Table of Contents

Introduction to the RPMP .......................................................................................................................... 7
Vision Plan ...................................................................................................................................................... 9
Site Assessment .......................................................................................................................................... 17
Development Plan ................................................................................................................................... 44
  ADP 1: Entry Corridor ................................................................................................................................. 49
  ADP 2: Memorial Amphitheater ................................................................................................................ 64
  ADP 3: Service Complex ............................................................................................................................. 76
  ADP 4: Meigs-Tanner .................................................................................................................................. 94
Soldiers’ and Airmen’s Home National Cemetery ....................................................................................... 108
Future Development Plan .......................................................................................................................... 120
Cemetery Planning Standards ..................................................................................................................... 124
Appendix A: Future Development Plan ..................................................................................................... 199
Appendix B: Transportation Management Plan ......................................................................................... 201
Appendix C: Complete List of Sources ....................................................................................................... 210
Appendix D: Programmatic Environmental Assessment ........................................................................... 212

List of Figures

Figure 1. Real Property Master Plan Core Philosophies .............................................................................. 13
Figure 2. Basic Structure of Vision Plan ......................................................................................................... 14
Figure 3. RPMP Goals and Objectives ........................................................................................................... 14
Figure 4. Installation Fact Sheet ...................................................................................................................... 20
Figure 5. Vicinity Map ................................................................................................................................... 21
Figure 6. Arlington House ............................................................................................................................... 22
Figure 7. James Tanner Amphitheater ........................................................................................................... 22
Figure 8. ANC Topography Map .................................................................................................................... 23
Figure 9. Decoration Day Ceremonies at Arlington National Cemetery ......................................................... 25
Figure 10. ANC Organizational Structure ...................................................................................................... 26
Figure 11. Roadway Hierarchy Map ............................................................................................................... 28
Figure 12. Developable Area Map .................................................................................................................. 32
Figure 13. Existing Land Use Plan ................................................................................................................ 36
Figure 15. Future Land Use Plan ................................................................................................................... 37
Figure 16. The Columbaria at the Millennium Expansion ............................................................................ 38
Figure 17. ANC Framework Plan .................................................................................................................. 39
Figure 18. Primary Functions Performed at ANC ......................................................................................... 46
Figure 19. ADP Locations at ANC ................................................................................................................ 47
Figure 20. Primary Functions Performed in the Entry Corridor .................................................................... 49
Figure 21. Vehicle Conflicts along Memorial Avenue at the Entry Corridor .................................................. 50
Figure 22. This “Front Door” of ANC ............................................................................................................ 50
Figure 23. Overcrowding at the Welcome Center ......................................................................................... 50
Figure 24. Crosswalk at Eisenhower to Roosevelt ......................................................................................... 51
Figure 25. The Entrance to the WIMSA .......................................................................................................... 51
Figure 26. ADP 1: Entry Corridor Existing Conditions and Conflicts .......................................................... 52
Figure 27. Area of Opportunity II: The WIMSA Memorial ............................................................................. 53
Figure 28. Area of Opportunity III ................................................................................................................ 53
Figure 29. Area of Opportunity IV ................................................................................................................ 53
Figure 30. ADP 1: Entry Corridor Areas of Opportunity .............................................................................. 54
Figure 31. Area of Opportunity V .................................................................................................................. 55
Figure 32. Area of Opportunity VII ............................................................................................................... 55
Figure 33. Opportunity Area VIII ................................................................................................................ 55
Figure 34. Opportunity Area IX ................................................................................................................... 55
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>88</td>
<td>SAHNC Vicinity Map</td>
<td>108</td>
</tr>
<tr>
<td>89</td>
<td>Original Design of Superintendent’s Lodge, 1871</td>
<td>108</td>
</tr>
<tr>
<td>90</td>
<td>The Logan Mausoleum at SAHNC</td>
<td>109</td>
</tr>
<tr>
<td>91</td>
<td>The Bisecting Road at SAHNC</td>
<td>110</td>
</tr>
<tr>
<td>92</td>
<td>The Lodge Gate at SAHNC Circa 1930</td>
<td>110</td>
</tr>
<tr>
<td>93</td>
<td>SAHNC Topography Map</td>
<td>111</td>
</tr>
<tr>
<td>94</td>
<td>SAHNC Existing Conditions and Conflicts</td>
<td>112</td>
</tr>
<tr>
<td>95</td>
<td>SAHNC Areas of Opportunity</td>
<td>114</td>
</tr>
<tr>
<td>96</td>
<td>SAHNC Project List</td>
<td>115</td>
</tr>
<tr>
<td>97</td>
<td>SAHNC Regulating Plan</td>
<td>116</td>
</tr>
<tr>
<td>98</td>
<td>SAHNC Spatial Implementation Plan</td>
<td>117</td>
</tr>
<tr>
<td>99</td>
<td>SAHNC Illustrative Plan</td>
<td>118</td>
</tr>
<tr>
<td>100</td>
<td>Future Development Plan Master Project Map</td>
<td>121</td>
</tr>
<tr>
<td>101</td>
<td>Future Development Plan Master Project List</td>
<td>122</td>
</tr>
<tr>
<td>102</td>
<td>Linden Allée Viewshed to the Memorial Amphitheater and Tomb of the Unknown Soldier</td>
<td>127</td>
</tr>
<tr>
<td>103</td>
<td>Developing Visual Zones and Themes Flowchart</td>
<td>129</td>
</tr>
<tr>
<td>104</td>
<td>First Visual Survey (Windshield): Primary Observed Conditions Map</td>
<td>130</td>
</tr>
<tr>
<td>105</td>
<td>First Visual Survey (Windshield): Primary Observed Conditions Key</td>
<td>131</td>
</tr>
<tr>
<td>106</td>
<td>Horticultural Department’s Navigational Diagram</td>
<td>134</td>
</tr>
<tr>
<td>107</td>
<td>Historian Department’s Navigational Diagram</td>
<td>135</td>
</tr>
<tr>
<td>108</td>
<td>Events and Ceremonies Department’s Navigational Diagram</td>
<td>136</td>
</tr>
<tr>
<td>109</td>
<td>Administration Directorate’s Navigational Diagram</td>
<td>137</td>
</tr>
<tr>
<td>110</td>
<td>Environmental Department’s Navigational Diagram</td>
<td>138</td>
</tr>
<tr>
<td>111</td>
<td>Cultural Resource Department’s Navigational Diagram</td>
<td>139</td>
</tr>
<tr>
<td>112</td>
<td>ANC Framework Plan</td>
<td>142</td>
</tr>
<tr>
<td>113</td>
<td>Network Plan</td>
<td>144</td>
</tr>
<tr>
<td>114</td>
<td>Open Space within the Millennium Zone</td>
<td>145</td>
</tr>
<tr>
<td>115</td>
<td>Gathering Space at the North Entrance to the Welcome Center</td>
<td>146</td>
</tr>
<tr>
<td>116</td>
<td>Visual Zones as Determined by the Framework Plan</td>
<td>147</td>
</tr>
<tr>
<td>117</td>
<td>Burial Section 31 falls under the Established Theme</td>
<td>149</td>
</tr>
<tr>
<td>118</td>
<td>Visual Themes as Determined by the Framework Plan</td>
<td>150</td>
</tr>
<tr>
<td>119</td>
<td>Open Space within the Contemporary Theme</td>
<td>151</td>
</tr>
<tr>
<td>120</td>
<td>Assets and Liabilities Map</td>
<td>152</td>
</tr>
<tr>
<td>121</td>
<td>Viewshed from Pierre L’Enfant’s Tomb</td>
<td>154</td>
</tr>
<tr>
<td>122</td>
<td>James Tanner Amphitheater is a Contributing Feature within ANC as a NRHP District</td>
<td>156</td>
</tr>
<tr>
<td>123</td>
<td>Maintenance and Service Vehicle Parking</td>
<td>159</td>
</tr>
<tr>
<td>124</td>
<td>Interior Furnishings in the Administration Building</td>
<td>161</td>
</tr>
<tr>
<td>125</td>
<td>Roadway Hierarchy Map</td>
<td>165</td>
</tr>
<tr>
<td>126</td>
<td>Street Section Based on the Millennium Expansion Design</td>
<td>167</td>
</tr>
<tr>
<td>127</td>
<td>Temporary Screening Facility Along Memorial Avenue</td>
<td>168</td>
</tr>
<tr>
<td>128</td>
<td>Parking Lot Locations at ANC</td>
<td>169</td>
</tr>
<tr>
<td>129</td>
<td>Landscaping Outside the Administration Building</td>
<td>171</td>
</tr>
<tr>
<td>130</td>
<td>View of the Cemetery from Lodge #2</td>
<td>174</td>
</tr>
<tr>
<td>131</td>
<td>Variety of Tree Species at ANC</td>
<td>176</td>
</tr>
<tr>
<td>132</td>
<td>Benches Located in the Amphitheater Zone</td>
<td>184</td>
</tr>
<tr>
<td>133</td>
<td>Fencing Shielding a Laydown Yard</td>
<td>185</td>
</tr>
<tr>
<td>134</td>
<td>Escondido Dumpster</td>
<td>186</td>
</tr>
<tr>
<td>135</td>
<td>ADA Compliant Water Fountain</td>
<td>187</td>
</tr>
<tr>
<td>136</td>
<td>Existing Site Furnishings</td>
<td>188</td>
</tr>
<tr>
<td>137</td>
<td>Victor Stanley Bench Design</td>
<td>189</td>
</tr>
<tr>
<td>138</td>
<td>Example of Regulatory Signage</td>
<td>190</td>
</tr>
<tr>
<td>139</td>
<td>Future Development Plan Project List</td>
<td>199</td>
</tr>
<tr>
<td>140</td>
<td>Future Development Plan Project Map</td>
<td>200</td>
</tr>
</tbody>
</table>
# List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
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</tr>
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<tbody>
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<td>Architect/Engineer</td>
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<td>AASHTO</td>
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</tr>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
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<td>Federal Interagency Committee for the Management of Noxious Exotic Weeds</td>
</tr>
<tr>
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</tr>
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</tr>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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<td>ICRMP</td>
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</tr>
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</tr>
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<td>JBMHH</td>
<td>Joint Base Myer-Henderson Hall</td>
</tr>
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<td>LEED</td>
<td>Leadership in Energy and Environmental Design</td>
</tr>
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<td>LOP</td>
<td>Level of Protection</td>
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<td>LOS</td>
<td>Level of Security</td>
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<td>MNS</td>
<td>Mass Notification System</td>
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<td>MOA</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
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</tr>
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</tr>
<tr>
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<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>NHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
</tr>
<tr>
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</tr>
<tr>
<td>PEA</td>
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</tr>
<tr>
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<td>Privately Owned Vehicles</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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<td>Real Property Planning and Analysis System</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>SIOH</td>
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</tr>
<tr>
<td>SITES</td>
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</tr>
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</tr>
<tr>
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</tr>
<tr>
<td>TDA</td>
<td>Table of Distribution and Allowances</td>
</tr>
<tr>
<td>TM</td>
<td>Technical Manual</td>
</tr>
<tr>
<td>UFAS</td>
<td>Uniform Federal Accessibility Standards</td>
</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>USGS</td>
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</tr>
<tr>
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</tr>
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</tr>
<tr>
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<td>Volatile Organic Compounds</td>
</tr>
<tr>
<td>WIMSA</td>
<td>Women in Military Service for America Memorial</td>
</tr>
<tr>
<td>WMATA</td>
<td>Washington Metropolitan Area Transit Authority</td>
</tr>
</tbody>
</table>
Introduction to the Real Property Master Plan

This Real Property Master Plan (RPMP) Update for Arlington National Cemetery (ANC) and Soldiers’ and Airmen’s Home National Cemetery (SAHNC) fulfills the Department of Defense (DoD) Instruction 4165.70 for a master plan update every five years. Since 2013, the cemetery has changed considerably with the now-operative Millennium Project, the ongoing acquisition and design of the Southern Expansion, and continued interments all creating new challenges and opportunities for ANC. This update to the RPMP addresses these challenges and opportunities, applying new best practices in master planning. Key considerations for this RPMP include the following:

- Align with the most recent update to United Facilities Criteria (UFC) 2-100-01, Installation Master Planning.
- Explore additional solutions to extend the burial life and capacity of ANC beyond the Millennium Project and Southern Expansion - including opportunities within ANC’s existing boundary.
- Address potential avenues to strengthen the visitor experience, whether through technological advancements, interpretive exhibits, or other educational opportunities.
- Adapt ANC’s approach to anti-terrorism and force protection (AT/FP) standards while maintaining the cemetery’s iconic image and role as a sacred shrine.
- Apply new considerations under the cemetery’s historic district status from the National Register of Historic Places (NRHP).

These key considerations are applied to the various sections of the RPMP:

1. An updated Vision Plan that crafts goals and objectives that guide future development at ANC, with an emphasis on maximizing long-term burial capacity.
2. A Development Plan that formulates area-specific projects to address challenges and opportunities.
3. A Development Program that prioritizes, estimates costs for, and schedules proposed projects. (Not Included in this Document)
4. Cemetery Planning Standards (CPS) that manage future projects and initiatives.
5. A Programmatic Environmental Assessment (PEA) that includes both the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) Section 106 compliance report. (Not Included in this Document)

This update includes the aforementioned elements of the RPMP. These elements are constantly advancing throughout the RPMP process and will adapt to feedback, new information, and changing outlooks. The Preferred Actions identified in the Development Plan are crucial to the continued advancement of the RPMP, as they guide the Future Development Plan, Development Program, and the updates to the PEA.
Vision Plan
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Introduction to the Real Property Master Plan

This Real Property Master Plan (RPMP) for Arlington National Cemetery (ANC) and Soldiers’ and Airmen’s National Cemetery (SAHNC) fulfills the Department of Defense (DoD) Instruction 4165.70 for a master plan update every five years. This RPMP provides for all future planning of land development, programming, and the need for additional interment/inurnment space within the cemetery, while keeping in focus its long history and historic context as the country’s highest-profile cemetery and as a special place of reverence held close within the hearts of all Americans, especially those who served. This plan strives to honor those who have sacrificed much by ensuring the enduring legacy of ANC as the nation’s most revered and largest military cemetery.

Since 2013, ANC has changed considerably, particularly in its capacity for burial space made possible by the recent Millennium Project, completed in 2019, and its ongoing acquisition of land for its Southern Expansion. Throughout these changes, ANC has continued its interments, which bring both challenges and opportunities. This update to the RPMP addresses these challenges and opportunities, applying new best practices in master planning to grow and maintain ANC as the premier military cemetery in the country.

Overall, key considerations for this RPMP include the following:

- Align with the most recent update to United Facilities Criteria (UFC) 2-100-01, Installation Master Planning.
- Explore additional solutions to extend the burial life and capacity of ANC beyond the Millennium Project and Southern Expansion.
- Address potential avenues to strengthen the visitor experience, whether through interpretive exhibits or other educational opportunities.
- Adapt ANC’s approach to anti-terrorism and force protection (AT/FP) standards while maintaining the cemetery’s iconic image and role as a sacred shrine.
- Apply new considerations applicable to cultural resources and landscapes, under both the cemetery’s historic district status from the National Register of Historic Places (NRHP) and the Level III Arboretum designation.

Specifically, key elements that apply to the various sections and volumes of this RPMP include:

1. An updated Vision Plan that crafts goals and objectives, which guide future development at ANC, with an emphasis on maximizing long-term burial capacity. Accompanying this Vision Plan is a Site Assessment that provides a detailed overview of current conditions at the two cemeteries that are most relevant for master planning purposes.

2. A Development Plan that formulates area-specific projects to address challenges and opportunities related to planning, programming, and land development. It focuses on four regions—Entry Corridor, Memorial Amphitheater, ServiceComplex, and Meigs-Tanner Area—as well as a separate Area Development Plan (ADP) for SAHNC.

3. Cemetery Planning Standards (CPS) that manage future projects and initiatives by developing a holistic set of expectations to help govern the look and feel of the cemetery, while providing a detailed analysis for the rational basis for these methods.

4. A Development Program that prioritizes projects, estimates cost, and schedules proposed projects developed primarily within the five ADPs.

5. A Security Annex that comprehensively builds a strategy for elevating the Security Posture at ANC while recognizing that the cemeteries must remain serene and dignified places to honor those who have served, as well as welcoming to guests. Due to the sensitivity of the data within this annex, it is labeled For Official Use Only (FOUO).

6. An Executive Summary that condenses the core ideas, images, and projects from the RPMP into a slimmer, easily-reviewable volume.

7. A Programmatic Environmental Assessment (PEA) for ANC that includes both the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA) Section 106 Compliance Report.

8. A separate PEA for SAHNC.

9. Lastly, the master planning undertaking included the Burial Phasing Plan that prioritizes the newly operative interment/inurnment lands by subsection (both existing and speculative), as well as the Facility Utilization Survey (FUS) that optimizes the organization of personnel across the various administrative facilities and structures. These two documents operate as independent research that support but are separate from the official RPMP.
Items 1 through 3 in the aforementioned list comprise the core of the RPMP within a single volume. Each separate item indicated by an asterisk is a separate volume or element that collectively comprises the requisite analysis and research within the entire master planning initiative. These elements are constantly advancing throughout the RPMP process and will adapt to feedback, new information, and changing estimates.

The Preferred Alternative identified in the Development Plan and Project List is crucial to the continued advancement of planning at the two cemeteries, as they guide the Future Development Plan map within the RPMP, the cost estimations within the Development Program, the aesthetic stipulations in the CPS, the long-term spatial innovations in the Burial Phasing Plan, and any updates to the PEAs and their Analysis of Impacts.

This RPMP also features a careful consideration of SAHNC, located just six miles to the northeast of Arlington National Cemetery, near Abraham Lincoln’s summer cottage. SAHNC, which occupies 16 acres next to the Armed Forces Retirement Home (AFRH), receives fewer than ten burials a year on average. While this smaller cemetery warrants planning to ensure that it remains a dignified resting site for over 14,000 individuals, the RPMP update will be much more streamlined. Throughout this RPMP, most planning initiatives and policies refer to both ANC and SAHNC, unless language refers to SAHNC as a discrete entity.

The RPMP’s various elements collectively provide the resources necessary for shaping the cemetery far into the future. The Vision Plan specifically serves to unify all future development and operational changes at the cemetery through a concise organizational structure.

**Background**

Since its inception, Arlington National Cemetery (ANC) has ascended to become the nation’s premier military cemetery. It stands as a testament to the valor and commitment of those who fought for the American ideals enshrined in the Declaration of Independence and Constitution. A considerable level of strategic planning effort over the past few decades have aimed to address the cemetery’s growing capacity shortages, while reaffirming the cemetery’s chief mission of honoring our nation’s heroes. Simultaneously, ANC leadership has consistently sought to retain both the cemetery’s atmosphere of solemn, dignified reflection and its role in educating the public regarding historic key figures and events in the nation’s history.

This new decade ushers in another period of critical decision making for ANC. The cemetery’s available undeveloped land within its current physical boundaries continues to dwindle rapidly. ANC’s Southern Expansion project will add approximately 80,000 new burial opportunities to the cemetery, extending the cemetery’s capacity for decades.

These constraints on available land indicate that, without changes to burial demand and eligibility, an 18-year-old enlisting today would have little chance of being laid to rest at ANC. This RPMP provides concepts to help inform future decisions on addressing ANC’s dwindling capacity. More specifically, the RPMP looks to extend the cemetery’s life through a combination of sensitive, efficient space management within its existing grounds.

