacent military installations include Joint Base Myer-Henderson Hall (JBM-HH) and the Pentagon (located to the southeast). NPS has jurisdiction over land within and adjacent to the cemetery to the north and

**Figure 3-1  
Major Activity Zones**

**LEGEND**

- Arrival Zone**
1. Parking Garage
  2. Welcome Center
  3. Administration Building
  4. Old Post Chapel
  5. Memorial Chapel

- Interment Zones**
6. Current Major In-Ground Interment Sections
  7. Columbarium Court #9
  8. Niche Wall
  9. Millennium Project Site
  10. Southern Expansion Site

- Cemetery Operations Zones**
11. Spoils Area (Section 61)
  12. Service Complex
  13. Future Development Area
  14. Grounds Maintenance Contractor Storage

- Primary Visitor Destinations**
15. Women in Military Service for America Memorial
  16. Kennedy Grave Sites
  17. Arlington House, The Robert E. Lee Memorial
  18. Tomb of the Unknowns and Memorial Amphitheater

-  Arlington National Cemetery
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center

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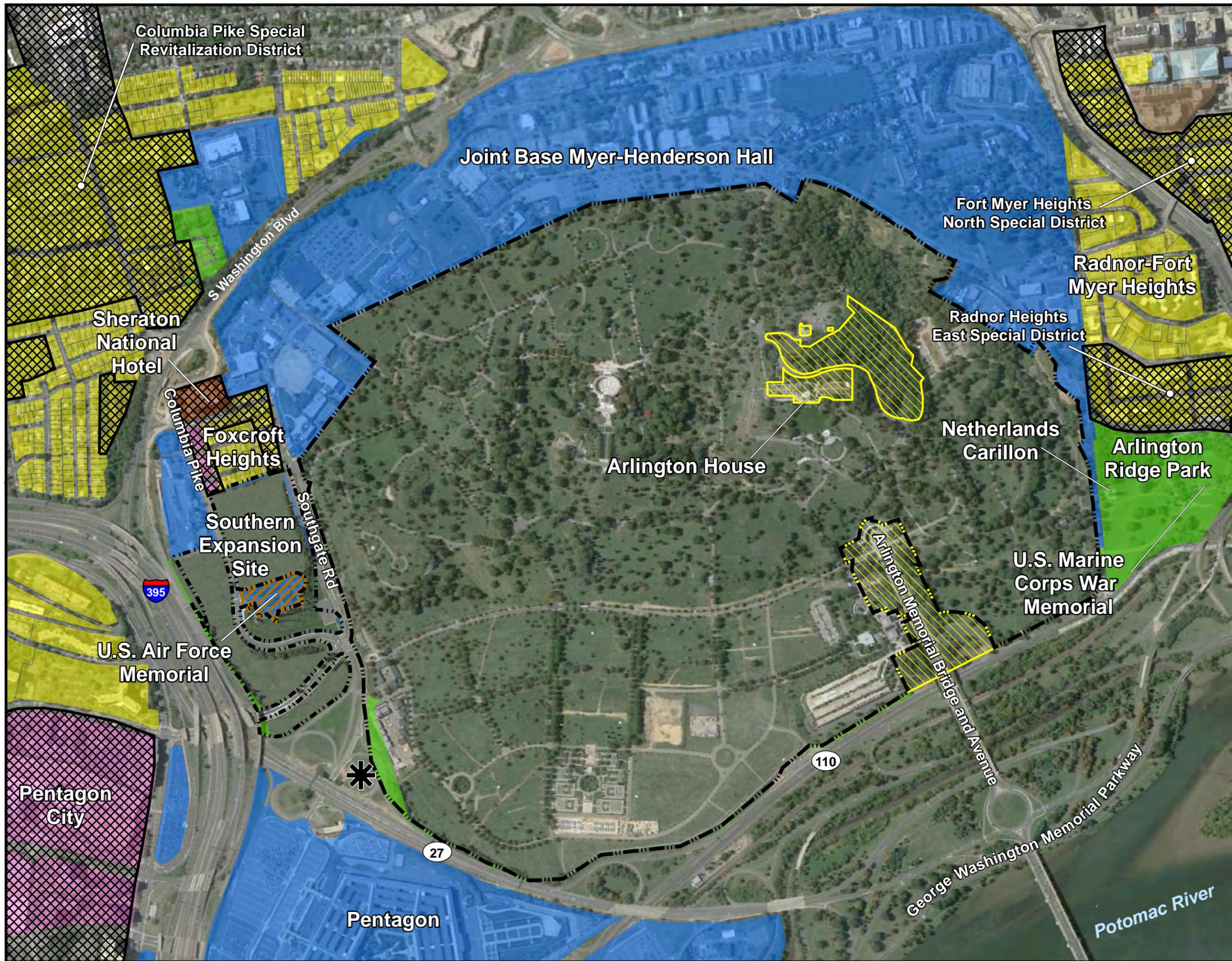
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Sources:  
ANC Master Plan, National Park Service, Google Earth







**Figure 3-2**  
**Local Land Use in the**  
**Vicinity of ANC**

**LEGEND**

**Land Use**

- Arlington National Cemetery
- Residential
- Commercial
- Government/Community Facility
- Hotel
- Mixed Use - Residential
- Office
- Park / Open Space
- Area within ANC Under NPS Jurisdiction
- Arlington County Special Planning Areas
- U.S. Air Force Memorial
- Future 9/11 Pentagon Visitor Education Center

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Sources:  
 National Park Service (NPS), Google Earth



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east. These lands include the Arlington House within ANC; the Netherlands Carillon and U.S. Marine Corps War Memorial to the north of ANC within the Arlington Ridge Park; and the Arlington Memorial Bridge and Avenue to the east of ANC. The U.S. Air Force Memorial Foundation has jurisdiction over the U.S. Air Force Memorial located to the south of ANC between Southgate Road and Columbia Pike.

Currently JBM-HH land uses include a majority dedicated to community use (52%), with other major land uses committed to troop functions (26%) and residential uses (11%). Professional, Institutional and Industrial land uses combined make up approximately 11% of the land use on the joint base.<sup>2</sup>

Two residential neighborhoods are near the cemetery; Foxcroft Heights and Radnor-Fort Myer Heights. Foxcroft Heights is a small neighborhood just south of ANC that consists of about 15 acres of low-density residential (mostly rowhouses and single-family detached dwellings), two small apartment buildings, service commercial uses, and the 16-story Sheraton National Hotel that sits at the southwestern corner of the neighborhood adjacent to Columbia Pike and Washington Boulevard.<sup>3</sup> The Radnor-Fort Myer Heights neighborhood, located to the north of ANC, is a largely residential neighborhood bordered by commercial, government and mixed-use development.<sup>4</sup>

Pentagon City, a major mixed-use employment center with high-rise living and retail, is south of ANC and I-395. To the west of JBM-HH lies Arlington Boulevard/Washington Boulevard and is primarily low-density residential. North of ANC and Arlington Boulevard are

neighborhoods including Radnor-Fort Myer Heights and other mixed use districts including Rosslyn, Clarendon and Courthouse.

The Arlington Cemetery Metro Station is located in the Arrival Zone of ANC along Memorial Avenue and serves the Blue Line of Metrorail.

The area around ANC is fully developed and no further expansion is possible (beyond the Southern Expansion Site) without acquisition or land swaps with local and state government entities for public road right-of-way, or federal land transactions with the adjoining military installations or NPS property.

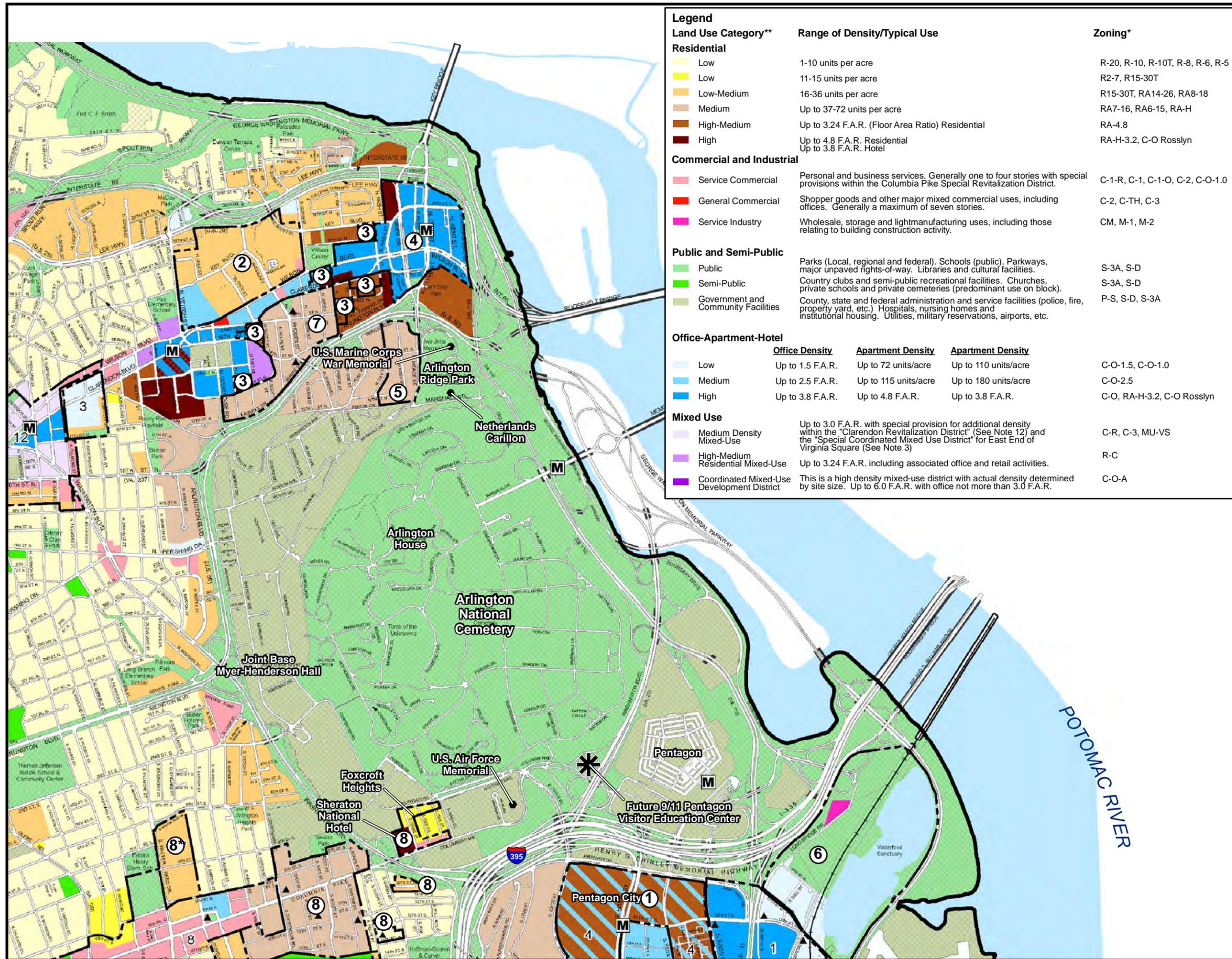
### 3.1.1.3 Local Land Use Plans

#### Arlington County General Land Use Plan

The Arlington County GLUP sets forth a guide for future development in Arlington County and designates special planning areas. **Figure 3-3** shows the GLUP in the vicinity of ANC.

Four areas in the vicinity of ANC are designated as special planning areas; (1) Radnor Heights East Special District, located just north of ANC, (2) the Fort Myer Heights North Special District, which is north of ANC, bordering Arlington Boulevard, (3) Columbia Pike Special Revitalization District and (4) Columbia Pike Special Neighborhoods Revitalization District, which run in an east-west direction just south of ANC.<sup>5</sup> These Districts are shown on Figure 3-3.





Land Use Category**	Range of Density/Typical Use	Zoning*
<b>Residential</b>		
Low	1-10 units per acre	R-20, R-10, R-10T, R-8, R-6, R-5
Low	11-15 units per acre	R2-7, R15-30T
Low-Medium	16-36 units per acre	R15-30T, RA14-26, RA8-18
Medium	Up to 37-72 units per acre	RA7-16, RA6-15, RA-H
High-Medium	Up to 3.24 F.A.R. Residential	RA-4.8
High	Up to 4.8 F.A.R. Residential Up to 3.8 F.A.R. Hotel	RA-H-3.2, C-O Rosslyn
<b>Commercial and Industrial</b>		
Service Commercial	Personal and business services. Generally one to four stories with special provisions within the Columbia Pike Special Revitalization District.	C-1-R, C-1, C-1-O, C-2, C-O-1.0
General Commercial	Shopper goods and other major mixed commercial uses, including offices. Generally a maximum of seven stories.	C-2, C-TH, C-3
Service Industry	Wholesale, storage and light manufacturing uses, including those relating to building construction activity.	CM, M-1, M-2
<b>Public and Semi-Public</b>		
Public	Parks (Local, regional and federal). Schools (public). Parkways, major unpaved rights-of-way. Libraries and cultural facilities.	S-3A, S-D
Semi-Public	Country clubs and semi-public recreational facilities. Churches, private schools and private cemeteries (predominant use on block).	S-3A, S-D
Government and Community Facilities	County, state and federal administration and service facilities (police, fire, property yard, etc.). Hospitals, nursing homes and institutional housing. Utilities, military reservations, airports, etc.	P-S, S-D, S-3A
<b>Office-Apartment-Hotel</b>		
Low	<b>Office Density</b> Up to 1.5 F.A.R.	<b>Apartment Density</b> Up to 72 units/acre
Medium	Up to 2.5 F.A.R.	Up to 110 units/acre
High	Up to 3.8 F.A.R.	Up to 180 units/acre
<b>Mixed Use</b>		
Medium Density Mixed-Use	Up to 3.0 F.A.R. with special provision for additional density within the "Clarendon Revitalization District" (See Note 12) and the "Special Coordinated Mixed Use District" for East End of Virginia Square (See Note 3)	Up to 110 units/acre
High-Medium Residential Mixed-Use	Up to 3.24 F.A.R. including associated office and retail activities.	Up to 180 units/acre
Coordinated Mixed-Use Development District	This is a high density mixed-use district with actual density determined by site size. Up to 6.0 F.A.R. with office not more than 3.0 F.A.R.	Up to 3.8 F.A.R.

**Figure 3-3  
Future Local Land Use  
in the Vicinity of ANC**

**LEGEND**

- This area was designated a "Coordinated Development District" on 2/9/74.
- This area was designated a "Coordinated Preservation and Development District" on 4/23/77.
- These areas were designated a "Special Affordable Housing Protection District": Pollard Gardens/Clarendon Courts on 11/17/90; Twin Oaks on 5/24/00; The Odyssey on 11/20/01; Ballston Center on 1/26/02; WRIT Rosslyn Center on 7/20/02; North Monroe Street Residential on 10/18/03; North Troy Street Residential on 2/7/04; Rosslyn Ridge on 7/10/04; and Rosslyn Commons on 6/17/08.
- This area was designated as the "Rosslyn Coordinated Redevelopment District" on 5/11/96.
- This area was designated as the "Radnor Heights East Special District" on 12/14/99.
- This area was designated as the "North Tract Special Planning District" on 4/24/04. In accordance with a revised agreement, dated 9/29/10, between the County and MR Monument View LLC, providing for the exchange of certain property owned by the County and property owned by MR Monument View LLC known as the Twin Bridges site, the County Board, pursuant to Section 36.H.5 of the Zoning Ordinance, and in order to facilitate the implementation of the North Tract Master Plan for Park and Recreational Facilities, has designated the property owned by the County and to be transferred to MR Monument View LLC as eligible for up to 145,797 square feet of additional development density over and above its base density.
- This area was designated the Fort Myer Heights North Special District on 4/16/05.
- These areas were designated a "Special Revitalization District" on 11/16/13 and include Conservation Areas (#8).

- Metro Station
- General Location for Open space
- Public Ownership
- Planning Districts

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Not to Scale

Source: 2013 General Land Use Plan  
(Arlington County), Arlington County GIS  
National Park Service (NPS)





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*Radnor Heights East Special District*

The Radnor Heights East neighborhood was designated as a Special District in 1999. The designation indicates that this is a distinct neighborhood where special planning and development policies are justified by its unique location in proximity to an abundance of nationally significant areas, including the National Mall, Federal monuments, ANC and JBM-HH. The goals for the district indicate that development should consist of high quality architecture with minimal obstruction of views, should preserve trees, landscaping and parkland, and promote and improve pedestrian access through the neighborhood and walkways connecting to the federal monument areas.<sup>6</sup>

*Fort Myer Heights North Special District*

To the north of ANC, just north of Arlington Boulevard, the Fort Myer Heights North Special District was established to emphasize the preservation of its historic core while allowing a strategic blend of conservation and redevelopment along the southern edge of the district. The GLUP also encourages the transfer of development rights for affordable housing purposes. The regulations and incentives outlined for this area will complement one another to help ensure that the scale and character of the neighborhood core are maintained and that both the preservation of historic buildings, with their surrounding open space and mature trees, and the preservation of existing affordable housing are encouraged.<sup>7</sup>

*Columbia Pike Special Revitalization District*

Columbia Pike runs in an east-west direction just south of ANC. Plans for the

revitalization of and reinvestment in this well-known corridor in Arlington and Fairfax counties have been ongoing since 1985.

*The Columbia Pike Initiative – A Revitalization Plan, Update 2005*, presents the overall framework for the revitalization of Columbia Pike. The goal of the Revitalization Plan is to transform an aging, auto-oriented, suburban, commercial strip into a vibrant pedestrian-friendly “main street”. “The corridor-wide concept revolves around an enhanced and improved “Main Street” linked by a future bus rapid transit or streetcar system and consisting of four, major, mixed-use development nodes linked together by existing apartment and townhouse residential communities.”<sup>8</sup>

*Columbia Pike Special Neighborhoods District*

In 2008, the County Board began a land use and housing study to address the non-commercial areas that were previously excluded from the Revitalization Plan. The purpose of the study was, “to create a comprehensive future vision and plan to guide public and private investment coming to the Pike over the next 30 years, and, importantly, sustaining a supply of housing to serve a community with a broad mix of incomes.”<sup>9</sup> “The study emphasized implementation tools and development strategies to achieve the vision for the residential areas including the preservation of affordable housing, promoting existing policies stated earlier for the commercial nodes such as creating walkable streets, and supporting the future streetcar.”<sup>10</sup> This study culminated in July 2012 with the *Columbia Pike Neighborhoods Area Plan*.

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After completion of the *Columbia Pike Neighborhoods Area Plan*, the Arlington County Board established the Columbia Pike Special Neighborhoods Revitalization District. “The objectives of this district include:

- Foster a healthy, diverse community with high quality of life along the Pike;
- Stabilize and strengthen single-family and multi-family neighborhoods and support established concepts of vibrant, economically-strong mixed-use commercial centers;
- Improve existing housing stock and expand housing options to achieve a housing mix that serves diverse households, preserves affordability for current and future residents, and supports the adopted Housing Goals and Targets and the Columbia Pike Initiative;
- Create a safe, pedestrian-friendly and multi-modal corridor with attractive and tree-lined streetscapes and seamless linkages between neighborhoods, to the commercial centers, and to the region;
- Preserve neighborhood character, historic buildings and tree canopy;
- Enhance urban design and architectural features to improve the Pike’s identity and maintain compatible transitions between the neighborhoods and commercial centers;
- Incorporate sustainable, energy efficient, “green” neighborhood and building design principles.”<sup>11</sup>

Four subareas were identified in the *Columbia Pike Neighborhoods Area Plan*. Subarea IV, Foxcroft Heights, is adjacent to the Southern Expansion Site. “Foxcroft Heights is a small, diverse community at the Eastern Gateway of Columbia Pike near the Pentagon and Pentagon City.”<sup>12</sup> According to the Neighborhoods Area Plan, “The majority of the Foxcroft Heights neighborhood, including all of the single-family homes and rowhouses along Ode and Oak Streets, is envisioned to remain in its current state, and no redevelopment or incentives are proposed; individual property owners may continue to make changes to property in manners consistent with the existing zoning regulations. General improvements to streets throughout the neighborhood are recommended to help slow traffic and increase walkability, which may include new / widened sidewalks, street trees, and crosswalks which could be implemented through County programs such as the Neighborhood Conservation program. A new access road is envisioned to the east to provide a more direct connection from Columbia Pike to the Myer-Henderson Hall base and handle the vehicular trips to and from that area south toward the Pike. New mixed-use buildings are envisioned for the Pike frontage, to improve the pedestrian experience and may provide neighborhood-serving retail space with additional residential units. The scale and character of buildings on these sites would be in keeping with the architecture of the neighborhood yet offer a development pattern consistent with plans for other parts of the Columbia Pike frontage and meet other goals of the study including preservation of affordable housing.”<sup>13</sup>

Arlington County is planning for transit improvements including a streetcar along Columbia Pike. The Columbia Pike

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Neighborhoods Area Plan identifies proposed stops for the future Columbia Pike Streetcar. Within the vicinity of ANC in Subarea IV, there is a proposed streetcar stop near the intersection of South Oak Street and Columbia Pike, to the west of the Southern Expansion Site.<sup>14</sup>

### Foxcroft Heights Neighborhood Conservation Plan

The Foxcroft Heights Neighborhood Conservation Plan (2009) was written by the residents of Foxcroft Heights. It is their vision for the neighborhood. Existing conditions were evaluated, goals were established and guidance was developed to protect and improve the neighborhood. The Plan serves as a guide for the County, businesses and developers.<sup>15</sup>

### 9/11 Pentagon Visitor Education Center

Plans are underway to develop the 9/11 Pentagon Visitor Education Center (VEC) to complement the National 9/11 Pentagon Memorial. “The 9/11 Pentagon Visitor Education Center will be a place where visitors from around the world can learn about the events of September 11, 2001, the lives lost that day, and the historic significance of the Pentagon Memorial site. With the guidance and oversight of National Geographic, the project’s official education partner, the VEC’s interactive exhibits and educational programs will give visitors a sense of the broad impact of the tragedy from a variety of perspectives told through stories of the courage, spirit and resilience demonstrated by Pentagon employees, first responders and residents of the area.”<sup>16</sup> “The VEC structure will feature a unique perspective of the [Pentagon] Memorial through a viewing window, providing visitors with the opportunity to see the entire

Memorial Park.”<sup>17</sup> The location of the future VEC is shown on Figure 3-3.

### National Capital Planning Commission Plans

#### *Comprehensive Plan for the National Capital*

The *Comprehensive Plan for the National Capital* (The Comp Plan) guides planning and development in and around Washington D.C. The Comp Plan is a unified plan comprised of two components – the Federal and District Elements. The projects set forth as part of this Environmental Assessment (EA) must be reviewed by National Capital Planning Commission (NCPCC) for conformance to the Federal Elements.

The Federal Elements are prepared by the NCPCC, and provide a policy framework for the federal government in managing its operations and activity in the National Capital Region. The Federal Elements include: Transportation, Federal Workplace, Parks and Open Space, Federal Environment, Foreign Missions and International Organizations, Visitors, and Preservation and Historic Features.<sup>18</sup>

#### *Memorials and Museums Master Plan*

The NCPCC, along with the U.S. Commission of Fine Arts and the National Capital Memorial Commission, prepared the *Memorials and Museums Master Plan*. The purpose of the plan is to guide the location and development of commemorative and cultural facilities in the District of Columbia and its environs. In addition to identifying 100 potential sites for future memorials and museums, the Memorials and Museums Master Plan provides guidelines for

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accommodating these facilities, siting criteria, and implementation strategies.<sup>19</sup>

The *Memorials and Museums Master Plan* designates the Southern Expansion Site as one of 20 “Prime Sites” for the future development of commemorative facilities.<sup>20</sup> “The Prime Sites are those of the highest order. Because of their high visibility and strong axial relationships with the U.S. Capitol and the White House, they should be reserved for subjects of lasting historical and national importance.” *The Memorials and Museums Master Plan* identified design considerations for each of the Prime Sites. The opportunity for the Southern Expansion Site to feature a major memorial or museum focused on significant national achievements and sacrifices was among the design considerations identified.<sup>21</sup>

#### 3.1.1.4 Sustainability

Sustainable design is an integrated approach to planning, designing, building, operating, and maintaining facilities in a collaborative and holistic manner among all stakeholders. It is a systematic process and engineering practice with established guidance, checklists, tools, and scoring systems. Sustainable design integrates decision-making for all projects on the site, basing every decision on the greatest long-term benefits and recognizing the interrelationship of actions with the natural environment.

The Federal government has led the nation in the energy efficient, resource-conserving building design, construction, and operation. Implementing sustainable design and construction practices and operations are key requirements for all federal agencies. Numerous Army and Department of Defense (DoD) directives guide the

development and ongoing maintenance of facilities, infrastructure and operations in manners consistent with the requirements of two key Congressional Acts, the Energy Policy Act of 2005 (EPAct 2005) and the Energy Independence and Security Act of 2007 (EISA), and two key Executive Orders (EOs), Executive Order 13423—*Strengthening Federal Environmental, Energy, and Transportation Management* and Executive Order 13514 – *Federal Leadership in Environmental, Energy, and Economic Performance*.

Each Army installation and by association ANC is tasked with incorporating sustainable design into their design standards for site planning, buildings, vehicular and pedestrian circulation, landscaping, site elements (e.g. signage, utilities), and force protection. Quality and sustainable design and development practices have a direct impact on those who visit or work at the cemetery. Sustainability requires the built environment to be designed and constructed to preserve and enhance the natural environment. The Green Building Certification Institute (GBCI) Leadership in Energy and Environmental Design (LEED) rating systems must be used by design professionals in all new construction, additions, or renovation of Army facilities.

General site planning techniques resulting in sustainable development are cost-efficient because they conserve energy and reduce construction and maintenance costs. The use of plant material in the cemetery promotes the sustainability of development. Trees, shrubs, groundcover, and vines provide aesthetic appeal, as well as habitat preservation, energy conservation, climate modification, erosion control, air purification, and noise abatement.

### **3.1.2 Threshold of Significance**

The threshold of significance for land use impacts would be exceeded if the alternative would result in substantial alteration of the present/planned land use in the area. A significant impact in terms of sustainability would occur if the alternative were not consistent with the requirements outlined in EPAAct05, EISA, EO 13423 or EO 13514.

### **3.1.3 Environmental Consequences of the Alternatives on Land Use and Sustainability**

#### **3.1.3.1 No Action Alternative**

The projects included under the No Action Alternative would result in construction and re-purposing of land within ANC, but would not alter land use outside of ANC.

#### **3.1.3.2 Alternative 1- ANC Including the Southern Expansion Site**

Alternative 1 includes new construction and reconfiguration of an existing structure at ANC, as well as development of the Southern Expansion Site. All proposed projects are on lands currently under ANC jurisdiction. All projects would align with the ANC activity zones, existing local land use and land use plans.

Alternative 1 would enhance sustainability for two reasons. First, all development will be designed in accordance with the Cemetery Design Guide (CDG). The CDG includes sustainability goals to guide the design and construction of future projects.

Second, the proposed development would likely reduce the amount of impervious surface as compared to previous site

conditions on the Southern Expansion Site with office buildings and large areas covered by pavement. According to the Federal Office Building 2 (FOB2) EA, December 2011, approximately 70 percent of the Southern Expansion Site was covered by structures or pavement. This equates to approximately 27 acres of impervious surface.

Redeveloping the Southern Expansion Site as a cemetery and constructing the queuing area would not be expected to generate more than 27 acres of impervious surface. The future layout of the Southern Expansion Site has not been developed. Therefore, it is not possible to calculate the future amount of impervious surface based on design. Instead, the amount of future impervious surface was roughly estimated based on the Alternative 1 generalized land use. As a result, it was estimated that Alternative 1 could generate approximately 18 acres of impervious surface. Therefore, the impervious area could decrease by approximately nine acres with Alternative 1. Recognizing that this is a rough estimate, the amount of impervious surface should be revisited when the layout of the Southern Expansion Site is available and project-specific National Environmental Policy Act (NEPA) documentation is prepared.

Negative impacts to sustainability may occur as a result of adding area to ANC. Alternative 1 will result in an approximately six percent larger cemetery area to maintain. Additional pesticides, herbicides, and fertilizer will likely be applied to maintain the added grounds. Also, the added area will require additional maintenance equipment use thereby increasing fuel use and hazardous waste associated with vehicle maintenance. However, because the extent of these

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impacts is minor in proportion to the entire cemetery operations, the impacts are not anticipated to approach the threshold of significance. Nonetheless, the cemetery will strive to minimize the anticipated potential impacts. For example, minimization could include using best practices for fertilizer application including applying fertilizer on an as needed basis in lieu of a calendar approach and using low phosphorus fertilizers. Additional minimization could include use of electric or hybrid maintenance equipment as opposed to gas/diesel powered equipment.

**3.1.3.3 Alternative 2 - ANC Including the Southern Expansion Site and Southgate Road**

Impacts on land use due to the proposed projects in Alternative 2 would be similar to those under Alternative 1. Land use along Southgate Road and Patton Drive would change to interments and inurnments. However, all land use would align with the ANC activity zones, existing land use and land use plans.

Alternative 2 would also be expected to enhance sustainability by reducing the amount of impervious surface as compared to previous site conditions on the Southern Expansion Site with office buildings and large areas covered by pavement. Rough estimates, based on generalized land use show that Alternative 2 could result in approximately 21 acres of impervious surface. Therefore, the impervious area could decrease from previous conditions by approximately six acres. Recognizing that this is a rough estimate, the amount of impervious surface should be revisited when the layout of the Southern Expansion Site is available and project-specific NEPA documentation is prepared.

Negative impacts to sustainability may also occur with Alternative 2 as a result of adding area to ANC. Alternative 2 will result in an approximately seven percent larger cemetery area to maintain. As with Alternative 1, the cemetery will strive to minimize the anticipated potential impacts associated with additional grounds maintenance under Alternative 2.

**3.1.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

Impacts on land use due to Alternative 3 would be similar to those under Alternative 2 with the exception of the roadway easement. With Alternative 3, a 55-foot-wide easement along the western edge of the Southern Expansion Site would be granted for the purpose of constructing a road between Southgate Road and Columbia Pike. The easement would be located on land suited for interments and therefore, this Alternative would not align with the ANC activity zones. However, due to the edge location and relatively small size of the easement, Alternative 3 would not result in a substantial alteration of the planned land use in the area. Therefore, the impact to land use would not be significant.

Alternative 3 would also be expected to enhance sustainability by reducing the amount of impervious surface as compared to previous site conditions on the Southern Expansion Site with office buildings and large areas covered by pavement. The increase in impervious surface due to the new roadway would be offset by removal of a portion of Southgate Road and Patton Drive. Therefore, Alternative 3 would likely result in roughly the same amount of impervious surface as Alternative 2 (21

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acres) and a decrease in impervious surface of approximately six acres from previous conditions. Recognizing that this is a rough estimate, the amount of impervious surface should be revisited when the layout of the Southern Expansion Site is available and project-specific NEPA documentation is prepared.

Negative impacts to sustainability may also occur with Alternative 3 as a result of adding area to ANC. As with Alternatives 1 and 2, the cemetery will strive to minimize the anticipated potential impacts associated with additional grounds maintenance under Alternative 3.

**3.1.3.5 Alternative 4 - ANC Including the Southern Expansion Site with Realigned Roadways**

Impacts on land use due to the proposed projects in Alternative 4 would be similar to those under Alternative 3. Additional land north of the realigned Columbia Pike would change to in-ground interments. This change in land use would align with the ANC activity zones, existing land use and land use plans. It is presumed that the land use south of the realigned Columbia Pike would conform to the Arlington County General Land Use Plan.

Alternative 4 would also likely enhance sustainability by reducing the amount of impervious surface as compared to previous conditions. Approximately 70 percent of the Southern Expansion Site was covered by structures or pavement. As demonstrated for Alternative 3, redevelopment of the Southern Expansion Site would not likely cover 70 percent of the site with impervious surfaces. In addition, based on preliminary concepts, the realignment of Columbia Pike would result in a net decrease in impervious

surfaces due to the removal of on/off ramps and/or straightening of Columbia Pike. However, because the layout of the Southern Expansion Site and Columbia Pike are currently conceptual, the amount of impervious surface should be revisited when project-specific NEPA documentation is prepared.

Negative impacts to sustainability may also occur with Alternative 4 as a result of adding area to ANC. At a maximum, Alternative 4 would result in a nine percent increase in cemetery area to maintain. As with Alternatives 1, 2 and 3, the cemetery will strive to minimize the anticipated potential impacts associated with additional grounds maintenance under Alternative 4.

**3.2 Air Quality**

Air quality is governed by the Federal Clean Air Act of 1970 (CAA). In accordance with the CAA, the U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) to define outdoor levels of air pollutants that are considered safe for public health, welfare, and the environment. The EPA established NAAQS for outdoor concentrations of “criteria” pollutants, including: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), 8-hour ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), lead (Pb) and particulate matter (PM) with aerodynamic diameters of 10 or 2.5 microns and less (PM<sub>10/2.5</sub>).

Under the CAA, states as well as the District of Columbia must identify geographic regions that do not meet the NAAQS for each criteria pollutant. Regions are designated as “attainment” or “non-attainment” for the criteria pollutants depending on whether local air quality is in compliance or not in compliance,

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respectively with the NAAQS. For any non-attainment designation, a State Implementation Plan (SIP) must be developed to demonstrate future attainment of the applicable NAAQS.

An area previously designated as nonattainment pursuant to the CAA Amendments of 1990, and subsequently re-designated as attainment, is termed a *maintenance area*. A maintenance area must have a maintenance plan in a revision to the SIP to ensure attainment of the air quality standards is maintained. For proposed federal actions in non-attainment areas and maintenance areas, the project proponent must demonstrate that the project conforms to the appropriate SIP.

The General Conformity Rule of the Federal CAA prohibits federal agencies from permitting or funding projects that do not conform to an applicable SIP. The General Conformity Rule applies only to nonattainment or maintenance areas.

Under the Transportation Conformity Rule, federally funded roadway projects of regional significance are shown to conform to the SIP by inclusion in the Transportation Improvement Plan (TIP).

### 3.2.1 Affected Environment

Arlington, Virginia is in the Metropolitan Washington Air Quality Committee (MWAQC) Region. The MWAQC region is designated as in attainment with NAAQS for the criteria pollutants NO<sub>2</sub>, SO<sub>2</sub>, Pb, and PM<sub>10</sub>. The region is designated as non-attainment for ground-level O<sub>3</sub> and PM<sub>2.5</sub>, and is a maintenance area for CO. Information about these non-attainment and maintenance pollutants is provided in the following sections.

#### 3.2.1.1 Ozone

Ozone is a colorless gas composed of three atoms of oxygen, one more than the oxygen molecule that we need to breathe. The additional oxygen atom makes ozone extremely reactive and irritating to tissue in the respiratory system. Ozone exists naturally in the stratosphere, the Earth's upper atmosphere, where it shields the Earth from the sun's ultraviolet rays. However, ozone found close to the Earth's surface, called ground-level O<sub>3</sub>, is considered an air pollutant.

Ozone is formed by a complex series of chemical reactions between volatile organic compounds (VOCs) and oxides of nitrogen in the presence of sunlight during hot, stagnant summer days. The primary manmade sources of VOCs and nitrogen oxides (NO<sub>x</sub>) are industrial and automobile emissions. Other sources of VOCs include lawn and garden equipment, and consumer products such as paints, insecticides, and cleaners.

The MWAQC prepared a SIP for 8-hour ozone in May 2007. The plan set forth steps to meet federal requirements for reducing pollution from ozone-forming gases by 2009. As part of the plan, local governments and agencies expanded their use of wind energy and low emissions vehicles, as well as expanded upon their energy efficiency programs.<sup>22</sup> In February of 2012, the EPA determined that the Metropolitan Washington Area had attained the 8-hour ozone NAAQS based on ambient air monitoring data.<sup>23</sup> The determination of attainment means that the Metropolitan Washington Area met the deadline for attaining the 8-hour ozone NAAQS. However, it does not mean that the area was re-designated. Re-designation

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statutory requirements must be met to be re-designated.

### 3.2.1.2 Particulate Matter

Air pollutants considered as PM include dust, dirt, soot, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activities, fires, and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as SO<sub>2</sub> and VOCs are also considered particulate matter. Based on studies of human populations exposed to high concentrations of particles and laboratory studies of animals and humans, there are major effects of concern for human health. These include effects on breathing and respiratory symptoms, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogens, and premature death. Particulate matter also damages materials and is a major cause of visibility impairment.

Fine particles, indicated by PM<sub>2.5</sub>, come mainly from combustion of gases and generally have diameters of two and a half micrometers or less.

The MWAQC region developed a SIP for PM<sub>2.5</sub> in March 2008.<sup>24</sup> The EPA determined that the Metropolitan Washington Area attained the 1997 PM<sub>2.5</sub> NAAQS in January of 2009.<sup>25</sup> In January 2013, the MWAQC region submitted a draft request to the EPA to re-designate the PM<sub>2.5</sub> nonattainment area to attainment.<sup>26</sup> Simultaneously, the region submitted a draft maintenance plan for the PM<sub>2.5</sub> NAAQS, as a revision to the SIP, to be approved by the EPA.<sup>27</sup>

### 3.2.1.3 Carbon Monoxide

Carbon monoxide is a colorless, odorless, and poisonous gas produced by incompletely burned carbon in fuels. The majority of CO emissions are from transportation sources, with the largest from highway motor vehicles. Molecules of CO survive in the atmosphere for a period of approximately one month, but eventually react with oxygen to form carbon dioxide. Levels of CO found in ambient air may reduce the oxygen carrying capacity of the blood. Health threats from CO are most serious for those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability, and performance of complex tasks.

The Metropolitan Washington Area was originally designated as a CO non-attainment area. In 1996, the EPA re-designated the area as in attainment for CO and approved the CO Maintenance Plan.<sup>28</sup> The CAA requires two 10-year maintenance plans following re-designation to demonstrate that the region will maintain the NAAQS. The Metropolitan Washington area's first CO Maintenance Plan covered 10 years from 1996-2007. A revised CO Maintenance Plan was approved by the MWAQC in February 2004, which covers the period from 2007-2016. The plan demonstrates that the region will continue to attain the 8-hour CO standard.<sup>29</sup>

## 3.2.2 Threshold of Significance

The threshold of significance for air quality impacts would be exceeded if the alternative would result in any of the following:

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- emissions that exceed the NAAQS; or
- increases in the emissions such that the federal major source thresholds would be exceeded. The major source thresholds for Arlington County which is in the Ozone Transport Region are 100 tons per year (tpy) of NO<sub>x</sub> or 50 tpy of VOC, or 100 tpy of PM<sub>2.5</sub>.

### **3.2.3 Environmental Consequences of the Alternatives on Air Quality**

Changes in mobile source and stationary source emissions could result in changes in air quality. Mobile sources are defined as any non-stationary sources of air emissions such as cars and trucks. Changes in mobile sources including vehicular and maintenance activities may result in changes to emissions of VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO. Construction activities could also influence concentrations for these NAAQS.

Stationary sources are defined as any fixed building or facility that emits air pollutants. New stationary sources such as generators could increase emissions of VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO.

#### **3.2.3.1 No Action Alternative**

Implementation of the No Action Alternative would result in temporary construction related emissions that have been evaluated under separate environmental review(s).

#### **3.2.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

Alternative 1 would result in changes in vehicular and maintenance activities as a result of adding the Southern Expansion

Site to the active cemetery. Processions would have to travel a slightly longer distance to the interment sites. Landscape and lawn maintenance would also increase. Both changes may increase VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO emissions. However, changes in emissions are expected to be small compared to the activities that already take place at ANC.

Construction could result in short-term and minor impacts on air quality in the local area due to fugitive dust from earthwork excavation and vehicle and equipment emissions during construction. The associated temporary increases in VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO emissions on the local air quality would be minor compared to daily traffic emissions in the local area.

New stationary sources could include generators and heating, ventilation, and air conditioning (HVAC) systems. Again, these sources could result in increased emissions of VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO. These sources would be reviewed to determine whether stationary source permits are required.

All projects would be undertaken in compliance with applicable state and federal standards for air quality. Also, sustainability measures would minimize the increases associated with new stationary sources. Per Army requirements, new construction must be built to a standard capable of achieving a U.S. Green Building Council LEED New Construction Silver rating. To meet this requirement, any new facilities will include features to conserve energy. Sustainable building technologies such as high-efficiency HVAC systems would be employed to reduce energy consumption and reduce emissions. Best management

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practices could minimize construction emissions resulting from Alternative 1. For instance, low emission construction techniques such as eliminating unnecessary equipment idling could be implemented.

In summary, changes in emissions would be minor as compared to those produced by existing activities and daily traffic in the local area. Recognizing that new stationary sources of emissions, such as generators and HVAC systems, would be reviewed for each project and that all applicable state and federal standards would be observed, it is not anticipated that the aforementioned potential minor changes in emissions, taken together, would approach the threshold of significance for any of the criteria pollutants of concern.

**3.2.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

Impacts to air quality under Alternative 2 would be similar to those under Alternative 1. Minor additional changes in vehicle activity would be expected as the result of closing Southgate Road. However, traffic on Southgate Road is much reduced since the closure of the Navy Annex. Therefore, the closure of Southgate Road would be expected to have minimal impact on air emissions.

Landscape and lawn maintenance would also increase. Both changes may increase VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO emissions. However, changes in emissions are expected to be small compared to the activities that already take place at ANC.

Additional temporary construction emissions could result from the proposed improvements in the Southgate Road and Patton Drive vicinity. The temporary effects of dust and vehicle exhaust emissions on the local air quality would be minor compared to daily traffic emissions in the local area.

New stationary sources could include generators and HVAC systems. These sources would be reviewed to determine whether stationary source permits are required.

As with Alternative 1, all projects would be undertaken in compliance with applicable state and federal standards for air quality. Also, as described for Alternative 1, sustainability measures would reduce the increases in emissions associated with new stationary sources. Finally, the construction best management practices described for Alternative 1 would also apply to Alternative 2. Therefore, both short-term and long-term increases in air emissions would be small in comparison to the daily traffic air emissions in this area.

In summary, changes in emissions would be minor as compared to those produced by existing activities and daily traffic in the local area. Recognizing that new stationary sources of emissions, such as generators and HVAC systems, would be reviewed for each project and that all applicable state and federal standards would be observed, it is not anticipated that the aforementioned potential minor changes in emissions, taken together, would approach the threshold of significance for any of the criteria pollutants of concern.

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3.2.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement

Impacts to air quality under Alternative 3 would be similar to those under Alternative 2. Minor additional changes in vehicle activity and emissions would be expected as the result of adding a new road between Columbia Pike and Southgate Road.

Additional temporary construction emissions could result from the construction of the new road between Columbia Pike and Southgate Road. The temporary effects of dust and vehicle exhaust emissions on the local air quality would be minor compared to daily traffic emissions in the local area.

Landscape and lawn maintenance would also increase. Both changes may increase VOCs and NO<sub>x</sub> (precursors for Ozone), PM<sub>2.5</sub> and CO emissions. However, changes in emissions are expected to be small compared to the activities that already take place at ANC.

New stationary sources could include generators and HVAC systems. These sources would be reviewed to determine whether stationary source permits are required.

As with Alternatives 1 and 2, all projects would be undertaken in compliance with applicable state and federal standards for air quality. Also, as described for Alternative 1, sustainability measures would reduce the increases in emissions associated with new stationary sources. Finally, the construction best management practices described for Alternative 1 would also apply to Alternative 3. Therefore, both short-term and long-term increases in air emissions would be small in comparison to the daily traffic air emissions in this area.

In summary, changes in emissions would be minor as compared to those produced by existing activities and daily traffic in the local area. Recognizing that new stationary sources of emissions, such as generators and HVAC systems, would be reviewed for each project and that all applicable state and federal standards would be observed, it is not anticipated that the aforementioned potential minor changes in emissions, taken together, would approach the threshold of significance for any of the criteria pollutants of concern.

3.2.3.5 Alternative 4– ANC Including the Southern Expansion Site with Realigned Roadways

Air quality impacts may result from changes in vehicle activity due to the realigned roads. The realignment of Columbia Pike and ramps between Columbia Pike and Rt. 27 are not sufficiently defined to determine the associated emissions. Therefore, changes in vehicle activity and vehicle emissions will be analyzed as part of a project-level NEPA evaluation when sufficient information is available. While insufficient information is available to analyze impacts at this time, it is concluded that the emissions would not exceed or exacerbate an existing exceedance of the NAAQS for the following reasons:

- both the JB-MHH and Pentagon Transportation Management Plans include goals to reduce use of single occupancy vehicles and parking; and
- the design of the roadways could be modified such that exceedances would not occur.

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Landscape and lawn maintenance would increase. However, the added area is small when compared to the total area of ANC. Therefore, the changes in air emissions would be expected to be small.

Again, air quality impacts during construction would also be short-term and minor under Alternative 4.

New stationary sources could include generators and HVAC systems. These sources would be reviewed to determine whether stationary source permits are required.

As with Alternatives 1, 2 and 3, all projects would be undertaken in compliance with applicable state and federal standards for air quality. Also, as described for Alternative 1, sustainability measures would reduce the increases in emissions associated with new stationary sources. Finally, the construction best management practices described for Alternative 1 would also apply to Alternative 4. Therefore, both short-term and long-term increases in air emissions would be small in comparison to the daily traffic air emissions in this area.

In summary, it is anticipated that the changes in emissions would not approach the threshold of significance for any of the criteria pollutants of concern. However, changes in vehicle activity and vehicle emissions due to the realignment of roads including Columbia Pike must be evaluated in a future project-level NEPA document.

### **3.3 Noise**

#### **3.3.1 Affected Environment**

ANC is intended to be a serene environment and therefore noise is generally kept to a minimum. Sources of

noise at the cemetery come from maintenance operations such as lawn mowers and maintenance shops, with intermittent noises from committal services such as rifle salutes, bugles, and military bands. Noise produced within the cemetery is typically negligible and non-disruptive.

Other sources of noise at ANC are typically transient noises from nearby transportation-related sources. Vehicular traffic traveling within the cemetery or on nearby roadways is audible in certain areas of the cemetery. Other noise at ANC includes air traffic associated with Ronald Reagan Washington National Airport and helicopters from nearby military installations or those serving the Pentagon and White House.

The Noise Control Ordinance of Arlington County, Virginia establishes "...a noise control program for the purpose of promoting the health, safety and welfare and to foster the comfort of its inhabitants."<sup>30</sup> The regulations limit construction noise levels to 90 A-weighted decibels (dBA) for certain land uses during daytime hours. Adherence to this ordinance is a policy decision on the part of the ANC.

#### **3.3.2 Threshold of Significance**

An increase in noise levels would be considered significant if the alternative would cause a substantial permanent increase in noise at a noise-sensitive land use such as a residence or school.

A substantial noise increase was defined in terms of small arms noise because noise impacts (if any) would likely be associated with changes in the locations of rifle salutes. For small arms, Army Regulation (AR) 200-1 provides noise limits for land use planning zones (LUPZ) based on the peak sound

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pressure level (PK 15(met)) noise metric. PK 15(met) “is the calculated peak noise level, without frequency weighting, expected to be exceeded by 15 percent of all events that might occur.”<sup>31</sup> Noise-sensitive land uses are not recommended in LUPZ III. The small arms noise limit for LUPZ III is 104 decibels PK 15(met). Therefore, for this EA, a substantial increase in noise would occur if a noise sensitive land use would experience a PK 15(met) of 104 decibels or more.

**3.3.3 Environmental Consequences of the Alternatives on Noise**

**3.3.3.1 No Action Alternative**

Implementation of the No Action Alternative would result in temporary noise impacts due to construction particularly adjacent to the Millennium Site.

**3.3.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

With the implementation of Alternative 1, short-term increases in noise levels within the cemetery could occur during construction and renovation activities. Construction-related noise would vary daily depending on the type and location of construction activity. The noise could result from the use of heavy machinery and equipment for building, parking and road construction, and required earthwork and foundation work. Typical noise levels for construction vehicles and equipment are listed in **Table 3.1**.

Table 3.1  
**Construction Equipment Noise  
Emission Levels**

Equipment	Typical Noise Level (dBA) 50 feet from Source
Air Compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane Derrick	88
Crane Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rail Saw	90
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	88

Source: FHWA Construction Noise Handbook, 7/5/2011, [http://www.fhwa.dot.gov/environment/noise/construction\\_noise/handbook/handbook09.cfm](http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm)

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Foxcroft Heights could also be subjected to increased noise because of its proximity to the Southern Expansion Site. Construction of the proposed developments on the Southern Expansion Site may temporarily increase noise in Foxcroft Heights. To reduce the potential for construction noise to impact Foxcroft Heights, construction crews would, as a courtesy to the neighborhood and Arlington County, work in accordance with Arlington County's Noise Control Regulations to the maximum extent practicable. Given the urban environment surrounding the Foxcroft Heights neighborhood, it is anticipated that the temporary increases in noise due to construction activities would be minor.

As a result of Alternative 1, committal services could increase noise in Foxcroft Heights. Committal services will take place on the Southern Expansion Site once it is developed. When full military funeral honors are provided, the committal services will include rifle salutes. Therefore, rifle salutes will likely occur on the Southern Expansion Site parcel.

Committal services are conducted on weekdays (except for federal holidays) between 9 AM and 3 PM. Committal services are also conducted on Saturdays between 9 AM and 1 PM. However, committal services on Saturdays do not include full military honors.<sup>32</sup> Therefore, the rifle salutes would occur on the Southern Expansion Site parcel between 9 AM and 3 PM on weekdays only.

The potential noise impacts are a function of the distance between the rifle salutes and Foxcroft Heights. The further away from Foxcroft Heights, the less likely the rifle salutes will be heard above the high level of traffic noise and aircraft/ helicopter noise in

this area. Where the rifle salutes might occur within the site is unknown as design has not been initiated. Therefore, it was not possible to assess the specific potential impacts on the Foxcroft Heights community. As previously explained, when information needed to determine specific impacts is not available, the development is evaluated to the fullest extent possible in this Programmatic EA. When more information about the layout of the Southern Expansion Site becomes available, site-specific NEPA documentation will be prepared and tiered from this Programmatic EA.

Since the rifle salutes will occur only on weekdays between 9 AM and 3 PM, and given the high level of traffic noise in the Foxcroft Heights neighborhood, it is not expected that the noise impact would exceed the threshold of significance. Furthermore, if detailed project design reveals that the noise would be expected to be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.

3.3.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road

Noise impacts due to Alternative 2 would be similar to those described under Alternative 1. However, there could be additional construction noise within the cemetery due to development along Southgate Road. Southgate Road would become an internal cemetery road and Patton Drive would be converted to in-ground interments.

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**3.3.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

Noise impacts due to Alternative 3 would be similar to those described under Alternatives 1 and 2. However, there could be additional construction noise adjacent to the Foxcroft Heights neighborhood with the construction of the new road between Southgate Road and Columbia Pike. To reduce the potential for construction noise to impact Foxcroft Heights, construction crews would, as a courtesy to the neighborhood and Arlington County, work in accordance with Arlington County's Noise Control Regulations to the maximum extent practicable. Given the urban environment surrounding the Foxcroft Heights neighborhood, it is anticipated that the temporary increases in noise due to construction activities would be minor.

**3.3.3.5 Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways**

Noise impacts due to Alternative 4 would be similar to those described under Alternative 3.

**3.4 Topography, Soils and Geology**

**3.4.1 Affected Environment**

**3.4.1.1 Topography**

The natural lay of the land is one of the significant visual elements of ANC. The Arlington Ridge is the dominant landform in the cemetery. There is more than 200 feet of topographic change across the cemetery between the western and eastern boundaries. **Figure 3-4** provides an illustration of the topography at ANC.

The topography of ANC is varied from relatively flat low-lying area in the east to steep hills known as Arlington Ridge in the west. The topography within the cemetery gently rises from approximately 20 feet above mean sea level at the southeastern corner to approximately 100 feet at the base of Arlington Ridge. From the 100-foot contour, the land slopes at a moderately steep gradient to the cemetery's highest elevations. The highest elevations are found along Arlington Ridge in the western portion of the cemetery near the JBM-HH gate. In this area, elevations range from approximately 200 feet to 215 feet above mean sea level. Arlington House and Section 11 are located in this contour interval.

From the high point at Arlington House, the topography of the cemetery steeply descends into valleys to the north and south and more gently down to Eisenhower Drive and Memorial Avenue to the east. The elevation at Memorial Avenue and Eisenhower Drive is 150 feet lower than Arlington House. The lowest points in the cemetery can be found between Eisenhower Drive and the eastern boundary where contours range from 50 feet to 10 feet above mean sea level.<sup>33</sup>

As shown in Photos 1 and 2 there is an area of land subsidence to the east of the U.S. Air Force Memorial where the ground slopes down toward Columbia Pike. The cause of the subsidence is under investigation.

**Figure 3-4  
Topography at ANC**



**LEGEND**

**Major Contour Intervals**

-  200 - 250 Feet
-  150 - 200 Feet
-  100 - 150 Feet
-  50 - 100 Feet
-  0 - 50 Feet

 **Highpoints**

1. Arlington House, The Robert E. Lee Memorial
2. Section 13
3. Section 11
4. Western Edge, Former Navy Annex Site

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Source: ANC Master Plan, Google Earth



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**Photo 1: View of Slope Failure Looking Toward the U.S. Air Force Memorial**



**Photo 2: View of Slope Failure Looking Toward Columbia Pike**



#### 3.4.1.2 Soils

Soils in the area of ANC include the Bourne Series, Myatt Series, and Tetotum Series. These soils are described as deep to very deep, nearly level to sloping soils formed in unconsolidated sediments of the coastal and river terraces. These soils are characterized by gray and red clays with interbedded sand lenses grading into clay lenses.<sup>34</sup>

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Arlington County, Virginia, there are two

soils identified at ANC: (1) Arlington National Cemetery map unit and (2) Urban Land-Udorthents Complex 2-15 percent slope.<sup>35</sup>

The Arlington National Cemetery map unit comprises the soils mapping for most of ANC. This map unit consists of areas where the surface is covered by headstones, monuments, buildings, and access roads. The soils are deep and very deep, nearly level to moderately sloping, and well drained and moderately well drained. No interpretative data is provided by the NRCS for this soil map unit.<sup>36</sup>

The Urban Land-Udorthents complex, 2 to 15 percent slope soils consist of areas where more than 85 percent of the surface is Urban land, covered by buildings, asphalt, concrete, or other impervious materials. The other 15 percent consists of areas of deep to very deep, nearly level to moderately sloping, well and moderately well drained soils. The Urban land and Udorthents are so intermingled it is not practical to map them separately. This unit is about 85 percent Urban land, 10 percent Udorthents, and 5 percent other soils. The Udorthents consist of material that has been graded, cut, filled, or otherwise disturbed during urbanization. The disturbed material is loamy and generally reflects the soils in the adjacent areas. Also included are moderately steep and steep slopes.<sup>37</sup>

Neither of the soils is listed as hydric soils. ANC soils are not considered prime or unique farmland.<sup>38</sup>

#### 3.4.1.3 Geology

ANC is located within the North Atlantic Inner Coastal Plain physiographic province adjacent to the Piedmont Plateau province

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to the northwest. The boundary between these two provinces is known as the Fall Line and aligns with Rock Creek in the District of Columbia. While the Inner Coastal Plain is often characterized by rolling uplands, a characteristic apparent at ANC, the province has a much flatter terrain than the typically hilly terrain found in the Piedmont Plateau. The Inner Coastal Plain is underlain by younger less consolidated sediments than those that overlay the hard bedrock characteristic of the Piedmont province.<sup>39</sup> The sediments of the Inner Coastal Plain include unconsolidated marine and riverine deposits of gravel, sand, silt, and clay which range in age from Cretaceous to Recent. At ANC, the underlying deposits are part of the Cretaceous-age Patuxent formation and consist of sandstones interbedded with clays and gravels. The uplands located in the vicinity of ANC are composed of Quaternary age sediments.<sup>40</sup>

### **3.4.2 Threshold of Significance**

The threshold of significance would be exceeded if the alternative would result in a geologic hazard, such as slope instability. A change in topography that is out of character with the cemetery would also result in a significant effect. Lastly, an alternative that would not be consistent with the Virginia Erosion and Sediment Control Regulations would result in a significant effect.

### **3.4.3 Environmental Consequences of the Alternatives on Topography and Soils**

#### **3.4.3.1 No Action Alternative**

The No Action Alternative would result in changes to soils and topography at ANC.

These actions are evaluated under separate environmental review(s). Projects at the Millennium Site require significant earthwork, including re-grading of a steep slope through cut and fill operations. However, soils would be re-used on site to the maximum extent possible and the earthwork would result in overall reductions to stormwater runoff, with lessened soil erosion. Additionally, topography impacts would be minimized and mitigated through stream restoration.<sup>41</sup> See the *Arlington National Cemetery Millennium Project Environmental Assessment (Millennium EA)* for more details.

#### **3.4.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

The development proposed as part of Alternative 1 is based on the existing topography of the site. This is particularly applicable to the Southern Expansion Site where the existing topography limited the development options in some areas.

As part of the removal of the Navy Annex, the Southern Expansion Site was re-graded to create a more stable and uniform setting as set forth in the Memorandum of Agreement (MOA) Concerning the Transfer of the Navy Annex Property from Washington Headquarters Services (WHS) to Department of the Army.<sup>42</sup> Also, remedial stabilization of the failed slope east of the U.S. Air Force Memorial and west of Columbia Pike will be required.

Design of the proposed development will be based on geotechnical investigations to determine appropriate foundation systems, allowable bearing pressures, and expected total and differential settlements. Best management practices (BMPs) for erosion and sediment control will be incorporated

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into the design to comply with applicable regulations. The proposed reduction in impervious surfaces on the Southern Expansion Site could also reduce the potential for soil erosion.

Therefore, Alternative 1 would be expected to result in positive impacts to topography and soils and no impact to geology.

**3.4.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

The discussion of topography and soils for Alternative 1 also applies to Alternative 2. Therefore, Alternative 2 would be expected to result in positive impacts to topography and soils.

**3.4.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

The discussion of topography and soils for Alternative 1 also applies to Alternative 3. Therefore, Alternative 3 would be expected to result in positive impacts to topography and soils.

**3.4.3.5 Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways**

Alternative 4 would alter the topography between the U.S. Air Force Memorial and the existing cemetery boundary. The topography in this area would no longer be constrained by the alignment of Columbia Pike and the grade could be reduced to allow for interments and inurnments. Appropriate landscaping would be incorporated. As with Alternatives 1, 2 and 3, design would be based on geological investigations, and would include erosion and sediment control BMPs. Therefore,

Alternative 4 would be expected to positively impact topography and soils.

**3.5 Water Resources**

Water resources are protected by the Federal Water Pollution Control Act, as amended by the Clean Water Act (CWA) of 1977. The CWA establishes water quality standards for restoring and maintaining the integrity of the Nation's waters. Section 401 of the CWA requires certification by the state that the prospective federal permits comply with the state's applicable water quality standards. Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) to limit pollutant discharges into streams, rivers and bays.

EO 11988, Floodplain Management, requires federal agencies to avoid adverse impacts to the floodplain and to minimize the impact of floods on human safety, health and welfare. Adverse impacts include the occupancy or modification of floodplains through direct or indirect floodplain development. Under EO 11988, federal agencies are also required to take action to restore and preserve the natural and beneficial values served by floodplains.

EO 11990, Protection of Wetlands, requires federal agencies to minimize the destruction, loss, or degradation of wetlands resulting from their actions. Section 404 of the CWA, as amended, requires regulation of discharges or fill matter into Waters of the United States, including jurisdictional wetlands. The U.S. Army Corps of Engineers (USACE) has primary responsibility for implementing, permitting and enforcing the provisions of Section 404.

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EISA and EO 13514 direct and guide federal agency management of stormwater. Section 438 of EISA requires that the property pre-development hydrology be maintained or restored for federal facilities over 5,000 square feet. “The term “Federal facility” means any building that is constructed, renovated, leased, or purchased in part or in whole for use by the Federal Government.”<sup>43</sup> Section 14 of EO 13514 required that the EPA issue guidance on how to implement Section 438 of EISA.

### 3.5.1 Affected Environment

ANC is located within the Middle Potomac-Anacostia-Ococoquan Watershed and is approximately a half-mile west of the Potomac River.<sup>44</sup> Arlington County identifies ANC as being within the subwatershed boundary known as “Cemetery/Pentagon.”<sup>45</sup> The Potomac Watershed drains to the Potomac River which ultimately drains into the Chesapeake Bay.

#### 3.5.1.1 Groundwater

ANC is located within two aquifers: the Northern Atlantic Coastal Plain (NACP) Aquifer System and the Piedmont and Blue Ridge crystalline-rock aquifers. The NACP Aquifer System is a semiconsolidated sand aquifer system that is typical of the coastal plain. The Piedmont and Blue Ridge crystalline-rock aquifers are igneous and metamorphic-rock aquifers.<sup>46</sup> See **Figure 3-5** for a delineation of the aquifers at ANC.

The groundwater potentiometric surface is between 3 and 5 feet below grade and general groundwater flow in the area is toward the southeast, except in shallow alluvial deposits where the flow is determined by the overlying topography.<sup>47</sup> Groundwater recharge occurs from precipitation in outcrop areas or,

occasionally, from downward leakage through confining beds. Groundwater is not used as a drinking water supply in this area.