This RPMP also features a careful consideration of SAHNC, located just six miles to the northeast of Arlington National Cemetery, near Abraham Lincoln’s summer cottage. SAHNC, which occupies 16 acres next to the Armed Forces Retirement Home (AFRH), receives fewer than ten burials a year on average. While this smaller cemetery warrants planning to ensure that it remains a dignified resting site for over 14,000 individuals, the RPMP update will be much more streamlined. Throughout this RPMP, most planning initiatives and policies refer to both ANC and SAHNC, unless language refers to SAHNC as a discrete entity.

The RPMP’s various elements collectively provide the resources necessary for shaping the cemetery far into the future. The Vision Plan specifically serves to unify all future development and operational changes at the cemetery through a concise organizational structure.

**Vision, Goals, and Objectives**

The Vision Plan encapsulates the entire planning process, future aspirations, and projects or initiatives that will drive ANC into the future. Its holistic nature allows it both to anchor all sections and chapters within the RPMP, as well as the discrete volumes that accompany it: The Security Annex, Burial Phasing Plan, Development Program, and Facility Utilization Study. The purpose of this section is to articulate the unifying vision, aspirational goals, and actionable objectives, as well as numerous other concepts and details that are necessary to shape this planning structure.

The most critical aspects of the Vision Plan are the Vision, Goals, and Objectives that propel all the various planning initiatives into a coherent and carefully articulated future. The Site Assessment that immediately follows the Vision Plan provides the relevant context from which to develop the planning initiatives that will allow the two cemeteries to align future growth and changes with this articulated vision.
Foundation for Vision Planning

The RPMP must consider the cemetery’s two core philosophies: 1) adhere to Department of the Army (DA) and Department of Defense (DoD) directives; while 2) maintaining itself as a sacred shrine unlike any other military installation under the Department of Army’s oversight. Figure 1 illustrates the need to weigh military directives for security and installation design (listed on the left) against the cultural and environmental standards (listed on the right) that help shape the subjective but most elemental consideration of all: the visitor experience.

Therefore, leadership at ANC must always reconcile the application of military standards with the uniqueness of a cemetery that receives hundreds or thousands of civilian guests daily, in which the visitor experience is instrumental to promoting the reverential culture befitting our nation’s hallowed grounds; its most sacred shrine.

The Vision, Goals, and Objectives are often subject to numerous edits and revisions throughout the development of the RPMP. Figure 1 illustrates the applicability of this structure across the entire RPMP.

Leadership at ANC devised the cemetery’s Vision long before the development of this RPMP and it remains the central force guiding this and all other planning initiatives.

ANC Vision

*Great People honoring service and sacrifice to a grateful Nation.*

Three guiding words accompany this overarching vision, providing a core means of understanding the broader ambition of the cemetery: Honor. Remember. Explore. These words shape the structure for vision planning at ANC and SAHNC.

Lines of Effort

In August 2018, ANC, and the Army National Military Cemeteries (since renamed the Office of Army Cemeteries) published a Strategic Plan, entitled *Our Army’s Cemeteries: A Path for the Future.* This Strategic Plan articulated overall priorities and extends those three guiding words into the more detailed Lines of Effort:

1. **Honor** the service and sacrifice of our eligible military members, Veterans, and their family members with dignity, compassion, and accountability.

2. **Remember** the sacrifices of those from each generation who have answered the call to serve by preserving cemeteries befitting of their sacrifices.

3. Enable our guests to **explore** the rich, living history of our cemeteries and gain appreciation for those who have defended our freedom and helped shape our nation’s history.

These Lines of Effort provide a useful measurement for steering ANC’s operations as a whole and elevating the three guiding words into a richer understanding of the direction that master planning is taking the cemetery. These Lines of Effort target the cemetery’s direct engagement with its guests, while remaining mindful of the organizing forces that guide ANC staff in aligning their work with the ANC vision.
Real Property Master Plan Vision

While the essence of the roles of these two cemeteries, as indicated in the Lines of Effort, should remain transparent, numerous planning and operational strategies work behind the scenes to support the visitor experience. The Real Property Master Plan Vision provides a high-level approach to articulating how these approaches should function.

A measured, strategic organization of existing land, facilities, and resources will allow ANC and SAHNC to remain active shrines, commemorating our Armed Forces members in perpetuity, by enhancing the capacity for first interments and inurnments to serve future generations.

Real Property Master Plan Goals and Objectives

The ANC Vision and Lines of Effort both work to form the modified structure for the RPMP Vision, Goals, and Objectives, reflected in Figure 2.

The Project Team has worked with ANC leadership to develop four Goals that help realize the RPMP Vision.

Figure 2. Basic Structure of Vision Plan

<table>
<thead>
<tr>
<th>GOAL 1: Maximize available space to extend the life of the cemetery</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1A Increase total burial space incrementally by removing obsolete infrastructure and/or acquiring land</td>
<td>ADP 3, ADP 4, SAHNC, Burial Phasing</td>
</tr>
<tr>
<td>1B Incorporate alternative burial methods into identified future and speculative burial space</td>
<td>ADP 4, Burial Phasing</td>
</tr>
<tr>
<td>1C Consolidate contractor parking and laydown areas within the Southern Expansion or satellite forward operating bases (FOBs)</td>
<td>ADP 1, ADP 3, SAHNC, Burial Phasing</td>
</tr>
<tr>
<td>1D Utilize land north and south of Memorial Avenue as feasible, productive space</td>
<td>ADP 1, Burial Phasing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 2: Modernize and expand existing facilities and infrastructure to enhance cemetery operations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2A Expand administrative space and provide all staff and contractors with supporting facilities, including break space</td>
<td>ADPs</td>
</tr>
<tr>
<td>2B Maximize use of existing facilities to support administrative space, guest amenities, interpretive space, or Operations Centers</td>
<td>ADPs, SAHNC, FUS, Security Annex</td>
</tr>
<tr>
<td>2C Rehabilitate and expand existing Tomb Guard Quarters to support mission requirements</td>
<td>ADP 2</td>
</tr>
<tr>
<td>2D Assess deficiencies in IT infrastructure, including fiber optic capacity, conduits, and cross connections</td>
<td>ADPs, Security Annex, CPS</td>
</tr>
<tr>
<td>2E Increase Wi-Fi coverage to encompass the entire cemetery grounds</td>
<td>Burial Phasing, CPS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 3: Enhance the visitor experience while maintaining the iconic image of the cemetery</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3A Relieve the information drought by providing greater wayfinding, access to paper and electronic materials, and increase virtual and physical interpretive space</td>
<td>ADPs, SAHNC, Security Annex</td>
</tr>
<tr>
<td>3B Provide strategically located restroom facilities and guest amenities across the cemetery to improve visitor comfort</td>
<td>ADPs, CPS</td>
</tr>
<tr>
<td>3C Preserve and restore the historic district and landscape elements</td>
<td>CPS</td>
</tr>
<tr>
<td>3D Restore the Memorial Avenue viewshed through relocating existing functions and improving the ceremonial approach</td>
<td>ADP 1, Security Annex</td>
</tr>
<tr>
<td>3E Expand tram service to include sparsely visited areas across the cemetery</td>
<td>ADP 2, CPS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GOAL 4: Maintain a safe and secure operating environment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4A Upgrade all publicly accessible facilities to include ADA ramps and/or elevators</td>
<td>ADPs, CPS</td>
</tr>
<tr>
<td>4B Eliminate vehicular pedestrian safety conflicts at identified locations within the cemetery</td>
<td>ADPs, Security Annex</td>
</tr>
<tr>
<td>4C Construct a new vehicle screening facility and visitor screening facility to increase security and monitor visitor arrivals</td>
<td>ADP 1, Security Annex</td>
</tr>
<tr>
<td>4D Achieve a moderate Security Posture and a controlled perimeter as defined by the UFC</td>
<td>Security Annex</td>
</tr>
<tr>
<td>4E Identify alternate locations for Operations Centers at ANC</td>
<td>ADP 3, Security Annex</td>
</tr>
<tr>
<td>4F Expand CCTV coverage to include the controlled perimeter and heavily frequented monuments and memorials</td>
<td>Security Annex</td>
</tr>
</tbody>
</table>

Figure 3. RPMP Goals and Objectives
Goals

1. Maximize available space to extend the life of the cemetery.
2. Modernize and expand existing facilities and infrastructure to enhance cemetery operations.
3. Enhance the visitor experience while maintaining the iconic image of the cemetery.
4. Maintain a safe and secure operating environment.

The Goals encompass all initiatives throughout the various RPMP elements; the Preferred Alternative, Project List, and Future Development Plan satisfy these four goals. Meanwhile, the Objectives form the final organizational component to the Vision Plan. These Objectives, which evolved from several evaluation criteria initially provided by ANC leadership, are actionable building blocks for propelling all initiatives into an implementable reality (Figure 3).

The Goals and Objectives unify the elements and challenges identified by ANC leadership into a single cohesive approach for the future. The Preferred Alternative addresses the Objectives through executable projects that, in combination, form a clear course of action for meeting the Goals and maintaining the RPMP Vision. These projects are consolidated through the Project List. Each project within the Preferred Alternative will ensure that ANC has the resources it needs to maintain readiness, the capacity to connect with and honor both old and new generations of people, and the capability to represent those three guiding words – Honor. Remember. Explore. – well into the foreseeable future.
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Site Assessment
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Site Assessment

This site assessment provides data on two cemeteries. The first, Arlington National Cemetery (ANC), is the nation’s premier military burial grounds, attracting over 3 million visitors annually. Since its inception during the Civil War, it has ascended in reputation as a testament to the valor and commitment of those who fought for the American ideals enshrined in the Declaration of Independence and Constitution. The other is the smaller, quieter Soldiers’ and Airmen’s Home National Cemetery (SAHNC), one of the nation’s oldest military cemeteries. Figure 4 provides fundamental data on these two cemeteries, the respective source material, and approximate date of collection. Subsequent sections of this RPMP or its adjacent volumes explore many of these statistics in greater detail.

Locational Data

ANC is located in Arlington County across the Potomac River from Washington, D.C., immediately west of the National Mall. It encompasses 639 acres. Its ceremonial entrance gate is less than a mile southwest of the Lincoln Memorial, directly across the Arlington Memorial Bridge at the terminus of Memorial Avenue. ANC is bounded by Joint Base Myer-Henderson Hall (JBMHH) to its west, the George Washington Memorial Parkway (under National Park Service (NPS) management) to the north and east, the Pentagon to the southeast, and a network of state and federal highways to the south. The Washington Metropolitan Area Transit Authority (WMATA) Blue Line runs along ANC’s eastern perimeter. The line features an Arlington Cemetery Metro stop along Memorial Avenue, which is just a short walk from the cemetery’s primary entrance at the Welcome Center.

SAHNC encompasses approximately 16 acres and is situated in northwest Washington, D.C., bounded by the Armed Forces Retirement Home (AFRH) to the southwest, Rock Creek Cemetery to the north-northwest, and a residential neighborhood to the east. The cemetery is situated between the Georgia Avenue-Petworth Metro stop and the Fort Totten Metro stop, both on the shared Yellow and Green Lines, while Fort Totten also offers access to the Red Line. The walking distance from SAHNC’s entrance gate to either Metro stop is much greater than ANC’s access to its respective stop, with no convenient access routes to Fort Totten.

Natural Conditions

Both ANC and SAHNC reside within the humid subtropical climate zone (Cfa) according to the Köppen-Geiger climate classification system, the most widely used standard in the United States. This zone comprises most of the American Southeast, including the majority of land areas for both Virginia and Maryland. Lands within the Cfa zone typically feature hot and humid summers, mild to chilly winters, and abundant year-round precipitation, with peaks in the late spring.
### Installation Fact Sheet

<table>
<thead>
<tr>
<th></th>
<th>ANC</th>
<th>SAHNC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Personnel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Authorized ANC/OAC/ANMC Civilians</td>
<td>207</td>
<td>0</td>
</tr>
<tr>
<td>Badged Contractors</td>
<td>295</td>
<td>0</td>
</tr>
<tr>
<td><strong>Average Annual Visitors</strong></td>
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<td></td>
</tr>
<tr>
<td>Visitors</td>
<td>3.43 Million</td>
<td>unknown</td>
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<tr>
<td><strong>Facilities</strong></td>
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<td></td>
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<tr>
<td>ANC Buildings</td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td>ANC Structures</td>
<td>25</td>
<td>1</td>
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<tr>
<td>NPS buildings within ANC boundary</td>
<td>8</td>
<td>n/a</td>
</tr>
<tr>
<td>Total SF of ANC Buildings</td>
<td>165,637</td>
<td>6,405</td>
</tr>
<tr>
<td><strong>Perimeter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LF of Fencing/Wall</td>
<td>24,290</td>
<td>3,680</td>
</tr>
<tr>
<td>Gates/ACPs/Ports of Entry</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>Open to Public and/or Funeral Attendees</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Not Public (Staff, Contractors w/ Passes, Old Guard)</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Closed</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Arrivals and Transportation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily Screened Pedestrians at Welcome Center</td>
<td>13,565</td>
<td>n/a</td>
</tr>
<tr>
<td>Daily Vehicles at Welcome Center</td>
<td>709</td>
<td>n/a</td>
</tr>
<tr>
<td>Daily Vehicles Admitted via Memorial Avenue Peak Season</td>
<td>310</td>
<td>n/a</td>
</tr>
<tr>
<td>Daily Screened Pedestrians at Ord &amp; Weitzel Gate Peak Season</td>
<td>562</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Transit user numbers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Tram Ridership (2019)</td>
<td>481,814</td>
<td>n/a</td>
</tr>
<tr>
<td>WMATA Arlington Metro: Avg Daily Entries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 2019</td>
<td>1,805</td>
<td>n/a</td>
</tr>
<tr>
<td>December 2019</td>
<td>510</td>
<td>n/a</td>
</tr>
<tr>
<td>All Months 2019</td>
<td>1,098</td>
<td>n/a</td>
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<tr>
<td><strong>Historical and Cultural Features</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>149</td>
<td>13</td>
</tr>
<tr>
<td>Tree Memorial Markers</td>
<td>144</td>
<td>0</td>
</tr>
<tr>
<td>Air Force Memorial Cultural Resources</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Total Cultural Resources/Memorials</td>
<td>305</td>
<td>13</td>
</tr>
</tbody>
</table>

**SOURCES:**

- **a** TDA from Leadership data card FEB 2022
- **b** ANC Stats: Visitor Screening in calendar year 2019 from Leadership data card FEB 2022
- **c** Information from Carlos Velazquez, Real Property Accountability Officer for ANC, MAR 2022.
- **d** Information from Michael Curtis, Security Forces Director for ANC, confirmed DEC 2021
- **e** Information from Marcell Wright, Operations Center Supervisor for ANC, dated July 2019
- **f** Information from Loretta Pinkney, Operations Manager for ANC Tours, interviewed May 2020
- **g** WMATA website Ridership Data Portal: 2010 - Present
- **h** Information from Caitlin Smith, Cultural Resources Program Manager for ANC, MAR 2022

*Figure 4. Installation Fact Sheet*
This product has been created with the highest degree of accuracy possible and is intended to serve as a reference. Errors and omissions may exist. It shall be the sole responsibility of any contractor, architect, engineer, agency, etc. to verify the accuracy and/or completeness of the location of all underground utilities shown on this drawing prior to any construction activity.

Figure 5. Vicinity Map
Topography differs greatly between the two cemeteries. As depicted in Figure 8, the formidable Arlington Ridge bisects ANC, placing much of the western half of the cemetery at an elevation approximately 200 feet higher than its eastern side. This ridge allows for considerable views of the Greater Washington D.C. metro area from key lookout points in the west, such as the Tomb of the Unknown Soldier or Arlington House (Figure 6).

The change in grade at both cemeteries mitigates flood risks. Despite the fact that much of the eastern half of ANC is located less than 1/10 of a mile from the Potomac River and its associated Boundary Channel, as well as only 10 feet above sea level, none of the cemetery rests within a major floodplain, placing the grounds at a less than 0.2% annual risk for flooding, according to the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRMs) for this area. This low risk confers an optimal condition atypical for cemeteries, many of which suffer from the disinterment of human remains during major flood events. This includes the Millennium Expansion project, where engineers have restored a 2,000-foot-long stream channel, which bisects Burial Section 85 (near Lewis Drive), the site of two columbaria. The design for this stream includes a considerable buffer so that no development will take place along any riparian lands with a higher-than-average (1% annually) flood risk. SAHNC contains no surface waters or wetlands across its entire grounds.

According to the National Seismic Hazard Maps, the U.S. Geological Survey (USGS) rates all of northern Virginia as low-risk (less than 1% chance) for minor-damage tremors in 2018. The last major seismic event in the state (over 5.8 Richter) took place on 23 August 2011, with an epicenter in Louisa County, a region in north-central Virginia with slightly higher activity compared to the rest of the state. Residents of the Washington, D.C. metropolitan area easily detected this earthquake, which induced minor to moderate damage but no casualties. Within the ANC perimeter, the NPS-owned Arlington House experienced the greatest amount of damage during this earthquake event. Based on its location, climatically, within the North Atlantic region and proximity to the coast, ANC and SAHNC’s greatest natural disaster risk is the possibility of hurricanes and tropical storms, with their high winds likely to cause considerable damage to both structures and numerous trees on site.
Figure 8. ANC Topography Map
History

Arlington Estate was established by George Washington's adopted grandson, George Washington Parke Custis, to be a living memorial to the first president. Custis's daughter, Mary, married U.S. Army 1st Lieutenant Robert E. Lee in 1831. When he died, Custis left the estate to his daughter Mary Custis Lee for the duration of her life, and upon her death, her eldest son would inherit the property. Robert E. Lee served as the executor of his father-in-law's will and never owned the property.

After the Lees abandoned the property at the start of the Civil War, the U.S. Army seized Arlington Estate on the morning of May 24, 1861 to defend Washington, D.C. From the property's heights, rifled artillery could range every federal building in the nation's capital. The estate was seized not to punish the Custis-Lee family, but rather for its strategic value. Three forts were built on the property during the Civil War: Fort Cass/Rosslyn, Fort Whipple/Fort Myer and Fort McPherson (currently Section 11 of the cemetery). Beginning in June 1863, a large Freedman's Village, established for freed and escaped slaves, was established in what today are Sections 3, 4, 8, 18 and 20.

On May 13, 1864, the first military burial was conducted for Private William Christman. Brigadier General Montgomery Meigs, Quartermaster General of the U.S. Army, who was responsible for the burial of soldiers, ordered Arlington Estate used for a cemetery. The existing D.C.-area national cemeteries (Soldiers' Home and Alexandria National Cemeteries) were running out of space — both closed on the day that burials began at Arlington.

Arlington officially became a national cemetery on June 15, 1864, by order of Secretary of War Edwin Stanton. The original cemetery was 200 acres, and has since grown to 639 acres (as of early 2020). Arlington became a segregated cemetery, just like all national cemeteries at the time, and remained segregated by race and rank until 1948, when President Harry S. Truman desegregated the military. The primary burial ground for white Civil War soldiers became Section 13. Meanwhile, Section 27 became the area for African American soldiers and freed people; more than 3,800 freed African Americans are buried in Section 27.

Initially, being buried at a national cemetery was not considered an honor, but it ensured that service members whose families could not afford to bring them home for a funeral were given a proper burial. The first official “Decoration Day,” later renamed Memorial Day, was held at Arlington National Cemetery on May 30, 1868. This tradition continues today, and is one reason why Arlington transformed from being one of many national cemeteries into the premier national military cemetery. The event was so popular that in 1873, an amphitheater was constructed to hold the official ceremonies. (Renamed the James Tanner Amphitheater, it reopened in 2019 after restoration.) Beginning in the late 1870s, high-ranking veterans began requesting burial in the Officers’ Sections (Sections 1, 2 and 3).

In 1899, the U.S. government began repatriating, at its own expense, service members who died overseas in the Spanish-American War. Arlington National Cemetery consequently expanded to include Sections 21, 22 and 24. In 1900, Congress authorized a designated section for Confederate soldiers, at a time when the nation was trying to reconcile after the Civil War. The Confederate section (Section 16) contains the graves of 482 veterans and spouses. After World War I, more than 2,000 U.S. service members were repatriated to Arlington National Cemetery, and interred in Sections 18 and 19.

The Memorial Amphitheater, dedicated in 1920, replaced the old amphitheater and became the center of the Memorial Day ceremonies. The Tomb of the Unknown Soldier was dedicated on November 11, 1921, with interment of the Unknown from World War I. President William Howard Taft was buried at Arlington in 1930, making him one of only two presidents buried here. On Memorial Day in 1958, an Unknown Soldier from World War II and an Unknown Soldier from the Korean War were buried in separate crypts at the Tomb of the Unknown Soldier. President John F. Kennedy became the second president buried at Arlington on November 25, 1963. For years after President Kennedy’s televised state funeral, the number of requests for burial at Arlington grew exponentially. By the 1980s, to prevent the cemetery from running out of space, the U.S. government authorized expansion and established new regulations to restrict eligibility for in-ground burial. Columbarium courts were also created for above-ground inurnments. On Memorial Day in 1984, an Unknown Soldier from the Vietnam War was buried in a crypt between the World War II and Korean War Unknowns but he was later identified and in 1999, his empty crypt was rededicated to honor all missing service members from the Vietnam War.
Today, approximately 400,000 veterans and their eligible dependents are buried at Arlington National Cemetery. What began as a 200 acre cemetery borne out of military necessity now encompasses 639 acres. Service members from every one of America’s major wars, from the Revolutionary War to today’s conflicts, are interred at ANC. As a result, the history of our nation is reflected on the grounds of the cemetery.

Figure 9. Decoration Day Ceremonies at Arlington National Cemetery
Installation Organization

The Installation Organization, provided by ANC leadership, shows the general organizational structure of staff at ANC, as indicated in Figure 10.
Demographics and Visitorship

ANC receives over 3 million guests on an annualized basis, beyond those attending funerals or special events. While general guest levels are highest during the typical D.C. tourist season of spring and summer (particularly April to June), a number of special ceremonies and holidays throughout the year provide various peaks in the daily number of guests. These include:

- National Observences – Memorial Day and Veterans Day, with 5,000 people attending events in the Memorial Amphitheater
- Honor flights – Approximately 500 buses per year with peaks in September and October
- Additional large annual events – over 50 large events, averaging 2,000 people per event

Memorial Amphitheater hosts the majority of these events and ceremonies. The James Tanner Amphitheater also typically hosts several ceremonies every year. While the majority of guests are tourists who perceive the cemetery as one attraction among many, approximately a half-million guests are family members coming to visit grave sites. Peak months for most guest-related initiatives occur in the late spring (April to June), and include ceremony requests and laying of public wreaths, all of which require pedestrian and vehicular screening prior to entry. This season is also popular for school-related field trips, while summer remains popular for family visits to all of the major attractions in the region. The least active months for visitorship occur in late winter (February and March). However, there is little seasonal variation involving the screening of vehicular arrivals, as well as committal services, which continue at the same pace throughout the year.

Circulation and Transportation

The multi-modal circulation network at ANC has expanded and matured over time, but it has long accommodated pedestrians, private vehicles, and trams. Its layout and design supplement the iconic image of the cemetery and support cemetery operations, like the coordination and circulation of 24 committal services Monday through Saturday and over 3 million annual guests. Altogether, three primary classifications describe people circulating throughout the grounds on a typical day: visitors, funeral attendees, and operations/maintenance. Figure 11 illustrates the right-of-way (ROW) hierarchy, which serves as the precursor to the Network Plan featured as Figure 113 in the Cemetery Planning Standards (CPS). An extensive analysis of paths and other navigational elements served as the basis for developing this hierarchy.

The Right-of-Way Hierarchy breaks the road network into three components: primary ROWs, secondary ROWs, and tertiary pathways. Primary roads include the most prominent streets for cemetery ingress/egress and for accessing secondary roads. At ANC, primary ROWs consist of Memorial Avenue and the concatenation of street segments that comprise the Yellow Line Road: namely, Meigs Avenue, Sherman Drive, Schley Drive, and Eisenhower Drive. A solid yellow line separates the lanes of these four streets. Some portions of primary ROWs furnish sidewalks on one side (Meigs Avenue and Eisenhower Drive) or both sides (Memorial Avenue). Memorial Avenue and the Yellow Line Road serve as proximal east-west and north-south axes within ANC.

Secondary ROWs consist of all remaining roadways that can support vehicles, although some, like Roosevelt Drive, primarily serve pedestrians. They provide access to all remaining attractions, burial grounds, and the most remote portions of the cemetery. In the portion of the cemetery west of Eisenhower Drive, the historic network of ROWs assumes a more curvilinear configuration, reactive to the notable changes in elevation. East of Eisenhower, the secondary road network is more akin to a straightforward urban street grid. As a general rule, these roads lack sidewalks and pedestrians must walk in the ROW; however, the low volume of traffic on most cemetery roads allows for frequent sharing of ROWs between vehicles and pedestrians, with only a few points of elevated safety concerns. Though vehicles are normally infrequent throughout the cemetery, they serve primary functions that align with the classification of people circulating throughout the grounds: vehicles either accommodating visitors, supporting funerals and committal ceremonies, or assisting the day-to-day tasks of operations and maintenance.

Tertiary pathways support pedestrians only. They are not wide enough for vehicles and primarily accommodate foot traffic in the portions of the cemetery most frequented by visitors. They include two dedicated walkways (Crook Walk and Custis Walk), the sidewalks along the niche wall, and less formalized path networks.
Figure 11. Roadway Hierarchy Map
serving areas such as Memorial Amphitheater/Tomb of the Unknown Soldier, President John F. Kennedy Gravesite, and Arlington House. Many tertiary pathways (especially Crook and Custis Walk) cover some of the cemetery’s steepest slopes and must resort to stairs in certain segments, making them incapable of accommodating most persons with disabilities.

Guests and committal service attendees enter ANC along historic Memorial Avenue. It is the primary access point for vehicular and pedestrian traffic, with the Welcome Center receiving 95% of pedestrian visitors. Pedestrian use of the other entry points is rare: the Ord and Weitzel Gate to the north receives the second-highest percentage (3%), while Old Post Chapel and 123 (Service) Gates receive 1% each.

As discussed in Appendix B, Transportation Management Plan, if visitors arrive to the cemetery by vehicle, they generally must park in the Visitors Parking Garage. Family members attending committal services are allowed to proceed through the gates at the western terminus of Memorial Avenue to the Administration Building in their private vehicles, with parking provided in the Queuing Area. As of mid-2018, the Memorial Avenue entry only comprised 6.3% of screened guests reaching the cemetery by vehicle. All other motorists park at the garage and proceed to screening in the Welcome Center, along with guests who arrive at the cemetery by foot. Within the cemetery, tram vehicles serve approximately 20% of total daily guests at ANC, with peak tram usage paralleling visitation patterns to the cemetery: in 2019, April, May, June, and July each revealed ridership counts of more than 60,000.

Utility Infrastructure

The cemetery is served by underground electrical, water, sewer, stormwater, telecommunications (fiber and copper), and natural gas utilities. Maps, conditions surveys, primary characteristics (material, size), and ownership for existing utilities are current to 2020, as maintained by ANC’s Geographic Information Systems (GIS) department. Due to the possibility of data sensitivity, utilities maps for both ANC and SAHNC are available exclusively in the appendices of the Security Annex, a separate volume marked Controlled Unclassified Information (CUI).

The primary underground utility lines traversing ANC involve a variety of ownership easements. Electric service is privatized except for a small portion that feeds Building 123 and the Service Complex in the southern section of the cemetery, which Dominion Power owns. Verizon owns the fiber optic lines within the cemetery. Gas service is partially government owned and partially Washington Gas owned. ANC owns and maintains the entirety of the water lines, except for a 16-inch main running down Eisenhower, which is maintained by Washington Aqueduct. ANC owns and maintains all stormwater and sanitary lines.

The design, maintenance, and expansion of the utility network serves both current and future operational needs and must be built to house required capacities. However, customary practice at ANC has been “abandon in place,” which leaves many underground ducts full of obsolete conduit. Interviews have identified that most utilities across ANC are aging and need some level of repair. For example, most segments of storm sewers and water lines west of Eisenhower Drive are more than fifty years old and in critical condition, requiring immediate repair.

Other unused underground utilities may warrant further removal or a consolidation of the ducts under key existing roadways, thereby freeing space for interments or other essential functions. The rerouting of Eisenhower Drive to align with a primary north-south buried utility line freed considerable space for additional burials at three older cemetery sections. Similar removal or consolidation and simplification of utility conduit could both improve efficiency of the networks and expand the developable lands at ANC.

Constraints and Opportunities

Master plans to all military installations must include the identification of opportunities and constraints. ANC does not fall under any conventional standards for an installation; therefore, its constraints and opportunities differ considerably from, for example, JBMHH immediately to its west. The mission and vision of ANC and SAHNC are commemorative rather than defensive, and the infrastructure to support this, as well as the type and volume of individuals the cemeteries accommodate, is markedly different from any other Department of Army real estate. Therefore, the Constraints and Opportunities data and mapping to support ANC and SAHNC require a liberal application of the principles articulated in UFC 2-100-01, Installation Master Planning.
Built Constraints

Most installations define their built constraints largely through facilities, roads, parking lots, and any other major source of impervious surfaces. While ANC is no exception, these elements comprise a considerably smaller portion of the built constraints within the grounds. As indicated in Figure 15, the majority of conventional built constraints lie within small nodes that largely correlate to the four Area Development Plans (ADPs) and SAHNC. Built constraints within these ADPs, the remaining grounds outside of the ADPs, and within SAHNC are described as follows:

1. **Entry Corridor:** The majority of this zone features built constraints of varying degrees of imperviousness. Its most permanent of these are its two major structures (Welcome Center and Administration Building), a large Visitors Parking Garage, three parking lots (one for tour buses, one for employees and guests, and one exclusively for employees), a tram circulation path, the funeral queuing area, the Hemicyle abutting Women in Military Service for America (WIMSA) Memorial, and the road network (including Memorial Avenue, Schley Drive, Halsey Drive, King Drive, and Eisenhower Drive). Less intense constraints (and therefore “potentially suitable” for development) include the various pedestrian paths linking the structures to the roads and parking areas, the plazas surrounding the Welcome Center on three sides, and the existing fencing/barriers to enhance security at this Access Control Point.

2. **Amphitheater:** The most intense built constraints at this node are the Memorial Amphitheater, the Plaza that hosts the Tomb of the Unknown Soldier and changing of the Old Guard, the Wheaton Parking Lot southeast of the Amphitheater, numerous memorials west of Memorial Drive, the comprehensive road network, and the western perimeter wall adjacent to JB MHH. Less intense constraints (and more amenable to modifications) include the various pedestrian paths linking the Amphitheater to the roads and parking lot and to the vantage point east of the allée of trees (Linden Allée) at Roosevelt Fountain. The majority of this node—particularly the portion west of Memorial Drive—is primarily free of built constraints, though it is largely already developed as burial space.

3. **Service Complex:** The majority of this zone features built constraints in the form of facilities and parking. Two large paved expanses, located east and west of a service road, serve a variety of purposes, including parking for passenger vehicles, storage for construction equipment, and laydown for supplies and circulation. The ring of buildings that surrounds these paved lots collectively serves as the hub for cemetery material operations. Less intense constraints include the perimeter wall, which is subject to modification with the Southern Expansion project. The Southern Expansion project will demolish the existing Service Complex. Only the far western portion of this zone, currently serving as laydown space, is free of built constraints.

4. **Meigs-Tanner Area:** The most intense built constraints within this zone lie in its eastern half, including many grounds and facilities owned and operated by NPS, such as the Old Administration Building (primary NPS offices on site) and two additional structures (B313 and B314) currently in limited use. Intense built constraints owned by ANC include—the James Tanner Amphitheater, Receving Vault, and Lodge #1, which at times, serves as a residence. Other constraints include the western perimeter wall abutting JB MHH and the road network. The Chaffee Parking Lot creates an additional major source of impervious surface. Less intense constraints include the pedestrian paths linking the roads to the attractions.

5. **Elsewhere on ANC Grounds:** Outside the four ADPs, the residual land is overwhelmingly free of built constraints. Among the few other facilities are Lodge #2 and Arlington House, along with the ancillary structures and interpretive buildings surrounding Arlington House. Other built constraints include the road network throughout the grounds, the perimeter wall, President John F. Kennedy Gravesite and plaza, the Columbarium courts in the southeast and at the Millennium Expansion, and various other monuments/landmarks. Less intense built constraints include any remaining pedestrian paths, any remaining plazas or viewing areas, and various barriers and fencing.
Among the remaining opportunities for development include small scattered locations: some undeveloped portions of existing burial sections in the cemetery’s far northeast (near Ord and Weitzel Gate) and the inner portions of roundabouts at the northern and southern endpoints of Marshall Drive.

6. SAHNC: Built constraints at this cemetery largely echo those at ANC. The most intense constraints are three facilities: Superintendents Lodge with its abutting 3-bay Carriage House and a freestanding contemporary garage. Other built constraints include the perimeter wall and the Logan Mausoleum, as well as the road network, all of which contribute to SAHNC’s historic character. Less intense constraints (and more amenable to modification) include the contractor building and adjacent laydown yard. The overwhelming majority of SAHNC grounds do, however, contribute to the historic district and may be, in and of itself, a major built constraint.

Although the majority of ground coverage at both ANC and SAHNC harbors little in the way of built constraints, the prevalence of its burial grounds leaves relatively little open for development. ANC’s existing policy maintains that absolutely no development of new facilities will take place on land currently slated to serve as burial space in the long-term future. Burial space remains intrinsic to the cemetery’s mission and vision, and ANC leadership has not articulated any situations in which it might compromise on its policy regarding land committed to hosting interred/inurned remains. In addition, as much as possible of the remaining unconstrained land will serve as future burial space, including some grounds currently hosting facilities slated for demolition. Therefore, burial land is and will be as much of a constraint to development as the most intense of built constraints, and most land currently free of constraints is slated for only one type of use—new interments.

Several of the built constraints just mentioned receive a higher level of protection due to their consideration as historic or cultural resources. Any action involving a cultural resource will fall under scrutiny if a significant alteration or modification is necessary, or if another development might impose upon its historic integrity. The existing Administration Building, a paradigm of mid-century modernism, falls under this classification, so both it and the immediate surrounding lands offer extremely limited opportunity for any sort of redevelopment. Other historic and cultural resources are noted in the Section 106 supplements to the RPMP within the Programmatic Environmental Assessments (PEAs) for ANC and SAHNC.

Ultimately, as demonstrated in Figure 12, portions marked “Optimal” currently have no slated development plans and would be suitable for conversion to flex or burial space. Sites marked “potentially suitable” face some constraints—either environmental, infrastructural, or historical/cultural—but could prove suitable for either burial or new facilities over the medium or long term. Lastly, sites marked “unsuitable” may be technically vacant but involve sensitive environmental or cultural features, widely valued viewsheds, critical underground infrastructure, or some other impediment that, despite their apparent undeveloped condition, render them nearly impossible or inappropriate for the consideration of any further land development or burial space expansion.

SAHNC has sufficient available graves and no sizable portions of land available for future development. The remaining available plots are sufficient to serve the defined eligible population of the Armed Forces Retirement Home residents for the next 100 years with the small number of burials (usually six to eight) averaged per year. No future projects or development are recommended in the near future, beyond the potential demolition of an underutilized storage facility to allow for more burial space as needed, or a rehabilitation of the existing Superintendent’s Lodge and Carriage House for administrative or interpretive uses.

Environmental Constraints

Environmental considerations ascribed to ANC largely parallel those of any other urbanized site such as an urban park space. Within these considerations, the analysis that follows here identifies the following as primarily environmental constraints to further development:

- **Topography:** Despite considerable topographic differences instilled by the presence of Arlington Ridge that bisects the cemetery, relatively little of the grounds feature slopes that are too steep to allow for additional interments, inurnments, or cenotaphs (memorial markers). Many of the steepest slopes are concentrated in Arlington Woods, predominantly controlled by NPS and unavailable for development.
Figure 12. Developable Area Map
• **Wetlands:** Naturally occurring water is found in various places at ANC including the far northwest corner adjacent to JB MHH and Arlington Ridge Park, with a slight presence of drainage ditches, features a small portion of land with mild barriers to future interments or inurnments.

• **Forest:** Sometimes referred to as Arlington Woods, this 18.25-acre old-growth forest northwest of Arlington House has historically straddled ANC and NPS ownership. It features some of the steepest slopes within cemetery grounds, potentially steep enough to limit future burials. Its putative old-growth classification has also largely prevented any sort of development up to this point, as well as its reputation as a likely habitat for one or more endangered species. Given its historic association with Arlington House, it will remain a protected component under NPS control.

• **Stormwater Drainage:** Various stormwater outfalls and drainage inlets divide the cemetery into lateral subsections, of which many do not exhibit best practices in stormwater management. The Virginia Stormwater Management Program Regulation and its Municipal Separate Storm Sewer System (MS4) permit program are the optimal standards for regulating industrial activity that could threaten the Chesapeake Bay watershed. While all outflow regions merit more sensitive analysis of contaminants exacerbated through stormwater flow, outflow related to the Service Complex in the far south (ADP 4) poses the greatest threat to the watershed.

• **Viewsheds:** The presence of Arlington Ridge, which bisects much of ANC, creates tremendous opportunities for viewsheds within the cemetery, rich with biodiversity and cultural history. Arlington House offers the single most prominent view, not just from its vantage point looking down upon the Potomac River and the National Mall but also from the low-lying areas around Memorial Avenue and the hemicycle back towards the house. The Tomb of the Unknown Soldier offers probably the second most well-known view. Other notable views represent the termina- on of a sight line through a prominent man-made feature, such as Memorial Amphitheater perched on a slope, viewed through Linden Allée near Roosevelt Fountain.

Any new construction, expansion of burial space, or the planting of new trees/landscaping must take these viewsheds and the cultural features into account, so as not to compromise the aesthetics or full scope of these signature views. A full analysis of viewsheds is available within the two visual surveys featured in the Cemetery Planning Standards.