#### 3.5.1.2 Surface Water

Surface water drains eastward to the Potomac via the Boundary Channel. According to the 1998 ANC Master Plan, stream channels, identified by the USACE as jurisdictional waters of the U.S., exist in Section 29 and adjacent to the Old Warehouse Area (OWA).<sup>48</sup>

The 1998 ANC Master Plan also identified intermittently “wet areas” observed in Sections 18, 33, and 53, as well as in the vicinity of the Administration Building and parking garage. In addition, active springs and culverted streams were identified in Sections 2, 9 and 37.<sup>49</sup>

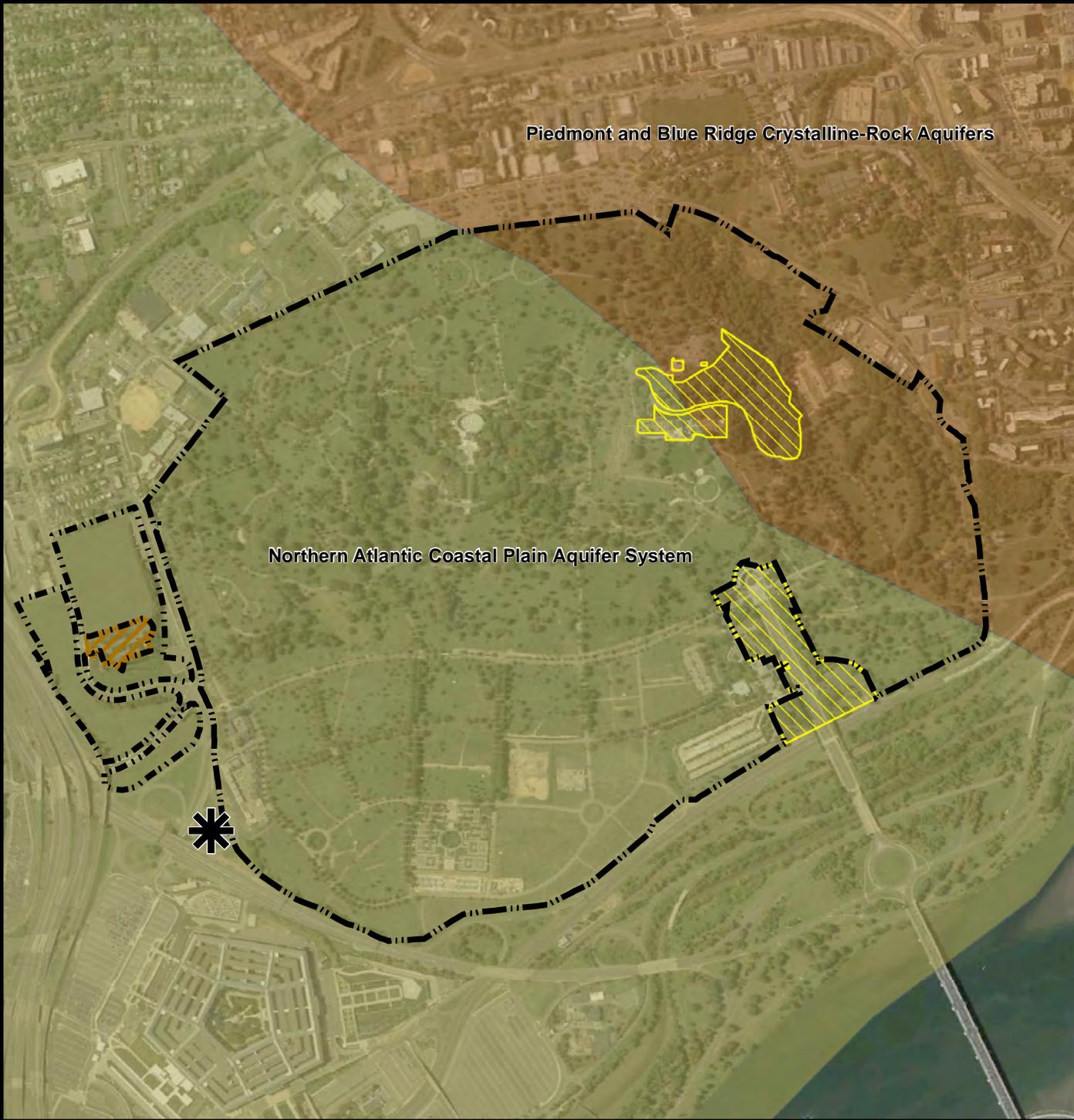
In 2011, the USACE Norfolk District Regulatory staff confirmed that there are three streams at ANC within the Millennium Site: one perennial stream (North Branch) and two intermittent tributary streams (Middle Branch and South Branch), as shown in **Figure 3-6**. These streams convey water flow generally to the north through the Millennium Site.<sup>50</sup>

#### 3.5.1.3 Drinking Water

The Virginia Department of Health (VDH) reviewed the project area for proximity to public drinking water sources (groundwater wells, springs, and surface water intakes). VDH found the following:

- There are no groundwater wells within a 1-mile radius of the project site.

**Figure 3-5  
Aquifer Boundaries at ANC**



**LEGEND**

-  Arlington National Cemetery
-  Northern Atlantic Coastal Plain Aquifer System
-  Piedmont and Blue Ridge Crystalline-Rock Aquifers
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center

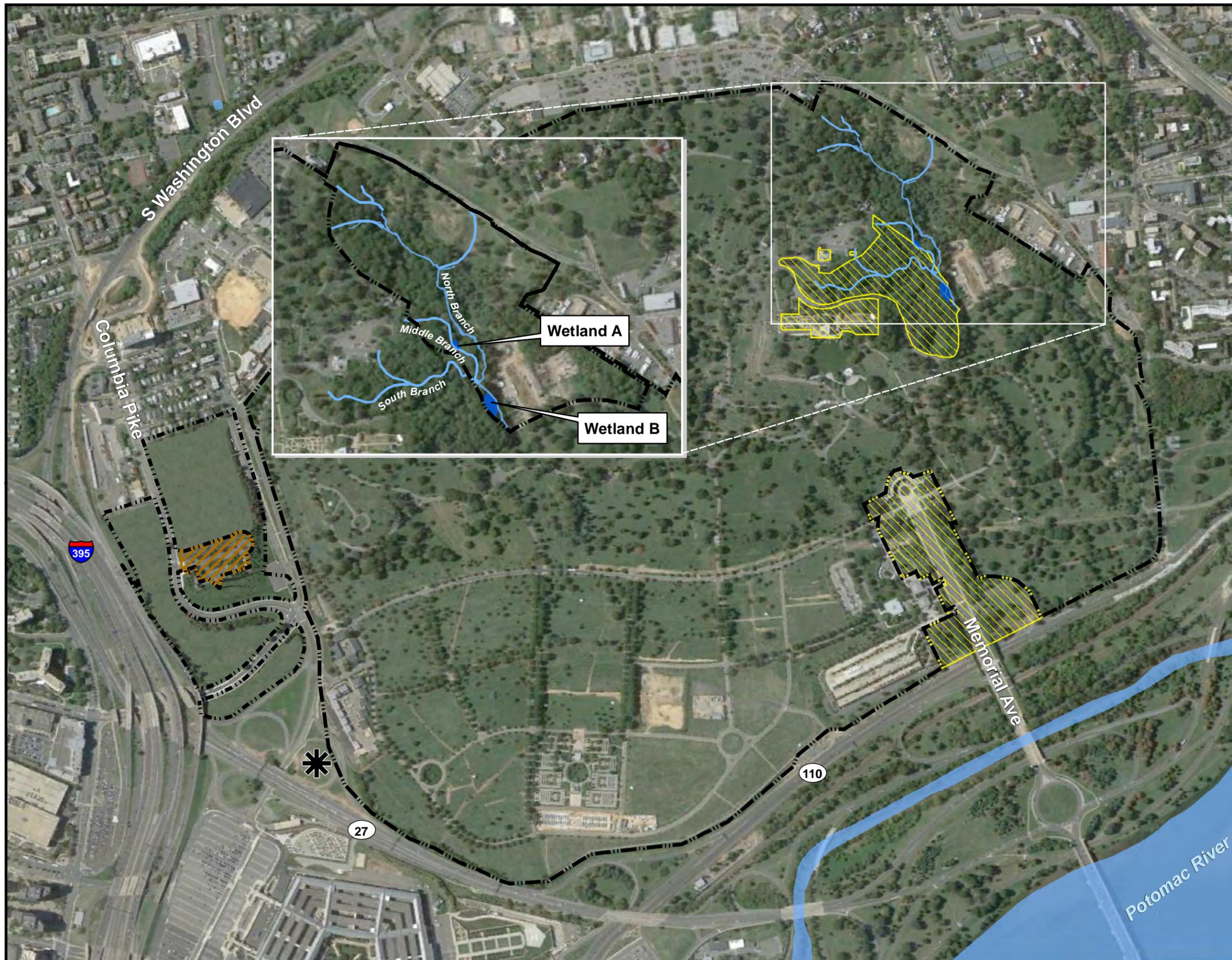
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Source: National Atlas, National Park Service, Google Earth



**Figure 3-6  
Waterways and Wetlands**



**LEGEND**

-  Arlington National Cemetery
-  Wetland
-  Stream (approximate location)
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center

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Sources: National Wetlands Inventory, Environmental Assessment Millennium Area, Headstone Removal Project (2012), National Park Service (NPS), Google Earth



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- No surface water intakes are located within a 5-mile radius of the project site.
- The project is not within Zone 1 (up to 5 miles into the watershed) or Zone 2 (greater than 5 miles into the watershed) of any public surface water source.

### 3.5.1.4 Water Use Classification

According to the EPA, the designated use of the Potomac River in the vicinity of ANC (EPA Waterbody ID DCPMSOOE\_02) is primary contact recreation, navigation, aquatic life harvesting (protection and propagation of fish, shellfish and wildlife and protection of human health related to consumption of fish and shellfish), and secondary contact recreation and aesthetic enjoyment.<sup>51</sup>

### 3.5.1.5 Water Quality

The status of the Potomac River in the vicinity of ANC is impaired because it does not meet water quality standards associated with its designated use. While this section of the Potomac River is “good” for navigation it is “impaired” for aquatic life harvesting.<sup>52</sup>

As required by the CWA, Total Maximum Daily Loads (TMDLs) have been developed to improve the water quality. A TMDL “is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.”<sup>53</sup> Two TMDLs apply: the Total Maximum Daily Loads for Polychlorinated Biphenyls (PCBs) Tidal Potomac & Anacostia River Watershed in the District of Columbia, Maryland and Virginia; and the District of Columbia TMDL for Fecal Coliform Bacteria in Upper Potomac River, Middle Potomac

River, Lower Potomac River, Battery Kemble Creek, Foundry Branch, and Dalecarlia Tributary.

### 3.5.1.6 Water Supply

Water is supplied to ANC by the District of Columbia Water and Sewer Authority (DC Water). Water from the Potomac River is treated to meet or exceed all water quality standards at the Dalecarlia and McMillan Water Treatment Plants by the Washington Aqueduct Division, an agency of the USACE. Treated water is pumped and delivered to ANC by DC Water.

### 3.5.1.7 Watershed Implementation Plan

The EPA established the Chesapeake Bay TMDL in 2010 to restore the waters of the Chesapeake Bay and the region’s streams, creeks, and rivers, and to address nutrient and sediment impairments. The tidal waters of the Chesapeake Bay continue to be enriched with the nutrients nitrogen and phosphorus, and sediment. This excess of nutrients and sediments leads to problems such as annual dead zones, loss of habitat for aquatic species in the Bay and tidal waters, as well as localized water quality concerns in many upstream rivers. As a result, in accordance with the federal Clean Water Act, the EPA has directed the Chesapeake Bay jurisdictions, including Virginia, and the District of Columbia to develop and implement a “pollution diet” for the Bay and its tidal waters known as a TMDL.

TMDL establishes how much nitrogen, phosphorus and sediment can flow into the waters of the Chesapeake Bay while maintaining a water quality standard that will allow for improved water quality and aquatic habitats. EPA announced its initial TMDL in

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December 2010. To meet the reduction goals in the TMDL, Virginia developed an initial or Phase I Watershed Implementation Plan (WIP). The WIP was developed by the Virginia Department of Conservation and Recreation (VDCR), Virginia Department of Environmental Quality (VDEQ) and other state agencies with help from local governments, conservation groups, and the agricultural, development and business communities. The plan identifies strategies and outlines programs and resources needed to reach the TMDL. EPA approved Virginia's Phase I WIP in December 2010.

In Phase II of the process, the TMDL and implementation plan were localized across the entire Chesapeake Bay watershed. Most of Virginia's land mass is in the bay watershed, which is made up of all or part of 68 counties and 28 cities. For Phase II, the TMDL's load allocations, or legally binding reduction goals, have been established for 39 Virginia tidal water segments.<sup>54</sup> Virginia submitted its Final Phase II WIP to the EPA on March 30, 2012. The EPA provided its evaluation of the Final Phase II WIP on May 30, 2012.

In addition to developing WIPs, the Chesapeake Bay jurisdictions set two-year milestone commitments to meet the WIP goals. On June 26, 2014, the EPA released its evaluations of the 2012-2013 milestones progress as well as its evaluation of the 2014-2015 commitments. According to the EPA's evaluation, Virginia achieved its 2013 milestone targets for nitrogen, phosphorus and sediment. EPA also determined that, "Virginia's anticipated reductions for nitrogen, phosphorus and sediment during the 2014-2015 milestone period should put Virginia on track to meet the 2017 target of having all practices in place to achieve 60 % of the reductions to necessary to obtain

water quality standards in the Chesapeake Bay."<sup>55</sup>

### 3.5.1.8 Stormwater Management

ANC's stormwater system collects runoff from all 624 acres, as well as stormwater from JBM-HH, via three piped infalls on the northwestern boundary of the cemetery. ANC has two outfalls that discharge directly to the Boundary Channel, one that discharges to the Pentagon stormwater system and eventually to the Pentagon Lagoon, and one that discharges to an open channel/ditch located on NPS property which discharges to the Boundary Channel. **Figure 3-7** illustrates the cemetery's major storm drainage lines and outfall points. ANC is in the process of repairing segments of the existing storm sewers and has completed a Stormwater Management Plan.

The Arlington County Stormwater Detention Ordinance was enacted with requirements to ensure that the installation of on-site stormwater detention facilities maintain a peak runoff rate close to predevelopment levels (unless a waiver is granted). The purpose is to reduce the harmful effects of stormwater runoff on streambeds, banks, parklands, private properties and other areas in the County.

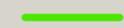
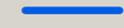
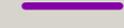
### 3.5.1.9 Floodplains

A review of the current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel number 5155200010B for Arlington County, Virginia indicates that the majority of ANC property is classified as Zone D – Area of undetermined, but possible, flood hazards. This designation indicates that there are possible but undetermined flood hazards, as no analysis has been conducted. A few

**Figure 3-7  
Stormwater**

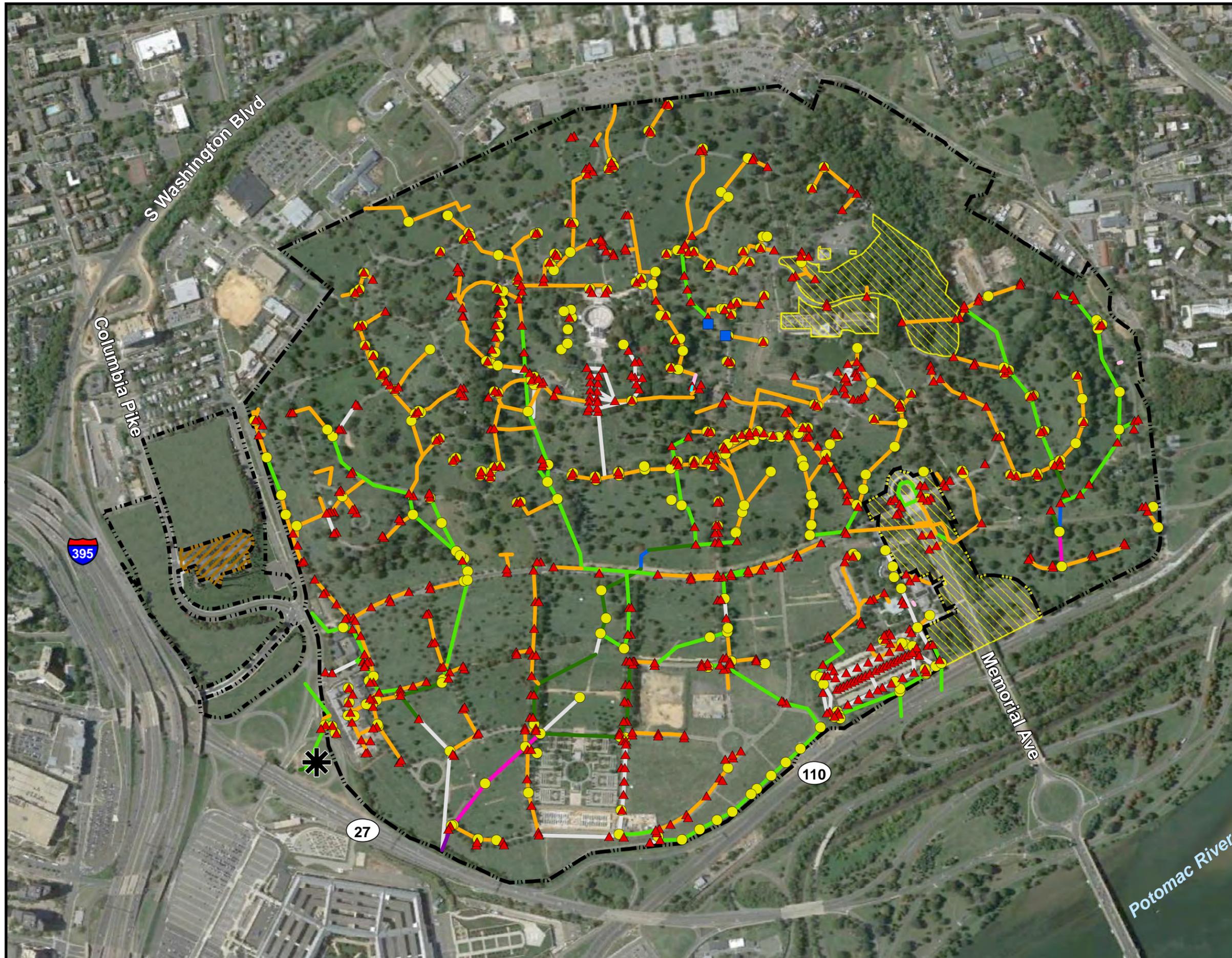
**LEGEND**

**Stormwater Lines**

-  Open Culvert
-  6"-18" In Service
-  20"-36" In Service
-  42"-48" In Service
-  60" In Service
-  72" In Service
-  84" In Service
-  Unknown Size In Service

**Stormwater System Feature**

-  Discharge Point
-  Inlet Point
-  Junction Point
-  Arlington National Cemetery
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center



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Sources:  
ANC Master Plan, National Park Service, Google Earth



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areas on ANC property are classified as Zone C – Area outside the 500-year floodplain. This designation indicates areas of low risk of flooding. See **Figure 3-8** for an illustration of FEMA floodplain designations in the vicinity of ANC.<sup>56</sup>

### 3.5.1.10 Wetlands

According to the U.S. Fish and Wildlife Service's (USFWS) National Wetlands Inventory, there are no wetlands within ANC boundaries. However, a wetland delineation was performed at the Millennium Site in December 2010 that identified two riverine wetlands. USACE Norfolk District Regulatory staff confirmed this finding in November 2011. As a result of the survey findings, a preliminary jurisdictional determination was approved by the USACE. See Figure 3-6 for the wetland and stream locations.<sup>57</sup>

The two identified riverine wetlands on the Millennium Site include a small approximately 0.02-acre wetland within the Middle Branch stream (Wetland A) and a slightly larger approximately 0.15-acre wetland (Wetland B) at the confluence of the three streams identified at the Millennium Site.<sup>58</sup> However, none of the wetlands were within the footprint of the Millennium Site construction footprint and only minor, temporary, indirect effects on the wetland areas were anticipated.<sup>59</sup>

No jurisdictional wetlands have been identified in other areas of the cemetery; however, intermittently wet areas have been observed in Sections 18, 33, and 53, as well as in the vicinity of the Administration Building and parking garage.<sup>60</sup> While intermittent wet areas have been observed, soils are not considered hydric and no wetland plants have been noted.

The only identified intermittently wet area potentially impacted by the Action Alternatives is in the vicinity of the Administration Building and parking garage. All of the Action Alternatives include constructing a committal service queuing area alongside the parking garage. Therefore, a USACE representative conducted a field visit to review the area potentially impacted. As a result of the field visit, it was documented that the area consists of maintained landscape with upland shrubs and trees, and that no drainage features are present. Therefore, it was concluded that there are no wetlands in this area.

Finally, according to previous environmental review, there are no wetlands on the Southern Expansion Site.<sup>61</sup>

### 3.5.1.11 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972 (16 USC § 1451, et seq., as amended) was passed by Congress in 1972 to provide assistance to states, in cooperation with federal and local agencies, for the management of the nation's coastal resources. Pursuant to the CZMA, the National Oceanic and Atmospheric Administration (NOAA) approved Virginia's Coastal Zone Management Program (CZMP) in 1986. The program relies on a network of state agencies and local governments to administer the enforceable laws and regulations that protect wetlands, dunes, subaqueous lands, fisheries, and air and water quality within the Virginia "Coastal Zone."<sup>62</sup> Also, all federal actions and programs that affect Virginia's coastal uses or resources must be carried out in a manner that is consistent with Virginia's CZMP.<sup>63</sup>



**Figure 3-8  
Floodplains**

**LEGEND**

-  Arlington National Cemetery
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center

**Flood Zone Designations**

-  Zone A
-  Zone B
-  Zone C
-  Zone D



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0 300 600 1,200 Feet



Source: Digitized from FEMA FIRM,  
National Park Service (NPS)



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Arlington County including ANC lies within the Virginia coastal zone, as defined by the Virginia CZMP. All federal development projects inside the coastal zone are automatically subject to the consistency regulations. Under these regulations, a federal agency is required to demonstrate consistency with the Virginia CZMP to the maximum extent practicable. Therefore, coordination and review by the lead agency for the CZMP, VDEQ, is required. The VDEQ Office of Environmental Impact Review conducts consistency reviews concurrently with the NEPA reviews when feasible.<sup>64</sup>

#### 3.5.1.12 Chesapeake Bay Preservation Act

The Chesapeake Bay Preservation Act (CBPA) is one of the enforceable policies of the Virginia CZMP. Virginia passed the CBPA in 1988 to aim at improving the declining health of the Bay and its tributaries by reducing and preventing pollution to the Chesapeake Bay. The CBPA established the Bay Act Program to help improve water quality in the Chesapeake Bay. The program requires the use of conservation planning and pollution prevention practices when developing sensitive coastal lands, in order to balance the goals of improved water quality with continued land development. Within the Chesapeake Bay watershed, there are two types of Preservation Areas: Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). RPAs are areas that protect and benefit water quality while RMAs are areas that have the potential to damage water quality without proper management.

The CBPA dictated that all participating counties designate Preservation Areas and appropriate plans in their jurisdiction within twelve months of the adoption of the CBPA

criteria by the Chesapeake Bay Local Assistance Board.

All of Arlington County is designated as a Chesapeake Bay Preservation Area. Arlington County defined RPAs in Section 61-5 of Arlington County's Chesapeake Bay Preservation Ordinance as:

- tidal wetlands and shores,
- non-tidal wetlands contiguous to tidal wetlands or perennial streams,
- natural stream channels,
- man-made open channels,
- a minimum 100 foot buffer adjacent to these water bodies,
- steep slopes greater than or equal to 25 percent contiguous to the 100 foot buffer, and/or
- contiguous steep slopes greater than or equal to 15 percent in the Potomac Palisades area of the County from Chain Bridge to the County boundary (as well as other such areas as may be designated by the County Board under § 61-5.B.1.e).

Based on Arlington County mapping there are no designated RPAs within ANC boundaries.<sup>65</sup>

#### 3.5.2 Threshold of Significance

The threshold of significance for water resources impacts would be exceeded if the alternative would result in any of the following:

- Alteration of local surface water;
- Change to regional groundwater patterns or depletion of groundwater;

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- Notable adverse impact on natural and beneficial floodplain values; or
- Degradation of wetlands

**3.5.3 Environmental Consequences of the Alternatives on Water Resources**

**3.5.3.1 No Action Alternative**

The No Action Alternative may result in changes relative to water resources. These actions are evaluated under separate environmental review(s). The Millennium Project includes stream restoration of severely degraded streams which would result in beneficial impacts to surface water resources.<sup>66</sup>

**3.5.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

According to available information, no direct impacts would occur to surface water bodies, public drinking water, wetlands, or floodplains since these resources are not present in the project area.

New construction and reconfiguration of existing structures in the Arrival Zone area and the Southern Expansion Site will require implementation of stormwater management and erosion and sediment control measures for soils to minimize potential indirect impacts to local surface waters (e.g. Potomac River). Use of heavy equipment during development activities could slightly increase the potential for contamination of groundwater due to hydraulic leaks from machinery. The potential for such impacts would be temporary and minimized through the use of BMPs.

Alternative 1 would be expected to decrease the impervious surface area when compared to the previous development on the Southern Expansion Site. This would reduce the amount of stormwater moving off the site, which would lower the potential for sedimentation and contamination of local surface waters.

ANC lies within the Coastal Zone; therefore all activities are subject to federal requirements that the activities comply with the CZMP and the CBPA to the maximum extent practicable. Projects would be planned and designed to avoid sensitive areas and would be consistent with the CZMP and CBPA to the maximum extent practicable. A CZMP consistency determination has been prepared and is included in *Appendix B, Coastal Zone Management Act Consistency Determination*.

Negative impacts to water quality may result with Alternative 1 because of the increase in area that would require ground maintenance. Alternative 1 results in an approximately six percent larger cemetery area to maintain. Additional pesticides, herbicides, and fertilizer will likely be applied to maintain the added grounds. However, because the extent of these impacts is minor in proportion to the entire cemetery operations, the impacts are not anticipated to approach the threshold of significance. Nonetheless, the cemetery will strive to minimize the anticipated potential impacts through a number of methods. For example, the RPMP includes recommendations for reducing runoff from new development areas. Stormwater infiltration techniques such as pervious pavement and rain gardens are among the strategies recommended to achieve the goal of no net stormwater run-off from the redeveloped

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Southern Expansion Site. Minimization could also include reducing the need for pesticides and herbicides through the ANC Integrated Pest Management (IPM) program. "IPM is a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks."<sup>67</sup> "The IPM objective is to identify operational procedures that use the least toxic method to control pest populations in a cost-effective, environmentally sound manner."<sup>68</sup> Effects could also be minimized by using best practices for fertilizer application including applying fertilizer on an as needed basis in lieu of a calendar approach and using low phosphorus fertilizers.

This project is intended to be consistent with the regulations and requirements of the Arlington County Stormwater Detention Ordinance, enacted to maintain a peak runoff rate close to predevelopment levels. This project would also follow guidance set forth in the Northern Virginia Regional Commission BMP Handbook.<sup>69</sup>

ANC will comply with EO 13514 and Section 438 of EISA requirements for management of stormwater through a suitable combination of stormwater BMPs that could include bioretention, permeable pavements and pavers, cisterns, and green roofs.

In summary, there would be positive long-term impacts to water resources as a result of the decrease in impervious surfaces. Negative impacts due to maintenance of new areas of the cemetery would not reach the threshold of significance. Construction could result in temporary water resource impacts which would be minimized through the use of BMPs and would not be expected to exceed the threshold of significance.

3.5.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road

Impacts to water resources under Alternative 2 would be similar to those described under Alternative 1. If Alternative 2 is selected, projects would be designed to be consistent with the stormwater management requirements of EO 13514 and Section 438 of EISA, and to the maximum extent practicable with the CZMP and CBPA.

3.5.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement

Impacts to water resources under Alternative 3 would be similar to those described under Alternative 1. If Alternative 3 is selected, projects would be designed to be consistent with the stormwater management requirements of EO 13514 and Section 438 of EISA, and to the maximum extent practicable with the CZMP and CBPA.

3.5.3.5 Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways

Alternative 4 includes impacts to water resources similar to those described for Alternative 1. Like Alternative 1, Alternative 4 would be expected to decrease the impervious surface area when compared to the previous development. However, because the layout of the Southern Expansion Site and Columbia Pike are currently conceptual, the amount of impervious surface should be revisited when project-specific NEPA documentation is prepared.

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Negative impacts to water quality may result with Alternative 4 because of the increase in area that would require ground maintenance. Alternative 4 results in an approximately nine percent larger cemetery area to maintain. Additional pesticides, herbicides, and fertilizer will likely be applied to maintain the added grounds. However, because the extent of these impacts is minor in proportion to the entire cemetery operations, the impacts are not anticipated to approach the threshold of significance.

Alternative 4 is intended to be consistent with the regulations and requirements of the Arlington County Stormwater Detention Ordinance and the guidance set forth in the Northern Virginia Regional Commission BMP Handbook. Also, ANC will comply with EO 13514 and Section 438 of EISA requirements for management of stormwater through a suitable combination of stormwater BMPs that could include bioretention, permeable pavements and pavers, cisterns, and green roofs. Finally, Alternative 4 would be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.

In summary, there would be positive long-term impacts to water resources as a result of the decrease in impervious surfaces. Negative impacts due to maintenance of new areas of the cemetery would not reach the threshold of significance. Construction could result in temporary water resource impacts which would be minimized through the use of BMPs and would not be expected to exceed the threshold of significance.

### 3.6 Biological Resources

Potential impacts to plants, wildlife and fish are evaluated in accordance with federal and state regulations including but not

limited to the Endangered Species Act of 1973, the Fish and Wildlife Conservation Act of 1980 and the Migratory Bird Treaty Act.

#### 3.6.1 Affected Environment

##### 3.6.1.1 Vegetation

ANC is located on 624 developed and landscaped acres with a total of 562 acres of turf amongst burial and non-burial sites.<sup>70</sup> The vegetation, trees, bushes, hedges and lawns contribute to the beauty and serenity of the cemetery. A section of the cemetery just south of the parking garage consists of undeveloped land with areas of bare soil, grasses, and herbaceous plants. There is also an area of woodland adjacent to the cemetery in Section 29.<sup>71</sup>

ANC is speckled with 8,400 trees on the rolling green hills. Some of the trees are estimated to be older than the cemetery itself. The cemetery has been operational since May 1864 and some trees are likely 200 years old. There are approximately 300 varieties of trees located within ANC, including the three State Champion trees, the Pin Oak, the Empress, and the Yellowwood trees which are considered the largest specimen of their respective species in Virginia. There are also a variety of other plantings such as shrubs, perennials, and other annual planting beds.<sup>72</sup>

##### *Threatened and Endangered Species*

The USFWS Information, Planning, and Conservation (IPaC) planning tool identified one flowering plant, the Sensitive joint-vetch (*Aeschynomene virginica*) as a threatened species in Arlington County.<sup>73</sup> However, no unique ecological communities or rare plant species have been identified in ANC.<sup>74</sup>

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*Invasive Plant Species*

Invasive Plant Species are defined as alien, exotic or non-native plants that escape cultivation and become agriculture pests, infest lawns as weeds, displace native plant species, reduce wildlife habitat, and alter ecosystem processes. ANC recognizes the VDCR and the Virginia Native Plant Society most recent (2009) invasive alien plant species advisory list as the reference for invasive plants.

Invasive plants have the greatest impact on the undeveloped areas of ANC; this includes the approximately 27 acres of land on the Millennium Site and Section 29 woodland area.<sup>75</sup> Also, when landscape is established in the vicinity of the Millennium Site, new issues with invasive plant species could occur.

ANC has identified a total of 28 plant species that are categorized as being invasive by the VDCR. Trees or shrub species account for 14 of these and the other 14 are herbaceous plants, primarily turf grass weeds.<sup>76</sup>

The only highly invasive landscape plant species on the ANC grounds is *Ailanthus altissima* (Tree-of-heaven). There are also two highly invasive turf plant species: *Cirsium arvense* (Canada thistle), and *Sorghum halepense* (Johnson grass). Refer to the Invasive Species Management Plan for more information for a listing of invasive species in ANC and the measures used to manage these species.

3.6.1.2 Wildlife

The wildlife in and around ANC consist of animals that have adapted to the urban environment, including squirrels, chipmunks, rabbits, raccoons, garter

snakes, and songbirds. It has been documented that the Blue Jay, the Red-winged Blackbird, the Eastern Bluebird, the Red-tailed Hawk, the Red Fox and other species commonly found in urban environments are present at or near the cemetery.<sup>77</sup>

*Threatened and Endangered Species*

The USFWS IPaC planning tool identified one crustacean, the Hay's Spring amphipod (*Stygobromus hayi*), as an endangered species in the vicinity of the project; this species is believed to occur in the District of Columbia and Maryland.<sup>78</sup> The shrimp-like colorless freshwater crustacean is ten millimeters in length, with eyes lacking and body laterally compressed.<sup>79</sup> The Hay's spring amphipod is a detritivore (feeds on organic debris from decomposing plants, animals, and fecal material). A 2007 study by the USFWS stated "Collectively, all seven known and probable sites are within a 3-mile reach of the Rock Creek floodplain and all are subject to similar environmental conditions."<sup>80</sup> ANC is not within the Rock Creek watershed.