• **Vegetation:** The cemetery exemplifies biodiversity through its tremendous range of native and non-native trees. This biodiversity proved sufficiently bountiful to achieve recognition of the ANC as a Level III Arboretum, according to ArbNet certification standards, in 2018. The careful placement and maintenance of the cemetery’s flora helps to achieve a balance between a well-curated park, a site of intrinsic natural beauty, and a sacred shrine where the nation’s greatest wartime heroes are laid to rest. Continued maintenance and expansion of any landscape plans must 1) avoid invasive species at all costs; 2) take care not to undermine the visual significance of key landmarks or memorials; 3) recognize the role vegetation can play in AT/FP concerns, both positively and negatively; and 4) impinge upon valuable burial space as little as possible.
Legal and Policy Constraints

Regional Planning

The development of the RPMP requires coordination with multiple federal, state, and local agencies as well as other primary stakeholders. Because ANC is the nation’s highest profile military cemetery and a major tourist attraction, coordination with these stakeholders and agencies ensures that they receive an opportunity to provide input into the RPMP. Stakeholders include, but are not limited to:

- Arlington County Government
- Arlington Historical Society
- Department of the Army
- Joint Base Myer-Henderson Hall (JBMHH)
- National Capital Planning Commission (NCPC)
- National Park Service (NPS)
- U.S. Commission on Fine Arts (CFA)
- Virginia Department of Environmental Quality (VDEQ)
- Virginia and District of Columbia State Historic Preservation Offices (SHPOs)

National Capital Planning Commission

The National Capital Planning Act of 1952 (NCPA) established the National Capital Planning Commission (NCPC) to preserve and enhance the important historical, cultural, and natural features within the National Capital Region (NCR). NCPC is responsible for preparing the federal elements of the Comprehensive Plan, the guide for all federal land, monuments, etc. in the NCR. The NCPA also gives NCPC the purview of all plans and programs proposed by the federal, state, regional, and local jurisdictions and agencies. In essence, any development of public lands or public space must be reviewed by NCPC for consistency with the Comprehensive Plan, the L’Enfant Plan, or other master plans. Comments will be adjudicated by ANC after the review.

Army Regulation (AR) 210-20, Real Property Master Planning for Army Installations states that projects in the NCR will be coordinated with NCPC.

Principal responsibilities of NCPC include:

- Developing the Comprehensive Plan for the NCR
- Preparing long-range plans and policies
- Formulating the annual Federal Capital Improvements Program (FCIP)
- Reviewing federal and District of Columbia development projects

U.S. Commission of Fine Arts

The U.S. Commission of Fine Arts (CFA) was established to guide the architectural development of Washington D.C. According to its general statement, “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.”

Army Regulation (AR) 210-20, Real Property Master Planning for Army Installations states that projects in the NCR will be coordinated with CFA.

Site Constraints

To meet interment needs well into the distant future, ANC is currently taking steps to sustain capacity through revised eligibility criteria (who can be buried there) and smart land use (how to make room for more burial space).

At the time of this RPMP’s development, planned growth for ANC will cease after construction of the Southern Expansion, meaning no further expansion is planned or underway.
Analytical Tools

The Vision, Goals, and Objectives of this RPMP primarily serve as the engine pushing forward the various long-term planning initiatives at ANC and SAHNC. Constraints and Opportunities, on the other hand, help establish the parameters and endow the process with a clear direction, by filtering out the most challenging or impractical means of reaching those goals and perpetuating the vision. These final analytical tools help articulate these considerations with a clear cartographic component. Together, these tools serve as the foundation that unifies the various elements and reports that comprise the RPMP.

Land Use Planning

Spatial and analytical data developed throughout the planning process can help justify and advance long-term planning initiatives. Land use distills the cemetery according to its most prevalent spatial functions. In conjunction with identified opportunities and constraints, a land use plan articulates a clear direction forward and a practical means to achieve established goals.

The land use planning section consists of two elements: Existing Land Use Plan and Future Land Use Plan. These elements visually represent the optimal collocation or separation of functions through clear cartographic components and serve as a foundational part of the RPMP.

Existing Land Use Plan

The Existing Land Use Plan (Figure 14) views the entire cemetery in terms of spatial units organized by current land use or function. It shows the current segregation of functional uses across the cemetery, such as the storage/laydown uses at the Service Complex. As described in greater depth in the Burial Phasing Plan, the adaption and phased approach to burial space will gradually reallocate current storage/laydown space to burial space in order to strategically meet future demands.

Future Land Use Plan

The Future Land Use Plan (Figure 15) will provide the desired end state following the phasing approach. It shows the planned land use following the development of future projects as identified in the Development Program.
Figure 14: Existing Land Use Plan
Figure 15. Future Land Use Plan
Framework Plan

While land use planning speaks more powerfully upon facilities and operations, the Framework Plan analyzes the cemetery from its appearance. It is an essential part of the visioning process. A proper Framework Plan illustrates the interplay between the natural features and built environment, organizing space through thematic experiences rather than assigned functions.

In keeping with the custom of Framework Plans (largely articulated through UFC 2-100-01, Installation on Master Planning), the ANC Framework Plan (Figure 17) guides development patterns through the identification of five navigational elements: districts, nodes, paths, edges, and landmarks. These five elements are a means of organizing landscapes by their most primary visual cues and reference points, showing how people frequently use them (even if unconsciously) to orient through and familiarize themselves with an environment. It organizes ANC into a master navigational diagram. The development of the Framework Plan involved consultation with key ANC cemetery staff from multiple departments.

This Framework Plan map also appears in the Cemetery Planning Standards (CPS), which depicts the process by which it was conceived, as well as the other necessary strategies for shaping the look and feel of ANC and SAHNC well into the future. The CPS also provides a more detailed account of the development of all various tools for organizing ANC into visual themes and zones, including a more detailed breakdown of the Framework Plan. In the meantime, the following points briefly summarize the basics on the aforementioned navigational elements:

- **Districts** at ANC include those portions of the cemetery that present enough of the same visually compelling character to distinguish themselves from what surrounds them. These include the Entry Corridor, Memorial Amphitheater and Tomb of the Unknown Soldier, Service Complex, Burial Sections 1 and 2, and the newly constructed Millennium Expansion.

- **Nodes** include smaller, more geographically distinct areas that tend to concentrate guests through the appeal of the sights contained within, coupled with adequate space for gathering and congregating. They include the President John F. Kennedy Gravesite, the area immediately west of the Welcome Center, Columbarium Courts, the Tomb of the Unknown Soldier, and the interior of the Memorial Amphitheater.

- **Paths** include the most visible and frequently traveled roads or pedestrian walkways across the cemetery, which ANC staff has identified to include the following: Roosevelt Drive, portions of Eisenhower Drive, Custis Walk, Crook Walk, and the series of road segments leading to the Columbarium Courts, which are currently highly active with first interments and committal ceremonies. A path can be any one of the three ROW hierarchies: primary, secondary, and tertiary, or it could be a “desire path,” which is a line of heavily used travel lacking a paved surface. Most paths link nodes or landmarks that serve as primary tourist attractions, such as the oldest burial sites along Meigs Drive, or McClellan Drive as it leads to the signature McClellan Gate.

- **Edges** separate the cemetery into its most fundamental, visually distinct components. Eisenhower Drive is the largest edge, separating the older portions of the cemetery to the west from its newer parts to the east. A separate edge weaving through its grid-like roads in the eastern portion distinguishes the areas that have already reached capacity from those that are still active with new interments or inurnments. This diagonal edge assumes more character when it becomes obvious which burial sections are full versus those that are vacant. More conventional edges include walls, fences, hedges, and creeks.
FIGURE 17. ANC Framework Plan
Future Development Plan

The Future Development Plan is an analytic tool used to agglomerate the various projects and initiatives articulated throughout this RPMP. It consists of existing projects currently underway, preferred alternatives for each of the ADPs, the desired Security Posture for the Security Annex (in a separate volume), and any additional lands with speculative availability brought forth through the Burial Phasing Plan. Together, these projects and initiatives create a master project list and project map (Figure 139 in Appendix A – Page 199).
National Environmental Policy Act (NEPA)

The 65 percent complete Arlington National Cemetery (ANC) Real Property Master Plan (RPMP) was used as the basis for the description of the proposed action and alternatives (DOPAA) in the National Environmental Policy Act (NEPA) compliance process. The final ANC Programmatic Environmental Assessment is attached in Appendix D. Review and submission of this RPMP by the National Capital Planning Commission (NCPC) will be required as part of the NEPA and National Historic Preservation Act (NHPA) compliance processes. Further information on the NCPC master plan review process can be found at https://www.ncpc.gov/review/guidelines/.

The following steps outline the NEPA compliance process for the RPMP:

1. DOPAA Preparation
   a. The DOPAA identified the proposed action and the alternatives for implementing the proposed action.
   b. The various options considered in the master planning process provided the alternatives considered in the DOPAA.
   c. Master plan evaluation criteria helped determine whether alternatives were dismissed from detailed analysis or considered in detail in the Programmatic Environmental Assessment (PEA).

2. Agency Scoping
   a. The DOPAA was provided to agencies as part of the official scoping process.
   b. An agency scoping meeting will be conducted on site at ANC.
   c. Agency input on the proposed action will be requested during this meeting.

3. Document Review Process
   a. The DOPAA, draft PEA, draft Finding of No Significant Impact (FONSI), draft final PEA, and draft final FONSI were provided to ANC and the U.S. Army Corps of Engineers (USACE) for a 30-day review of each document.
   b. The reviews were sequential, with comments on each document incorporated into the subsequent document.
   c. Comment review matrices tracked review comments and changes made to the document.

4. Final PEA Review Schedule
   After the ANC and USACE reviewed the draft final PEA, a corrected final PEA and corrected FONSI were prepared and submitted for public review (30 days), agency review (30 days), and coastal consistency review (60 days).
   a. The 30-day public comment period was announced through a notice in the local newspaper of record.
   b. The public and agency reviews were concurrent and within the 60-day coastal consistency review.
   c. Information was provided to allow comments to be made via hard copy or electronic submission.
   d. ANC provided the website for public comment submission and will collect the comments.
   e. Following the review periods, comments were addressed and the FONSI submitted for signature.
**NHPA Section 106**

Section 106 of the NHPA requires federal agencies to consider the effects a proposed undertaking may have on historic properties and includes specific criteria for analysis of adverse effects. The Section 106 consultation process required under NHPA consists of the following steps.

1. **Initiate the Section 106 process**
   a. Section 106 consultation is initiated via letters from the lead federal agency to consulting parties identified in the 2014 Programmatic Agreement.
   b. The lead federal agency sends letters via email.

2. **Determine, through consultation, the Area of Potential Effects (APE)**
   a. ANC may choose to use the APE identified in the 2014 Programmatic Agreement.
   b. If not, a draft APE for the action alternatives in the RPMP will be developed and sent for review and comment to the District of Columbia and Virginia State Historic Preservation Officers (SHPO) and the other consulting parties identified in the Programmatic Agreement.

3. **Identify Historic Properties**
   a. Historic properties identified in the Integrated Cultural Resources Management Plan (ICRMP) are those that will be analyzed for potential impacts.

4. **Assess the effects of the proposed actions on historic properties.**

5. **Resolve adverse effects, if applicable.**
   a. Adverse effects will be resolved according to the 2014 Programmatic Agreement.

The 2014 Programmatic Agreement defines these steps in greater detail and identifies the Section 106 consulting parties. The ICRMP for ANC, completed in 2013, contains the standard operating procedures to be followed.

The development of a master plan is not considered an undertaking under the NHPA, so Section 106 consultation is not required. However, each component project of the ADPs in the RPMP would be considered undertakings and ANC will follow the NHPA Section 106 consultation process, as specified in 36 CFR Part 800, and take into consideration the effects from each project to the identified historic properties.

As required under Section 106 of the NHPA, ANC will consult with the Virginia and District of Columbia SHPOs, Advisory Council on Historic Preservation, Indian Tribes, and other consulting parties. This process is discussed in the PEA.

ANC submitted the draft RPMP to the Virginia and District of Columbia SHPOs for review and comment in December 2018. The Virginia SHPO responded in January 2019 that they had no comments on the RPMP, but requested consultation on the individual undertakings contained in the RPMP. The District of Columbia SHPO responded in January 2019 and also requested consultation as the details of each project is developed.
Development Plan
Development Plan

Overview of Area Development Plans

The RPMP Update for ANC includes the preparation of Area Development Plans (ADPs) for four distinct areas within ANC, as well as the Soldiers’ and Airmen’s Home National Cemetery (SAHNC). These include:

1. Entry Corridor ADP
2. Amphitheater ADP
3. Service Complex ADP
4. Meigs-Tanner ADP
5. SAHNC

The ADP concepts support the vision and goals outlined in the Vision Plan. Figure 19 illustrates the geographic locations of the four ADPs and SAHNC.

ADP Process and Methodology

Each ADP provides a future vision for the development of facilities and land use within its distinct area. Each describes existing functions, conflicts, and constraints; identifies opportunities for development; depicts proposed buildings and facilities; and provides details on conceptual recommendations and organization.

To ensure alignment with the mission, goals, and objectives of the cemetery’s Vision Plan, the planning process included discussions with ANC leadership and stakeholders, interviews with end-users representing all cemetery functions, on-site visits and data gathering, and a thorough review of constraints and opportunities.

Area Functions

As part of the planning process, the Project Team identified 13 primary functions performed at ANC (Figure 18) and validated these functions within each ADP. The team next determined compatibilities and identified any functional mission needs and opportunities for each ADP in order to streamline these functions across the cemetery.

Besides the identified dedicated functions at ANC, the need for a more open-ended function emerged during the analytical planning process with ANC leadership. This new Flex Space function provides greater range and flexibility for an array of potential uses. Possible Flex Space uses include:

**Exterior:** Burial, Gathering, Interpretive, Laydown/Storage

**Interiors:** Administrative, Guest and Tour Support, Interpretive, Storage

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<thead>
<tr>
<th>Primary Functions Performed at ANC</th>
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<tr>
<td>Administrative Space</td>
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<td>Ceremonial Space</td>
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<td>Defined Vehicle/Pedestrian Circulation</td>
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<td>Gathering Space</td>
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<td>Interments and Funerals</td>
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<td>Logistics and Receiving</td>
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<td>Off-Street Parking</td>
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<tr>
<td>Security Interface</td>
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<td>Vehicular/Equipment Maintenance</td>
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*Figure 18. Primary Functions Performed at ANC*
Figure 19. ADP Locations at ANC
Future Development

This ADP planning process reflects an inclusive and iterative approach, one based on careful analysis and validation by dedicated project team members, along with the collaboration and direct guidance of ANC leadership and stakeholders. For each of the five ADPs, the team initially presented a primary and secondary Course of Action (COA). From these two options, ANC leadership later selected a Preferred Alternative (PA) for each ADP. Grounded in comprehensive assessment, diligence, and cooperation, these alternatives ensure that future development at ANC is realized while complying with Cemetery Planning Standards (CPS), its Burial Phasing Plan, and applicable historical, cultural, and environmental compliance.

While developing the various COAs, the Project Team then presented diagrammed depictions of several proposed concepts to ANC leadership, which were distilled into focused solutions that resolve conflict points and address the functions within each ADP. This resulted in the development of the following site plans for each ADP, found at the end of their respective ADP sections:

- **Regulating Plan**: Within each ADP, this plan depicts acceptable uses for designated parcels, location of entry zones, build-to lines, parking locations, and minimum and maximum building heights. For example, a “1/2” for Maximum Building Height in the Regulating Plan indicates that the parcel should be limited in building height from one to two stories. Regulating plans are similar to enhanced land use plans in that they define allowable uses as well as building height requirements and antiterrorism/force protection (AT/FP) setbacks. A Regulating Plan is depicted for each ADP and guides future design and development.

- **Spatial Implementation Plan**: This plan depicts the end state for recommended short-, medium-, and long-term development. Various functional requirements and deficiencies identified in each ADP throughout the planning process are translated into functional site elements, notional building footprints, and circulation plans.

- **Circulation Implementation Plan**: This plan depicts existing pedestrian, vehicular, and tram routes as well as proposed improvements. This is derived from the Spatial Implementation Plan.

- **Illustrative Plan**: This plan depicts the final end state for the ADP. The Illustrative Plan highlights future projects and is keyed to an associated Project List.

A Project List identifying intended future development complements each ADP, which articulated each step that constitutes the Preferred Alternative. Types of projects, as listed in the righthand “Status” column, include the following:

- **Preferred Alternative (PA)**: These projects and initiatives were selected from the COAs at the early stages of the planning process, comprising the Preferred Alternative.

- **Current Projects (CP)**: These include projects either currently under development or approved by ANC leadership, and all of which impact real property master planning.

- **Prerequisite Actions (P)**: These are necessary actions that, if not performed, preclude future development projects. These include land transfers, acquisitions, and other agreements.

- **Burial Phasing Plan initiative (BP)**: These are ambitious, outside-the-box solutions for expanding long-term burial capacity at ANC, as identified in the Burial Phasing Plan.

- **Security Posture (SP)**: These are projects specifically identified by the Security Annex. Due to their sensitive nature, only the Security Annex explores these projects in great detail.

These Project Lists serve as critical links to the various elements of the full RPMP for ANC and SAHNC. The Development Program, a separate volume, replicates all of the Project Lists while including further details on cost estimation and scheduling. Meanwhile, although the majority of Preferred Alternatives correlate to one of the five ADPs (four at ANC and one for SAHNC), several other projects relate to the Security Annex, which details its initiatives in a separate volume. Lastly, a handful of projects do not fall within one of the ADP regions, either because they operate outside those ADP boundaries or they take place as initiatives replicated at sites throughout the cemetery. These initiatives, classified as Supplementary Projects, appear at the end of these ADPs and again in the Development Program—including those described in as burial capacity building strategies within the Burial Phasing Plan.
**ADP 1: Entry Corridor**

### Area Description

The Entry Corridor is located on the northeast corner of ANC and is the primary and ceremonial entrance for guests, staff, and funeral attendees via Memorial Avenue. Bordered by Interstate 110 (Richmond Highway) to the east and the cemetery in all other directions, the Entry Corridor is a hub of activity for guest functions. Most guests to ANC begin their visit of the cemetery at the Welcome Center located here. This center offers a prime opportunity to engage and educate guests on ANC’s rich history, mission as a national shrine, and beautiful landscape.

ANC welcomes over 3 million people annually. These visitors arrive by privately owned vehicle (POV), tour bus, taxi, bicycle, the Washington Metropolitan Area Transit Authority (WMATA) metro, rideshare, and on foot. The Entry Corridor provides most of the vehicle parking for ANC users. Its Visitor Parking Garage provides ample paid parking for guests and some staff, while interior surface parking lots accommodates staff and funeral attendees.

### Area Functions

The primary functions within the Entry Corridor are listed, in alphabetical order, in Figure 20. Of 13 Primary Functions of the ANC, 10 apply to the Entry Corridor.

Facilities within the Entry Corridor include:

- Administration Building (Building 200)
- Welcome Center (Building 222)
- Visitor Parking Garage (Building 210)
- The Women in Military Service for America (WIMSA) Memorial (Building 236) located at the western edge of the Entry Corridor area.
- The ANC Support Annex west of the Administration Building, serving as staff overflow during construction projects, and slated to remain on a funeral queuing overflow parking lot until approximately 2026.

### Existing Conditions

Within the Entry Corridor, the Project Team assessed existing conditions by conducting site tours and observation, interviews, and research of pertinent documents and studies. ADP1 Existing Conditions and Conflicts (Figure 26) reveal the planning context for future development.

Until January 2020, the National Park Service (NPS) owned the land associated with the approach into ANC via Memorial Avenue to the WIMSA Memorial hemicycle plaza and building. This included the road and area on both sides of the hedgerow. ANC used the land under a memorandum of agreement (MOA). However, a new “land swap” has given ANC ownership of this land and is now responsible for its associated landscaping and maintenance. The 2020 National Defense Authorization Act (NDAA) codified this land transfer. Other components of this NDAA-enabled land transfer feature heavily in ADP 4 (Meigs-Tanner Area).

Existing conditions within the Entry Corridor area include, but are not limited to, the following:
• **Vehicular and pedestrian conflicts on Memorial Avenue (Conflict 1):** Security staff stationed at the ANC entrance help direct the traffic associated with guests, funeral service attendees, and tours, as well as pedestrians crossing Memorial Avenue. The intersection includes numerous conflicts with POVs, tour buses, and pedestrians. It often becomes congested, especially at peak hours and during events (Figure 21).

• **Unclear pedestrian flow from Visitor Parking Garage and Memorial Avenue to Welcome Center security screening area (Conflict 2):** The Welcome Center building has two distinct entrance doors – a formal entrance and a side door reserved for employees and handicapped guests. However, guests approaching from the Visitor Parking Garage first encounter the side door entrance and are directed by signs & security guards to navigate around the corner to the main door and Security Screening area (Figure 22).

• **Lack of space in the Welcome Center due to multiple functions (Conflict 3):** The Welcome Center is a hub of activity and hosts a number of overlapping functions, including security screening operations with associated staff and using metal detectors; interpretive exhibits and kiosks; guest amenities, such as an information desk, tram ticket sales, a small book/gift shop, and restrooms; and administrative space (Figure 23).
• Vehicular and pedestrian conflicts at Eisenhower and Roosevelt (Conflict 4): Despite being manned by a crossing guard during ANC hours of operation, the intersection at Eisenhower and Roosevelt Drives remains a significant point of conflict (Figure 24). A steady stream of pedestrians exiting the Welcome Center’s western door come into conflict with vehicles crossing this intersection, which is generated by staff, contractors (trucks, trailers, vans), the tram, tour buses, funeral processions, and caissons heading to ceremonies.

• WIMSA is disjointed from the guest experience (Conflict 5): Entry into WIMSA is unclear to guests. Currently, security guards stationed at the WIMSA hemicycle and at the Eisenhower Drive entry gate require pedestrians on Memorial Avenue to turn back eastward and pass through the security screening at the Welcome Center, then walk on the southern side of the hedgerow before accessing WIMSA (Figure 25). By this point, most pedestrians just continue eastward along Roosevelt Drive instead of toward WIMSA. This leaves this memorial with very low daily attendance, despite offering several worthwhile exhibits in its interpretative space.

Areas of Focus

Several areas of focus arose during the initial planning process of identifying constraints, opportunities, goals, and requirements for future development of the Entry Corridor ADP. These areas of focus facilitate the development of preferred alternatives and include:

- Reduce functional overlap.
- Cluster administration functions.
- Relocate security screening operations outside the Welcome Center in a standalone facility.
- Provide designated and additional interpretive space for guests arriving at ANC.
- Eliminate vehicular/pedestrian conflicts and streamline vehicular circulation.
Figure 26: ADP 1: Entry Corridor Existing Conditions and Conflicts
Areas of Opportunity

Areas of Opportunity are developable areas that may be available for siting the required and/or desired functions within the Entry Corridor ADP; these are identified as parcels on Figure 30. The intent is to capitalize on areas for potential development that will streamline relationships between functions and improve circulation.

Area I, North of Memorial Avenue: This area is not fully developable for interments due to visible stormwater drainage and other utility infrastructure. However, there is a portion potentially available for a variety of uses, and the back side of the hedgerows bordering Memorial Avenue lends itself to flex space. Additional surveys would be required to determine viability. Every effort will be made to minimize impacts to mature oaks.

Area II, Women in Military Service for America Memorial: WIMSA features an education center commemorating the role of women in military history, a small gift shop, theater, guest amenities, and archives. Annually, an estimated 350,000 guests visit WIMSA, as opposed to ANC’s over 3 million guests. This facility presents a unique opportunity for joint use that could benefit both WIMSA and ANC (Figure 27).

Area III, West of the Welcome Center: This parcel borders the tram plaza and pickup area and currently serves as a connection between the Welcome Center and cemetery grounds (Figure 28). It is an ideal location for flex space as it is relatively flat and unencumbered by existing facilities. It could also accommodate additional pedestrian circulation improvements, such as information kiosks, benches, water fountains, and a reconfigured pedestrian crossing across Eisenhower Drive.

Area IV, North of the Welcome Center: This parcel is the defined “front door” to the Welcome Center and ANC (Figure 29). In the event of large crowds, guests awaiting security screening often form queues across this plaza. This space could serve as a secluded gathering space with benches for guests if the hedgerow along Memorial Avenue is extended.

Area V, Directly East of the Welcome Center: Pedestrian crossings, vehicular ingress/egress, and a small courtyard comprise this area (Figure 31). It also currently serves guests arriving via vehicle (POVs or tour buses). This area presents an opportunity to reduce vehicular/pedestrian conflicts through better circulation patterns, as well as increase efficiency in security screening with a separate structure adjacent to the Welcome Center.
Figure 30. ADP 1: Entry Corridor Areas of Opportunity
Area VI, East of Welcome Center: This parcel of land contains a grove of trees and is undeveloped. It presents an opportunity for a free-standing vehicle screening facility and additional outdoor green space.

Area VII, Existing Tram Plaza and Queuing Area: This area serves as the tram staging area. (Figure 32) Upon existing, the trams turn right (north) onto Eisenhower Drive, exacerbating the pedestrian conflicts at the intersection with Roosevelt Drive (Conflict Point 4). This area may be reconfigured to better support tram function.

Area VIII, North of Visitor Parking Garage: This area serves vehicular circulation as well as pedestrian crossings (Figure 33) for guests leaving the garage and walking towards the Welcome Center. This spot would be ideal to accommodate guest amenities or gathering space due to its location as a thoroughfare for pedestrians.

Area IX, South of Visitor Parking Garage: Currently, the far western portion of this area serves as flex space, while the remainder is an undeveloped gently sloping hill (Figure 34). As discussed in greater detail in the Burial Phasing Plan, this parcel in the short term could be maintained as flex space for storage/laydown in support of construction projects and in the long-term transition to burial space. The far eastern portion could accommodate additional circulation for egress via the existing 110 Gate.
Preferred Alternatives

The Project Team developed the Preferred Alternatives following an iterative process with ANC leadership. The team then proposed concepts into focused solutions, which addressed opportunities and resolved conflict points. The following site plans depict the Preferred Alternatives:

- Regulating Plan: Specifies allowable functions and siting within the ADP (Figure 36).
- Spatial Implementation Plan: Highlights location of functions (Figure 37).
- Circulation Implementation Plan: Highlights pedestrian and vehicular circulation improvements (Figure 38).
- Illustrative Plan: Highlights future projects keyed to an associated Project List (Figure 39).

Project List

Programmed and proposed future projects at the Entry Corridor address the issues and opportunities identified through the ADP and additional stakeholder interviews. The table in Figure 35 distinguishes the timeframes for the execution of each project, as well as which goals and objectives the projects fulfill. Estimated probable costs are included in the Development Program, a separate volume of this RPMP.
<table>
<thead>
<tr>
<th>Map ID No.</th>
<th>Project Title</th>
<th>Project Description</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Develop Mobile Vehicle Screening Area on Memorial Avenue</td>
<td>Mobile guard shack and associated infrastructure to accommodate 100% undercarriage vehicle screening capability for buses and vehicles entering ANC via Memorial Avenue (close to WIMSA). Project includes pavement of pull-off lane, pop-up bollards, associated utility lines, and infrastructure. Long-term plan should organize space for a rejection lane. Mobile structure will minimize visual impacts while meeting mission goals.</td>
<td>4C, 3D, 4B, 4D, 4A, 4B Long / Medium</td>
</tr>
<tr>
<td>2</td>
<td>Install Memorial Avenue Improvements</td>
<td>Reconfigure pedestrian plaza adjacent to north side of Welcome Center; close existing entry to north side of Welcome Center, infill hedgerow just north of Welcome Center to provide continuous visual theme from Memorial Avenue; define pedestrian circulation from Memorial Avenue into Security Screening Facility.</td>
<td>2A, 2B, 3C, 3D, 4C, 4D Medium</td>
</tr>
<tr>
<td>3</td>
<td>Collaborate with WIMSA Memorial Foundation, Inc. to elevate WIMSA’s role and visibility as an education center and attraction</td>
<td>Support existing WIMSA operations and assess condition of building. Work to effectively link the building with the ANC mission. Help improve WIMSA’s visibility through superior signage, organized events and ceremonies, and improved access to guest amenities. Incorporate core and shell deficiencies in budget outyears.</td>
<td>2A, 2B, 3C, 3D, 4C, 4D Medium</td>
</tr>
<tr>
<td>4</td>
<td>Upgrade 110 Gate (CAC-Enabled)</td>
<td>Expand egress at 110 Gate; install a card-reading apparatus that only allows individuals with CACs to use for entry. (Project completed 2020)</td>
<td>3D, 4D, 4C, 4D Medium</td>
</tr>
<tr>
<td>5</td>
<td>Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza</td>
<td>Construct standalone 1- or 2-story facility (with one floor as a basement) east of Welcome Center with no more than one story above ground, to accommodate security screening of pedestrians. Facility may include space for guest amenities such as ticket sales, restrooms, information kiosks, and a gift shop. Facility may also include space for administrative and security support functions. Project includes development of clearly-defined pedestrian entry from Memorial Avenue into pedestrian plaza to streamline ingress and egress off-traffic from the Metro, from Memorial Avenue, from the Visitor Parking Garage and Welcome Center.</td>
<td>3D, 4C, 4D Medium</td>
</tr>
<tr>
<td>6</td>
<td>Restore Pillars at Gates Flanking the Hemicycle</td>
<td>Renovate and restore historic pillars at gates flanking the Hemicycle to return to their desired structural integrity. Evaluate foundational structure of pillars and address deficiencies.</td>
<td>3C, 3D Medium</td>
</tr>
<tr>
<td>7</td>
<td>Construct Vehicle Screening Facility at Visitor Parking Garage Entry with Associated Circulation</td>
<td>Structure and associated infrastructure to accommodate 100 percent undercarriage vehicle screening capability for buses and vehicles entering the parking garage. Project includes pavement for pull-off lane, rejection lane, pop-up bollards, egress lane, associated utility lines, and infrastructure.</td>
<td>3D, 4C, 4D Medium</td>
</tr>
<tr>
<td>8</td>
<td>Reconfigure Tram Plaza and Queuing</td>
<td>Reconfigure tram plaza and associated queuing area into a smaller footprint and more streamlined use of space - reduce size of tram plaza and redesign queues. Project may include ticketing kiosk at tram plaza.</td>
<td>4B Medium</td>
</tr>
<tr>
<td>9</td>
<td>Reconfigure Pedestrian Crossing from Tram Plaza to Roosevelt Drive</td>
<td>Reconfigure an ADA-compliant pedestrian crossing at tram plaza across Eisenhower Drive to provide a clearly marked path to WIMSA. Project could include landscaping, wayfinding, stormwater mitigation and any associated utilities (lighting, communications). Design and materials will be carefully selected to blend into ANC aesthetic and comply with the Cemetery Planning Standards.</td>
<td>4A, 4B Medium</td>
</tr>
<tr>
<td>10</td>
<td>Create Flex Space North of Memorial Avenue</td>
<td>Transform land north of Memorial Avenue into flex space. Mitigate potential drainage issues on site if feasible. Project possibly includes future collocation. Ensure any development has minimal impacts to mature oaks and remain lower than hollies.</td>
<td>1D Long</td>
</tr>
<tr>
<td>11</td>
<td>Rehabilitate First Floor of Welcome Center</td>
<td>Rehabilitate first floor of Welcome Center into an enhanced Interpretive Space and Education Center with audio-visual capabilities, screening room, and information kiosks. Project may include associated repairs to existing infrastructure to accommodate desired functions. Project includes upgrades to utilities (water, communications, etc.).</td>
<td>2A, 2B, 3A, 3B, 3C, 3D, 4D, 4C, 4D, 4A, 4B Long</td>
</tr>
</tbody>
</table>

*Figure 35. ADP 1: Entry Corridor Project List*
Figure 36. ADP 1: Entry Corridor Preferred Alternative Regulating Plan

LEGEND
- BURIAL SPACE
- ADMINISTRATIVE SPACE
- CIRCULATION ZONE
- GATHERING SPACE
- CEREMONIAL SPACE
- MIN & MAX. BUILDING HEIGHT
- FLEX SPACE
- SECURITY
- INTERPRETIVE SPACE
- PARKING ZONE
- ADP BOUNDARY
- BUILD-TO LINE (33' AT/FP SETBACK)
ANC Support Annex

Figure 37. ADP 1: Entry Corridor Preferred Alternative Spatial Implementation Plan
ANC Support Annex

LEGEND

1. Install Memorial Avenue Improvements
2. Establish shared operations agreement with the Woman in Military Service for America Foundation, inc., regarding WIMSA
3. Upgrade 110 Gate (CAC-Enabled) installed 2020
4. Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza
5. Restore pillars at the gates flanking the Hemicycle as needed to their desired structural integrity
6. Construct Vehicle Screening Facility at Visitor Parking Garage Entry with Associated Circulation
7. Reconfigure Tram Plaza and Queuing
8. Reconfigure Pedestrian Crossing from Tram Plaza to Roosevelt Drive
9. Create Flex Space North of Memorial Avenue
10. Rehabilitate First Floor of Welcome Center

Figure 39. ADP 1: Entry Corridor Preferred Alternative Illustrative Plan
ADP 2: Memorial Amphitheater

Area Description

The Memorial Amphitheater ADP covers an area in the southwestern part of ANC. It contains the Memorial Amphitheater and Reception Building, the Tomb of the Unknown Soldier, considerable burial space (particularly to the south and west of Memorial Amphitheater), the monumental grounds surrounding the Amphitheater (including Linden Allée, Wheaton Lot, and Roosevelt Fountain), and several key monuments and memorials.

Memorial Amphitheater, dedicated in 1920, serves as a ceremonial centerpiece. It hosts the Changing of the Guard at the Tomb of the Unknown Soldier, as well as national observances including Memorial Day and Veterans Day, as well as wreath laying ceremonies, and visits by dignitaries.

Area Functions

Primary functions within the Memorial Amphitheater ADP are listed in alphabetical order in Figure 40. Of ANC’s thirteen primary functions, nine apply to the Memorial Amphitheater ADP.

Structures within the Memorial Amphitheater ADP include:

- **Memorial Amphitheater (Building 400):** This structure consists of multiple components: an elliptical colonnade, platform, and audience seating for formal events. Its Grand Stair Hall and stage area includes a formal ceremonial dais on level with the colonnade and Memorial Chapel on the lower level beneath the stage. Two sets of symmetrical, formal marble stairs ascend to the second floor. Catacombs underneath the colonnade currently function as lightly used storage; upgrades to render these catacombs usable for other staff or visitor functions are likely to remain cost-prohibitive.

- **Reception Building (Building 410):** This structure serves as the functional core containing administrative offices, quarters for the Tomb Guard, and guest amenities, all of which are on the lower level. It houses the Memorial Display Room on the first level and two symmetrical lofts on the second floor, with each overlooking the display room.

Existing Conditions

The Project Team completed an assessment of existing conditions via site tours and observation, interviews, and research of pertinent documents and studies. This assessment reveals the planning context (opportunities and constraints) for future development (Figure 42).

Conflict Points within the Memorial Amphitheater ADP include:

- **Memorial Amphitheater interior is challenging to guests who cannot manage stairs (Conflict 1):** Persons with disabilities or in wheelchairs can only access one small toilet facility on the ground floor via ramp. And other interior spaces have several stair cases that make an all inclusive visitor experience area, difficult to arrange. There are no interior elevators and only an outdated chairlift on one set of stairs. This results in the visitor experience space being limited to a one-level operational capacity.

- **Tomb Guard Quarters in need of space planning (Conflict 2):** The ground floor in the Amphitheater has served as the quarters for the Tomb Guard since the 1970s, with few updates. Rooms are small and cramped, ceilings are low, users are forced in uncomfortable proximity to one another,
access to electrical outlets is sub-standard, water drains poorly, and insufficient ventilation creates persistent mold problems. The space offers numerous opportunities for reconfiguration and potential expansion.

- **Historians’ Office and Archives in need of more space (Conflict 3):** While Historians consider their offices to be suitable for their needs, the space for archives and artifacts is insufficient as it is shared with contractors, guests, and the Tomb Guard. This results in classification challenges, as well as missed opportunities for displays to engage guests and for additional interpretive space.

- **Wayfinding for pedestrians and handicap vehicle arrival lacking continuity (Conflict 4):** Many paths in the cemetery predate the establishment of the Americans with Disabilities Act (ADA) and many are incompatible with it due to ANC’s steep slopes. This is especially true for Roosevelt Drive, one of the cemetery’s most heavily-used pedestrian paths, linking the Welcome Center with the Amphitheater. The west side of the Amphitheater could use improved wayfinding to both the western monuments, interpretive space near the Amphitheater, and bypassing the Amphitheater to the Tomb Guard. More significantly, Wheaton Parking Lot would be a suitable place for a vehicle stop, thereby allowing guests to approach the Amphitheater from the east. However, all current paths from the Wheaton Parking Lot require visitors to negotiate many stairs. Using guidance from an ADA accessibility study, an entrance to accommodate individuals with access and functional needs could be constructed at this location.

- **Low Guest Traffic to Monuments (Conflict 5):** The tram route does not fully connect McPherson Drive; this prevents the inclusion of western monuments in the guided tour program. Providing a new tram stop at the intersection of McPherson, Lawton, and Porter Drives can incentivize guests to explore westward before or after visiting Memorial Amphitheater. Signage west of the Amphitheater does not direct pedestrians to these infrequently visited sites.

- **Overlapping of Functions (Conflict 6):** At Memorial Amphitheater, guests frequently enter the toilet facilities at the point of ingress and egress for the Tomb Guard Quarters. This creates both a bottleneck and an impediment in the ceremonial path for the Changing of the Guard. Deconflicting the entrance to the restrooms and the Tomb Guard Quarters will improve the guest experience and the ability of the Tomb Guard to carry out its mission.

**Areas of Focus**

Through the initial planning process of identifying constraints, opportunities, goals, and requirements for future development, several areas of focus arose for the Memorial Amphitheater ADP. These areas of focus facilitate the development of the proposed concepts and include the following:

- Improve conditions of Tomb Guard Quarters
- Deconflict overlapping functions within the Memorial Amphitheater interior and exterior
- Identify areas for added interpretive space
- Improve accessibility inside Memorial Amphitheater
- Eliminate vehicular/pedestrian conflicts
- Enhance ceremonial space
- Increase access to guest amenities
- Improve administrative space configuration
- Develop activity nodes to draw pedestrians into this ADP area
- Investigate possibilities for underutilized spaces
CONFlicts

- Amphitheater is inaccessible to visitors who cannot manage stairs
- Quarters for the Tomb Guards need space planning
- Historians’ office and archives require more space
- Wayfinding for pedestrians and handicap vehicle arrival lacks continuity
- Low visitor traffic to monuments
- Overlapping of functions

Legend

- Pedestrian circulation
- Tram circulation
- Tram stop
- ADP boundary
- Memorial tree
- Gate
- Public restroom
- Water fountain
- Bench

Figure 42. ADP 2: Memorial Amphitheater Existing Conditions and Conflicts
Areas of Opportunity

Areas of Opportunity are developable areas that may be available for siting the required and/or desired functions within the Memorial Amphitheater ADP; these are identified as parcels on Figure 45. The intent is to capitalize on areas for potential development that will streamline relationships between functions and improve circulation.