State-listed threatened bald eagles may pass over ANC. However, ANC is outside the Potomac River – River Bald Eagle Summer and Winter Concentration Areas.<sup>81</sup>

*Invasive Insect Species*

"There are several introduced insect species that are significant in that they can greatly damage ornamental landscape trees and shrubs. Many of these, such as the European elm bark beetle, Hemlock Woolly Adelgid (HWA) and gypsy moth, have had established populations for many decades. Management for these insects has been part of the cemetery's Integrated Pest Management program for several years."<sup>82</sup>

“In recent years, more non-native invasive insect species have been introduced that can have significant impacts to trees at ANC. The most significant and damaging is the Emerald Ash Borer (EAB).”<sup>83</sup> EAB populations have been detected in Maryland and Northern Virginia.

A few other introduced insect species with potential to damage resources at ANC have been detected very close to Virginia and Washington, D.C. One such species is the Sarix wood wasp (SWW). The SWW attacks pine trees. The genus *Pinus* accounts for approximately five percent of the tree population at ANC. Thus, the SWW has the potential to substantially impact ANC. These types of species should be closely monitored as their populations spread.<sup>84</sup>

### **3.6.2 Threshold of Significance**

The threshold of significance for biological resources impacts would be exceeded if the alternative would:

- Jeopardize the continued existence of any federally listed threatened or endangered species or resulting in destruction of critical habitat;
- Decrease the available habitat for commonly found species to the extent that the species could no longer exist in the area; or
- Eliminate a sensitive habitat such as breeding areas, habitats of local significance, or rare or state-designated significant natural communities needed for the survival of a species.

### **3.6.3 Environmental Consequences of the Alternatives on Biological Resources**

#### **3.6.3.1 No Action Alternative**

The No Action Alternative may result in changes relative to biological resources. These actions are evaluated under separate environmental review(s). The Millennium Project includes clearing of the majority of the project site, with the oldest and largest trees mostly avoided. The impacts to vegetation and wildlife are mitigated by planting additional trees in the final design.<sup>85</sup> See the *Millennium EA* for more information.

#### **3.6.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

Alternative 1 would reduce vegetation as a result of the construction of the committal service queuing area. However, this reduction would be offset by the development of the Southern Expansion Site. All new turf, trees, shrubs and plant material in planting beds will be compatible with the geographic region. The net increase in vegetation would positively impact biological resources by providing new habitat for native wildlife species.

Federally threatened or endangered species would not likely be affected by Alternative 1. Neither of the species identified using the IPAC planning tool have been known to occur in ANC. Furthermore, ANC is not within the Rock Creek Watershed and therefore, Alternative 1 would not affect the known or probable sites for the Hay’s Spring amphipod.

No new invasive vegetative species would be introduced with Alternative 1 as all landscape plans will be reviewed by ANC

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Horticulturist and Urban Forestry personnel for consistency with the Invasive Species Management Plan. Potential for inadvertent introduction of invasive species could be minimized through construction BMPs. For example contractors could be required to clean equipment after contact with invasive species prior to working in other areas.

**3.6.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

Impacts on biological resources due to the proposed projects in Alternative 2 would be similar to those under Alternative 1. Alternative 2 would add to the net increase in vegetation because landscaping would be added to the Southgate Road and Patton Drive areas.

**3.6.3.4 Alternative 3 – ANC Including the Southern Expansion Site Southgate Road and Easement**

Impacts on biological resources due to the proposed projects in Alternative 3 would be similar to those under Alternative 2.

**3.6.3.5 Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways**

Impacts on biological resources due to the proposed projects in Alternative 4 would be similar to those under Alternatives 2 and 3. Alternative 4 would increase grass cover and landscaped vegetation in the areas between the existing cemetery boundary and the re-aligned Columbia Pike. Therefore, Alternative 4 would add to the net increase in vegetation from Alternatives 2 and 3.

### **3.7 Cultural Resources**

Cultural resources are defined as historic districts, sites (archaeological sites), buildings, structures, objects (e.g., memorials), and traditional cultural properties that are listed on, or are eligible for listing on the National Register of Historic Places (NRHP). Authorized by the National Historic Preservation Act of 1966 (NHPA), the NRHP is the official list of the Nation's historic places that "is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archaeological resources."<sup>86</sup> NPS oversees the NRHP.

Section 106 of the NHPA outlines a historic preservation review process and requires Federal agencies to consider the effects of their undertaking(s) on historic properties. If adverse effects on historic, archaeological, or cultural properties are identified, then agencies must attempt to avoid, minimize, or mitigate these impacts to resources considered important in our Nation's history.

Section 110 of the NHPA sets forth historic preservation responsibilities of federal agencies, which includes the requirement to have a historic preservation program in place to identify, evaluate and nominate eligible properties to the NRHP.<sup>87</sup> Army Regulation 200-1, *Environmental Protection and Enhancement*, is the primary Army policy governing the management of cultural resources. The regulation sets forth policies for the management of cultural resources under the Army's jurisdiction and requires that programs develop integrated cultural resources management plans (ICRMPs) for use as a planning tool. The *Arlington National Cemetery (Including Soldiers' and Airmen's Home National Cemetery)*

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*Integrated Cultural Resources Management Plan FY 2013-2018* was prepared as a 5-year plan with information needed to make appropriate decisions about the management of the cultural resources at ANC. It described program objectives, policies and methods for the management of cultural resources at ANC. The ICRMP included a planning level survey of the cemetery to record documented cultural resources.<sup>88</sup>

### **3.7.1 Affected Environment**

Cultural resources in and around ANC were identified to describe the affected environment.

#### **3.7.1.1 Archaeological Resources**

Previous archaeological surveys at ANC were documented and archaeological potential throughout the cemetery was identified as part of the ICRMP.

##### *Archaeological Sites*

Archaeological resources located on ANC fall into four principal categories:

- Prehistoric archaeological sites;
- Historic period Native American archaeological sites;
- Historic European-American; and
- African-American archaeological sites.

The archaeological sites identified in the ICRMP include the following:

**44AR0017** – *Arlington House - NRHP eligible - contributing to Arlington House, on NPS property bordering ANC property.*

“This site consists of the immediate grounds and supporting buildings of Arlington House. Excavations were carried out in 1980 to develop background information for restoration efforts. The 718 artifacts recovered primarily date to the Custis-Lee occupation of the house. Further excavations were carried out for additional renovations of the mansion and slave quarters in 2005.”<sup>89</sup>

**44AR0032** – *Arlington House Ravine Site - some components eligible, partly on NPS property, partly on ANC Property.*

“This site, comprised of six “loci”: five prehistoric and one historic, was defined by the boundaries of NPS land west of Sherman Drive ceded by ANC in 1974, also known as Section 29. Recorded by a Phase I and II survey in 1997 and reviewed by the Virginia Department of Historic Resources (DHR), only the historic component, Locus 4, was addressed and determined to significantly contribute to Arlington House, The Robert E. Lee Memorial. Recent evaluations (March-April 2012) and consultation with [Virginia] DHR by Norfolk District Army Corps of Engineers concluded that the sprawling 22-acre area should be re-designated as four separate sites. Loci 1, 2, and 3 re-designated as three new, separate sites (44AR0047-49), while Loci 4, 5 and 6 shall retain the designation as 44AR0032. The loci of 44AR0032 are described below.

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**44AR0047** (44AR0032 Locus 1) – Prehistoric, period unidentified Lithic scatter, no stratigraphy, no diagnostic artifacts, no features: ineligible, separated by a deep stream cut from Locus 2, and distance from other Loci.

**44AR0048** (44AR0032 Locus 2) – Prehistoric, period unidentified, “lithic scatter,” no stratigraphy, no diagnostic artifacts, no features: ineligible.

**44AR0049** (44AR0032 Locus 3) – Prehistoric, period unidentified, “lithic scatter,” no stratigraphy, no diagnostic artifacts, no features, eroded landform: ineligible.

**44AR0032 Locus 4** – Artifacts, cultural stratigraphy, and features 19th-20th centuries associated with Arlington House, The Robert E. Lee Memorial: eligible, overlaps Locus 5.

**44AR0032 Locus 5** – Prehistoric, Late Archaic-Middle Woodland, dispersed distribution of prehistoric artifacts, 1 steatite sherd (Late Archaic-Middle Woodland) as diagnostic, no features or stratigraphy: ineligible, however coterminous with Locus 4.

**44AR0032 Locus 6** – Prehistoric, period unidentified, concentration of prehistoric artifacts reflecting quarry and reduction of stone on the site, feature identified: eligible, borders Locus 4/5.”<sup>90</sup>

**44AR0043** - Ft. Myer Picnic Area Site, not eligible, on ANC property.

“Prehistoric, unidentified, consists of three small loci of debitage from locally abundant quartz and quartzite cobbles as with loci within 44AR0032. The site was identified in 1991 in association with Base Realignment

and Closure (BRAC) planning and tested at the Phase II level in 2010. The site was evaluated as not eligible for the NRHP.”<sup>91</sup>

**44AR0046** – Fort Myer South Tract Site, not eligible.

“This site was identified by the Norfolk District, Army Corps of Engineers archaeologist in March 2012 when additional Phase I survey was conducted in a portion of the Fort Myer annex of Millennium Project area which was not covered by the 1991 survey. Architectural artifacts (e.g., window glass, nails, brick fragments) dating to the last quarter of the 19<sup>th</sup> to the first half of the 20<sup>th</sup> century were identified, as well as a culturally unidentified campfire hearth. The former is identifiable on a 1949 aerial photograph, however the origin and function of the building are not known. The campfire hearth consisted of a stratum of fire cracked rock and dark soil, with a fragment of calcined bone (large mammal) in association but no diagnostic artifacts. Given the condition of the finds and the history of the area it is more probable that the hearth dates to the Civil War rather than pre-Colonial times.”<sup>92</sup> As a result of additional evaluation the site was determined not eligible for the NRHP.

**44AR0050** – Chaffee Place Site, potentially eligible.

This site was identified during survey for the development of plans for improved storm water management for the Millennium Project. Brick pavement feature and potentially associated artifacts were found beneath the parking lot pavement, and scattered architectural artifacts (window glass, brick fragments, mortar) were found in the area. The site has the potential to yield information important to history; however Phase II survey is not currently

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planned in connection with the storm water facilities as a design which will avoid the site has been adopted. The site has been identified and recorded with the [Virginia] DHR.<sup>93</sup>

An archaeological survey of ANC land within the Millennium Site (Section 29) was conducted in August 2012. Five archaeological sites were identified, one of which required further evaluation to determine NRHP eligibility. The four sites not requiring further evaluation were recommended not eligible, and following Phase II level testing the fifth site was also recommended not eligible.<sup>94, 95</sup>

### Archaeological Potential

The ICRMP states that undocumented, significant archaeological resources may exist within the boundaries of ANC, but it is probable that the effects of past land use have undermined their integrity. The sites identified in the ICRMP as having potential include the ridges south of Arlington House to the southern boundary of ANC; the Arlington Farm development; numerous Union Army camps at the Arlington Estate; and Freedman's Village.<sup>96</sup>

"The ridges south of Arlington House to the southern boundary of ANC are potential locations of Native American camps and transient hunting and quarrying sites. Sections 3, 13, 21, and 34 are favorable topographic settings. Developments such as the Memorial Amphitheater, roads, and gravesites make it very unlikely that such sites would have integrity even if there were occupations substantial enough to be considered NRHP eligible..."<sup>97</sup>

Most of the colonial and antebellum development is preserved at the Arlington

House and adjacent property or destroyed by development.<sup>98</sup> During the Civil War, numerous Union Army camps existed at ANC. "No incidental archaeological finds from these camps are on record."<sup>99</sup>

The Freedman's Village was established in 1863 to accommodate escaped slaves.<sup>100</sup> The early Freedman's Village was in Section 8, and later expanded to Sections 3, 4, and 18. In addition, there were a number of farmsteads south of the original boundary of ANC.<sup>101</sup> "Subsequent development of the area for burial use removed the buildings, and with the exception of the basic course of Jessup Drive and a portion of Grant Drive, there is now no trace of the Freedman's Village on ANC grounds."<sup>102</sup>

The area east of Eisenhower Drive, site of the former Department of Agriculture Experimental Farm and later South Post Fort Myer, has little archaeological potential due to past disturbances.<sup>103</sup> Refer to the ICRMP for additional information regarding archaeological potential at ANC.

As part of the Columbia Pike Transit Initiative Project, three areas of archaeological sensitivity were identified along Columbia Pike near the Southern Expansion Site. **Table 3.2**, an excerpt from the Columbia Pike Transit Initiative Alternatives Analysis /Environmental Assessment, lists and describes these three areas.

### 3.7.1.2 Historic Resources

Historic resources such as districts and buildings that are listed on, or are eligible for listing on the NRHP are described in the following sections.

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Table 3.2

**Potential Areas of Archaeological Sensitivity from the Columbia Pike Transit Initiative  
Alternatives Analysis /Environmental Assessment**

Location	Description
South side of Columbia Pike east of South Oak Street.	Approximate former site of the late 19th century “J.R. Johnson” residence and “N.S. Wright” residence and store (Hopkins 1879).
West side of Columbia Pike east of the Air Force Memorial.	Approximate former location of the Columbia Pike “Toll Gate” and late 19th century “H.S. Johnson” residence (Hopkins 1879).
East side of Columbia Pike east of the Air Force Memorial.	Approximate former location of the Columbia Pike “Toll Gate”, the late 19th century “H.S. Johnson” store and “B.S. Sh.” (Blacksmith shop?) (Hopkins 1879).

Source: Columbia Pike Transit Initiative Alternatives Analysis /Environmental Assessment, May 2012, Volume II p. 7-25.

*Historic Resources within ANC*

A cultural resources planning level survey of ANC was completed as part of developing the ICRMP. As a result, ANC was deemed eligible for listing on the NRHP as an historic district. A formal registration form was prepared and the Arlington National Cemetery Historic District was entered in the NRHP on April 11, 2014.<sup>104</sup>

Resources within a historic district are identified as “contributing” or “non-contributing” to the significance of the subject district. According to the NRHP Registration Form for the ANC Historic District “The entirety of the cemetery is counted as one contributing site, and every resource except the small scale features within the boundaries is contributing to the ANC Historic District.” The NRHP Registration Form identified contributing resources including buildings, structures, objects and a site.<sup>105</sup> For detailed information regarding the historic district nomination and contributing resources, refer to the National Register of Historic Places Registration Form for the ANC historic district and the ICRMP.

The contributing resources are defined as the following:

*Buildings:* Buildings are defined by the National Register as structures intended to shelter some sort of human activity.

Buildings can reflect the picturesque design of the cemetery (e.g., Lodge #2), or the influence of the City Beautiful Movement during the early 20th century (e.g., Memorial Amphitheater); or reflect the commemorative nature of the cemetery and its role as a national shrine.<sup>106</sup>

*Structures:* Structures are defined by the National Register as functional constructions meant to be used for purposes other than sheltering human activity. Structures can either reflect design characteristics associated with the picturesque/rural cemetery movements or the Beaux Arts planning at ANC or commemorate our nation’s military. Structures at ANC include the boundary walls and gates, Niche Wall and the Old Amphitheater.”<sup>107</sup>

*Objects:* Memorials, memorial graves, and headstones at ANC represent the central burial and commemorative purpose of the

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cemetery and characterize those whose graves they mark and also distinct periods of the cemetery's history. Objects may also include flagpoles and fountains, but are usually artistic in nature."<sup>108</sup>

*“Site features:* Site features are those features of a site or historic district which add character but are not individually eligible or do not fall under the NR terms of building, object, or structure. These features can include circulation features (roads, parking lots paths, railways, or sidewalks), views and viewsheds, vegetation patterns, or natural features (ponds, streams, topographic features).”<sup>109</sup> Contributing site features to ANC's historic district, as recorded in the NR nomination, include the cemetery's topography, natural features, and vegetation; picturesque layout and circulation systems; and groupings of headstones.

*Cultural Landscapes:* Cultural landscapes, including the spatial organization, topography, vegetation, and circulation in an area, also contribute to the history of ANC. For example, the forest west of Arlington House was identified as “contributing” to Arlington House. This forest existed at the time Arlington House was built and was intentionally preserved during the Custis-Lee occupation of Arlington house and during the Civil War. Some portions of the forest in Section 29 also contribute to the ANC historic landscape as backdrop.<sup>110</sup>

### NRHP Properties in ANC Vicinity

**Figure 3-9** provides the locations of historic resources listed or eligible for listing on the NRHP in and around ANC. Historic resources in the vicinity of ANC that are listed (or eligible for listing) on the NRHP include the following:

### *Listed on NRHP*

- Arlington House, The Robert E. Lee Memorial/Section 29
- Fort Myer Historic District
- George Washington Memorial Parkway
- Pentagon Office Building Complex
- Memorial Avenue / Arlington Memorial Bridge
- Arlington Ridge Park including the Netherlands Carillon and the U.S. Marine Corps War Memorial

### 3.7.1.3 National Historic Landmarks

In addition to the NRHP, the NPS also oversees the National Historic Landmarks (NHL) Program. The NHL Program is a federal designation program for historic places that possess exceptional value or quality in illustrating or interpreting the heritage of the U.S. (Note that all properties designated NHLs are included in the NRHP.) In and around ANC, Fort Myer Historic District including Quarters 1 and the Pentagon Office Building Complex are NHLs.<sup>111</sup>

### 3.7.1.4 Native American Resources

According to the ICRMP, ANC does not occupy tribal lands, and there are no known properties of religious or cultural significance to Indian tribes there. There are no known human remains or artifacts pertinent to Native American Graves Protection and Repatriation Act (NAGPRA) at ANC, and there are no sites at ANC with religious significance specific to American Indians.<sup>112</sup>



**Figure 3-9  
Historic Resources**

**LEGEND**

-  Arlington National Cemetery
-  Historic Site / District
-  Under NPS Jurisdiction
-  ANC Property Contributing to Arlington House
-  National Historic Landmark

Boundaries approximated based on the National Register of Historic Places Inventory Nomination Forms for:  
 Fort Myer Historic District prepared by the NPS, July 1972  
 Arlington Memorial Bridge prepared by the NPS, December 7, 1979  
 Pentagon Office Building Complex prepared by Karell Archeological Services, April 12, 1988  
 Arlington Ridge Park prepared by the NPS, April 3, 2008  
 Mount Vernon Memorial Highway prepared by the NPS, June 1980  
 George Washington Memorial Parkway prepared by NPS, November 1993

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Source:  
 National Park Service (NPS) -  
 National Register of Historic Places  
 Fort Myer National Historic Landmark District  
 approximated from JBM-HH Real Property Master  
 Plan, Programmatic Environmental Assessment (pg. 58)



### **3.7.2 Threshold of Significance**

The threshold of significance for cultural resources would be exceeded if an adverse effect to a resource on or eligible to be on the NRHP could not be resolved with the Virginia DHR and the Advisory Council on Historic Preservation.

### **3.7.3 Environmental Consequences of the Alternatives on Cultural Resources**

The Section 106 process, as defined in 36 CFR Part 800, Protection of Historic Properties, is used to evaluate and address impacts to historic architectural and archaeological cultural resources. The Section 106 process includes the following basic steps:

- Initiate the Section 106 process
  - Determine whether the proposed action is an undertaking
  - Begin consultation
- Identify historic properties
  - Establish the area of potential effect (APE)
  - Review APE for properties on or eligible to be on the NRHP
- Assess adverse effects
- Resolve adverse effects, if any

The first step in initiating the Section 106 process is to determine if the proposed federal agency action is an undertaking and whether it has the potential to affect historic resources. “Undertaking means a project, activity or program funded in whole or in part under the direct or indirect jurisdiction

of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval.”<sup>113</sup>

If it is determined that the action is an undertaking with the potential to affect historic resources, consultation begins. Consulting parties are identified and invited to participate in the Section 106 process. Consulting parties at a minimum include the state historic preservation officer (SHPO) and tribal historic preservation officer(s) (THPOs). For Virginia, the SHPO is the Virginia DHR Director.

Next, historic resources are identified by first establishing an APE. The APE is the study area for historical, architectural, archaeological and cultural resources. As such, it includes the area where the action may cause changes in the character or use of a historic resource.

Once established, the APE is reviewed to identify any properties on or eligible to be on the NRHP. If properties on or eligible to be on NRHP are identified within the APE, the potential for adverse effect is assessed. According to 36 CFR Part 800, “An adverse effect is found when an undertaking may alter, directly or indirectly, any of characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.”<sup>114</sup>

If adverse effects are found, consultation is conducted to resolve the adverse effects. The Federal agency consults to develop alternatives or modification to the undertaking that would avoid, minimize or

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mitigate the adverse effects. Once the SHPO/THPO and the Federal agency complete consultation on how the adverse effects will be resolved, a memorandum of agreement is prepared and executed.

### 3.7.3.1 No Action Alternative

The No Action Alternative may affect Section 106 resources. These projects are evaluated under separate environmental review(s).

### 3.7.3.2 Action Alternatives

ANC determined that although the development of the RPMP is an undertaking, its preparation does not have the potential to cause adverse effects on historic properties. ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.

Regardless, as this is a Programmatic EA in which the proposed development is to be evaluated to the fullest extent possible, an initial analysis of the potential for adverse effect was conducted.

A preliminary APE was established based on available information. The preliminary APE encompasses the areas that could be impacted by all four of the Action Alternatives. **Figure 3-10** illustrates the preliminary APE.

Next, the APE was reviewed to identify Section 106 resources: properties on or eligible to be on the NRHP within its boundaries. The ICRMP and the NRHP Registration Form for the ANC historic district and archeological surveys served as the basis for identifying resources in the ANC portion of the APE. The *Navy*

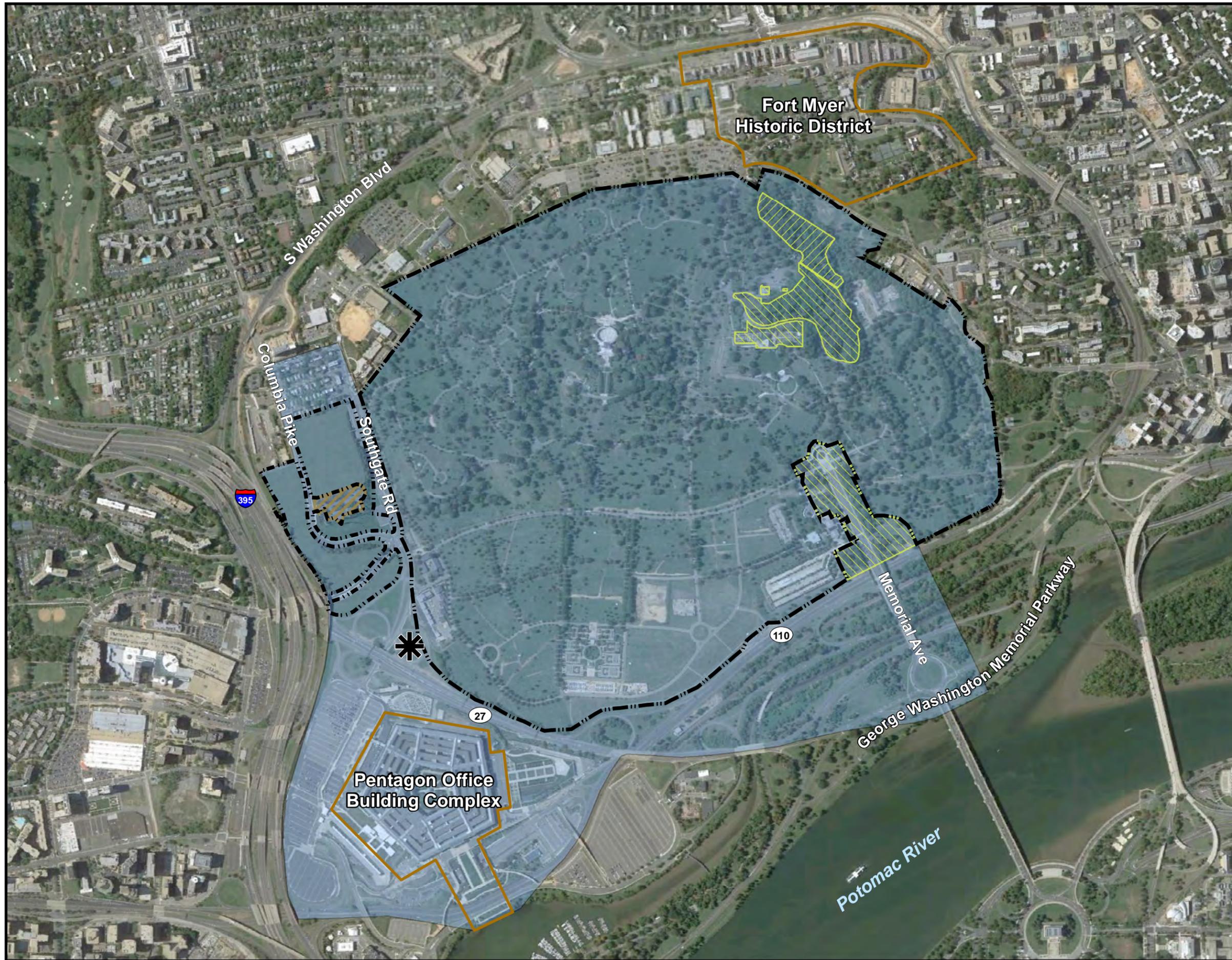
*Annex/FOB2 Property Transfer Environmental Assessment* served as the basis for identifying resources within the Southern Expansion Site.

Archaeological resources in the ANC portion of the preliminary APE are identified in Section 3.7.1.1. The potential for additional archaeological resources to be within the ANC portion of the preliminary APE is also discussed in Section 3.7.1.1.

There are no known archaeological resources within the Southern Expansion Site portion of the preliminary APE.<sup>115</sup> The construction of the Navy Annex on the Southern Expansion Site would have disturbed archeological resources if they existed. Potential for archaeological resources exists for the portion of the Southern Expansion Site that was not previously developed particularly when realignment of Columbia Pike is proposed.<sup>116</sup>

Historic buildings, structures and landscapes identified as contributing in the ICRMP were considered Section 106 resources within the ANC portion of the preliminary APE.

No historic buildings or structures are located within the Southern Expansion Site portion of the preliminary APE because all improvements were removed. However, there are several important historic views and vistas from the Southern Expansion Site. These viewsheds include views of ANC, the Pentagon and the Washington D.C. Monumental Core. As shown in Photo 3, the steep sided narrow passage along Southgate Road between ANC and the Southern Expansion Site provides “unique, historic, and expansive panoramic vistas.”<sup>117</sup>



**Figure 3-10  
Preliminary Area of  
Potential Effect**

**LEGEND**

-  Arlington National Cemetery
-  Preliminary Area of Potential Effect
-  Area within ANC Under NPS Jurisdiction
-  ANC Property Contributing to Arlington House
-  U.S. Air Force Memorial
-  National Historic Landmark
-  Future 9/11 Pentagon Visitor Education Center

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Sources:  
ANC Master Plan, National Park Service, Google Earth



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Photo 4, taken from the east side of the U.S. Air Force Memorial is an example of the spectacular panoramic views from the Southern Expansion Site. The Pentagon, and many Washington D.C. landmarks including the U.S. Capitol Building, the Washington Monument, the Jefferson Memorial and the Lincoln Memorial can be

seen from the Southern Expansion Site along the east side of the U.S. Air Force Memorial. West of the U.S. Air Force Memorial, the U.S. Capitol Building and the Washington Monument can be seen from various locations on the plateau of the Southern Expansion Site. Photo 5 is an example of one such view.

**Photo 3: View of Washington D.C from Southgate Road**



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**Photo 4: View of Washington D.C. from East of the U.S. Air Force Memorial**



**Photo 5: View of Washington D.C. from West of the U.S. Air Force Memorial**



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The potential for the Action Alternatives to affect historic resources within the APE was considered

### *Alternative 1 – ANC Including the Southern Expansion Site*

#### Archaeological Resources:

The proposed projects in the Arrival Area, a new Transportation Center, reconfigured Administration Building and new queuing area, would not be expected to affect archaeological resources because no archaeological resources have been identified in this area and it is very unlikely that archeological sites exist east of Eisenhower Drive. Also, the re-development of the Southern Expansion Site would not be expected to affect archaeological resources because most of the site was previously disturbed. However, there is potential for archaeological resources to exist in the areas of the Southern Expansion Site that were not previously developed. In addition, installing a system to capture and reuse stormwater throughout ANC and the Southern Expansion Site could affect an archaeological resource. This system has not been designed and thus the location of the system was not known. Therefore, the associated effects on potential archaeological resources could not be assessed as part of this EA.

#### Historic Buildings, Structures, and Objects:

All buildings, structures and objects except small-scale features were identified as contributing resources. Therefore, the development of the Transportation Center, reconfiguration of the Administration Building and construction of a queuing area may affect a historic resource. The

Transportation Center would be built on top of the parking deck which was identified as a contributing resource. The Administration Building interior, in addition to the exterior, was identified as a contributing building. Reconfiguring this building could affect the contributing features. Likewise, since the queuing area would be constructed adjacent to contributing features, it also could affect a historic resource. Even the addition of visitors' amenities could affect a historic resource depending on the proposed location of the amenity. However, the proposed redevelopment of the Southern Expansion Site would not likely affect historic buildings or structures as none were identified in this portion of the APE.

#### Views and Vistas:

Alternative 1 could affect views and vistas identified in the ICRMP. The redevelopment of the Southern Expansion Site in particular has the potential to affect views into and out of the cemetery. The redevelopment of the Southern Expansion Site could also affect views from other historic resources such as the Pentagon. The views would generally improve because the viewer would see an extension of ANC's visual theme all the way to the U.S. Air Force Memorial from ANC and the Pentagon. However, it was not possible to access the potential effects in detail as design information was not available for the Southern Expansion Site. Design information about the layout and features of the site including proposed structures, landscaping and circulation is needed to evaluate views in detail.

Initial analysis indicated that the Alternative 1 could affect historic resources. Sufficient project information required to complete the Section 106 process was not available.

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Detailed project information is needed to determine whether the Proposed Action Alternative would actually result in an adverse effect, i.e. whether the characteristics that qualified the resources as contributing would be affected. Therefore, ANC will complete the Section 106 process prior to implementation of the projects included in Alternative 1. During project design, ANC will continue consultation and endeavor to avoid and minimize impacts. Should impacts be unavoidable, ANC and the Virginia DHR and the Advisory Council on Historic Preservation, if appropriate, will consult on proper mitigation, enter into a memorandum of agreement and thus complete the Section 106 process.

*Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road*

Impacts to cultural resources with Alternative 2 would be similar to those described under Alternative 1.

*Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement*

Impacts to cultural resources with Alternative 3 would be similar to those described under Alternative 1.

*Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways*

Impacts to cultural resources with Alternative 4 would be similar to those described under Alternative 1. However, potentially sensitive archeological sites identified along Columbia Pike outside the Southern Expansion Site may also be affected by the proposed realignment of Columbia Pike. Therefore, additional

detailed project information is needed to determine whether Alternative 4 would result in an adverse effect. ANC will complete the Section 106 process prior to implementation of the projects included in Alternative 4. During project design, ANC will continue consultation and endeavor to avoid and minimize impacts. Should impacts be unavoidable, ANC and the Virginia DHR and the Advisory Council on Historic Preservation, if appropriate, will consult on proper mitigation, enter into a memorandum of agreement and thus complete the Section 106 process.