Area I, Intersection of McPherson Drive and Lawton Drive: A tram stop at this intersection would draw people westward toward McPherson Drive, a right-of-way that provides access to one of the cemetery’s highest concentrations of monuments and which receives little visitorship. Interpretive space, guest amenities, and gathering space functions are recommended.

Area II, Intersection of Farragut Drive and Memorial Drive: This location is a natural stopping point between Memorial Amphitheater and the Meigs-Tanner area to the north. This key location provides an opportunity for gathering space and wayfinding that will help guide guests forward to either the gentler slope along Wilson Avenue or the more direct hillside path of Crook Walk, consisting of stairs.

Area III, West of Formal Amphitheater Entrance: This area is a receiving point for guests arriving via tour bus and tram. With its grand staircase and impressive entry threshold, the West Portico serves as a formal entrance to the colonnade (Figure 43). It is a strategic location for guest amenities, gathering space, wayfinding, or interpretive space. Development of aforementioned items may promote westward exploration by foot or tram.

Area IV, Memorial Amphitheater (Figure 44): This area provides the opportunity to evaluate space utilization within the facility. Future development will streamline interior circulation and provide more efficient use of space for administrative, Old Guard, interpretive, and storage functions.

Area V, Wheaton Parking Lot: Located southeast of Memorial Amphitheater at the bottom of a staircase, this area currently does not offer an ADA-accessible pathway to the memorial. To encourage more guest exploration and for ease of access along the slope from nearby Roosevelt Fountain, accessibility should be improved in this area. If parking spaces in this lot continue to prove excessive, parts of it can continue to serve long-term strategic storage/laydown functions.

Area VI, Roosevelt Fountain: This area offers a vantage point that provides serene views of Memorial Amphitheater flanked by an allée of trees (Linden Allée), as well as the opportunity to create a point of rest or regroup for pedestrians.
POTENTIAL FUNCTIONS
- Guest Amenities (Public Restrooms, Water Fountains, Benches, Tram)
- Storage / Laydown
- Interpretive Space
- Ceremonial Space
- Administrative Space
- Gathering Space/Pedestrian Circulation
- Future Burial Space

LEGEND
- Area of Opportunity
- ADP Boundary

Figure 45. ADP 2: Memorial Amphitheater Existing Conditions and Conflicts
Preferred Alternatives

The Project Team developed the preferred alternatives following an iterative process with ANC leadership, where proposed concepts were distilled into focused solutions that address opportunities and resolve the conflict points discussed earlier in this section. These alternatives are depicted in the following site plans:

- Regulating Plan: Specifies allowable functions and siting within the ADP
- Spatial Implementation Plan: Highlights location of functions
- Circulation Implementation Plan: Highlights pedestrian and vehicular circulation improvements
- Illustrative Plan: Highlights future projects keyed to an associated Project List

Project List

Proposed future projects at Memorial Amphitheater address the issues and opportunities identified through the ADP and additional stakeholder interviews. The table in Figure 46 distinguishes the timeframes for the execution of each project, as well as which goals and objectives the projects fulfill. Estimated probable costs are included in the Development Program.

<table>
<thead>
<tr>
<th>Map ID No.</th>
<th>Project Title</th>
<th>Project Description</th>
<th>Timeframe</th>
</tr>
</thead>
</table>
| Current Projects
|          | Memorial Amphitheater ADA Improvements: Exterior | Project constructs exterior ADA-compliant ramps to the lower level of the Memorial Amphitheater and additional benches outside the building - Completed 2021 | Short |

Preferred Alternative Projects

| ADA Improvements to Memorial Amphitheater Exterior: Temporary Ramp and Seating | Construct ADA-compliant ramp along the side of Amphitheater, provide ADA-compliant seating and space for wheelchairs - Completed 2021 | 4A | Short |

| Rehabilitate Historians’ Offices and Restrooms on Lower Level of Amphitheater for Administrative, Interpretive, Storage Space, and Guest Amenities | Improve the configuration, functionality, and efficiency of the historians’ offices and their respective archival space, with a clearer integration of the guest amenities that serve the Amphitheater interior (specifically toilet facilities). Catacombs may prove a relevant long-term consideration for storage or archives, though no mechanical improvements are slated to take place. Project includes upgrades to internal utilities and infrastructure (electric, water, sewer, HVAC, communications). Reduce size of the toilet facilities on lower level and reconfigure to accommodate Tomb Guard functions. | 2A, 2B, 3A | Short |

| Rehabilitate Tomb Guard Quarters on Lower Level of Amphitheater | Reconfigure Tomb Guard Quarters to improve internal circulation and functional use of space, while coordinating with ToG and MDW as appropriate. Project includes upgrades to internal utilities and infrastructure (electric, water, sewer, HVAC, communications). Reduce size of the toilet facilities on lower level and reconfigure to accommodate Tomb Guard functions. | 2C | Medium |

| Implement Pedestrian Circulation Improvements and Pedestrian Node(s) at Amphitheater | Implement the following: new tram stops along McPherson Drive, enhanced and distinct tram pick-up/drop-off stops to northwest of Amphitheater, addition of new or improved paths between Amphitheater and surrounding pedestrian nodes, improved pedestrian crossing west of Amphitheater across Memorial Drive. To support guests and facilitate further exploration of the area, construct nodes (A) Wilson Avenue and Farragut Drive, (B) west of Amphitheater, (C) Battle of the Bulge, and (D) Linden Avenue near Roosevelt Fountain. | 3B, 4A | Medium |

| Repair Second Floor of Memorial Amphitheater Reception Building | Repair and rehabilitate the second-floor loft of the Reception Building for use as archival storage and possible interpretive space. | 2B, 3A | Long |

| Improvements to Memorial Amphitheater Interior and Reception Building (Including ADA) | Construct new elevator and necessary ADA provisions to connect the viewing platform and second-floor loft of the Reception Building. | 4A | Long |

| Construct Guest Amenities Facility Southeast of Amphitheater | Construct a guest amenities facility that houses toilet facilities and water fountains, with some additional flex space reserved for other potential guest amenities or interpretive space. | 3B, 3C | Long |

| ADA-Compliant Ramp to Amphitheater from Wheaton Lot with Tram Stop | Construct ADA-compliant ramp from Wheaton Lot to the Amphitheater from the east tram stop near Pedestrian Node D. | 3E, 4A, 4B | Long |

Figure 46: ADP 2: Memorial Amphitheater Project List
Pedestrian Nodes

The development of pedestrian nodes combines spatial, circulation, and infrastructure improvements to enhance the visitor experience at the cemetery. Pedestrian nodes involve strategically placed wayfinding and guest amenities. They serve as opportunities for pedestrians to pause, regroup, and pivot to their next point of exploration to various areas, monuments, and attractions.

ANC may capitalize on these nodes by creating educational packages or a curriculum based on a topic. The nodes may define destinations for pedestrians using self-guided tours from the ANC Explorer smartphone application. Pedestrian nodes proposed in the Project List include:

- **Pedestrian Node A**: Located in Area of Opportunity II, this node amplifies gathering space at the intersection of Memorial Drive and Farragut Drive. This area features a water fountain and bench. Additions would include more benches, wayfinding, and informative interpretive elements, drawing pedestrians to further explore this ADP area.

- **Pedestrian Node B**: Located in Area of Opportunity III, this node accommodates a high volume of guests arriving at Memorial Amphitheater via its west entrance, after disembarking from the tram. A discrete tram stop added immediately to the north would allow for alighting, by separating the tram’s ingress and egress functions and thereby minimizing passenger congestion. This node serves as a launchpad to encourage guests to further explore the areas west toward Node C or north toward Node A.

- **Pedestrian Node C**: Located in Area of Opportunity I, this node alleviates low guest traffic to monuments (Conflict Point 5). It serves as a collection point for pedestrians exploring the west side of the ADP. The node also aligns with a new tram stop that connects tram circulation on McPherson Drive. Like Node B, it helps to encourage pedestrian traffic in one of the less visited portions of the cemetery—an area with landmarks of historical and cultural interest.

- **Pedestrian Node D**: Located in Area of Opportunity VI, the eastern endpoint of Linden Allée offers multiple remarkable views, both up the allée toward Memorial Amphitheater and eastward, beyond Roosevelt Fountain toward the Potomac River. The tram route already passes along this road; locating a new tram stop here combined with benches and drinking fountains would encourage people to disembark and enjoy the views. The optimal location for this node is at the edge of Wheaton Parking Lot, where benches already exist. Placement here also avoids disruption of views from the other end of the allée, at the site of the Tomb of the Unknown Soldier. However, many individuals with access or functional needs would find the path up the hill from this node to Memorial Amphitheater unsuitable. Improvements to this pedestrian path and a long-term vision for additional guest amenities halfway up the hill could accommodate guests making the ascent, as well as any overflow guests enjoying the Changing of the Guard ceremony at the Tomb of the Unknown Soldier. One potential solution is an ADA-compliant ramp up the hill; other solutions may prove more desirable in the future.
Figure 47. ADP 2: Memorial Amphitheater Regulating Plan
Figure 48. ADP 2: Memorial Amphitheater Exterior Spatial Implementation Plan
SECOND FLOOR LAYOUT

FIRST FLOOR LAYOUT

LOWER LEVEL LAYOUT

Figure 49. ADP 2: Memorial Amphitheater Interior Spatial Implementation Plan
MEMORIAL AMPHITHEATER

LEGEND

1. Rehabilitate Historians’ Offices and Restrooms on Lower Level of Amphitheater for Administrative, Interpretive, Storage Space, and Guest Amenities
2. Rehabilitate Tomb Guard Space on Lower Level of Amphitheater
3. Implement Pedestrian Circulation Improvements and Pedestrian Node(s) at Amphitheater
4. Repair Second Floor of Memorial Amphitheater Reception Building
5. Improvements to Memorial Amphitheater Interior and Reception Building (including ADA)
6. Construct Guest Amenities Facility Southeast of Amphitheater
7. ADA-Compliant Ramp to Amphitheater from Wheaton Lot with Tram Stop

WAYFINDING
TRAM STOP
ADP BOUNDARY
PEDESTRIAN NODE
MEMORIAL TREE
TRAM CIRCULATION
BENCH

Figure 50. ADP 2: Memorial Amphitheater Illustrative Plan
ADP 3: Service Complex

The Service Complex ADP was developed coincident with the Southern Expansion initiative. This RPMP accommodates the Southern Expansion scope, including the demolition and relocation of the existing Service Complex, but does not specifically address master planning efforts at the Southern Expansion project site. The purpose of this ADP is to examine the broader reassignment of the Service Complex functions across the cemetery and to explore the dispersion of services following the integration of the Southern Expansion into the ANC perimeter. After fulfilling these two tasks, this ADP will then address site-specific issues that result in a Preferred Alternative: a summary of physical development affecting the current Service Complex site, which can generate cost estimates.

The subject area for the Service Complex ADP spans the entire cemetery, differing significantly from other ADPs. The Project Team developed planning strategies by scoping various locations throughout the cemetery to assign uses within the current Service Complex.

Area Description

The Service Complex ADP consists of several geographically dispersed storage and laydown locations throughout the cemetery. The majority of functions are concentrated at the Service Complex at the southern perimeter of ANC. The Service Complex contains a designated access control point (ACP) for service vehicles (123 Gate), vehicle storage, and motor pool and maintenance shops, along with an Administration Building (Building 123).

Area Functions

Primary functions within the Service Complex are listed in alphabetical order on Figure 51. Of the 13 primary functions of the ANC, eight apply to the Service Complex.

Existing Conditions

The Project Team completed an assessment of existing conditions via site tours and observation, interviews, and research of pertinent documents and studies. This assessment revealed the planning context (opportunities and constraints) for future development (Figure 54 and Figure 55).

<table>
<thead>
<tr>
<th>Service Complex Primary Functions</th>
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<tbody>
<tr>
<td>Administrative Space</td>
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<tr>
<td>Ceremonial Space</td>
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<tr>
<td>Defined Vehicle/Pedestrian Circulation</td>
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<tr>
<td>Flex Space</td>
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<td>Guest and Tour Support</td>
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<tr>
<td>Housing and Overnight Quarters</td>
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<tr>
<td>Interments and Funerals</td>
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<tr>
<td>Interpretive Space</td>
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<tr>
<td>Logistics and Receiving</td>
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<tr>
<td>Off-Street Parking</td>
</tr>
<tr>
<td>Security Interface</td>
</tr>
<tr>
<td>Vehicular/Equipment Maintenance</td>
</tr>
</tbody>
</table>

Figure 51. Primary Functions Performed at Service Complex

Existing conditions within this ADP area include, but are not limited to, the following:

- **Existing Service Complex to Relocate to Southern Expansion (Conflict 1):** The Southern Expansion project redevelops future facilities and laydown yards within the southern land parcel, which extends from the cemetery’s southern perimeter to Interstate 395. Most current service and operations vehicles, equipment, and storage will relocate to this new site called the Operations Complex. Many cemetery operations staff currently work out of Building 123 (Figure 52). The administrative functions of Building 123 will relocate to the Operations Complex within the Southern Expansion. Once relocation is complete, all of the current Service Complex will be demolished, ultimately becoming burial space. The relocation of the existing Service Complex—and the consideration of which on-site functions should disperse to other satellite locations beyond the Southern Expansion site—forms the basis of most of the planning analysis for ADP 3.

- **Lack of Vehicle Equipment/Maintenance Parking (Conflict 2):** The Service Complex contains various types of construction equipment, small tractors, grounds equipment, and vehicles. Conflicts often arise when navigating and parking these vehicles because of the constrained area (Figure 53 and Figure 56). The Facility Utilization Survey (FUS), included with the Burial Phasing Program volume.
DEVELOPMENT PLAN

of the RPMP, indicates a deficiency in organizational parking space. Adequately-sized parking stalls, covered equipment storage bays, access driveways, and navigable turning radii are necessary to safely and suitably host these vehicles. A well-designed new Operations Complex in the Southern Expansion will mitigate these constraints.

- **Lack of Vehicle Screening (Conflict 3):** Currently, minimal infrastructure exists for screening service vehicles via the 123 Gate. The Southern Expansion project plans to install more robust vehicle screening and place these functions as far to the periphery as possible.

- **Lack of Break Space for Contractors (Conflict 4):** Currently, break spaces are not clearly defined for staff and contractors, storage of personal items, changing/showering, or conducting training. Building 123 hosts a break area in the basement; Buildings 116 and 117 also both contain small break spaces. The long-term vision is that both of these buildings, along with the rest of the current Service Complex, including Building 123, will get demolished and turned to burial space upon completion of the Southern Expansion. Designating an indoor space and outdoor gazebo/shelter to accommodate breaks and meals would keep service personnel from lingering at their work sites throughout ANC, thereby preserving the guest experience and concentrating service vehicle trips to a single, unobtrusive location. The Southern Expansion project will construct a significant break space.

- **Lack of Dedicated Satellite Operations (Conflict 5):** Several parcels of land throughout ANC support service functions and/or construction projects. These parcels include laydown yards, temporary spoils yards, contractor vehicle parking, storage for Horticulture, and miscellaneous storage. A primary focus of this ADP is to identify opportunities for satellite locations with defined functions to free up existing parcels for burial space, especially in the cemetery’s north end. The presence of at least one permanent operations yard will ease the transition of funeral services from the near-capacity southeast portion of the cemetery—the current site of most first interments—to the future focal points for burial activity, first at the Millennium Expansion site and then at the Southern Expansion site.

- **Excessive Distance between Storage/Laydown to Primary Work Site (Conflict 6):** Many service contractors and operations staff depend on service vehicles to reach work sites throughout the cemetery. The migration of Service Complex functions to the Southern Expansion site will exacerbate the distance between the hub of operations activity and various work sites to the north. A focus of this ADP is to minimize the time that service vehicles spend on roads to preserve the serenity of ANC. ANC has determined that the extreme distance of the relocated Operations Complex in the Southern Expansion will create a burden for some cemetery operations, particularly groundskeeping and gravesite preparations. Because of this distance, service vehicles and equipment could impinge upon funeral operations and the overall guest experience if these more “backstage” functions become too visible and disruptive. A satellite location to serve operations in the northern half of the cemetery would resolve this problem.
Figure 54. ADP 3: Service Complex Existing Conditions and Conflicts (Cemetery-Wide)

CONFLICT POINTS
- SERVICE COMPLEX NOT IDEALLY LOCATED
- LACK OF VEHICLE EQUIPMENT / MAINTENANCE PARKING
- LACK OF VEHICLE SCREENING
- LACK OF BREAK SPACE FOR CONTRACTORS
- LACK OF DEDICATED SATELLITE OPERATIONS
- EXCESSIVE DISTANCE BETWEEN LAYDOWN/STORAGE TO PRIMARY WORK SITE

LEGEND
- Gate
- Storage/Laydown
- ADP Boundary
DEVELOPMENT PLAN

UNOBSTRUCTED SPACE AROUND BUILDING

FUTURE SOUTHERN EXPANSION

CONFLICT POINTS

1. SERVICE COMPLEX NOT IDEALLY LOCATED
2. LACK OF VEHICLE EQUIPMENT/Maintenance PArkIng
3. LACK OF VEHICLE SCREENING
4. LACK OF BREAK SPACE FOR CONTRACTORS

LEGEND

- STORAGE/LAYDOWN
- UNOBSTRUCTED SPACE
- PEDESTRIAN CIRCULATION
- FUNERAL ATTENDEE VEHICULAR CIRCULATION
- EMPLOYEE VEHICULAR CIRCULATION
- ADP BOUNDARY
- GATE
- MEMORIAL TREE

Figure 55: ADP 3: Service Complex Existing Conditions and Conflicts
Areas of Focus

Through the initial planning process of identifying constraints, opportunities, goals, and requirements for future development, several areas of focus arose for the Service Complex ADP. These areas of focus facilitate the development of the proposed concepts and include the following:

- Provide satellite service locations to support service, contractor, and laydown needs beyond what is provided in the Southern Expansion project. These locations will minimize the distance traveled from the relocated Service Complex to the various yards supporting ANC operations.
- Include contractor supplies, contractor parking, laydown yard, and materials storage for Horticulture as functions necessary within satellite service area locations.
- Cluster administration functions and include break space for staff and contractors.
- Eliminate vehicular/pedestrian conflicts.
- Streamline service vehicle ingress/egress at ACPs.
- Provide security screening for vehicles in a separate, standalone facility in the Southern Expansion Project.
- Investigate locations for infrequently accessed seasonal storage (flags, wreaths, etc.).
- Re-use the existing Service Complex area for burial space.
- Identify late-stage burial space opportunities, a topic that the Burial Phasing Plan addresses in great detail.

Areas of Opportunity

Areas of Opportunity are developable areas that may be available for siting required and/or desired functions within the Service Complex ADP. Figure 62 notionally identifies these parcels. The intent is to capitalize on areas for potential development that may include circulation, streamlined relationships between functions, re-use of existing laydown yards, and satellite service area(s).
Area I, North Parcel (North of Section 50): Located immediately north of the ANC perimeter, this area is a small, open parcel adjacent to JB MHH, southwest of the Wright Gate Access Control Point for Fort Myer (Figure 59). It is owned by ANC and undeveloped. Its eastern end may serve as a stormwater runoff location, and further site investigation is recommended. Area I could become an ideal location for a service satellite with joint-use vehicle maintenance, or, at a minimum, provide satellite storage functions. Due to its location outside the perimeter wall, it could be virtually invisible to guests. However, access might require an agreement and configuration with JB MHH. Another option is to modify the perimeter wall to include this parcel, making it contiguous to Burial Section 50 and 27.