**3.8 Visitor Use and Experience /  
Department of Transportation  
Act, Section 4(f)**

Visitor Use and Experience is important because ANC combines an atmosphere of dignity and repose with facilities for public visitation, private interments, and public ceremonies. Part of the experience at ANC, whether as a visitor or to attend committal services, is tied to the aesthetics and history of the cemetery. The cemetery's character results from its topography, heavy tree canopy and manicured appearance, picturesque circulation patterns, and distinctive rows of headstones. These elements were present from the beginning of ANC, and remain little changed.<sup>118</sup>

Section 4(f) of the Department of Transportation (DOT) Act states that it is federal policy to consider park and recreation lands, wildlife and waterfowl refuges, and historic sites in the development of transportation projects. The law is implemented by the Federal Highway Administration (FHWA) through regulation 23 CFR 774. Section 4(f) applies to projects that receive funding from or require

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approval by an agency of the U.S. DOT, and includes publicly owned parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the NRHP. Because ANC is on the NRHP as a historic district and Alternative 4 would likely require FHWA approval of proposed road realignment, Section 4(f) of the DOT Act is addressed in this EA.

### 3.8.1 Affected Environment

#### 3.8.1.1 Visitor Use and Experience

Part of the mission of ANC is to provide "...a place connecting visitors to the rich tapestry of the cemetery's living history." The cemetery receives over four million visitors each year. Some visitors are loved ones visiting family member's grave sites; many visitors are tourists, including students and organized tours, coming to experience some of the key destinations and learn about the rich history of the cemetery.

Both general visitors and persons attending committal services typically enter ANC at Memorial Avenue. The path from the National Mall, via the Lincoln Memorial, Memorial Bridge, and ultimately Memorial Avenue serves as the primary and historic route of arrival for the majority of ANC visitors. Alternately, visitors may arrive via the Arlington Cemetery Metro station on Memorial Avenue.

Visitors to the cemetery typically visit three primary areas: the Tomb of the Unknowns (and the changing of the guard) and the Memorial Amphitheater; President Kennedy's grave site; and the Arlington House. Visitors typically enter at the principal entrance at Memorial Avenue, start their experience at the Welcome Center

(after parking in the garage or arriving from the Metro) and from there walk across Eisenhower Drive to Roosevelt Drive toward the Tomb of the Unknowns. Tours of the cemetery are offered from the Welcome Center via tour vehicles. **Figure 3-11** presents an illustration of key visitor locations and destinations at ANC.

Family members and friends of deceased that return to be near their loved ones are granted gate passes so that they may drive their personal vehicles to a location close to where their family member is interred.<sup>119</sup> Interment operations occur all over the cemetery, but today, the majority of the initial or first interments take place in the sections east of Eisenhower Drive.

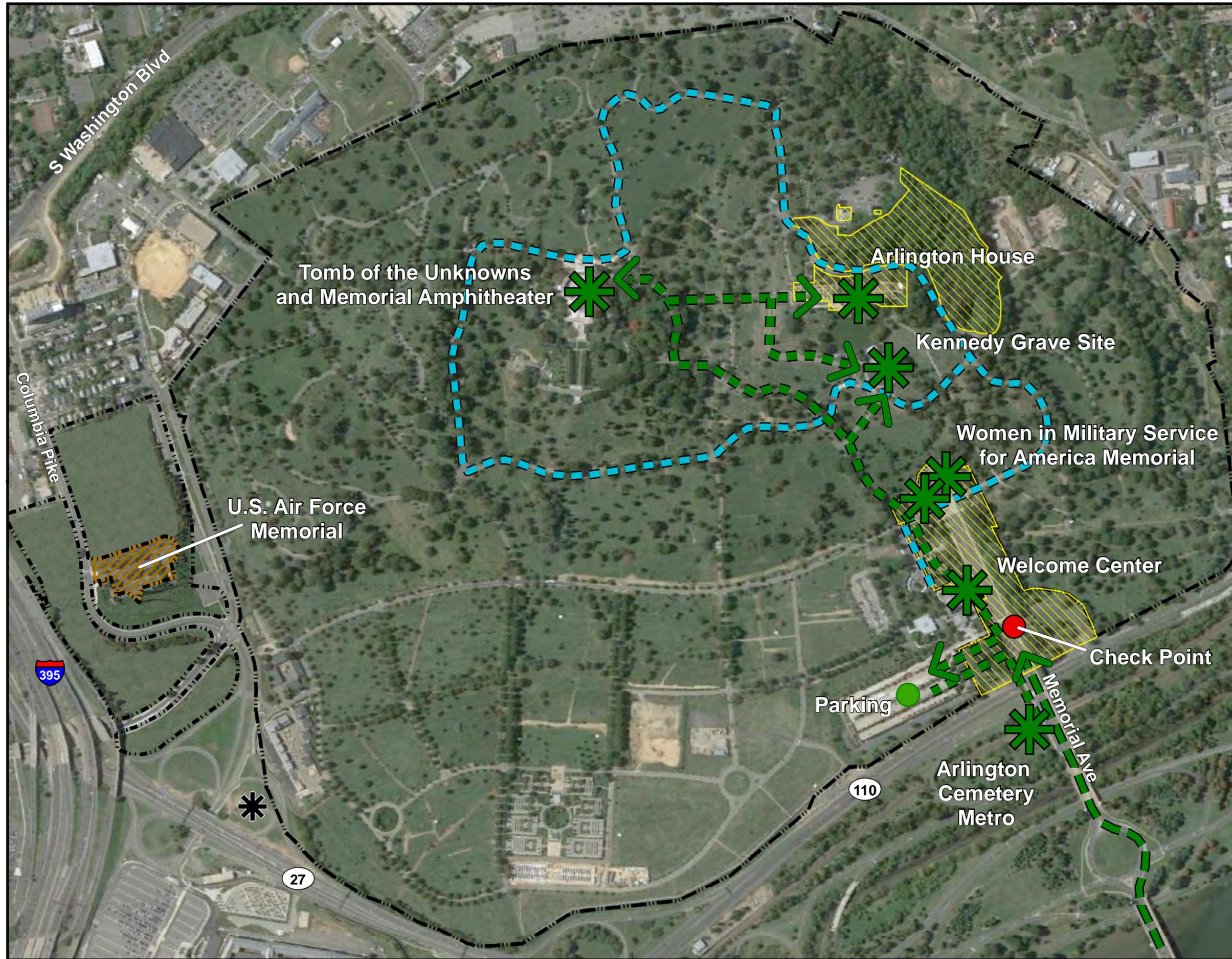
Visitors attending committal services generally begin at the Administrative Building and then progress to committal services at the site of interment located graveside, along the niche wall, or in the committal shelters of the columbarium courts. Therefore, the relationship between Memorial Avenue, the Administration Building, the Old Post Chapel, and the procession from these points to the interment location are important.<sup>120</sup>

#### 3.8.1.2 Parks and Recreational Resources

NPS has jurisdiction over and maintains land to the cemetery's north and east. NPS jurisdiction includes the area immediately surrounding Arlington House; Section 29, the undeveloped land generally north and west of Arlington House; Arlington Ridge Park including the Netherlands Carillon and the U.S. Marine Corps War Memorial; and lands adjacent to the Hemicycle and Memorial Avenue, west of Rt. 110. The NPS also has jurisdiction over land



**Figure 3-11**  
**Key Visitor Destinations at ANC**



**LEGEND**

-  Arlington National Cemetery
-  Tour Vehicle Route
-  Key Visitor Destinations
-  Typical Visitor Pedestrian Route
-  Visitor Vehicle Access Route
-  Check Point
-  Parking
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center

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Sources:  
 ANC GIS, National Park Service, Google Earth



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associated with the George Washington Memorial Parkway, east of Rt. 110.<sup>121</sup>

One small local park is adjacent to the Southern Expansion Site in the Foxcroft Heights neighborhood. The Foxcroft Heights Park is located on the corner of South Oak Street and Southgate Road.

### 3.8.1.3 Historic Resources

Historic resources are protected under Section 4(f). Refer to *Section 3.7.1.2* for information regarding historic resources in and around ANC.

### 3.8.1.4 Views

The views listed in the ICRMP and discussed in *Section 3.7.3.2* are also considered Section 4(f) resources.<sup>122</sup>

## 3.8.2 Threshold of Significance

The threshold of significance for visitor use and experience impacts would be exceeded if visitors could no longer visit family member's grave sites or if they could not experience the key destinations in ANC. The threshold of significance for Section 4(f) would be exceeded if an alternative would result in a more than a minimal physical use or a constructive use of a Section 4(f) property. A constructive use results when an indirect impact such as noise causes substantial impairment. A substantial impairment would occur when the activities, features, or attributes of the 4(f) resource that contribute to its significance or enjoyment are substantially diminished.

## 3.8.3 Environmental Consequences of the Alternatives on Visitor Use and Experience / Section 4(f) Department of Transportation Act

Section 4(f) likely only applies to Alternative 4 because it is the only alternative that could require FHWA approval. FHWA approval would likely be required for the road realignment proposed by Arlington County. Nevertheless, for completeness, a Section 4(f) discussion of each alternative follows.

### 3.8.3.1 No Action Alternative

The Millennium Project would have beneficial impacts on the overall visitor experience at ANC. See the *Millennium EA* for more information. Section 4(f) does not likely apply to the projects in the No Action Alternative since FHWA funding or approval would not be involved.

### 3.8.3.2 Alternative 1 – ANC Including the Southern Expansion Site

The proposed Transportation Center would provide accommodations to meet the needs of multiple tour groups. The proposed Interpretive Center would enhance the visitors understanding of ANC. The proposed cemetery-wide improvements would also improve the visitor experience. Added amenities would be of benefit to visitor comfort.

While the Interpretive Center itself would enhance the visitor experience, the proposed location at the Southern Expansion Site would not. First, unlike the Welcome Center, it would not be close to a Metro Station. The nearest station would be the Pentagon Metro Station nearly a mile away. Second, visitors to the Interpretive

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Center would not experience entering ANC through the impressive, historic path along Memorial Avenue. Third, it would be a longer walk to the most frequently visited destinations, the Memorial Amphitheater /Tomb of the unknowns, Arlington House and the President John F Kennedy Gravesite.

Visitors attending committal services would benefit from the proposed improvements. Expanded committal service facilities and the new queuing area would better accommodate the visitors attending committal services.

Therefore, Alternative 1 would have an overall effect of improving the visitor experience.

Implementation of Alternative 1 would not involve FHWA funding or approval. Therefore, a Section 4(f) determination would not be required.

**3.8.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

Impacts to the visitor experience under Alternative 2 would be similar to those described under Alternative 1.

Implementation of Alternative 2 would not involve FHWA funding or approval. Therefore, a Section 4(f) determination would not be required.

**3.8.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

Impacts to the visitor experience under Alternative 3 would be similar to those described under Alternative 1.

Implementation of Alternative 3 would not involve FHWA funding or approval. Therefore, a Section 4(f) determination would not be required.

**3.8.3.5 Alternative 4– ANC Including the Southern Expansion Site with Realigned Roadways**

Impacts to the visitor experience under Alternative 4 would be similar to those described under Alternative 1.

Alternative 4 includes road realignment and could involve FHWA funding and/or approval. Therefore, a Section 4(f) determination could be required. Based on preliminary review, the road realignment could require the physical use of land from ANC which is a historic district and therefore protected under Section 4(f). The land from ANC could be needed to implement the proposed realignment of Columbia Pike. However, the new alignment of Columbia Pike has not been established. Therefore, the potential for impacts to Section 4(f) resources must be confirmed and will be studied under separate environmental review.

**3.9 Socioeconomics**

NEPA requires an analysis of impacts to the human environment, which includes economic and social elements in the affected area. Indicators such as demographics, income levels, housing availability, business activity, public services demand and employment are considered in assessing socioeconomic impacts.

**3.9.1 Affected Environment**

Demographic and economic data are provided to describe the affected environment for socioeconomic impacts.

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This data is provided for the Region of Influence (ROI), which consists of Arlington County, Virginia, JBM-HH and adjacent neighborhoods, including Radnor-Fort Myer Heights and Foxcroft Heights.

### 3.9.1.1 Demographics

#### Arlington County

Arlington County is part of the Washington-Arlington-Alexandria, DC –VA –MD –WV Metropolitan Area and has an estimated (July 2012) population of 212,800 people.<sup>123</sup> The population of Arlington County increased 12.3 percent between 2000 and 2012. The forecasted population in 2040 is 252,400, an increase of approximately 17 percent.<sup>124</sup>

With a total of 26 square miles in land area, Arlington County is one of the smallest counties in Virginia with one of the highest population densities (8,248 persons/sq. mi.).<sup>125</sup> In 2010, there were 98,050 households in Arlington County, with an average of 2.09 persons per household. Arlington County estimates the current number of households (July 2012) is 100,300 and projects the number of households will increase to 119,800 by 2040 with an average of 2.08 persons per household.<sup>126</sup>

Arlington residents are among the most educated in the nation. In 2010, 70 percent of adults age 25 and older had a bachelor's degree or higher and almost 37 percent had a graduate or professional degree.<sup>127</sup> Arlington County has the highest percentage of people with bachelor's or graduate/professional degrees in the

Washington, DC area and approximately 90 percent of all graduating high school seniors in Arlington County go on to attend college.<sup>128</sup>

The majority of the population in Arlington County is White (64 percent), with persons of Hispanic/Latino origin making up the next largest ethnic group at 15.2 percent. See **Table 3.3** for Arlington County and Virginia population and demographic information.

#### JBM-HH

JBM-HH, which borders ANC to the west on approximately 380 acres of land, is home to the 3<sup>rd</sup> U.S. Infantry Regiment (The Old Guard) and the U.S. Marine Corps (USMC) Headquarters Battalion structured within the Marine Corps National Capital Region Command. Based on known operational requirements, JBM-HH is expected to have a total population of 3,944 in 2012, including 2,210 military and 1,734 civilians.<sup>129</sup>

#### Radnor-Fort Myer Heights

Just north of ANC is the Radnor-Fort Myer Heights neighborhood, which is approximately 0.43 square miles with a population of 11,453. There are 7,289 housing units in Radnor-Ft. Myer Heights.<sup>130</sup>

Approximately 61 percent of the population is White and 39 percent of the population is minority. Sixteen percent (16%) of the neighborhood population is Asian, 12 percent is Hispanic or Latino and seven percent is Black/African American.<sup>131</sup>

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Table 3.3  
**Arlington County Population and Demographics**

	<b>Arlington County</b>	<b>Virginia</b>
<b>Population</b> (2011 Estimate)	216,004	8,096,604
Persons per square mile (2012)	8,248	203
<b>Housing</b>		
Housing Units, 2011	106,717	3,387,654
Households, 2006-2010	91,892	2,974,481
Persons per household, 2006-2010	2.11	2.56
<b>Race</b>		
White persons, percent, 2011 (a)	77.3%	71.3%
Black persons, percent, 2011 (a)	9.1%	19.8%
American Indian and Alaska Native persons, percent, 2011 (a)	0.8%	0.5%
Asian persons, percent, 2011 (a)	9.7%	5.8%
Native Hawaiian and Other Pacific Islander persons, percent, 2011 (a)	0.1%	0.1%
Persons reporting two or more races, percent, 2011	2.9%	2.5%
Persons of Hispanic or Latino Origin, percent, 2011 (b)	15.2%	8.2%
White persons not Hispanic, percent, 2011	64.0%	64.5%

Source: U.S. Census Bureau, 2011.

(a) Includes persons reporting only one race.

(b) Hispanics may be of any race, so also are included in applicable race categories.

### Foxcroft Heights

Located just south of ANC and west of the Southern Expansion Site, Foxcroft Heights is a residential neighborhood with a land area of approximately 0.146 square miles. The neighborhood has approximately 357 residents and 127 housing units.

The Foxcroft Heights neighborhood is approximately two-thirds minority population. Thirty-one percent (31%) of the neighborhood population is White, approximately 27 percent of the population is Hispanic or Latino, followed by 25 percent of the population as Black/African American.<sup>132</sup>

### 3.9.1.2 Economic Activity

There are 6,019 businesses in Arlington County, with the highest percent (30%) of businesses in the Professional, Scientific and Technical services field. Other industries prevalent in the County include Retail Trade (10%) and Accommodation and Food Services (9.7%).<sup>133</sup> Arlington County had an estimated 229,100 jobs as of July 1, 2012. The federal government is the largest single employer in the County and the top five private employers are Deloitte, Lockheed Martin, Virginia Hospital Center, Marriott International and BNA. The unemployment rate in July 2012 was 3.5 percent.<sup>134</sup>

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As shown in **Table 3.4**, Arlington County is a highly educated area with a higher median income than the State and fewer people below the poverty level. The percent of the population with a Bachelor's degree or higher is 70.1 percent, which is substantially higher than the State (33.8%). The median household income is \$94,880, which is significantly higher than the State's median income (\$61,406).<sup>135</sup>

Immediately west of ANC, the military installation JBM-HH provides installation services and support to military members, civilians, retirees and their families and base support to the Joint Force Headquarters-National Capital Region, and the Military

Districts of Washington (MDW) base support of operations. The USMC at JBM-HH also provides services to Marines, retirees, and their families within the National Capital Region (NCR) as well as mission-related functions. JBM-HH provides innovative and progressive programs and services to a large population of service members, their families, retirees, and the civilian workforce.<sup>136</sup> JBM-HH supports a total working population of 210 persons, of which 45 are civilians.<sup>137</sup>

As shown on **Table 3.5**, income in the Census Tracts around ANC in Arlington County were determined and compared to Arlington County.

Table 3.4  
**Arlington County Education and Income**

	Arlington County	Virginia
<b>Education</b>		
Bachelor's degree or higher, pct of persons age 25+	70.1%	33.8%
Graduate or Professional Degree, pct of persons age 25+	36.7%	14.1%
<b>Income</b>		
Median Household Income, 2006-2010	\$94,880	\$61,406
Per capita income (2010 dollars)	\$57,724	\$32,145
Persons below the poverty level, 2006-2010	7.0%	10.3%

Source: U.S. Census Bureau, 2006-2010 American Community Survey.

Table 3.5  
**Median Household Income and Percent Below Poverty Level  
in Census Tracts Surrounding ANC**

	Neighborhood			Arlington County
	Census Tract 1025	Census Tract 1017.03	Census Tract 1034.01	
	Includes Foxcroft Heights	Includes Radnor- Ft. Myer Heights	Includes JBM- HH	
Median Household Income (2010 Inflation-Adj Dollars)	\$83,322	\$77,933	\$112,563	\$94,880
Percent Below Poverty Level – Individuals	3.1%	13.1%	0%	7%
Percent Below Poverty Level – Families	0%	8.2%	0%	4.8%

Source: U.S. Census Bureau, 2006-2010 American Community Survey.

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**Figure 3-12** shows the three adjacent U.S. Census Tracts to ANC: Census Tract (CT) 1017.03 includes Radnor-Fort Myer Heights neighborhood; CT 1034.01 includes JBM-HH; and CT 1025 includes Foxcroft Heights.

The median household income in Arlington County is \$94,880. In the census tracts surrounding ANC, the median household income ranges from \$77,933 in CT 1017.03 (Radnor-Ft. Myer Heights) to \$112,563 in CT 1034.01 (JBM-HH). CT 1025, which includes Foxcroft Heights, had a median income of \$83,222 in 2010.

CTs 1025 and 1034.01 both have percent of individuals and families below the poverty level that are lower than Arlington County. CT 1017.03 has a higher percent of families and individuals below the poverty level than Arlington County.

### 3.9.1.3 Protection of Children

EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies to identify and assess disproportionate impacts to children's environmental health and safety risks. EO 13045 states that, "Environmental health risks and safety risks' mean risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink or use for recreation, the soil we live on, and the products we use or are exposed to)." Therefore, the assessment of potential air quality, hazardous materials and water quality impacts are pertinent to this category.

Children visit ANC as tourists and for committal services at the Cemetery. ANC takes precautions for their safety including

limiting access to certain areas and the use of fencing.

### 3.9.1.4 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*, requires federal agencies to address environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement from any adverse effects by Federal policies and actions on these populations.

Minority refers to people who classified themselves as American Indian or Alaskan Native; Asian or Pacific Islander; African Americans or Black, not of Hispanic origin; or Hispanic. Minority populations are defined as areas where racial minorities comprise 50 percent or more of the total population.<sup>138</sup> As shown on **Table 3.6**, racial composition in the CTs around ANC were determined and compared to Arlington County.

CTs 1017.03 and 1034.01 both have comparable or lower percent minority population than Arlington County as a whole (28%). CT 1025, which includes Foxcroft Heights, has a 39.1% minority rate, 11 percent higher than Arlington County.

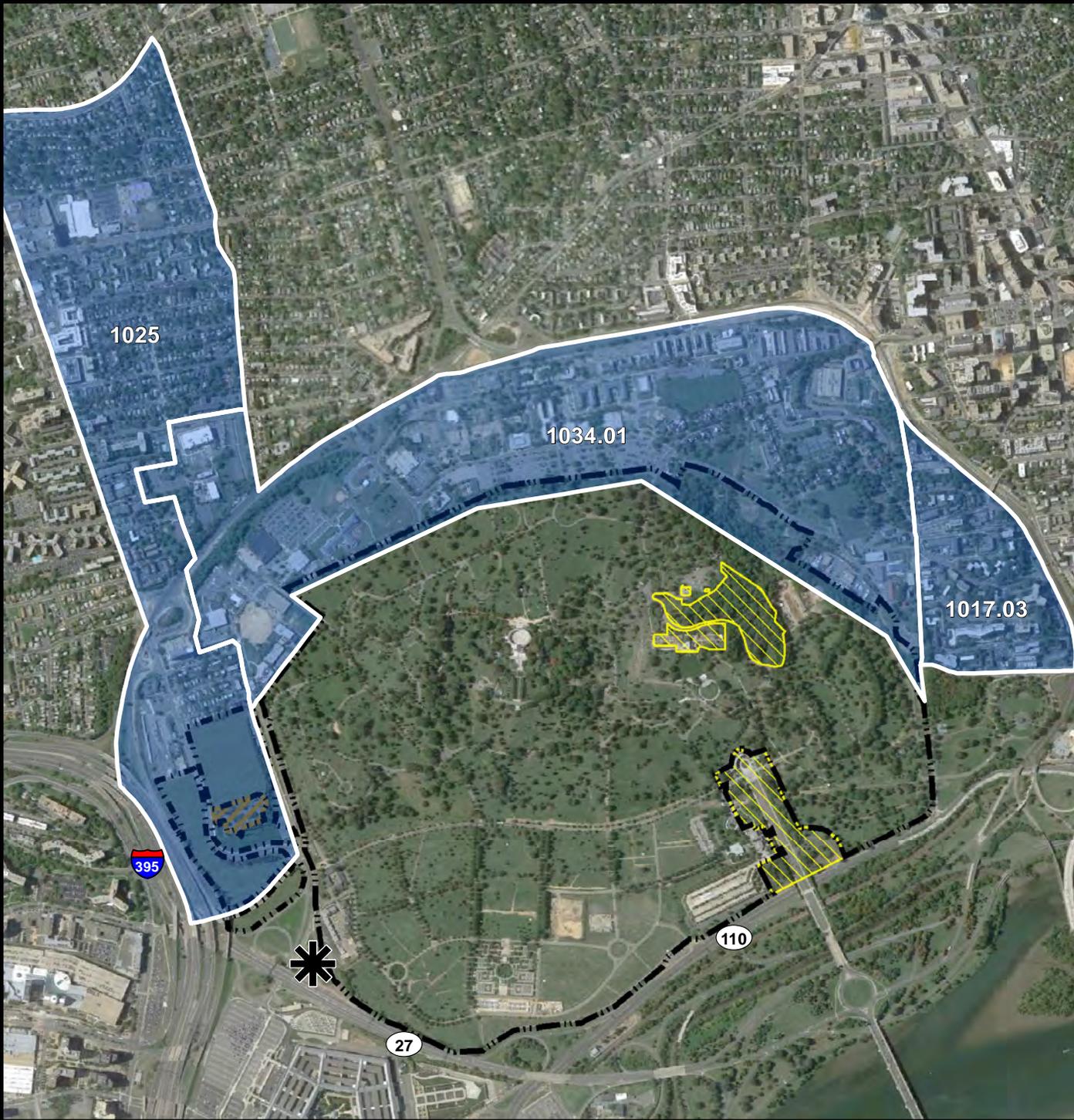
Although CT 1025 as a whole does not exceed the 50 percent minority threshold, 69 percent of residents in Foxcroft Heights are minority according to the Arlington County 2010 Civic Association Census data; therefore, this neighborhood was considered a minority community in terms of environmental justice analysis.

CEQ guidance does not establish similar thresholds to define low-income

**Figure 3-12  
Census Tracts Nearest ANC**

**LEGEND**

-  Arlington National Cemetery
-  Census Tract
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial
-  Future 9/11 Pentagon Visitor Education Center



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Sources: U.S. Census Bureau, Google Earth, National Park Service (NPS)



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communities. Therefore, the Census Bureau's poverty data for the nearby communities was reviewed and compared to the data for Arlington County. As shown in Table 3.5, CT 1017.03 has a higher percentage of individuals and families living below the poverty level than Arlington County. Therefore, for the purposes of environmental justice analysis, this CT was considered a low-income community.

**3.9.2 Threshold of Significance**

The threshold of significance for socioeconomic impacts would be exceeded in the event the alternative would result in any of the following:

- Substantial change to location or distribution of population;
- Substantial change in income, employment or tax base; or
- High and adverse human health or environmental impacts that would disproportionately affect minority and low-income population.

Table 3.6  
**Minority Population in Census Tracts Surrounding ANC**

	Neighborhood						Arlington County	
	Census Tract 1025		Census Tract 1017.03		Census Tract 1034.01			
	Includes Foxcroft Heights		Includes Radnor-Ft. Myer Heights		Includes JBM-HH			
Population	4,173		2,324		646		207,627	
One Race	3,971	95.2%	2,250	96.8%	625	96.7%	199,850	96.3%
White	2,542	60.9%	1,699	73.1%	545	84.4%	148,970	71.7%
Black or African American	652	15.6%	119	5.1%	51	7.9%	17,632	8.5%
American Indian and Alaska Native	23	0.6%	14	0.6%	4	0.6%	971	0.5%
Asian	453	10.9%	325	14.0%	11	1.7%	19,931	9.6%
Native Hawaiian and Other Pacific Islander	7	0.2%	6	0.3%	2	0.3%	171	0.1%
Some Other Race	294	7.0%	87	3.7%	12	1.9%	12,175	5.9%
Two or More Races	202	4.8%	74	3.2%	21	3.3%	7,777	3.7%
<b>% Minority (Non-White)</b>	--	<b>39.1%</b>	--	<b>26.9%</b>	--	<b>15.6%</b>	--	<b>28.3%</b>

Note: 2010 data at neighborhood/block level from US Census (2010) not available for Minority and Income population, therefore Census Tracts containing neighborhoods were assessed.

Source: U.S. Census Bureau, 2010 and American Community Survey, 2006-2010 (income).

### **3.9.3 Environmental Consequences of the Alternatives on Socioeconomics**

#### **3.9.3.1 No Action Alternative**

The No Action Alternative projects are within the bounds of ANC and associated impacts would not be expected to extend beyond the cemetery. Therefore, there would be no impacts to demographics or environmental justice resulting from the No Action Alternative. However, the projects under the No Action Alternative are evaluated under separate environmental review(s).

#### **3.9.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

Alternative 1 would not affect demographics, income levels, housing availability, businesses, public services demand or employment.

Due to the proximity of the Foxcroft Heights neighborhood to the Southern Expansion Site, there could be potential short and long-term impacts to this neighborhood. Minor short-term impacts from construction could occur particularly during the development of Parcel A. To reduce the potential for construction noise, construction crews would, as a courtesy to the neighborhood and Arlington County, work in accordance with Arlington County's Noise Control Regulations, which include time of day restrictions and maximum decibel levels. Given the urban environment surrounding the Foxcroft Heights neighborhood, it is anticipated that the temporary increases in noise due to construction activities would be minor.

Long-term impacts to Foxcroft Heights could be both positive and negative. The redevelopment of the Southern Expansion Site would result in an improved physical setting and improved views. However, the redevelopment of the Southern Expansion Site could increase noise and traffic levels in the Foxcroft Heights.

As discussed in Section 3.3.1.2, Alternative 1 could increase noise in Foxcroft Heights. Committal services will take place on the Southern Expansion Site once it is developed. When full military funeral honors are provided, the committal services include rifle salutes. Therefore, rifle salutes will likely occur on the Southern Expansion Site parcel. Where the rifle salutes might occur within the site is unknown as design has not been initiated. Therefore, it is not possible to assess the potential noise impacts on the Foxcroft Heights community. As previously explained, when information needed to determine specific impacts is not available, the development is evaluated to the fullest extent possible in this Programmatic EA. When more information about layout of the Southern Expansion Site becomes available, site-specific NEPA documentation will be prepared and tiered from this Programmatic EA.

While additional information is required to assess noise impacts, it is not anticipated that the noise would exceed the threshold of significance. Rifle salutes would not occur at night or on the weekends when there is increased potential to disturb residents. Also, there is already a high level of traffic noise in the Foxcroft Heights neighborhood. Furthermore, if detailed project design reveals that the noise would be expected to be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise

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impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.

Potential traffic impacts are discussed in Section 3.10.3.2 and briefly summarized here. With Alternative 1, interments would be conducted on Parcel A of the Southern Expansion Site. Thus, processions including caissons would cross Southgate Road to access the interment locations. Vehicular traffic on Southgate Road would be temporarily stopped to allow the processions to cross from the main cemetery to Parcel A. The potential impacts of the procession crossing were evaluated and the estimated delays were expected to cause traffic to divert to roads in Foxcroft Heights. In this case, traffic conditions would be similar to the traffic conditions with Alternative 2 when Southgate Road is closed. Traffic analysis of Alternative 2 showed that the intersections in Foxcroft Heights would operate at an acceptable level of service (LOS) during peak hours. Therefore, even if the closures of Southgate road occurred during peak hours, the LOS would be acceptable and Alternative 1 would not result in a significant impact.

While Alternative 1 could affect noise levels and traffic conditions in Foxcroft Heights, none of the impacts would be expected to be significant. Therefore, Alternative 1 would not result in a disproportionate high adverse impact to children or environmental justice communities.

**3.9.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

Impacts to socioeconomics and environmental justice under Alternative 2

would be similar to those described under Alternative 1 with the exception of traffic impacts. Unlike with Alternative 1, Southgate Road would be closed. Therefore, the effect of the closure on traffic in the Foxcroft Heights was assessed.

As discussed in Section 3.10.3.3, traffic analysis showed that the intersections within Foxcroft Heights would operate at an acceptable LOS with Alternative 2 and thus, traffic impacts would not exceed the threshold of significance.

While Alternative 2 could affect noise levels and traffic conditions in Foxcroft Heights, none of the impacts would be expected to be significant. Therefore, Alternative 2 would not result in a disproportionate high adverse impact to children or environmental justice communities.

**3.9.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

Impacts to socioeconomics and environmental justice under Alternative 3 would be similar to those described under Alternative 2 with the exception of traffic impacts. Unlike with Alternative 2, Alternative 3 includes an easement for a new access road parallel to and east of South Oak. As discussed in Section 3.10.3.4, traffic analysis showed that provided the new intersection of Columbia Pike and the new access road would be signalized, the intersection LOS would improve over the No Action Alternative. Thus, traffic impacts would not exceed the threshold of significance.

While Alternative 3 could affect noise levels and traffic conditions in Foxcroft Heights, none of the impacts would be expected to

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be significant. Therefore, Alternative 3 would not result in a disproportionate high adverse impact to children or environmental justice communities.

**3.9.3.5 Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways**

Impacts to socioeconomics and environmental justice under Alternative 4 would be similar to those described under Alternative 3. However, Alternative 4 is predicated on the future realignment of Columbia Pike. The potential for the roadway realignment to result in socioeconomic and environmental justice impacts must be evaluated in a future project-level NEPA document.

**3.10 Traffic and Transportation**

The Action Alternatives have the potential to change traffic and transportation conditions in two areas: the Administration Building vicinity and the Southern Expansion Site area. Therefore, the focus of the traffic and transportation analysis is on these areas.

Traffic conditions in these areas are independent of one another and thus were addressed separately as described in the following paragraphs.

Administration Building Vicinity

All Action Alternatives include the preferred dedicated committal procession queuing area alternative. The queuing area was specifically designed to alleviate vehicle congestion and improve pedestrian safety in the vicinity of the Administration Building. Vehicle congestion would be alleviated because the committal processions would no longer line up on the access roads or spill into parking areas. Pedestrian safety

would be improved because an island would be added to the traffic circle thereby reducing the length of the crossing on the roadway. Since the preferred dedicated committal procession queuing area alternative would improve traffic and transportation conditions in the vicinity of the Administration Building, no detailed traffic analysis was conducted.

Southern Expansion Site Area

All Action Alternatives could change traffic and transportation conditions within in the Southern Expansion Site Area particularly on Southgate Road. As shown in **Table 3.7**, traffic on Southgate Road is substantially reduced since the closure of the Navy Annex office buildings. However, there is concern that with some of the alternatives the remaining traffic will use the Foxcroft Heights neighborhood streets to access JBM-HH. Therefore a traffic analysis was conducted.

Table 3.7

**Southgate Road - Average Daily Traffic**

	<b>East bound</b>	<b>West bound</b>
Pre-closure of Navy Annex <sup>(1)</sup>	2935	3244
Post closure of Navy Annex <sup>(2)</sup>	1962	1816

Sources:

(1) Department Of Defense Washington Headquarters Services, Navy Annex/FOB2 Property Transfer, Environmental Assessment, December 2011 Appendix A, Exhibit 2.1.

(2) 24-hour traffic counts conducted on February 05 – 06 2014 by Arlington County

Existing traffic conditions as well as those under the No Action and Action Alternatives in 2020 (opening year) and 2040 (design year) were evaluated. A traffic analysis was conducted at the key intersections:

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- Columbia Pike and South Joyce Street / Southgate Road (signalized)
- Columbia Pike and South Ode Street (unsignalized)
- Columbia Pike and South Orme Street / VA 27 off-ramp (signalized)
- Southgate Road and South Oak Street / Hobson Drive (unsignalized)
- Southgate Road and South Orme Street (unsignalized)

All of the intersections were analyzed using procedures outlined in the Highway Capacity Manual (HCM) 2010. To complete the analysis, traffic counts were conducted in May-June 2014. Using this data, peak morning (AM) and peak evening (PM) hours were determined to be 7:15-8:15 AM and 4:45-5:45 PM respectively.

The results of the analysis are expressed in vehicle delay and Level of Service (LOS) during the peak AM and PM hours. The following LOS definitions<sup>139</sup> were used:

- LOS A-C: Almost all vehicles are served at the end of the cycle with stable flow of traffic. Average vehicle delay is less than 35 seconds.
- LOS D: Individual cycles may fail occasionally resulting in vehicles waiting through more than one cycle. Average vehicle delay ranges between 35-55 seconds which is acceptable in urban areas.
- LOS E: A noticeable queue of vehicles remains not served at the end of most cycles. Average vehicle delay ranges between 55-80 seconds.

- LOS F: A majority of vehicles in the queue remain not served at the end of most cycles. Average vehicle delay is typically above 80 seconds. An intersection operating at LOS F might have more demand than it is capable of serving.

In urban areas, LOS D or better is generally acceptable. LOS E or worse is considered degraded with undesirable vehicular delays.

Details regarding the traffic analysis including the methodology, assumptions and results are provided in *Appendix F, Traffic Impact Assessment*. Information from the Traffic Impact Assessment is summarized where applicable in the following sections

### **3.10.1 Affected Environment**

#### **3.10.1.1 Administration Building Vicinity**

The circulation and access facilities in the vicinity of the Administration Building including King Drive, Halsey Drive, a parking lot, and a pedestrian path are illustrated in **Figure 3-13**. The Administration Building and associated parking are located off of King Drive. Both ANC staff and committal service participants use the adjacent parking lot. The roadways near the Administration Building, King Drive, the traffic circle and Halsey Drive are used as queuing areas prior to committal service processions. Vehicle queues sometimes extend into the parking lot driveways, blocking other vehicles attempting to exit the parking lot. The pedestrian path between the parking lot and Administration Building crosses a large expanse of the heavily used King Drive.

Figure 3-13

Administration Building Circulation and Access Facilities



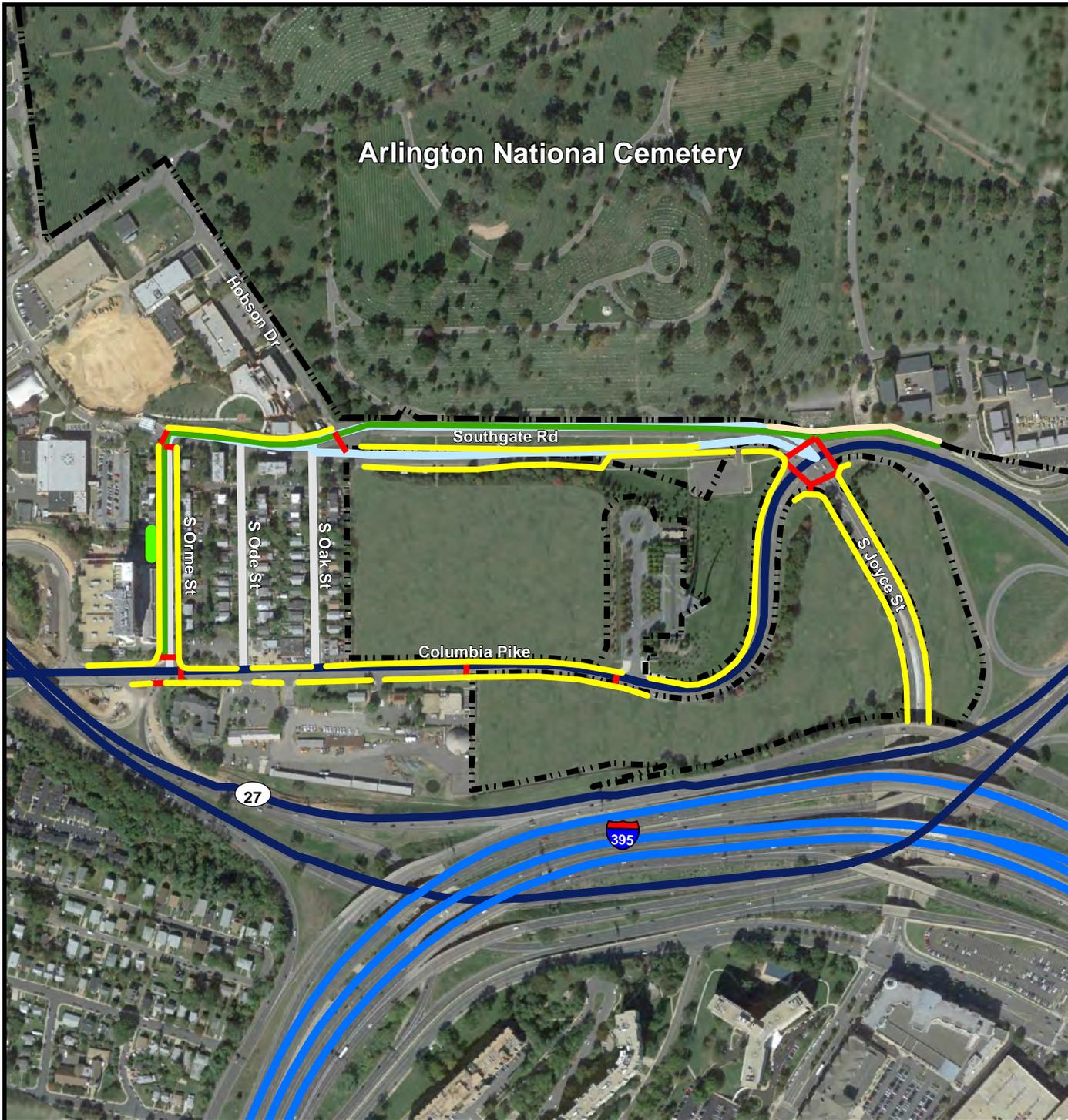
3.10.1.2 Southern Expansion Site Area

Transportation Network

As illustrated in **Figure 3-14** the transportation network within and adjacent to the Southern Expansion Site consists of roadways, on-street parking, Metrorail and bus stops, pedestrian walkways, and bikeways.

*Roadways*

Interstate 395 (I-395), Washington Boulevard (Rt. 27), and Columbia Pike (Rt. 244) provide regional and local access to and from the Southern Expansion Site Area. Joyce Street, Southgate Road, South Orme Street, South Ode Street, and South Oak Street all provide local access. These key roadway segments are described in the following paragraphs.

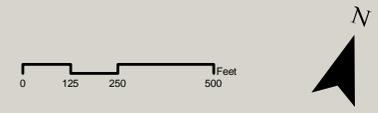


**Figure 3-14**  
**Transportation Network**  
**Within and Adjacent to the**  
**Southern Expansion Site**

**LEGEND**

-  Arlington National Cemetery
-  Sidewalk
-  Crosswalk
-  Off-Road Path
-  Signed Bicycle Route
-  Capital Bikeshare Facility
-  Residential Street
-  Urban Interstate
-  Urban Principal Arterial Route
-  Local Access Road

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Source: National Atlas, National Park Service, Google Earth



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I-395, an urban interstate with high-occupancy vehicle (HOV) lanes, is a major commuter route between Northern Virginia and Washington, DC. I-395 connects with I-695 and I-295 in Washington, DC, and with I-495 and I-95 near Springfield, Virginia.

Washington Boulevard (Rt. 27) is an urban principle four-lane arterial with two lanes in each direction that runs east-west. Washington Boulevard connects major travel routes in Northern Virginia, such as the George Washington Memorial Parkway, Rt. 110, I-395, and US Rt. 50. In the vicinity of the Southern Expansion Site, the speed limit is 45 miles per hour (mph).

Columbia Pike (Rt. 244) is an urban principal arterial route with two lanes in each direction that runs east-west from Washington Boulevard and South Joyce Street to VA 236 (Little River Turnpike) in Annandale, Virginia. Columbia Pike intersects major routes in Northern Virginia such as Lincolnia Road, VA 7, George Mason Drive, and Glebe Road. Columbia Pike is also considered the principal street in South Arlington. In the vicinity of the Southern Expansion Site, the speed limit is 25 mph. Joyce Street is an urban minor arterial route with two lanes in each direction that connects the Southern Expansion Site and Pentagon City underneath the I-395 overpass. The speed limit is 35 mph.

Southgate Road is a local access road for employees and service vehicles to ANC and JBM-HH, and also provides access to three residential streets. Parking is available on both sides of the street. There are two access points to JBM-HH along Southgate Road. Access Point 1 (Gate 1) is located at the intersection of Southgate Road and South Orme Street and is open 24 hours a day, seven days a week. The Marine Corps

Exchange (a military commissary) is located directly past Gate 1 and is assumed to be a traffic generator. Access Point 3 (Gate 3) is located on Hobson Drive, about 600 feet east of Access Point 1. Gate 3 is open from 6:00 AM until 6:00 PM, Monday through Friday.

South Orme Street is a residential street with one lane in each direction. South Ode Street and South Oak Street are residential streets with a single travel lane in the southbound direction and northbound direction respectively. The speed limit on all three roads is 25 mph, and parking is available on all roads on both sides of the street.

#### *Public Transportation*

The Washington Metropolitan Area Transit Authority (WMATA) operates both Metrorail and Metrobus service in the vicinity Southern Expansion Site. The Pentagon and Pentagon City Metrorail stations are located approximately one mile from the study area. Metrobus service is provided along Columbia Pike with bus routes 16A, 16B, 16D, 16E, 16G, 16H, 16J, 16K, 16P, and 16X stopping between South Orme and South Ode Streets, east of South Joyce Street in the eastbound direction, and in front of the closed Navy Annex building in the westbound direction. These lines service Annandale, Barcroft, Culmore, Baileys Crossroads, Pentagon City, Crystal City, and the Pentagon.

Arlington Transit (ART) operates Rt. 42, which connects the Pentagon with Ballston. The bus stops between South Orme and South Ode Streets in the eastbound direction and in front of the closed Navy Annex building in the westbound direction.

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The Department of Defense offers a free shuttle bus service from JBM-HH to the Pentagon along Southgate Road, called the Fort Myer Flyer. A valid military or civilian contractor identification badge is required at all times to ride the bus.

### *Parking*

Southgate Road currently provides around 380 (parallel and perpendicular) parking spaces. Designated parking along Southgate Road is reserved for senior-level staff, dignitaries, handicapped individuals, and visitors with a security clearance. Visitor parking on Southgate Road is allowed between 6:30 AM and 3:30 PM on weekdays, and has no restrictions on weekends and holidays.

As part of conducting traffic counts, it was observed all of the parking spaces were occupied by 10 AM in the morning with about 30 vehicles arriving during the AM peak hour. Most of these vehicles entered from the intersection of Columbia Pike and South Joyce Street. In the evening, the majority of these vehicles make a U-turn prior to Hobson Drive to exit via the intersection of Columbia Pike and South Joyce Street.

### *Pedestrian and Bicycle Circulation*

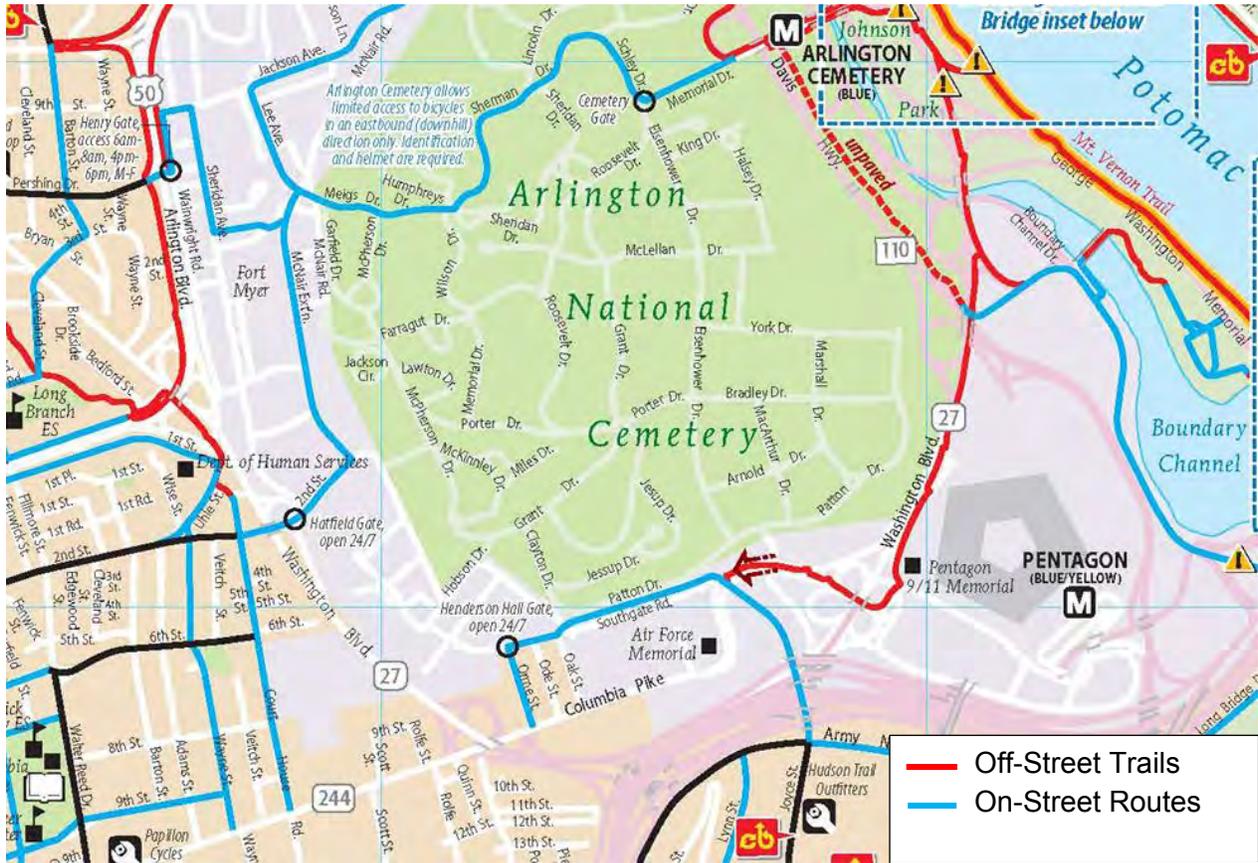
Pedestrian and bicycle facilities within and adjacent to the Southern Expansion Site are illustrated in Figure 3-14. Sidewalks within the study area provide connections with the Pentagon and Pentagon City. These sidewalks range in width from four feet along portions of the residential streets to twelve feet near the Sheraton Hotel.

As shown in Figure 3-14, crosswalks are present at many locations in the study area. However, striping is extremely faint at crosswalks along Southgate Road. Crosswalks with pedestrian-actuated signals are available at the intersections of Columbia Pike and South Orme Street, and Columbia Pike and South Joyce Street. There are three pedestrian islands at the intersection of Joyce Street which provide higher safety to pedestrians. Many sidewalks and crosswalks in the study area are not Americans with Disabilities Act (ADA)-compliant.

An on-street bicycle route is sign posted from Columbia Pike along South Orme Street to Southgate Road and onto South Joyce Street. This route is part of the Arlington County bicycle routes illustrated in **Figure 3-15** and connects with trails leading to JBM-HH, the Pentagon, ANC, the Mount Vernon Trail, and Arlington Memorial Bridge.

A Capital Bikeshare docking station is located on South Orme Street in front of the Sheraton Hotel. This station has 11 bike docks and allows riders to connect with over 300 docking stations in the National Capital Region.

**Figure 3-15  
Arlington County Bicycle Routes**



Source: Arlington County Bike Map, 2013, Arlington County.

**Surrounding Transportation Plans and Projects**

Arlington County has plans to transform the character of Columbia Pike by using it as a base for a streetcar line ultimately tying together Pentagon City with the Baileys Crossroads area of Fairfax County. Columbia Pike would be realigned and a streetcar running in mixed traffic would provide local service along this alignment. **Figure 3-16** illustrates the realignment and in-street transit concept.

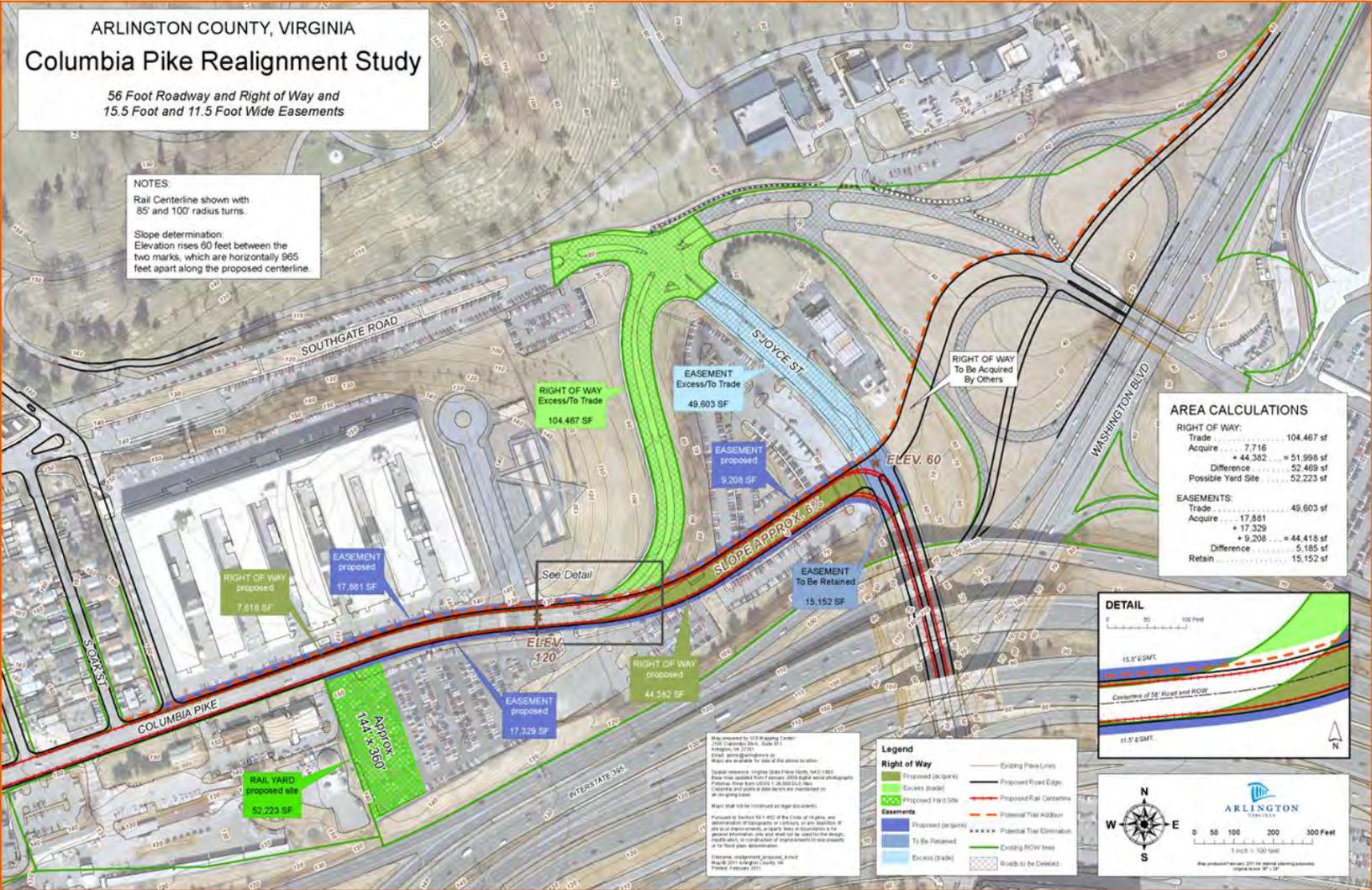
The County also has several projects aimed at revitalizing the adjacent land uses and improving the visual character and

multimodal attractiveness of Columbia Pike along the corridor. The *Columbia Pike Multimodal Project* will eventually upgrade the cross section of Columbia Pike with narrowed lanes, sidewalks and planting areas, utility upgrades, signal coordination, new Super Bus Stops, and other changes. The project area begins at the Joyce Street intersection, but designs are now focused on the Columbia Pike sections to the west of the Southern Expansion Site. The nearest project is the Washington Boulevard /Columbia Pike (Rt. 27/Rt. 244) Interchange which is under construction and includes a new traffic signal at South Orme Street.

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**Figure 3-16**

**Columbia Pike Realignment from Arlington County Transportation Plans**



Source: Arlington County.

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Existing Traffic Conditions

Traffic conditions in the Southern Expansion Site area are influenced by a number of surrounding facilities that generate employee-, resident-, and/or tourism-related vehicular traffic. These facilities include the JBM-HH, the Pentagon and related Department of Defense facilities; Pentagon City; three memorial facilities: ANC, the Pentagon 9/11 Memorial, and the Air Force Memorial; Foxcroft Heights, a residential community; the Sheraton Hotel; a Virginia Department of Transportation lot, and a small retail strip.

Traffic analysis of the existing conditions was conducted for the peak AM and PM hours at the key intersections. The resulting overall delay and LOS for each intersection are shown in **Table 3.8**. As shown in Table 3.8, all of the intersections operate at an overall LOS C or better, which indicates stable and free flow of traffic with no congestion.

**3.10.2 Threshold of Significance**

The threshold of significance for traffic and transportation impacts would be exceeded if the alternative would result in either of the following:

- Degradation of intersection LOS to E or F ; or
- Severance of an existing major route for bicycles or pedestrians.

**3.10.3 Environmental Consequences of the Alternatives on Traffic and Transportation**

3.10.3.1 No Action Alternative

The No Action Alternative may impact traffic and transportation within the cemetery. However, the projects associated with the No Action Alternative are evaluated under separate environmental review(s). The Millennium Project would result in mostly short-term impacts to traffic and transportation due to increased construction traffic in the area, particularly on JBM-HH roadways.<sup>140</sup>

Table 3.8

**Existing Conditions Intersection Delay and LOS (2014)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	23	C	28	C
Columbia Pk. & S. Ode St.	U	12	B	13	B
Columbia Pk. & S. Orme St.	S	21	C	30	C
Southgate & S. Oak St.	U	10	A	11	B
Southgate & S. Orme St.	U	9	A	10	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

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Administration Building Vicinity

The No Action Alternative does not include the dedicated committal procession queuing area. Therefore, congestion in the vicinity of the Administration Building would continue and the family experiences during committal services would not be enhanced.

Southern Expansion Site Area

Traffic analysis of the No Action Alternative was conducted for the peak AM and PM

hours at the key intersections in the opening year (2020) and design year (2040). For the No Action Alternative, signal timing was optimized so that the overall intersection and individual movements would operate at LOS C or better. Traffic analysis results for the No Action Alternative in 2020 and 2040 are shown in **Tables 3.9** and **3.10**, respectively.

Table 3.9

**No Action Alternative Intersection Delay and LOS (2020)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	18	B	19	B
Columbia Pk. & S. Ode St.	U	10	B	11	B
Columbia Pk. & S. Orme St.	S	21	C	27	C
Southgate & S. Oak St.	U	10	A	11	B
Southgate & S. Orme St.	U	9	A	9	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

Table 3.10

**No Action Alternative Intersection Delay and LOS (2040)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	19	B	21	C
Columbia Pk. & S. Ode St.	U	10	B	12	B
Columbia Pk. & S. Orme St.	S	22	C	29	C
Southgate & S. Oak St.	U	10	A	12	B
Southgate & S. Orme St.	U	9	A	9	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

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3.10.3.2 Alternative 1 – ANC Including the Southern Expansion Site

Administration Building Vicinity

Alternative 1 includes the preferred dedicated committal procession queuing area alternative. The queuing area would alleviate vehicle congestion and improve pedestrian safety in the vicinity of the Administration Building.

Southern Expansion Site Area

Under Alternative 1 interments would be conducted on Parcel A of the Southern Expansion Site and Southgate Road would remain a public roadway. Thus, vehicular traffic on Southgate Road would have to be temporarily stopped to allow the processions to cross from the main cemetery to Parcel A. It is not anticipated that vehicles would be stopped during the AM or PM peak hours 7:15-8:15 AM and 4:45-5:45 PM as committal services are scheduled to occur between 9 AM and 3 PM. Therefore, for Alternative 1, traffic analysis was conducted to account for non-peak hour and peak hour conditions.

*Alternative 1 - Non-Peak Hour*

The impacts of the procession crossings were evaluated by determining the potential for the Southgate Road closures to divert traffic to Foxcroft Heights.

The length of time Southgate Road would be closed and the associated time vehicles would wait were estimated. In 2040, it is projected that a maximum of six interments will occur on this site in a day. For each interment procession crossing, it is approximated that Southgate Road will be closed for 10 minutes.

The mid-day 2040 traffic volume was needed in order to calculate the length of the vehicle queue and the amount of time vehicles would wait. Average daily traffic on Southgate Road was estimated by assuming that the AM and PM peak hour volumes represent about 20 percent of the daily traffic. As a result, the 2040 daily traffic volume on Southgate was estimated to be 2,079 vehicles traveling eastbound and 2,231 vehicles traveling westbound. To translate the daily volume into an hourly mid-day volume, it was assumed that 33 percent of the daily traffic would use Southgate Road during mid-day.<sup>141</sup> Therefore, the 2040 hourly mid-day traffic on Southgate Road was estimated to be 114 vehicles per hour westbound and 123 vehicles eastbound.

Based on the hourly traffic volumes, and assuming on average the procession crossing would last approximately 10 minutes, the temporary stop could generate a queue of 19-20 vehicles in each direction. Each vehicle would take approximately two seconds to start up and travel past the stopping point. The resulting average delay would be 5.4 minutes with a maximum of 10 minutes and a minimum of 40 seconds for those that would arrive just as the traffic resumes. Assuming the number of daily committals conducted on the Southern Expansion Site remains the same, the estimated delays could occur approximately two times per hour during non-peak hours.

In reality, the estimated frequency and magnitude of the delays would change traffic patterns. Drivers would eventually avoid Southgate Road during off-peak hours and would use the roads within Foxcroft Heights. In this case, traffic conditions would be similar to the traffic conditions with Alternative 2 when Southgate Road is

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closed. Traffic analysis of Alternative 2 during peak hours shows that all of the intersections would operate at an overall LOS C or better, and that delay at the intersections of Columbia Pike with South Orme Street and South Ode Street would increase by 2040 resulting in individual movements operating at an acceptable LOS D in the PM peak hour. Therefore, even if the closures of Southgate road occurred during peak hours, the LOS of all of the key intersections would be acceptable and Alternative 1 would not result in a significant impact.

*Alternative 1 – Peak Hours*

Traffic analysis results are shown in **Tables 3.11** and **3.12** for Alternative 1 in 2020 and 2040, respectively. With Alternative 1, during the peak hours, traffic operations would be identical to the No Action Alternative with the intersection and individual movements at LOS C or better.

Table 3.11

**Alternative 1 Intersection Delay and LOS (2020)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	18	B	19	B
Columbia Pk. & S. Ode St.	U	10	B	11	B
Columbia Pk. & S. Orme St.	S	21	C	27	C
Southgate & S. Oak St.	U	10	A	11	B
Southgate & S. Orme St.	U	9	A	9	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

Table 3.12

**Alternative 1 Intersection Delay and LOS (2040)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	19	B	21	C
Columbia Pk. & S. Ode St.	U	10	B	12	B
Columbia Pk. & S. Orme St.	S	22	C	29	C
Southgate & S. Oak St.	U	10	A	12	B
Southgate & S. Orme St.	U	9	A	9	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

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During construction of the ANC facilities on the Southern Expansion Site, there would be minimal effects on the streets in the Foxcroft Heights neighborhood. Columbia Pike would be the primary truck route into and from the site. Much of the construction traffic would travel west toward the ramps with Washington Boulevard, and not onto the more congested eastern portions of Columbia Pike.

3.10.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road

Administration Building Vicinity

Alternative 2 includes the preferred dedicated committal procession queuing area alternative. The queuing area would alleviate vehicle congestion and improve pedestrian safety in the vicinity of the Administration Building.

Southern Expansion Site Area

Alternative 2 would include closing Southgate Road to the public. While traffic on Southgate Road is much reduced since the closure of the Navy Annex office buildings, there is concern that the remaining traffic will use the Foxcroft Heights neighborhood streets to access JBM-HH. Therefore, traffic analysis was conducted.

Alternative 2 traffic conditions were evaluated for only the peak hours. With Alternative 2 the only difference between peak and non-peak traffic conditions is the traffic volume. Traffic flow would not be interrupted by road closures for processions during non-peak hours. Therefore, it was not necessary to analyze non-peak traffic

conditions because traffic conditions during peak hours would be worse.

Traffic analysis results are shown in **Tables 3.13 and 3.14** for Alternative 2 in 2020 and 2040, respectively. With Alternative 2, all of the intersections would operate at an overall LOS C or better. While the delay at the intersections of Columbia Pike with South Orme Street and South Ode Street would increase by 2040, individual movements would still operate at an acceptable LOS C and D in the AM and PM peak hours, respectively.

Pedestrian movements would not be affected by Alternative 2. There is an existing sidewalk along Columbia Pike between South Orme Street and South Joyce Street that would provide for pedestrian movement when Southgate Road is closed. The closure of Southgate Road would eliminate a section of the signed bicycle route along Southgate Road. This section of the route is a short link to a JBM-HH gate and not part of a loop. Removal of this link would not sever an existing major route for bicycles and therefore would not result in a significant impact.