Area II, Millennium Laydown Yard: Located in the northwest corner of ANC and west of Section 28, these parcels previously served as contractor laydown area for the Millennium Expansion Project, which is currently hosting first interments. Section 78 will meet short-term laydown needs, while Section 77 immediately to its north will satisfy some medium-term laydown needs. In the short term, both Section 77 and 78 could function as flex space, serving as either storage/laydown or burial space, depending on operational needs. These parcels may also be well-suited to support service functions. In the long term, both parcels will serve as burial space. A narrow, unofficial right-of-way bisects the two burial sections and may serve as an access control point in cooperation with JB MHH.

Area III, Chaffee Lot: This area includes the small grassy space located immediately north of Chaffee Lot northwest of the Old Administration Building and east of Lodge #1. Its small laydown yard contains a stormwater tank and is used for light storage by Horticulture, as the ground is not stable enough to accommodate heavy equipment. The central portion of the large, paved Chaffee Lot currently serves as storage for both ANC Interment Operations and NPS, as parking demand at this joint-use lot (managed by ANC) is generally low. Although recent archaeological findings at Chaffee Lot preclude any substantive redevelopment, the grassy space and the lot both remain underutilized for storage/laydown, especially given the low visibility of the site to guests and the general underutilization of the parking lot for vehicles. This parcel is also included in the discussions for ADP 4: Meigs-Tanner.
Area IV, Queueing Lot Laydown: This laydown yard is located south of the Visitors Parking Garage and west of Burial Section 76. It supported the construction of the queuing lot, which opened in the fourth quarter of 2017. This site (Figure 60) can remain as storage/laydown to serve various construction projects in the Entry Corridor and may be a suitable satellite location for the Service Complex. Long term, the parcel will serve as flex space, giving it the adaptability to function as laydown for construction projects at the Entry Corridor for as long as necessary. Ultimately, when most construction activities nearby conclude, this area could revert to burial space, as the sequencing articulated in the Burial Phasing Plan classifies it as a site with speculative availability for interments. This area is also included in discussions for ADP 1: Entry Corridor.

Area V, Contractor Laydown, Section 58: This section supports approximately 100 employees (and their vehicles) for turf and groundskeeping, gardening, grave liner contract, and headstone cleaning (Figure 61). Although it lacks a clear demarcation of individual vehicle bays, the paved area can comfortably accommodate 60 vehicles. After the completion of the Southern Expansion, this area will eventually become burial space, though, according to interviews with Cemetery Operations conducted to support the Burial Phasing Plan, both it and Section 61 are likely to be among the last burial sections to convert in the area east of Eisenhower Drive.

Area VI, Spoils Yard and Contractor Parking, Section 61: This parcel is a spoils yard and will likely continue to serve that function in the foreseeable future—that is, the short and medium term. Like Section 58 (Area V), it lacks specific demarcations for parking, but, unlike the contractor laydown area, it is nearly completely unpaved. Typically, large sifting machinery occupies this space on a full-time basis, only some of which is easily movable. The graded portion of this spoils yard is large enough to accommodate at least 10 vehicles at present. In the long term, the spoils yard will become burial space according to the Burial Phasing Plan, though it will be among the very last sections to convert.
Area VII, Wheaton Lot Laydown: This laydown space is, at times, an area cordoned off in the Wheaton Parking lot south of the Linden Allée. Although it is convenient at present for light storage use, this use could potentially create strong negative visual impacts. Even the addition of intentional screening here could elicit a negative visual impact. Therefore, if it remains storage in the long term due to its relatively obscure location, an aesthetic long-term screening is desirable, perhaps a more permanent storage facility combined with guest shelter that doubles as a new tram stop, appealing to visitors who seek to view the Roosevelt Fountain. This area is also currently being considered in the discussion for ADP 2: Memorial Amphitheater.

Area IX, Hobson Gate Laydown: Although structured as a gate to provide ingress/egress, this area primarily serves as minimal light storage. It offers negligible additional storage/laydown. If ACPs are demolished, it could serve as permanent small satellite storage for Horticulture.

Area X, Current Service Complex Laydown: This parcel currently functions as the Service Complex laydown area; it also includes trash collection and some parking. Once the Service Complex relocates to the Southern Expansion, this parcel could eventually serve as burial space, before any demolition of the neighboring Service Complex takes place.

Area XI, Current Service Complex: This site contains most Service Complex functions and operations. Planned demolition of most facilities will allow extensive new flex space, which most likely will serve as storage/laydown to support operations at the Southern Expansion immediately after relocation of functions to the Operation Complex and integration of the expansion into ANC. In the later stage of the Southern Expansion, this area will serve as burial space, seamlessly integrated with the expansion lands. The current entrance and gate will require reconfiguration as part of the expansion project.

Area XII, Southern Expansion: Most Service Complex functions will relocate to this area. This includes administrative space (and potentially contractor break space) to the south of a reconfigured Columbia Pike. Vehicle and visitor screening will be incorporated, as well as guest amenities to support visitors to ANC and the Air Force Memorial.
Figure 62. ADP 3: Service Complex Areas of Opportunity
Preferred Alternative

The Project Team developed the Preferred Alternatives following an iterative process with ANC leadership, during which proposed concepts were distilled into focused solutions that address opportunities and resolve conflict points discussed earlier in this section. These alternatives are depicted in the following site plans:

- Regulating Plan: Specifies allowable functions and siting within the ADP (Figure 64)
- Spatial Implementation Plan: Highlights location of functions (Figure 65)
- Illustrative Plan: Highlights future projects keyed to an associated Project List (Figure 66 and Figure 67)

Proposed future projects at the Service Complex address the issues and opportunities identified through the ADP and additional stakeholder interviews. The table in Figure 63 distinguishes the timeframes for the execution of each project as well as which goals and objectives the projects fulfill. Estimated probable costs are included in the Development Program.

### Project List

<table>
<thead>
<tr>
<th>Map ID No.</th>
<th>Project Title</th>
<th>Project Description</th>
<th>Objective(s)</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Convert North Parcel into Permanent Service Satellite</td>
<td>Integrate 2.3-acre land parcel north of Section 50 into ANC land use and convert into permanent satellite laydown/storage yard, using a design that allows for potential relocation of perimeter wall to integrate the parcel with the rest of ANC.</td>
<td>1C</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>Convert Sections 58 and 61 into Burial Space</td>
<td>Convert laydown area/spoil yard to burial space in Sections 58 and 61, engaging in pavement removal and environmental remediation as necessary to revert these long industrial parcels to suitable grounds for interments/inurnments.</td>
<td>1A, 1C</td>
<td>Long</td>
</tr>
</tbody>
</table>
Figure 64: ADP 3: Service Complex Regulating Plan

LEGEND
- BURIAL SPACE
- CIRCULATION ZONE
- SOUTHERN EXPANSION BOUNDARY
- 1/2 MIN. & MAX. BUILDING HEIGHT
- ADP BOUNDARY
- MEMORIAL TREE
Figure 65. ADP 3: Service Complex Overall Spatial Implementation Plan

LEGEND
- STORAGE/ LAYDOWN
- FUTURE BURIAL SPACE
- FLEX SPACE
- SOUTHERN EXPANSION BOUNDARY
- GATE

NEW PERMANENT SATELLITE LAYDOWN / STORAGE YARD
ORD & WEITZEL GATE
MEMORIAL AVENUE
KING GATE
110 GATE

NEW BURIAL SPACE IN SECTIONS 58 AND 61
MEMORIAL AMPHITHEATER
WHEATON LOT
RELOADED OPERATIONS COMPLEX
FUTURE 9/11 PENTAGON MEMORIAL VISITOR EDUCATION CENTER
AIR FORCE MEMORIAL
CURRENT SERVICE COMPLEX

Figure 65. ADP 3: Service Complex Overall Spatial Implementation Plan
DEVELOPMENT PLAN

Figure 66: ADP 3: Service Complex Illustrative Plan

LEGEND
- Demolish Service Complex and Convert to Burial Space
- SOUTHERN EXPANSION
- MEMORIAL TREE
- ADP BOUNDARY
LEGEND

1. Convert North Land Parcel into Permanent Service Satellite
2. Convert Sections 58 and 61 into Burial Space
3. Demolish Service Complex and Convert to Burial Space

STORAGE/LAYDOWN

FUTURE BURIAL SPACE

FLEX SPACE

GATE

Figure 67: ADP 3: Service Complex Overall Illustrative Plan
Phasing Scheme

Preferred Alternatives are sequenced into early and late stage phasing. This phasing illustrates the sequential steps toward the eventual completion of the Southern Expansion while achieving operational requirements. Actions align with the Burial Phasing Plan and Development Program components of the RPMP. The phasing scheme of ADP 3: Service Complex is broken into early and late stage end states.

Early Stage End State
As described in the Project List, the early stage end state highlights existing satellite service locations and begins to migrate functions out of the Service Complex. These migrations should serve as the first phase of sequencing, or interim steps to take, prior to completion of the Southern Expansion. This early stage end state aligns with the steps necessary to reach and complete Phase One in the Burial Phasing Plan. Specific steps include:

- Begin site clearance for new Operations Complex in the Southern Expansion Project, which can serve as a storage/laydown area prior to construction of the complex.
- Convert current Service Complex laydown (Area of Opportunity X) to burial space after other nearby storage/laydown areas become easily accessible.
- Convert the Millennium Expansion laydown yard (Area of Opportunity II) into flex space, which will serve as a satellite service area. This helps resolve the issues of excessive distance between storage/laydown and the primary work site (Conflict 6), at least until the North Parcel (Area of Opportunity I) is fully integrated with the ANC perimeter and becomes broadly available as a permanent storage/laydown satellite (Conflict 5).
- Maintain Chaffee Lot (Area of Opportunity III) as parking and laydown, but provide screening for storage deemed long-term, especially if it includes potentially hazardous materials.
- Migrate the existing Service Complex laydown yard function (Area of Opportunity X) to queuing laydown in Area of Opportunity IV, which will serve construction projects in the Southern Expansion and Entry Corridor, as needed.

Late Stage End State
The desired late stage end state follows the completion of the Southern Expansion. Several parcels could remain as storage/laydown satellite locations as needed, or could revert to burial space. It largely aligns with the steps necessary to transition between Phase Two and Phase Three of the Burial Phasing Plan. Specific steps to reach this end state follow here.

- After the primary uses of Service Complex (Area of Opportunity XI) have shifted to the new Operations Complex in the Southern Expansion (Conflict 1), demolish the old Service Complex buildings, clear and grade the land, and convert grounds to new burial space.
- Migrate remaining administrative uses and break space to the Southern Expansion (Area of Opportunity XII) and add guest amenities to serve ANC and the Air Force Memorial.
- Keep the former storage/laydown in the
Millennium Expansion (Area of Opportunity II) as flex space, serving an initial need for storage/laydown, then convert to burial space.

- The Southern Expansion project constructs a security/vehicle screening area along reconfigured right-of-way. This resolves the lack of vehicle screening at this portion of the cemetery grounds (Conflict 3).
- Maintain Hobson Gate (Area of Opportunity IX) as flex space, most likely to remain as small-scale storage. Enhance screening and security if it is deemed a suitable site for horticultural storage.
- Maintain Chaffee Lot (Area of Opportunity III) as parking. Retain the portion north of the paved parking as storage/laydown. If impervious surface is necessary for storing hazardous materials, provide the correct safeguards on the paved lot to accommodate this and prevent soil contamination.
- Maintain Wheaton Lot (Area of Opportunity VII) as parking. If visual impacts are too difficult to support tram, pedestrian, and guest amenity uses articulated in ADP 2, keep exclusively as a parking lot or return to green space.
- Establish North Parcel (Area of Opportunity I) as dedicated satellite service space. This site could also resolve distance issues for storage/laydown pertaining to the Millennium Expansion (Conflict 2). Due to its unobtrusive location, it is also suitable for vehicular equipment maintenance if necessary.
- The Southern Expansion project will demolish remaining support service structures, material storage, loading dock, and wash bay at the existing Service Complex (Area of Opportunity XI) and revert to storage/laydown, spoils, or burial space.
- Begin initial planning to a) convert the old queuing lot laydown west of Section 76 (Area of Opportunity IV), then b) the laydown/spoils yards in Sections 58 (Area of Opportunity V) and c) Section 61 (Area of Opportunity VI) to burial space. Burial Sections 58 and 61 may require environmental investigation and remediation.
- Consolidate all remaining maintenance, service, storage, laydown, security screening, and operations spaces to the Operations Complex at the Southern Expansion (Area of Opportunity XII), with remaining vacant land serving as a counterpart to the North Parcel (Area of Opportunity I).
**ADP 4: Meigs-Tanner**

The Meigs-Tanner ADP focuses on a variety of landscapes, facilities, and circulation networks to the west of Arlington House (the Robert E. Lee Memorial), primarily around the James Tanner Amphitheater and Meigs Drive, which once served as the original entryway to the cemetery. The ADP also contains a portion of Arlington Woods, an old-growth forest northwest of Arlington House, which is sited on some of the steepest slopes at ANC. Pedestrian traffic westward from Arlington House along Meigs Drive (approaching the perimeter with JB MHH) is light, as more visitors opt to travel south from the house towards Memorial Amphitheater or eastward toward President John F. Kennedy Gravesite. The proposed concepts for this ADP organize space according to various proposed pedestrian nodes.

**Area Description**

The Meigs-Tanner ADP is located in the northwest portion of the cemetery. It lies west of the President John F. Kennedy Gravesite and Arlington House, which serves as one of the primary guest destinations at ANC. After disembarking from the tram stop at Arlington House, virtually all guests proceed eastward to this historic house rather than westward into the Meigs Tanner ADP. The ADP includes Sherman Drive immediately to the west of Arlington House, Meigs Drive that accesses notable Burial Sections 1 and 13, the James Tanner Amphitheater, the Receiving Vault, Chaffee Parking Lot, the old Administration Building, Tomb of the Civil War Unknowns, and Pan Am Flight 103 Memorial. Also sited within this ADP are Buildings 313 and 314 and their surrounding lands, which were transferred from ANC to NPS as part of the 2020 NDAA “land swap” in exchange for NPS’s land adjacent to and including Memorial Avenue west of Richmond Highway.

**Area Functions**

The primary functions within the Meigs-Tanner ADP are listed, in alphabetical order (Figure 68). Of the thirteen primary functions of the ANC, eleven apply to the Meigs-Tanner ADP.

Facilities in ADP 4: Meigs-Tanner include the following:

- Old Administration Building: the NPS Ranger Station and Primary NPS Administrative Facility (Building 300)
- James Tanner Amphitheater (Building 310)
- Receiving Vault (Building 308)
- Lodge #1 (Building 316)
- Supplemental NPS Administration Building (Building 313)
- Vacant NPS-owned administrative structure (Building 314)

**Meigs-Tanner Primary Functions**

<table>
<thead>
<tr>
<th>Administrative Space</th>
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<tbody>
<tr>
<td>Ceremonial Space</td>
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<tr>
<td>Vehicular/Equipment Maintenance</td>
</tr>
</tbody>
</table>

*Figure 68. Primary Functions Performed at Meigs-Tanner*
Existing Conditions

The Project Team completed an assessment of existing conditions via site tours and observation, interviews, and research of pertinent documents and studies. This assessment reveals the planning context (opportunities and constraints) for future development (Figure 73).

Existing conditions within the ADP area include, but are not limited to, the following:

- **Vehicular/Pedestrian Conflicts Exist (Conflict 1)**: When Arlington House is fully operational, it is one of the most popular attractions at ANC. Therefore, Sherman Drive to its west serves a higher volume of traffic than most cemetery roads and accommodates employee vehicles, the tram route, and some pedestrians. This drive features numerous curves, trees close to the road, and a change in elevation, posing considerable safety hazards to pedestrians who, due to a lack of sidewalks, share this road with vehicles.

- **NPS Spaces (Conflict 2)**: NPS-owned Buildings 313 and 314 are operational. ANC has no control of how NPS utilizes these buildings (Figure 70). The recently restored James Tanner Amphitheater nearby hosts a few small ceremonies each year, but it could serve a more robust function as gathering or interpretive space. Nothing communicates its historical importance to visitors nearby. Another primary facility, the Receiving Vault, is equipped with HVAC and a restroom. While the facility only receives intermittent use throughout the years as a receiving vault, its function—the temporary storage of caskets and remains—is essential (Figure 71). Because of this requirement by interment operation, the rest of the building is not compatible to use as visitor experience space. ANC has recently restored the interior of the rest of building to be used by the ANC Conservation program, which will increase utilization of the space for a meaningful purpose.

- **Low Guest Traffic (Conflict 3)**: Guests frequently arrive at the Meigs-Tanner ADP area and visit Arlington House without spending much time exploring the western areas, including some of the earliest burials and monuments in Section 1 and Section 13, the latter of which is known as the “Field of the Dead.” These two cemetery sections lie north and south of Meigs Drive, respectively.
- **NPS Ownership of Forest:** NPS controls the forested area known as Arlington Woods, which extends beyond the northern boundary of the ADP. Because the wooded backdrop contributes heavily to the agrarian character at ANC and the area is considered historic, the intention is for this to remain forested in perpetuity.

- **Lodge #1 Use as Housing:** Located in the far north of the ADP boundary, the Lodge is used as administrative space. In the future it could be used as a residence.

- **Information Drought Causing Lack of Pedestrian Circulation throughout ADP:** Additional wayfinding that orients and provides context to guests may encourage further exploration of the ADP area west of James Tanner Amphitheater and Arlington House, where many of the oldest and most visually distinctive gravestones are located.

- **Additional Guest Amenities Desired:** Restrooms are located north of Arlington House in a standalone building on NPS lands. Additional guest amenities (benches, water fountains, wayfinding) placed in strategic locations throughout the ADP would increase guest comfort and encourage guests to further explore the surrounding sections, monuments, and memorials, particularly to the west of the tram stop.

- **Unique Perspective of ANC and Washington D.C. Environs from Meigs-Tanner Viewsheds:** Given its vantage point from atop Arlington Ridge, the Meigs-Tanner area offers several great viewsheds toward the Potomac River and National Mall, which benefits from new interpretive signs placed by NPS in 2019. (Figure 72).
Figure 73. ADP 4: Meigs-Tanner Existing Conditions and Conflicts
Areas of Focus

Through the initial planning process of identifying constraints, opportunities, goals, and requirements for future development, several areas of focus arose for the Meigs-Tanner ADP. These areas of focus facilitate the development of the proposed concepts and include the following:

- Improve guest amenities.
- Increase interpretive space and wayfinding.
- Maintain flexible use of space that, when necessary, can convert from storage/laydown to burial.
- Preserve ceremonial space.
- Increase guest traffic westward (Conflict 3) by developing pedestrian nodes in key locations that provide them with opportunities to regroup, rest, and refresh with benches, water fountains, and restrooms. These nodes should provide wayfinding and tram information to encourage further exploration and mobility.
- Resolve vehicular-pedestrian conflicts (Conflict 1) by constructing a sidewalk along Sherman Drive, which would allow pedestrians to walk safely.
- Resolve vehicular-pedestrian conflicts throughout the ADP by providing wayfinding information, highly visible safe pedestrian crossings, and connected sidewalks where pedestrian traffic is desired (Conflict 1).
- Identify opportunities for flex space.
- Clarify or expand the functions of several of the underutilized buildings in the area (Conflict 2), particularly the Receiving Vault and James Tanner Amphitheater (Figure 74).
Areas of Opportunity

Areas of Opportunity are developable areas that may be available for the siting of required and/or desired functions within the Meigs-Tanner ADP. Figure 82 notionally identifies these parcels. The intent is to capitalize on areas for potential development, which may include circulation and streamlined relationships between functions.