The impact could be minimized by shifting the route to Columbia Pike. The shift could be accomplished by installing new signage and widening the existing sidewalk on the north (Navy Annex) side of Columbia Pike to serve as a two-way bike and pedestrian path. The Arlington County Columbia Pike plan shown in Figure 3-16 includes a widened sidewalk on the north side of Columbia Pike.

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Table 3.13

**Alternative 2 Intersection Delay and LOS (2020)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	18	B	18	B
Columbia Pk. & S. Ode St.	U	16	C	20	C
Columbia Pk. & S. Orme St.	S	21	C	30	C
Southgate & S. Oak St.	U	8	A	9	A
Southgate & S. Orme St.	U	9	A	9	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

Table 3.14

**Alternative 2 Intersection Delay and LOS (2040)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	19	B	20	B
Columbia Pk. & S. Ode St.	U	19	C	33	C
Columbia Pk. & S. Orme St.	S	23	C	34	C
Southgate & S. Oak St.	U	9	A	9	A
Southgate & S. Orme St.	U	9	A	9	A

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

As with Alternative 1, there would be minimal effects on the streets in the Foxcroft Heights neighborhood during construction of the ANC facilities on the Southern Expansion Site. Columbia Pike would be the primary truck route to and from the site. Much of the construction traffic would travel west toward the ramps with Washington Boulevard, and not onto the more congested eastern portions of Columbia Pike.

3.10.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement

Administration Building Vicinity

Alternative 3 includes the preferred dedicated committal procession queuing area alternative. The queuing area would alleviate vehicle congestion and improve pedestrian safety in the vicinity of the Administration Building

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Southern Expansion Site Area

Alternative 3 includes the closure of Southgate Road along with an easement for a new access road parallel to and east of South Oak Street. This new road, South Nash Drive<sup>142</sup>, would link Columbia Pike and Southgate Road at Hobson Drive, and would carry a majority of the traffic diverted from the closed portion of Southgate Road to JBM-HH.

Traffic analysis included the new intersection at Columbia Pike and South Nash Drive. The new intersection was assessed as an unsignalized and signalized intersection. Traffic analysis results for Alternative 3 are shown in **Tables 3.15** and **3.16** for 2020 and 2040, respectively. Under Alternative 3, the new access road, South Nash Drive, was assumed to carry traffic to and from JBM-HH Gates 1 and 3. All of the intersections except Columbia Pike and

South Nash Drive would operate with similar or lower delay compared to the No Action Alternative.

If the intersection of Columbia Pike and South Nash Street were unsignalized, it would operate at an acceptable LOS D in the AM peak hour (in 2040) and a failing LOS F in the PM peak hour (in both 2020 and 2040). Signalizing this intersection would improve the operations to LOS B or better in both 2020 and 2040 AM and PM peak hours.

Pedestrian movements would not be affected by Alternative 3. There is an existing sidewalk along Columbia Pike between South Orme Street and South Joyce Street that would provide for pedestrian movement when Southgate Road is closed.

Table 3.15  
**Alternative 3 Intersection Delay and LOS (2020)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	18	B	18	B
Columbia Pk. & S. Ode St.	U	10	B	11	B
Columbia Pk. & S. Orme St.	S	21	C	26	C
Southgate & S. Oak St.	U	10	A	11	B
Southgate & S. Orme St.	U	9	A	9	A
Columbia Pk. & S. Nash Dr.	U	23	C	94	F
Columbia Pk. & S. Nash Dr.	S	9	A	16	B

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

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Table 3.16

**Alternative 3 Intersection Delay and LOS (2040)**

Intersection	Control Type	AM		PM	
		Delay (sec/vh)	LOS	Delay (sec/vh)	LOS
Columbia Pk. & S. Joyce St.	S	19	B	18	B
Columbia Pk. & S. Ode St.	U	10	B	12	B
Columbia Pk. & S. Orme St.	S	22	C	28	C
Southgate & S. Oak St.	U	10	A	11	B
Southgate & S. Orme St.	U	9	A	9	A
Columbia Pk. & S. Nash Dr.	U	31	D	863	F
Columbia Pk. & S. Nash Dr.	S	9	A	10	B

Notes: S – Signalized  
U – Unsignalized  
sec/vh – seconds per vehicle

Source: HNTB analysis, 2014.

As with Alternative 2, the short section of the signed bicycle route along Southgate Road would be closed with Alternative 3. This section of the route is a short link to a JBM-HH gate and not part of a loop. Removal of this link would not sever an existing major route for bicycles and therefore would not result in a significant impact. The impact could be minimized by shifting the route to Columbia Pike as discussed under Alternative 2.

As with Alternative 1, there would be minimal effects on the streets in the Foxcroft Heights neighborhood during construction of the ANC facilities on the Southern Expansion Site. Columbia Pike would be the primary truck route to and from the site. Much of the construction traffic would travel west toward the ramps with Washington Boulevard, and not onto the more congested eastern portions of Columbia Pike.

### 3.10.3.5 Alternative 4 – ANC Including the Southern Expansion Site with Realigned Roadways

#### Administration Building Vicinity

Alternative 4 includes the preferred dedicated committal procession queuing area alternative. The queuing area would alleviate vehicle congestion and improve pedestrian safety in the vicinity of the Administration Building

#### Southern Expansion Site Area

The realignment of Columbia Pike and ramps between Columbia Pike and Rt. 27 is not sufficiently defined to determine the associated traffic impacts. Based on the proposed concepts for the realignment by Arlington County as of July 15, 2014, the alignment of Columbia Pike would not change west of the entrance to the Air Force Memorial. As the traffic circulation and operations of Alternative 4 are identical to Alternative 3, with the exception of the intersection of Columbia Pike and South

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Joyce Street, it can be concluded that Alternative 4 would not result in significant traffic impacts at six out of the seven study intersections. Therefore, changes at the intersection of Columbia Pike and South Joyce Street and the associated roadways will be analyzed as part of a project-level NEPA evaluation when sufficient information is available.

### **3.11 Utilities**

#### **3.11.1 Affected Environment**

ANC is served by underground electric, water, sewer and stormwater utilities. In general, all utilities are in serviceable condition with the exception of some segments of storm sewers that are in critical condition.<sup>143</sup>

Dominion Power supplies electrical service to ANC from the Fort Myer substation. Natural gas at ANC is provided by Washington Gas Company. The Southern Expansion Site has natural gas service access from a 12-inch, high pressure force main located on Columbia Pike.

Potable water is supplied to ANC by DC Water via the USACE Washington Aqueduct Division, which is the municipal source of drinking water for Washington, D.C., Arlington County, Fairfax County and the City of Falls Church.

Municipal sewage service is provided by Arlington County. The dominant sanitary sewer service line is the relocated Potomac Interceptor line, a 42 inch sanitary sewer line that generally follows the alignment of Eisenhower Drive. Primary gravity service lines and laterals lead to the principal facilities in the cemetery, including the Service Complex, the Memorial

Amphitheater, the Superintendent's Lodge, Arlington House and the Women in Military Service for America Memorial. The Welcome Center, Administration Building, and Columbarium Courts are served by a main sewer line in the vicinity of York Drive and Patton Drive.<sup>144</sup> The 42 inch sewer line connects with a 54 inch County main that runs across the former gas station area and south along Joyce Street. Effluent is treated at the Arlington County Sewage Treatment Plant located south of the Pentagon.<sup>145</sup>

ANC's storm water system collects runoff from all 624 acres, as well as storm water from JBM-HH, via three piped infalls on the northwestern boundary of the cemetery. ANC has two outfalls that discharge directly to the Boundary Channel, one that discharges to the Pentagon storm water system and eventually to the Pentagon Lagoon, and one that discharges to an open channel/ditch located on NPS property which discharges to the Boundary Channel.

#### **3.11.2 Threshold of Significance**

The threshold of significance for utility impacts would be exceeded if the alternative would result in an increase in demand requiring substantial utility improvements. Long-term disruption of utilities in the neighboring areas would also result in a utility impact that would exceed the threshold of significance.

#### **3.11.3 Environmental Consequences of the Alternatives on Utilities**

##### **3.11.3.1 No Action**

The No Action Alternative includes a project to relocate the Potomac Interceptor Staging Area utilities in order to free up space for in-ground burials. However, this project would

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not impact the performance of the utility distribution system. The No Action Alternative also includes repair of storm sewers and water lines at ANC. These repairs would result in a positive impact by reducing contamination. The remaining projects in the No Action Alternative would not be expected to result in changes to ANC utilities, with the exception of minor short-term impacts due to utility relocation and distribution in the Millennium Site.<sup>146</sup> These projects are evaluated under separate environmental review(s).

**3.11.3.2 Alternative 1- ANC Including the Southern Expansion Site**

All public distribution systems which bring utilities to ANC are considered adequate to support the proposed development that would occur due to Alternative 1. Proposed projects may require additional connection to on-site distribution systems, as well as minor improvements in order to provide continued delivery of potable water, electricity, and natural gas throughout ANC.

**3.11.3.3 Alternative 2 - ANC Including the Southern Expansion Site and Southgate Road**

All public distribution systems which bring utilities to ANC are considered adequate to support the proposed development that would occur due to Alternative 2. As described under Alternative 1, proposed projects under Alternative 2 may require improvements to the utility distribution systems to provide continued delivery of utilities throughout ANC.

Proposed projects in Alternative 2 include acquiring Southgate Road right-of-way for additional interment area. Southgate Road lies above a utility corridor. Utilities in this

area served the Southern Expansion Site. Proposed development includes removing/consolidating these utilities to increase the space available for interments and inurnments. Since these utilities were sized for the facilities on the Southern Expansion Site, their removal and consolidation would not be expected to affect utility services to ANC or the surrounding area.

**3.11.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

Alternative 3 would result in impacts similar to Alternative 2.

**3.11.3.5 Alternative 4 - ANC Including the Southern Expansion Site with Realigned Roadways**

Alternative 4 would result in impacts similar to Alternatives 2 and 3.

**3.12 Solid Waste**

Solid waste is regulated under federal, state and local laws. The Resource Conservation and Recovery Act (RCRA) is the federal act that governs the collection, treatment, storage and disposal of solid waste.<sup>147</sup> Virginia has its own solid waste management regulations that serve to “establish standards and procedures pertaining to the management of solid wastes by providing the requirements for siting, design, construction, operation, maintenance, closure, and postclosure care of solid waste management facilities in the Commonwealth in order to protect the public health, public safety and environment, and our natural resources.”<sup>148</sup> The Virginia Solid Waste Planning and Recycling Regulations require that every city, county and town in

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the Commonwealth develop a solid waste management plan. ANC submits annual recycling reports to Arlington County.

### **3.12.1 Affected Environment**

The main non-hazardous solid waste generators at ANC include the administrative facilities, maintenance activities, interments and visitors. "Yard waste and floral debris make up the bulk of ANC's waste."<sup>149</sup>

ANC has a recycling program. Materials such as general office waste, yard waste, metals, used tires, and wood pallets are collected and recycled off-site by contractors. In 2011, ANC recycled nearly 1,800 tons of materials including yard waste, scrap wood, cardboard, truck batteries and oil filters.<sup>150</sup>

ANC developed an Integrated Solid Waste Management Plan (ISWMP). The objectives of this plan include reducing, reusing and recycling solid waste to the maximum extent possible. The plan emphasizes source reduction and identifies opportunities for additional recycling such as composting leaves on site. The ISWMP will be implemented through integration into ANC's Environmental Management System.<sup>151</sup>

### **3.12.2 Threshold of Significance**

The threshold of significance for solid waste impacts would be exceeded if the alternative would cause the diversion rate of ANC's nonhazardous solid waste to drop below 50 percent. The diversion rate is the percentage of nonhazardous solid waste that is diverted from entering a disposal facility.

### **3.12.3 Environmental Consequences of the Alternatives on Solid Waste**

#### **3.12.3.1 No Action Alternative**

The No Action Alternative may impact the amount of solid waste generated by the cemetery. However, the projects included in the No Action Alternative are evaluated under separate environmental review(s).

#### **3.12.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

Additional solid waste would be generated as a result of the construction associated with Alternative 1. In accordance with AR 420-1, contracts for construction will include a performance requirement to divert a minimum of 50 percent of construction waste from landfill disposal. Also, contractors will be required to submit a construction and demolition waste management plan.

In addition to construction waste, an increase in yard waste would also be anticipated. In accordance with the ISWMP, all waste including yard waste will be recycled to the maximum extent possible.

The current diversion rate is approximately 75 percent. Due to diversion and recycling requirements and the implementation of the ISWMP, the increase in solid waste from Alternative 1 would not be expected to reduce the diversion rate to less than 50 percent. Accordingly, it is not anticipated that Alternative 1 would exceed the threshold of significance for solid waste impacts.

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**3.12.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

Impacts to solid waste under Alternative 2 would be similar to those described under Alternative 1. As Alternative 2 includes additional construction and the addition of property to the cemetery, construction and yard waste would likely be greater than that generated with Alternative 1. Regardless, due to diversion and recycling requirements and the implementation of the ISWMP, the increase in solid waste from Alternative 2 would not be expected to reduce the diversion rate to less than 50 percent.

**3.12.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

Impacts to solid waste under Alternative 3 would be similar to those described under Alternative 2. As Alternative 3 includes construction of the new road between Southgate Road and Columbia Pike, construction waste would likely be greater than that generated with Alternative 2. Regardless, due to diversion and recycling requirements and the implementation of the ISWMP, the increase in solid waste from Alternative 3 would not be expected to reduce the diversion rate to less than 50 percent.

**3.12.3.5 Alternative 4– ANC Including the Southern Expansion Site with Realigned Roadways**

Impacts to solid waste under Alternative 4 would be similar to those described under Alternative 3. As Alternative 4 includes additional construction and the addition of property to the cemetery, construction and yard waste would likely be greater than that

generated with Alternative 3. Regardless, due to diversion and recycling requirements and the implementation of the ISWMP, the increase in solid waste from Alternative 4 would not be expected to reduce the diversion rate to less than 50 percent.

**3.13 Hazardous Materials and Waste**

The potential to generate, treat, store, disturb or dispose of hazardous materials and waste is considered in accordance with applicable laws. Relevant hazardous materials and waste statutes include RCRA, as amended by the Federal Facilities Compliance Act of 1992, and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA (Superfund) provides remedies for uncontrolled and abandoned hazardous waste sites.

“Hazardous materials are defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that may cause an increase in mortality, a serious irreversible illness, incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semi-solid waste, or any combination of wastes that poses a substantial present or potential hazard to human health or the environment.”<sup>152</sup> Hazardous materials and waste may be released into the environment when improperly stored, transported, or otherwise managed. When released, they can significantly affect human health, safety and/or the environment.

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**3.13.1 Affected Environment**

Common materials found or used at ANC include: aerosols, paint thinner, paints, batteries, fluorescent bulbs, oils/greases, mercury-containing equipment, asbestos, lead-based paint, antifreeze, pesticides and fuel. Many of these are classified as hazardous materials/waste. All of the materials/wastes are generated, handled, stored, transported and disposed of in accordance with the ANC Hazardous Material and Hazardous Waste Management Plan.

Creators of hazardous waste are classified and regulated according to the amount of waste generated. ANC is normally classified as a Conditionally Exempt Small Quantity Generator (CESQG), the smallest generator category. However, as a best management practice, ANC voluntarily operates under the more regulated Small Quantity Generator (SQG) classification.<sup>153</sup>

Asbestos-containing materials and lead based paint have been encountered at ANC facilities. Asbestos and lead paint programs have been established to ensure proper disposal of these materials. ANC also has a radon program to protect indoor air quality.<sup>154</sup>

Studies were completed to identify potential site contamination on the cemetery.

**3.13.1.1 Abbreviated Preliminary Assessment**

In 2011, the USACE completed an Abbreviated Preliminary Assessment (APA). Areas of concern were identified by reviewing the history of the cemetery, operation procedures and prior environmental investigations. The areas of concern are shown on **Figure 3-17** and described in the following paragraphs.

*Former South Post Fort Myer Facilities:*

All facilities on the site including a gas station, dry cleaner and two incinerators were demolished prior to 1975. No evidence of any hazardous substance release was found. However, due to the nature of the facilities, it is possible that there were releases of hazardous substances. The concern is likely limited to potential groundwater contamination because up to 20 feet of fill has been placed on the site.<sup>155</sup>

*Salvage Metal Yard:*

Soil staining was observed and soil sampling was conducted. The soil sampling showed petroleum related chemical levels slightly above the VDEQ maximum recommended concentration. Therefore, further evaluation of this site was recommended to determine whether any releases of concern are present.<sup>156</sup>

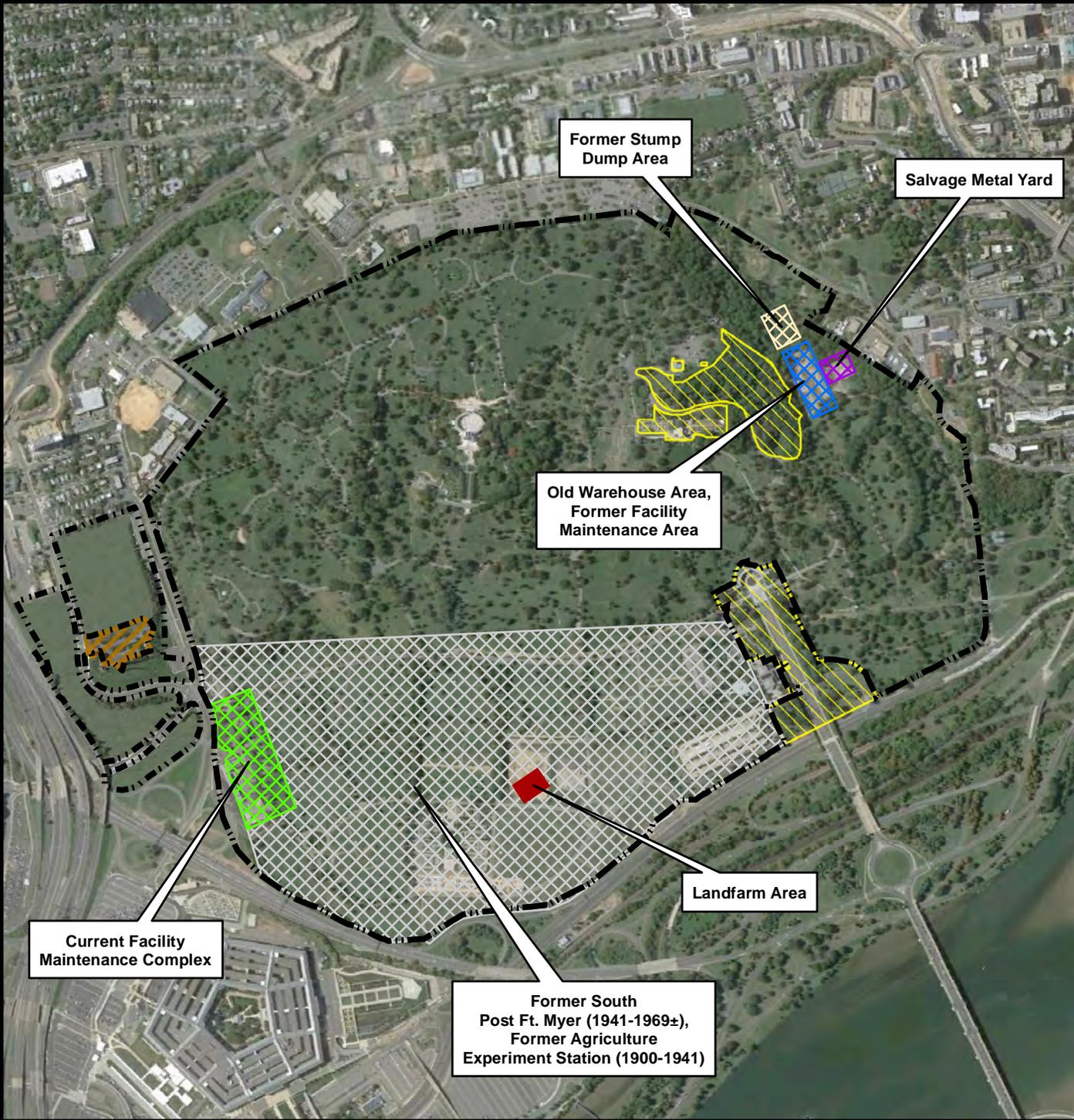
*Old Warehouse Area (OWA):*

Environmental sampling showed that petroleum related chemical levels were above the VDEQ maximum recommended concentration. Also, reddish sediment was observed in a small nearby intermittent creek. Therefore, further evaluation of the site and the drainage channel was recommended.<sup>157</sup>

The overall conclusion of the assessment of ANC was "All information obtained and reviewed support the fact that the site poses low potential threat to human health and the environment and limited further investigation is warranted based on these findings."<sup>158</sup>



**Figure 3-17  
Potential Site  
Contamination Areas  
of Interest**



**LEGEND**

- Arlington National Cemetery
- Service Complex
- Former South Post, Ft. Myer
- Stump Dump Area
- Landfarm Area
- Salvage Metal Yard
- Old Warehouse Area
- Area within ANC Under NPS Jurisdiction
- U.S. Air Force Memorial

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Sources:  
Shaw Environmental, Inc., Google Earth, Abbreviated Preliminary Assessment Report Arlington National Cemetery, Final, May 2011, National Park Service (NPS)



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### 3.13.1.2 Millennium Site

An environmental investigation including soil and groundwater sampling was completed to support the Millennium Project. Six areas of concern were investigated including the Salvage Metal Yard and OWA. The objective of the environmental sampling was to provide a general reconnaissance environmental survey to help determine if any past ANC activities may have caused environmental releases in the Millennium Project work area. Field activities were performed in July 2009. Based on the results of the sampling and analysis, no further action was deemed necessary for several of the sites. However, additional investigation was recommended for the OWA, Salvage Metal Yard and the Area East of the Salvage Metal Yard.<sup>159</sup>

Further assessment of potential soil and groundwater contamination at the Millennium Site was conducted in 2012 and 2013. Several sites were identified for remediation. These sites would be remediated as part of the Millennium Project. Refer to the *Millennium EA* for additional information.

### 3.13.1.3 Southern Expansion Site

The Memorandum of Agreement (MOA) concerning the transfer of the Navy Annex Property from Washington Headquarters Services (WHS) to Department of the Army established that the WHS was responsible for the disposal and remediation of the Navy Annex site, including any hazardous materials, pollutants, and contaminants including petroleum.<sup>160</sup> Therefore, for the purposes of this EA, it is assumed that once WHS has met the conditions of the MOA, no hazardous materials will be present on the Southern Expansion Site.

### 3.13.2 Threshold of Significance

The threshold of significance for hazardous materials and waste impacts would be exceeded if the alternative resulted in a substantial increase in hazardous waste. A substantial increase would occur if the amount of hazardous waste generated would cause ANC to be classified as a large quantity generator. A large quantity generator produces 1,000 kilograms or more per month of hazardous waste.

### 3.13.3 Environmental Consequences of the Alternatives on Hazardous Materials and Waste

#### 3.13.3.1 No Action Alternative

The No Action Alternative may impact hazardous material and waste in the cemetery. However, the projects included in the No Action Alternative are evaluated under separate environmental review(s). See the *Millennium EA* for more information regarding remediation.

#### 3.13.3.2 Alternative 1 – ANC Including the Southern Expansion Site

Alternative 1 would result in an approximately six percent larger cemetery area to maintain. Maintenance of this area may require use of additional hazardous materials and generate additional hazardous waste. Additional hazardous materials such as pesticides and herbicides may be applied to the area. Also, maintenance equipment use could increase thereby increasing fuel use and hazardous waste generated through equipment maintenance.

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None of the proposed projects included in Alternative 1 would disturb land in areas identified for further study related to site contamination.

Given the relatively small increase in cemetery area:

- Only a minor increase in use of hazardous materials and generation of hazardous waste would be anticipated; and
- ANC would not exceed the small quantity generator (SQG) threshold and could continue to operate under SQG regulations.

Therefore, hazardous materials and waste impacts would not approach the threshold of significance. Nonetheless, the cemetery will strive to minimize the anticipated potential impacts. For example, potential minimization could include planting pest resistant plants to reduce the need for pesticides and conducting periodic reviews to determine if non-hazardous substances could replace pesticides.

**3.13.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

As with Alternative 1, additional hazardous materials could be used and additional hazardous waste could be generated with Alternative 2. Alternative 2 will result in an approximately seven percent larger cemetery area to maintain. Maintenance of this area may require additional pesticides and herbicides as well as maintenance vehicle use.

None of the proposed projects included in Alternative 2 would disturb land in areas identified for further study related to site

contamination. However, the acquisition of Southgate Road would add an unstudied area to ANC. Therefore, if this alternative is selected, additional hazardous waste analysis will be required to determine whether hazardous wastes are present within the Southgate Road right-of-way.

As with Alternative 1, hazardous materials and waste impacts would not approach the threshold of significance given the relatively small increase in cemetery area under Alternative 2.

**3.13.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

As with Alternative 2, additional hazardous materials could be used and additional hazardous waste could be generated with Alternative 3. Alternative 3 would also result in an approximately seven percent larger cemetery area to maintain. Maintenance of this area may require additional pesticides and herbicides as well as maintenance vehicle use.

None of the proposed projects included in Alternative 3 would disturb land in areas identified for further study. However, as with Alternative 2, acquisition of Southgate Road would add unstudied area to ANC. Therefore, if this alternative is selected, additional hazardous waste analysis will be required to determine whether hazardous wastes are present within the Southgate Road right-of way.

As with Alternatives 1 and 2, hazardous materials and waste impacts would not approach the threshold of significance given the relatively small increase in cemetery area under Alternative 3.

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**3.13.3.5 Alternative 4– ANC Including the Southern Expansion Site with Realigned Roadways**

As with Alternatives 1, 2 and 3, maintenance of the expanded cemetery may require additional pesticides and herbicides as well as maintenance vehicle use. At a maximum, Alternative 4 would result in a nine percent increase in cemetery area to maintain.

None of the proposed projects included in Alternative 4 would disturb land in areas identified for further study. However, acquisition of Southgate Road and the land north of the realigned Columbia Pike beyond the Southern Expansion Site would add unstudied area to ANC. Therefore, if this alternative is selected, additional hazardous waste analysis will be required to determine whether hazardous wastes are present.

As with Alternatives 1, 2 and 3, hazardous materials and waste impacts would not approach the threshold of significance given the relatively small increase in cemetery area under Alternative 4.

**3.14 Visual and Aesthetic Resources**

Visual and aesthetic resources would be impacted when proposed development contrasts with the existing environment or alters a historic setting. Therefore, the aesthetics and views from, to and within ANC, and the potential for the alternatives to impact these resources are described in the following sections.

**3.14.1 Affected Environment**

The visual image conveyed by the cemetery is an essential component to fortifying the “hallowed grounds” character and identity. The memorials and the impressive landscape provide a sense of peace and beauty for the many visitors. ANC’s iconic image is captured by its ordered grid of simple white headstones set amidst grassy fields and rolling terrain of pastoral tree groves.

Views and vistas from, to and within ANC are represented on **Figure 3-18**. The numbers on Figure 3-18 correspond to the following views:

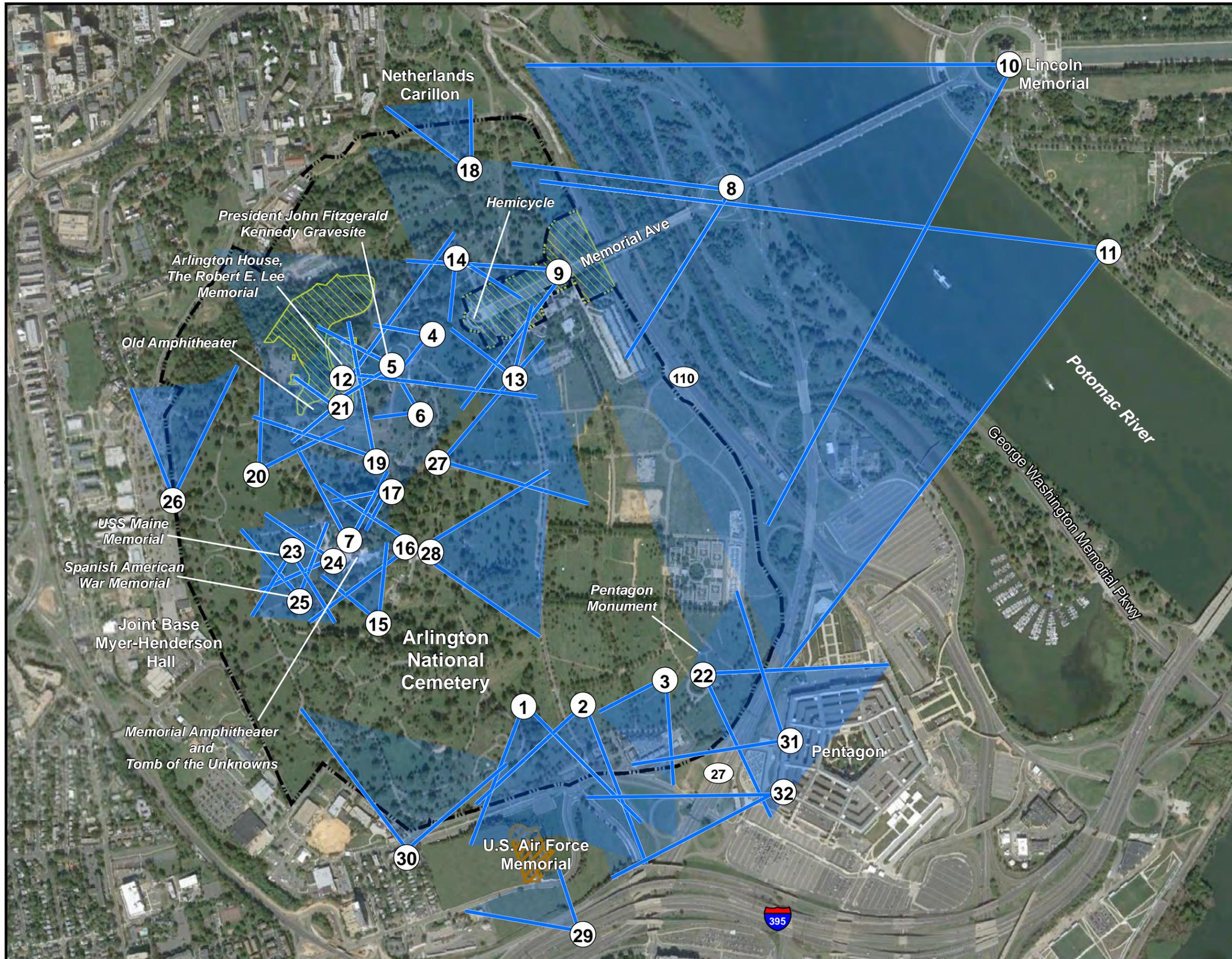
1. View of U.S. Air Force Memorial from Section 8
2. View of U.S. Air Force Memorial from Section 67
3. View of U.S. Air Force Memorial from Section 66
4. View of Arlington House from Kennedy Memorial
5. View of Arlington House from Kennedy Memorial
6. View of Arlington House from Kennedy Memorial
7. View to Arlington House down Crook Walk from Memorial Amphitheater
8. View of ANC from the Arlington Memorial Bridge
9. View of ANC from Memorial Avenue
10. View of ANC from Lincoln Memorial
11. View of ANC from Washington DC Potomac Shoreline



**Figure 3-18  
ANC Views and Vistas**

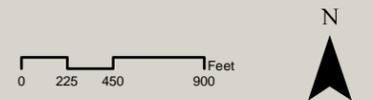
**LEGEND**

-  ANC Vantage Point
-  ANC View and Vista
-  Arlington National Cemetery
-  Area within ANC Under NPS Jurisdiction
-  U.S. Air Force Memorial



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Sources:  
ANC ICRMP, National Park Service (NPS), Google Earth



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12. View of Lincoln Memorial from Arlington House & Kennedy Gravesite
13. View to ANC Main Gates facing north
14. View to ANC Main Gates facing south
15. View to Memorial Amphitheater from USS Maine
16. View to Memorial Amphitheater from Section 6
17. View to Memorial Amphitheater from Section 13
18. View to Netherlands Carrillon
19. View of Old Amphitheater
20. View of Old Amphitheater from Section 2
21. View of Old Amphitheater from Tomb of Civil War Unknowns
22. View to the Pentagon from the Pentagon Memorial
23. View to the Spanish-American War Memorial from the USS Maine Memorial
24. View to the USS Maine Memorial from Memorial Amphitheater
25. View to the USS Maine Memorial from the Spanish-American War Memorial
26. View to Fort Myer Gate and Old Post Chapel
27. View to Washington DC from Section 33
28. View to Washington DC from Memorial Amphitheater Fountain

29. View from I-395 towards the Southern Expansion Site and the Air Force Memorial
30. View from Foxcroft Heights Neighborhood to ANC
31. View from the Pentagon toward ANC
32. View from the Pentagon toward Air Force Memorial

Topography and vegetation greatly shapes and enables or limits the long-range views available from various vantage points within the cemetery. The most prominent long range views in the cemetery are from the Arlington House, The Robert E. Lee Memorial plateau. From this vantage point there are long range views of the Washington D.C. Monumental Core, as well as views into the cemetery below.

ANC's northern wooded skyline is prominent from points within DC, including the U.S. Capitol and the National Mall. There are multiple places along the Potomac's eastern shoreline that allow a view of almost the entire cemetery, including views of the Memorial Amphitheater, Arlington House, The Robert E. Lee Memorial, and the Hemicycle. Arlington House, The Robert E. Lee Memorial is the most prominent feature in ANC visible from distant locations in the area. The Arlington Memorial Bridge and Memorial Avenue provide significant ceremonial entry views to the cemetery and the Arlington House, The Robert E. Lee Memorial. There are also broad long range views across the cemetery from the Arlington Memorial Bridge.

ANC can be viewed from roadways bounding the cemetery including Rt. 110 and Rt. 27 along the eastern boundary and from I-395 along the southern boundary across the Southern Expansion Site.

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There are many recognizable sites visible from various locations within ANC. For example, from the Arlington House, The Robert E. Lee Memorial, views of Washington D.C., the monuments, and the Potomac River are visible. The south side of ANC has expansive views of the U.S. Air Force Memorial, and the Pentagon. The Welcome Center provides views of Memorial Avenue into D.C., whereas the southern sections of the parking area provide views of Rt. 110, and green, undeveloped hills.

There are also several important historic views and vistas to and from the Southern Expansion Site. These viewsheds include views of ANC and the Washington D.C. Monumental Core. The steep sided narrow passage along Southgate Road between ANC and the Southern Expansion Site provides “unique, historic, and expansive panoramic vistas.”<sup>161</sup> The higher flat portion of the Southern Expansion Site offers spectacular panoramic views of the Pentagon, which is a National Historic Landmark, and many Washington D.C. landmarks including the U.S. Capitol Building, the Washington Monument, the Jefferson Memorial, the Lincoln Memorial, and the National Cathedral.<sup>162</sup>

### **3.14.2 Threshold of Significance**

The threshold of significance would be exceeded if an aesthetic effect or visual obstruction would diminish the integrity of a historic resource or in the case of a historic district an individual contributing historic resource to the point where it would no longer qualify for NRHP listing.

### **3.14.3 Environmental Consequences of the Alternatives on Visual and Aesthetic Resources**

#### **3.14.3.1 No Action Alternative**

The No Action Alternative, particularly the Millennium Project, may impact visual and aesthetic resources. However, the projects included in the No Action Alternative are evaluated under separate environmental review(s). The *Millennium EA* discusses how proposed projects would alter the visual and aesthetic environment but “The goal of the proposed modifications to the site and requisite structures has been to blend harmoniously with the overall visual character of both ANC and JBM-HH and minimize topographical changes to the landscape.”<sup>163</sup>

#### **3.14.3.2 Alternative 1 – ANC Including the Southern Expansion Site**

The proposed Transportation Center would be constructed in the tour bus area of the existing parking garage. The new Transportation Center would likely improve the aesthetics of this area of the parking garage.

The proposed committal procession queuing area would change the area near the Administration Building. Parking areas would be added north of King Drive and east of Halsey Drive. Existing and proposed landscaping would limit views of the new parking areas from Section 54, Leahy Drive, Halsey Drive and Eisenhower Drive. In addition, proposed landscaping would improve the view from the Administration Building.

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The Southern Expansion Site projects would generally improve views. Views of the U.S. Air Force Memorial from the cemetery and the Pentagon would improve due to the re-development of the Southern Expansion Site. As shown in Photo 6, the former Navy Annex building blocked the view of the U.S. Air Force Memorial from the cemetery. This view would change dramatically. Instead of seeing a large office building, the viewer would see an extension of ANC's visual theme all the way to the U.S. Air Force Memorial. Likewise, views of the cemetery from I-395 would improve. Instead of the view shown in Photo 7 with the large office building in the background, the viewer would see the U.S. Air Force Memorial surrounded by ANC iconic grounds. While the views would generally improve, it was not possible to access the potential effects in detail as part of the EA as no design information was available. Design information about the layout and features of the site including proposed structures, landscaping and circulation is needed to evaluate views in detail.

**Photo 6: View of U.S. Air Force Memorial from ANC**



**Photo 7: View of U.S. Air Force Memorial from I-395**



**3.14.3.3 Alternative 2 – ANC Including the Southern Expansion Site and Southgate Road**

As with Alternative 1, aesthetics and views would generally improve, particularly the views of the U.S. Air Force Memorial and the nearby cemetery. While the views would generally improve, it was not possible to access the potential effects in detail as part of the EA as no design information was available for the Southern Expansion Project.

**3.14.3.4 Alternative 3 – ANC Including the Southern Expansion Site, Southgate Road and Easement**

As with Alternatives 1 and 2, aesthetics and views would generally improve, particularly the views of the U.S. Air Force Memorial and the nearby cemetery. While the views would generally improve, it was not possible to access the potential effects in detail as part of the EA as no design information was available for the Southern Expansion Project.

3.14.3.5 Alternative 4– ANC Including the  
Southern Expansion Site with  
Realigned Roadways

As with Alternatives 1, 2 and 3, aesthetics and views would generally improve, particularly the views of the U.S. Air Force Memorial and the nearby cemetery. While the views would generally improve, it was not possible to access the potential effects in detail as part of the EA as no design information was available for the Southern Expansion Project.

**3.15 Summary of Environmental  
Consequences**

**Table 3.17** summarizes the environmental impact (if any) associated with the Action Alternatives and No Action Alternative.

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Table 3.17  
**Summary of Environmental Consequences**

<b>Impact Category</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Land Use & Sustainability	No significant impacts - No change to land use outside ANC	No significant impacts - Minor impacts to sustainability	No significant impacts - Minor impacts to sustainability	No significant impacts - Minor impacts to sustainability	No significant impacts - Minor impacts to sustainability
Air Quality	No significant impacts - Temporary emission increases during construction	No significant impacts - Minor temporary and long-term emission increases	No significant impacts - Minor temporary and long-term emission increases	No significant impacts - Minor temporary and long-term emission increases	No significant impacts - Minor temporary and long-term emission increases
Noise	No significant impacts - Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction	No significant impacts - Rifle salutes could affect Foxcroft Heights Temporary noise increases during construction
Topography, Soils & Geology	No significant impacts - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts
Water Resources	No significant impacts - Positive impacts due to stream restoration	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts	No significant impacts - Long-term positive impacts due to decrease in impervious surfaces, and temporary and long-term minor impacts
Biological Resources	No significant impacts - Minor impacts	No significant impacts - Positive impacts	No significant impact - Positive impacts	No significant impacts - Positive impacts	No significant impacts - Positive impacts

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Table 3.17  
**Summary of Environmental Consequences**

<b>Impact Category</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Cultural Resources	No significant impacts - Impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts	No significant impacts- Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts	No significant impacts - Section 106 resources may be affected, Consultation will be conducted to avoid and minimize impacts
Visitor Use and Experience / Section 4(f)	No significant impacts - Impacts may occur to visitor use and experience; however, actions are evaluated under separate environmental review(s)	No significant impacts - Positive impacts to visitor use and experience	No significant impacts - Positive impacts to visitor use and experience	No significant impacts - Positive impacts to visitor use and experience	No significant impacts - Positive impacts to visitor use and experience, a Section 4(f) determination may be required
Socioeconomics	No significant impacts	No significant impacts	No significant impact	No significant impacts	No significant impacts
Traffic & Transportation	No significant impacts - Minimal short-term impacts during construction	No significant impacts	No significant impacts	No significant impacts provided the new intersection is signalized	No significant impacts provided the new intersection is signalized
Utilities	No significant impacts	No significant impacts - Positive impact	No significant impacts - Positive impact	No significant impacts - Positive impact	No significant impacts – Positive impact
Solid Waste	No significant impacts - mpacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts	No significant impacts	No significant impacts	No significant impacts

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Table 3.17  
**Summary of Environmental Consequences**

<b>Impact Category</b>	<b>No Action Alternative</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Hazardous Materials & Waste	No significant impacts - Impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts - Minimal impacts	No significant impacts - Minimal impacts	No significant impacts - Minimal impacts	No significant impacts - Minimal impacts
Visual and Aesthetic Resources	No significant impacts - Impacts may occur; however, actions are evaluated under separate environmental review(s)	No significant impacts - Positive impact	No significant impacts - Positive impact	No significant impacts - Positive impact	No significant impacts - Positive impact

Notes:

No Action Alternative: Impacts may occur; however, actions are evaluated under separate environmental review(s).

Minor Impact /Minimal Impact – the Alternative would have little effect on the resource and therefore would not exceed the applicable threshold of significance.

No significant impacts – the effect of the Alternative on the resource would not exceed the applicable threshold of significance.

Positive Impact – the alternative would have a beneficial effect on the subject resource.

Source: HNTB analysis, 2014.

### **3.16 Cumulative Effects**

*The Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Parts 1500 – 1508) require that cumulative impacts are addressed as part of the NEPA process. The CEQ Regulations define a cumulative impact as “...the impact on the environment which results from the incremental impact of the 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”<sup>164</sup>*

The following projects, due to their proximity to ANC, along with the Proposed Action were considered for the potential to result in cumulative impacts.

#### **3.16.1 Millennium Project**

The Millennium Project provides additional interment space to extend the active life of ANC, which includes: added space for casketed interments and cremated remains, a columbarium, committal shelters, pedestrian sidewalks, utility relocation, storage area and restrooms.

#### **3.16.2 Millennium Site Headstone Removal Project**

The purpose of the Millennium Site Headstone Removal Project was to remove retired headstones from a stream and dispose of them properly. The project also included providing significant stream stabilization measures to minimize erosion and sediment loss.

#### **3.16.3 Columbia Pike Multimodal Street Improvements Project**

This project includes approximately three miles of Columbia Pike from South Jefferson Street to Washington Boulevard. Projects include providing a standardized street cross-section, on-street parking, bicycle accommodations, wider sidewalks, improved pedestrian crossings, and enhanced landscaping and street trees.

#### **3.16.4 Columbia Pike Transit Initiative**

“Arlington County and Fairfax County, Virginia, in cooperation with the Federal Transit Administration (FTA), are proposing to implement high-quality, high-capacity transit service along a 5-mile corridor, running mainly along Columbia Pike, between the Pentagon/Pentagon City area in Arlington County and the Skyline area in the Baileys Crossroads Community Business Center (CBC) in Fairfax County. The proposed project, known as the Columbia Pike Transit Initiative, supports the transportation goals of the counties and fosters their vision for a multimodal corridor, linking its walkable, mixed-use, mixed-income neighborhoods and connecting these to the Washington, DC area transit network, and thus, the region’s major activity centers.”<sup>165</sup> The Arlington County Board and the Fairfax County Board of Supervisors adopted the Streetcar Alternative as the preferred alternative for the transit initiative.

#### **3.16.5 JBM-HH Real Property Master Plan Projects**

The JBM-HH RPMP includes proposed projects to be implemented through 2030 to support the continued development and expansion of JBM-HH. Proposed changes

in land use would include the consolidation of compatible land uses, best use of existing facilities, redevelopment opportunities and greater efficiency of circulation and access.

### **3.16.6 9/11 Pentagon Visitor Education Center (VEC)**

The VEC project is envisioned as a space where visitors can go to learn about the events of September 11, 2001 and the significance of the Pentagon 9/11 Memorial site. The proposed location for this site is directly west of the Pentagon Memorial, within the interchange loop from Rt. 244 to Rt. 27. This location would provide visitor accessibility to the Pentagon Memorial and a unique view of the Memorial, the 9/11 family group burial marker in ANC and the Air Force Memorial.

### **3.16.7 Route 27 (Washington Boulevard) and Route 244 (Columbia Pike) Interchange Modifications**

This project involves interchange improvements that include widening the Rt. 27 bridge to five lanes, eliminating one ramp from Rt. 27, pavement work to accommodate intersection turning movements and ramp movements to and from Rt. 27, and improving pedestrian and bicycle facilities.

### **3.16.8 Pentagon Reservation Master Plan**

The Pentagon Reservation Master Plan (Master Plan) includes projects to maintain, enhance, and optimize the DoD Headquarters and Pentagon Operations over the next 20 years. One of the primary goals of the Master Plan is to enhance the safety and quality of life of employees and visitors. The Master Plan includes

proposed improvements to pedestrian and vehicle circulation to meet this goal,

**Table 3.18** shows the projects considered for cumulative impacts and indicates which projects impact each environmental resource. The potential for cumulative effects is only analyzed for those environmental resources which would be adversely, even if minor, impacted by the ANC RPMP projects. Therefore, environmental resources that are not impacted, or are positively impacted, by the ANC RPMP are not included in the table. These non-impacted/positively impacted resources include: land use; soils, topography and geology; biological resources; visitor use and experience/ Section 4(f); utilities; and visual and aesthetic resources.

The following provides a summary of the cumulative effects of the projects on the impacted resources taking into account all four ANC Action Alternatives.

#### ***Air Quality***

All of the projects have or would result in localized, temporary minor impacts to air quality due to construction equipment emissions. The ANC RPMP projects may result in minor long-term impacts due to an increase in vehicles and maintenance activities at the cemetery. Because the Columbia Pike Streetcar is expected to reduce automobile travel, there would be no negative effect from the project on the regional air quality. The Columbia Pike Multimodal Street Improvements Project is expected to enhance existing pedestrian, bicycle, vehicular, and transit access within a currently dense urban area and therefore, would not likely negatively affect regional air quality. The JBM-HH RPMP and Pentagon

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Table 3.18  
**Cumulative Effects Summary**

Impact Category <sup>(1)</sup>	Millennium Projects	Columbia Pike Corridor Projects	JBM-HH Real Property Master Plan	9/11 Pentagon Visitor Education Center (VEC)	Rt. 27 and Rt. 244 Interchange Modifications	Pentagon Reservation Master Plan
Air Quality	X <sup>(2)</sup>	X	X	X	X	X
Noise	X	X	X	X	X	X
Water Resources	X	X	X	X	X	X
Cultural Resources	X	X	X	X		
Traffic and Transportation	X	X	X	X	X	X
Solid Waste, Hazardous Materials and Waste (Sustainability) <sup>(4)</sup>	X	X				

Notes:

- (1) Socioeconomic resources could be adversely impacted by ANC RPMP projects; however this category is not included because socioeconomic resources are not impacted by any of the other projects considered for cumulative impacts.
- (2) X – Potential impact to impact category
- (3) Sustainability is included in this category because negative impacts to sustainability are related to hazardous materials and waste. With the Action Alternatives, additional pesticides, herbicides, and fertilizer would likely be applied to maintain the added grounds.

Sources: *Arlington National Cemetery Millennium Project Environmental Assessment*, March 2013, *Columbia Pike Multimodal Street Improvements Project Categorical Exclusion*, 10/3/11, *NEPA Reevaluation of Environmental Assessment (EA)/Finding of No Significant Impact (FONSI) for Project Number 0027-000-V01, P101, C501; UPC 13528 for Interchange Modifications at Route 27 (Washington Boulevard) and Route 244*, 5/3/08 and HNTB analysis, 2014.

Reservation Master Plan projects are expected to result in better multi-modal transportation opportunities. Therefore, cumulative long-term air quality impacts would not be expected with implementation of the ANC RPMP projects.

If site-specific project environmental analysis reveals significant impacts, there must be a finding that they are below the threshold of significance or further NEPA evaluation would occur before the project will be initiated.

**Noise**

All of the proposed projects have or could result in temporary minor noise impacts due to construction equipment. Long-term increases in noise could occur with some of the projects. The Columbia Pike Transit Streetcar Operations and Maintenance Facility would result in “moderate” noise impacts at three residential buildings and one office building in Pentagon City. No noise impacts are predicted along the proposed Streetcar alignment. The Multimodal Street Improvements Project would not contribute to an adverse

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cumulative effect regarding noise pollution because it is not designed to increase vehicle or transit capacity. A noise study conducted in 2007 for the Rt. 27/Rt. 244 projects indicated 62 residential sites and two recreational sites at Towers Park would be impacted. The ANC RPMP projects may impact the Foxcroft Heights neighborhood due to rifle salute noise. None of the other projects are expected to impact noise in the Foxcroft Heights neighborhood. Therefore, long-term noise impacts are not anticipated to be cumulative with implementation of the ANC RPMP projects.

If site-specific project environmental analysis reveals significant impacts, there must be a finding that they are below the threshold of significance or further NEPA evaluation would occur before the project will be initiated.

***Water Resources***

All of the proposed projects have or could result in temporary minor impacts to water quality due to runoff from construction areas, which would be minimized with the use of BMPs. The Millennium Site Headstone Removal Project resulted in temporary minor impacts to wetlands due to project activities within <0.1 acres of a wetland. The Columbia Pike projects, JBM-HH RPMP projects and the 9/11 VEC project would result in a minor long-term impacts from an increase in impervious surfaces. The Columbia Pike project would also result in a minor impact to Four Mile Run and associated floodplains. The Rt. 27/Rt. 244 projects would impact surface waters due to the relocation of 345 feet of Long Branch to the west, approximately 868 linear feet of total stream impacts for new pipes, culverts and channelization and loss of 293 linear feet of natural stream channel. The ANC RPMP projects would result in

minor long-term impacts due to increased cemetery area to maintain.

Overall, the proposed projects would result in mostly positive cumulative impacts to water resources due to long-term beneficial management of stormwater.

***Cultural Resources***

The proposed projects are not anticipated to result in significant impacts. Although ANC determined in consultation with its state and federal partners that the Millennium Project had an adverse effect upon an NHRP-eligible and an NHRP-listed resource, ANC entered into a memorandum of agreement dated July 12, 2013 with the NPS, the VA SHPO, and Arlington County to mitigate the Project's impact. The Columbia Pike Streetcar project could result in potential impacts to archaeologically sensitive areas and a direct adverse effect on a National Register listed Boundary Marker SW6 at Jefferson Street.

For the ANC RPMP projects, JBM-HH RPMP projects and the 9/11 Pentagon VEC, effects to cultural resources would need to be evaluated when the exact locations of projects and specific design details are determined. If site-specific project environmental analysis reveals significant impacts, there must be a finding that they are below the threshold of significance or further NEPA evaluation would occur before the project will be initiated.

***Socioeconomic***

The ANC RPMP projects may result in temporary construction noise impacts to Foxcroft Heights neighborhood and long-term noise impacts due to rifle salutes. None of the other projects are expected to result in long-term environmental justice

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impacts. Therefore, cumulative environmental justice impact would not be expected. If site-specific project environmental analysis reveals significant impacts, there must be a finding that they are below the threshold of significance or further NEPA evaluation would occur before the project will be initiated.

***Traffic and Transportation***

All of the projects did or could result in short-term impacts to traffic and transportation. It is assumed that these impacts were/would be mitigated by implementing maintenance of traffic plans during construction.

The ANC RPMP projects have a potential for impacts to traffic in the Foxcroft Heights neighborhood and a bicycle network. The Columbia Pike Streetcar is expected to reduce automobile travel. The Columbia Pike Multimodal Street Improvements Project is expected to enhance existing pedestrian, bicycle, vehicular, and transit access within a currently dense urban area. The JBM-HH RPMP and Pentagon Reservation Master Plan projects are expected to result in better multi-modal transportation opportunities. Therefore, cumulative long-term impacts to traffic and transportation would not be expected.

The proposed ANC RPMP projects are not anticipated to result in significant impacts. If site-specific project environmental analysis reveals significant impacts, there must be a finding that they are below the threshold of significance or further NEPA evaluation would occur before the project will be initiated.

***Solid Waste, Hazardous Materials and Waste***

The ANC RPMP projects could result in minor impacts because of the increase in area of cemetery to maintain. The Millennium Projects resulted in minor impacts to hazardous materials and waste. The Columbia Pike projects could have potential direct impacts to recognized environmental conditions (REC) sites. Additionally, an abandoned UST identified within the right-of-way has the potential for release of hazardous material and further investigation would be required.

The proposed ANC RPMP projects are not anticipated to result in significant impacts. Pre-existing contaminated sites would be rectified through appropriate remediation techniques. If site-specific project environmental analysis reveals significant impacts, there must be a finding that they are below the threshold of significance or further NEPA evaluation would occur before the project will be initiated.

**3.17 Environmental Commitments**

**Table 3.19** summarizes the commitments for the Proposed Action by environmental resource category (if any). Based on the information currently available, the direct, indirect and cumulative effects of the ANC RPMP, taking into account all potential projects in the three alternative actions, are not anticipated to result in significant impacts to the human and natural environments. As noted in the analysis, the effects on several resource categories, such as cultural resources and noise, will require further project level NEPA evaluation. In the event that a future project-specific NEPA evaluation reveals direct or indirect impacts, the cumulative effects analysis, taking into account those impacts, will be re-assessed as appropriate.

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Table 3.19  
**Summary of Commitments**

<b>Impact Category</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Land Use & Sustainability	None	None	None	None
Air Quality	None	None	None	Road realignment and associated changes in traffic volumes will be analyzed as part of a project-level NEPA evaluation when sufficient information is available.
Noise	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.
Topography, Soils & Geology	None	None	None	None
Water Resources	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.	Projects will be designed to be consistent with the CZMP and CBPA to the maximum extent practicable.  The potential effects of the roadway realignment on water resources will be analyzed as part of a project-level NEPA evaluation when sufficient information is available.
Biological Resources	None	None	None	None

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Table 3.19  
**Summary of Commitments**

<b>Impact Category</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Cultural Resources	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.	ANC will analyze the potential for adverse effects on historic properties on a case-by-case basis during implementation of the RPMP.
Visitor Use and Experience / Section 4(f)	None	None	None	A Section 4(f) determination will be required if FHWA approval/funding is needed.
Socioeconomic	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.	If detailed project design reveals that the noise impacts would be significant, the site-specific project environmental analysis will include mitigation measures to reduce noise impacts below the level of significant. Such mitigation measures could include operational restrictions and/or design features.  The potential for the roadway realignment to result in socioeconomic and environmental justice impacts will be studied as part of a project-level NEPA evaluation when sufficient information is available.
Traffic & Transportation	None	None	Signalize new intersection.	Road realignment and associated changes in traffic volumes will be analyzed as part of a project-level NEPA evaluation when sufficient information is available. Signalize new intersection.
Utilities	None	None	None	None

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Table 3.19  
**Summary of Commitments**

<b>Impact Category</b>	<b>Alternative 1</b> <i>ANC Including the Southern Expansion Site</i>	<b>Alternative 2</b> <i>ANC Including the Southern Expansion Site and Southgate Road</i>	<b>Alternative 3</b> <i>ANC Including the Southern Expansion Site, Southgate Road and Easement</i>	<b>Alternative 4</b> <i>ANC Including the Southern Expansion Site with Realigned Roadways</i>
Solid Waste	None	None	None	None
Hazardous Materials & Waste	None	Additional hazardous materials analysis will be conducted to determine whether hazardous materials are present within the Southgate Road right-of-way.	Additional hazardous materials analysis will be conducted to determine whether hazardous materials are present within the Southgate Road right-of way.	Additional hazardous materials analysis will be conducted to determine whether hazardous materials are present within the Southgate Road right-of way and the land north of the realigned Columbia Pike.
Visual and Aesthetic Resources	None	ANC will analyze the potential effects in detail when design information is available for the Southern Expansion Project.	ANC will analyze the potential effects in detail when design information is available for the Southern Expansion Project.	ANC will analyze the potential effects in detail when design information is available for the Southern Expansion Project.

Source: HNTB analysis, 2014.

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**Endnotes**

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- <sup>1</sup> Arlington National Cemetery, *Visitor Information – The Grounds of Arlington National Cemetery*, <http://www.arlingtoncemetery.mil/VisitorInformation/Grounds.aspx>, accessed 11/26/12.
- <sup>2</sup> Atkins and EA Engineering, Science, and Technology, Inc., *Joint Base Real Property Master Plan, Joint Base Myer Henderson Hall, Programmatic Environmental Assessment*, March 2013, p. 25.
- <sup>3</sup> Arlington County, *Columbia Pike Neighborhood Area Plan*, July 2012, p. vii.
- <sup>4</sup> Radnor/Ft. Myer Heights Civic Association, *Radnor/Ft. Myer Heights Neighborhood Conservation Plan 2007*.p.13.
- <sup>5</sup> Arlington County, *Arlington County General Land Use Plan*, Adopted August 12, 1961 with Amendments through June 13, 2014, pp.15 & 14-25.
- <sup>6</sup> Arlington County, *Arlington County General Land Use Plan*, Adopted August 12, 1961 with Amendments through June 13, 2014, p.15.
- <sup>7</sup> Arlington County, *Arlington County General Land Use Plan*, Adopted August 12, 1961 with Amendments through June 13, 2014, pp.15-16.
- <sup>8</sup> Arlington County, *Columbia Pike Initiative – A Revitalization Plan, Update*, 2005, p. 9.
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- <sup>162</sup> Department of Defense, WHS and USACE, *Navy Annex/FOB2 Environmental Assessment*, Final - December 2011, p. 3-15.
- <sup>163</sup> Arlington National Cemetery, *Arlington National Cemetery Millennium Project Environmental Assessment*, June 2013, p.139.
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# Chapter 4:

## List of Agencies and Persons Consulted

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This chapter identifies the agencies and individuals consulted in the preparation and review of this Programmatic Environmental Assessment (EA). **Table 4.1** lists the agencies contacted and the individuals within those agencies who were consulted in preparation of the assessment.

Table 4.1  
**Agencies and Persons Consulted**

Agency	Contacts
Advisory Council on Historic Preservation	Katherine Kerr
Air Force / Air Force Memorial	Susan Bench-Snow Gina Humble Susci Kennedy Pete Lindquist Theron F. Lord Daniel Neilsen
Arlington County	Rebecca Ballo– Historic Preservation/CPHD Jeff Harn – Sustainability and Environmental Management Michael Leventhal Tim McIntosh Bill Roberts – DOT Brian Stout Leon Vignes – CPHD
Arlington Historical Society	Ali Ganjian John Richardson
Association for the Study of African American Life and History	Sylvia Cyrus
Black Heritage Museum of Arlington/Freedman’s Village Memorial	Dr. Talmadge T. Williams
D.C. Commission on Fine Arts	Kay Fanning Frederick Linstrom Tony Simon

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Table 4.1  
**Agencies and Persons Consulted**

Agency	Contacts
Joint Base Myer-Henderson Hall	Myrtle Bowen Ron Kaczmarck Michael Khamamayzer Kristie Lalire Pete McGraw Russell Miller
National Capital Planning Commission (NCPC)	Carlton Hart Cheryl Kelly Christine Saum
National Park Service - Arlington House, The Robert E. Lee Memorial, George Washington Memorial Parkway (GWMP) and National Capital Region (NCR)	Gregory Anderson Joel Gorder – NCR Ben Helwig – GWMP Jon James Peter May Thomas Sheffer – GWMP
National Trust for Historic Preservation	Robert Nieweg
Pentagon Memorial Fund	C. Andrew Ammerman
U.S. Army Corps of Engineers (Regulatory)	Regena Bronson
U.S. Department of Agriculture- Natural Resource Conservation Service	Andree DuVarney
U.S. Environmental Protection Agency	Magie Gomez
U.S. Fish and Wildlife Service	General Agency Contact
Virginia Department of Agriculture and Consumer Services	Keith Tignor
Virginia Department of Conservation and Recreation	Sheila Barnett
Virginia Department of Environmental Quality	Richard Doucette (Land Protection) Charles Ellis David Hartshorn (Air Compliance) Ellie Irons Edward Stuart (Water)
Virginia Department of Game & Inland Fisheries	Gladys Cason
Virginia Department of Health Office of Drinking Water	Diedre Forsgren
Virginia Department of Historic Resources	Marc Holma

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Table 4.1  
**Agencies and Persons Consulted**

<b>Agency</b>	<b>Contacts</b>
Virginia Department of Transportation	Randy Hodgson John Muse
Washington Headquarters Services	Dares Charoenphol Alton Cheaves Michael Dangerfield Georgine Glatz Todd Laroe Elizabeth Lenyk Martin Mamawal Lynn B. Mariano



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16 USC §1451-1464, *Coastal Zone Management Act (CZMA)* of 1972, as amended.

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# Chapter 6:

## List of Preparers

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### 6.1 List of Preparers

This chapter identifies the individuals assisting in the preparation and independent review of this Programmatic Environmental Assessment (EA) along with each preparer's responsibilities. **Table 6.1** includes all persons involved with this project.

Table 6.1  
**List of Preparers**

Name	Education and Experience	Primary Responsibilities
<b>ANC</b>		
Daniel Delahaye Master Planner	BA / MA Architecture, M.A. Geography/Urban and Regional Planning	Project Manager
Rebecca L. Stevens, AIA, NCARB, Cultural Resources Manager	B.A. Architecture – Registered Architect, AIA, NCARB	Cultural Resources
Laura Rogers Environmental Protection Specialist	B.S. Justice Studies	Quality Control
CPT Vincent Chiappini Assistant to the Army General Counsel	BA / JD	Legal Counsel
<b>U.S. Army Corps of Engineers (USACE)</b>		
Alice Pool, PLA.	Master Landscape Architecture, Master of Public Administration//Professional Landscape Architect (PLA)	USACE Project Manager
<b>HNTB Corporation</b>		
Brian G. Pieplow, AICP, LEED AP BD+C	B.S.Urban Planning/ AICP, LEED AP	Project Management and Master Planning Lead
Kevin Mentz, PE	BS Civil Engineering/ PE	Preliminary Engineering
Kim Hughes, PE	BS Civil Engineering/ PE	Quality Assurance (QA)/Quality Control (QC)
Barbara Bottiger, C.E.P	BS Civil / Environmental Engineering/ C.E.P	Document Development, Purpose and Need, Alternatives

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Table 6.1  
**List of Preparers**

<b>Name</b>	<b>Education and Experience</b>	<b>Primary Responsibilities</b>
Caroline Pinegar, AICP	B.A. Historic Preservation, M.C.R.P. Masters in City and Regional Planning / AICP	Affected Environment/Environmental Consequences
Neelima Ghanta, PE	BA / MS Civil Engineering / PE	Traffic Analysis
Mitchell Langley	BA Geography	Traffic Analysis
Kent Miller		GIS Analysis and Graphic Development
Ryan Carey, EIT	BS Civil / Environmental Engineering/ EIT	Affected Environment/Environmental Consequences