Area I, Chaffee Lot Laydown: This small laydown yard, located just north of this parking lot, contains an underground stormwater tank and is used for light storage. This parcel of land will remain as storage/laydown space. Chaffee Lot itself serves predominantly as storage/laydown due to the modest need for vehicles here, though removal of this equipment would allow immediate resumption of the lot’s intended parking function. On the northern side of the lot near Lodge 1, the area could support a sidewalk connecting pedestrians west into the Millennium Expansion, though this sidewalk would require switchbacks while negotiating the change in grade to be ADA compliant.

Area II, Old Administration Building: Located at one of the higher points at ANC overlooking Memorial Avenue, the historic Arlington House, its land, and several smaller supportive structures are managed and owned by NPS (Figure 76). It is one of the primary destinations for guests visiting ANC. The complex itself offers interpretive space as well as self-guided walking tours of the grounds, including the gardens and associated original support buildings. Approximately 200 feet north of the house, guest amenities are provided, including modern restrooms and water fountains. Because of NPS ownership, there are limited opportunities that ANC could deploy in AREA II. Any concepts and ideas would require an agreement from NPS.

Area III, Arlington House Tram Stop: This open space owned by NPS, is on a steep slope and largely covered with trees, proves unsuitable for flex space (burial or storage/laydown) Proposed concepts include further development of the tram stop located behind Arlington House on Sherman Drive into a more robust gathering space to support the large numbers of arriving and departing guests. And possible construction of a sidewalk along Sherman Drive to link the Arlington House to ANC’s main entrance on Memorial Avenue. (Figure 77).
Area IV, South of Millennium Expansion Project: This open space, on a steep slope and largely covered with trees, is not suitable for flex space (burial or storage/laydown). It could house a sidewalk connecting pedestrians west into the Millennium Expansion, though the sidewalk would need switchbacks for it to remain ADA compliant while negotiating the change in grade.

Area V, Receiving Vault and Adjacent Land: This infrequently used building features an inviting architecture that is visible from the tram stop at Arlington House and Crook Walk, as well as HVAC and functional restrooms (Figure 78). Because the occasional use of housing interred remains, the remainder of the receiving vault is not compatible as visitor experience space or guest amenities. ANC has recently restored the remainder of the interior space for use by the ANC Conservation Program.

Area VI, James Tanner Amphitheater: Bordered by columns, this outdoor elliptical ceremonial structure surrounds a sunken garden space (Figure 79). As it already offers guests it amenities (a drinking fountain, natural shade), development of a pedestrian node here will provide a space for gathering and education outside of highly-trafficked areas.
Area VII, Lee Avenue: This area (Figure 80) includes the sidewalk that connects the apex of Crook Walk with the southern façade of James Tanner Amphitheater. Referred to as Lee Drive, the walkway could be designated as a primary pedestrian path with wayfinding that would draw guests westward.

Area VIII, Crook Walk Trailhead: Located south of Arlington House gardens, this parcel contains the start of Crook Walk, a primary but steep pedestrian pathway. This walk allows guests to navigate the slope between Arlington House and Memorial Amphitheater, largely via stairs to accommodate the grade change (Figure 81). This area is an ideal location to develop a strong pedestrian node with guest amenities, such as benches and informative wayfinding. The apex of the path provides several impressive views, making it a natural destination for pedestrians. Development of guest amenities and wayfinding here could engage and direct visitors westward to further explore the Meigs-Tanner Area or northward to Arlington House.

Preferred Alternatives

The Project Team developed the Preferred Alternatives following an iterative process with ANC leadership, during which proposed concepts were distilled into focused solutions that address opportunities and resolve conflict points discussed earlier in the section. These alternatives are depicted in the following site plans:

- Regulating Plan: Specifies allowable functions and siting within the ADP (Figure 84)
- Spatial Implementation Plan: Highlights location of functions (Figure 85)
- Illustrative Plan: Highlights future projects keyed to an associated Project List (Figure 86)
Project List

Programmed future projects at the Meigs-Tanner Area address the issues and opportunities identified through the ADP and additional stakeholder interviews. The table in Figure 83 distinguishes the timeframes for the execution of each project, as well as which goals and objectives the projects fulfill. Estimated probable costs are included in the Development Program.

Pedestrian Nodes

Development of pedestrian nodes combines spatial, circulation, and infrastructure improvements to enhance the visitor experience at the cemetery. Pedestrian nodes focus on minimal infrastructure and involve strategically placed wayfinding and guest amenities. They serve as opportunities for pedestrians to pause, regroup, and pivot to their next point of exploration to various areas, monuments, and attractions.

ANC may capitalize on these nodes by creating educational packages or a curriculum based on a topic. The nodes may define destinations for pedestrians using self-guided tours from the ANC Explorer smartphone application. Pedestrian nodes proposed in the Project List include:

<table>
<thead>
<tr>
<th>Map ID No.</th>
<th>Project Title</th>
<th>Project Description</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Negotiate with NPS for Land along East or West Side of Sherman Drive as a Pedestrian Walkway</td>
<td>Acquire a pedestrian easement that will extend from the existing sidewalk’s terminus behind Arlington House along Sherman Drive towards ANC Main entrance, Memorial Avenue. Develop a walkway with goals of minimal impact to the environment, ADA compliance as much as possible, and minimal impacts to viewsheds and historic/cultural resources.</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>Develop Traffic Improvements at Sherman Drive and Arlington House</td>
<td>Expand tram stop at Arlington House to include widening of a segment of Sherman Drive for easier tram movement, temporarily closing Sherman Drive to pedestrian traffic, and installing a pedestrian crossing.</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>Develop Pedestrian Node(s)</td>
<td>Construct targeted pedestrian collection points/nodes (A) West of Arlington House, (B) at North End of Crook Walk, and (C) at the James Tanner Amphitheater to support guests and facilitate further exploration of the area. Nodes enhance pedestrian accessibility; increase safety among pedestrian-vehicular conflicts; and provide educational information kiosks, wayfinding, and guest amenities. This project coordinates with ANC-wide water fountain and bench plan. Project elements subscribe to guidelines set forth in Cemetery Planning Standards.</td>
<td>Medium</td>
</tr>
<tr>
<td>3</td>
<td>Implement Pedestrian Pathway to Millennium Expansion and Circulation Improvements at James Tanner Amphitheater</td>
<td>Construct an ADA-compliant pedestrian pathway from Humphreys Drive to Millennium Expansion area. Install a clear and safe pedestrian path linking Pedestrian Node B to Node C by extending Lee Drive crossing from Sherman Drive north of the Kearney Monument, across Wilson Drive.</td>
<td>Medium</td>
</tr>
<tr>
<td>4</td>
<td>Install Pedestrian Walkway along one side of Sherman Drive</td>
<td>Construct a pedestrian pathway along Sherman Drive to allow safe pedestrian flow.</td>
<td>Medium</td>
</tr>
<tr>
<td>5</td>
<td>Rehabilitate Underutilized portion of Receiving Vault into ANC Conservator Program Space</td>
<td>Renovate and restore the interior and exterior of Receiving Vault, utilizing the unused portion as ANC Conservator program space. (Interior work completed 2022)</td>
<td>Medium / Long</td>
</tr>
<tr>
<td>6</td>
<td>Construct Direct Path to Back of Receiving Vault from Wilson Drive</td>
<td>Construct a direct pedestrian pathway to back of the Receiving Vault from Wilson Drive to alleviate pedestrian/vehicle conflicts.</td>
<td>Long</td>
</tr>
</tbody>
</table>

Figure 83 ADP 4: Meigs-Tanner Project List
Figure 84. ADP 4: Meigs-Tanner Regulating Plan
Figure 85: ADP 4: Meigs-Tanner Spatial Implementation Plan
DEVELOPMENT PLAN

LEGEND

Negotiate with NPS for Land Along East Side of Sherman Drive as a Pedestrian Easement
Develop Traffic Improvements at Sherman Drive and Arlington House
Develop Pedestrian Node(s)
Implement Pedestrian Pathway to Millennium Expansion and Circulation Improvements at Tanner (Old) Amphitheater
Install Pedestrian Walkway along East Side of Sherman Drive
Rehabilitate Part 1 of Receiving Vault into Administration Space or Flex Space
Construct a Direct Path to Back of Receiving Vault from Wilson Drive

WAYFINDING

Figure 86: ADP 4: Meigs-Tanner Illustrative Plan
Soldiers’ and Airmen’s Home National Cemetery (SAHNC)

Established in 1861, SAHNC is one of the oldest national cemeteries in the United States. It contains sixteen acres of rolling hills and is located in northeast Washington D.C., immediately north-northeast of the Armed Forces Retirement Home (AFRH) (Figure 88), with which it shares a boundary. This ADP is coterminous with the boundary of SAHNC.

SAHNC is located approximately six miles northeast of ANC. This triangular-shaped site is bounded on the east by Clermont Drive, on the northwest by Rock Creek Church Road/Allison Street, and on the southwest by Harewood Road. The cemetery is divided into lettered burial sections with headstones set in linear rows. Characterized as a mature and serene cemetery environment, SAHNC sits in an area of comparatively low-density development, thanks to the presence of AFRH to its southwest and Rock Creek Cemetery immediately to its northwest.

On average, SAHNC conducts seven to ten interments per year, providing dignity and honor for those who have served our nation and also resided at AFRH – a prerequisite for committal at SAHNC. The cemetery provides a resting place for more than 14,000 individuals, including many Civil War veterans.

Area Functions

Figure 87 lists, in alphabetical order, the primary functions at SAHNC. Of the thirteen primary functions of ANC, SAHNC currently performs five.

<table>
<thead>
<tr>
<th>SAHNC Primary Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Space</td>
</tr>
<tr>
<td>Ceremonial Space</td>
</tr>
<tr>
<td>Defined Vehicle/Pedestrian Circulation</td>
</tr>
<tr>
<td>Flex Space</td>
</tr>
<tr>
<td>Gathering Space</td>
</tr>
<tr>
<td>Guest Amenities and Tour Support</td>
</tr>
<tr>
<td>Housing and Overnight Quarters</td>
</tr>
<tr>
<td>Interments and Funerals</td>
</tr>
<tr>
<td>Interpretive Space</td>
</tr>
<tr>
<td>Logistics and Receiving</td>
</tr>
<tr>
<td>Off-Street Parking</td>
</tr>
<tr>
<td>Security Interface</td>
</tr>
<tr>
<td>Vehicular/Equipment Maintenance</td>
</tr>
</tbody>
</table>

Figure 87. Primary Functions Performed at SAHNC

Figure 88. SAHNC Vicinity Map

Facilities at SAHNC include:

- Superintendent’s Lodge (Building 1): This facility is located at the entrance to the cemetery, inside the vehicle-accessible gate. It was built in 1867 in the French Second Empire style, according to Major General Montgomery C. Meigs’ standardized plans for national cemetery gatehouses (Figure 89). A fire damaged its second floor in 1961 and its restoration, performed prior to a culture of historic preservation activism, resulted in its current two-story Colonial Revival appearance. The lodge previously served as the residence for the Superintendent, a gathering point for families attending committal services, and a location where guests could obtain information about the
DEVELOPMENT PLAN

cemetery or a gravesite. Although the lodge is currently vacant in a mothballed state, its interior configuration could easily accommodate multiple functions.

- Carriage House: Located east of the lodge, this freestanding, historic building provides storage space. It also contains public restrooms accessible from the rear of the building.
- Garage (Building 10): This two-bay storage facility is attached to the east of the Carriage House, as a slightly more contemporary extension feature.
- Contractor Maintenance Building (Building 20): This two-bay garage, located more than 200 feet east of other structures, houses contractor equipment and storage for ongoing groundskeeping. An adjacent laydown yard bordered by a chain link fence accommodates the storage of landscaping materials.

SAHNC features one other structure, which is not classified as a facility because, though it can be occupied, it features no utilities and is thus not habitable. The mausoleum of Major General John Logan, hereafter referred to as the Logan Mausoleum, is designed in the Romanesque Revival style (Figure 90).

Additionally, a portable, metal-roofed canopy, serving as a committal shelter, customarily stands at the midpoint of the north-south roadway, a right-of-way segment that bisects much of the cemetery.

Existing Conditions

An assessment of existing conditions was conducted via site tours and observation, interviews, and research of pertinent documents and studies.

History and Milestones

Located just north of the Armed Forces Retirement Home, commonly referred to as the Soldiers’ and Airmen’s Home, in Washington, D.C., lies the United States Soldiers’ and Airmen’s Home National Cemetery, one of the country’s oldest national cemeteries. The cemetery’s rolling hills mark the final resting place for more than 14,000 veterans, including many who fought in the Civil War. Soldiers’ and Airmen’s Home National Cemetery is one of two cemeteries maintained by the Department of the Army – the other being Arlington National Cemetery.

During the Civil War, churches and other public buildings around Washington were commandeered for use as military hospitals to care for wounded troops or those stricken with illness on the front lines. Just days after the Battle of Bull Run, the commissioners of the United States Military Asylum offered six acres of land at the north end of the home’s grounds as a burial ground for soldiers and officers. This offer was accepted in late July 1861, and the first burials were conducted later that summer.

From 1861 to 1864, the cemetery accepted thousands of soldiers’ remains from across the nation, which quickly filled its six acres. An 1874 report on the condition of the cemetery noted more than 5,600 interments, including 278 unknown, 125 Confederate prisoners of war and 117 civilians (relatives of the deceased and employees of the home). In 1883, nine acres were added to the grounds, bringing the cemetery’s size to nearly sixteen acres. In 1900, Confederate remains were reinterred in Section 16 of Arlington National Cemetery.

Soldiers’ and Airmen’s Home National Cemetery is also the final resting place of 21 recipients of the Medal of Honor, the nation’s highest military decoration.

Figure 90. The Logan Mausoleum at SAHNC
Circulation & Utilities

Within the triangular shape of SAHNC, an internal loop road serves the northern half of the cemetery, with an entry point adjacent to the Superintendent’s Lodge, providing access to the cemetery via Harewood Road. An additional north-south roadway separates multiple burial sections: P and Q to the west of the roadway, and Section L to the east. Unlike the roads at ANC, SAHNC roads lack official, commemorative names. The north-south road is not required for vehicular circulation (Figure 91). Pending historical and cultural considerations, this road could be reduced in size to a pedestrian path, allowing a conversion of the residual land to in-ground interment space, if needed, to increase the active life of the cemetery. The movable nature of the committal shelter, used periodically for small ceremonies, could accommodate this conversion.

Perimeter Fencing

A simple wrought-iron fence or the combination of a granite retaining wall with a fence surround much of the cemetery. One small segment on the eastern perimeter consists exclusively of a stone wall. These perimeter fences along the boundaries of SAHNC allow for attractive views into the cemetery from nearby roadways and adjoining sites. However, the elevation of Clermont Drive NE, which is some 10 to 20 feet lower than the cemetery, limits views.

Utilities

Electric, water, stormwater, and sanitary sewer serve the two primary facilities at the entrance to SAHNC: the Superintendent’s Lodge and Carriage House. These utilities connect to a broader network across from Harewood Road. Primary water and wastewater lines bisect the cemetery by veering northward as they approach the Contractor Maintenance Building, paralleling the cemetery’s north-south road until they reach Rock Creek Church Road at the perimeter. The stormwater system serves the majority of the western half of the cemetery.

Gates

Two gates, which are both visible from Harewood Road, provide access into the cemetery

- The Main Gate, located at the western-most point of SAHNC at the intersection of Harewood and Rock Creek Church Roads, serves as the cemetery’s ceremonial pedestrian gate. This gate consists of four pairs of Doric order columns, each inscribed with the name of a well-known American general. This gate remains closed under normal conditions.

- Lodge Gate, located on Harewood Road, serves as the primary entry gate for vehicles. It features a double iron gate with stone piers. The Superintendents’ Lodge and the Logan Mausoleum sit just inside this gate (Figure 92).
**Environmental Considerations**

**Topography**

The cemetery’s high point occurs at the main entrance off Harewood Road, with an elevation of 320 feet above mean sea level (Figure 93). From this point, the terrain of the cemetery gradually slopes to a low point of 270 feet above mean sea level at its northernmost point, at the intersection of Allison Street NE and Clermont Road. From most vantage points within the cemetery, an individual can view the entire grounds by pivoting 360 degrees.

**Views and Exposure**

To the southwest and northwest, SAHNC offers important views from the cemetery to AFRH buildings. To the east, low-rise, mid-20th Century, apartment buildings line Clermont Drive. The addition of landscape and/or boundary walls could screen the less than compatible views to the east.

**Vegetative Cover**

Similar to ANC, mature and specimen trees located across the grounds identify and contribute greatly to the serene setting of the cemetery and are a significant part of its visual image.

Within the sixteen acres of the cemetery, close to 200 trees represent 35 different species of mostly mature native oaks and maples. Additional foliage enlivens various landscape beds of annuals and perennials throughout SAHNC. Regular maintenance and an ongoing program of replacement plantings will continue to be part of maintenance operations at SAHNC, as it is at ANC. The Cemetery Planning Standards (CPS), which applies to both cemeteries, provides guidance for these practices.

**Opportunities and Constraints**

The assessment of existing conditions and conflicts reveals the planning context (opportunities and constraints) for future development (Figure 94) at SAHNC.

Existing opportunities and constraints at SAHNC include the following:

- **Superintendent’s Lodge and Garage (Building 10) are not in use (Conflict 1):** ANC staff remotely manage operations at SAHNC. Security personnel from ANC open and close SAHNC gates daily. Due to the limited number of burials annually performed at SAHNC, there is no on-site staff. Existing space for storage (Carriage House and Garage, Contractor Maintenance Building, and laydown yard) is far in excess of need. These conditions result in underutilized facilities.

- **Guest amenities are available:** Public restrooms at the rear of the Carriage House are accessible during SAHNC operating hours. ANC security unlocks these facilities daily and a contractor maintains them.

- **Maintenance and operations are managed by ANC:** Contractors perform regular grounds maintenance on the turf, while ANC horticulture staff maintains oversight of trees and planting schedules. ANC staff manages funerals and burials, as well as regularly performs inspections and repairs of tombstones.

**Areas of Focus**

Through the initial planning process of identifying opportunities, constraints, goals, and requirements for future development, several areas of focus emerged for SAHNC. These areas of focus facilitate the development of the proposed concepts and include the following:
**In the short-term:**
- Maintain the Superintendent’s Lodge in mothballed state (Status Quo)
- Maintain the Carriage House and Garage (Status Quo)
- Demolish Contractor Maintenance Building and storage/laydown yard
- Maintain existing circulation

**In the medium- to long-term:**
- Improve guest amenities in the rear of Carriage House
- Identify re-use options for the Superintendent’s Lodge and Carriage House and Garage
- Identify areas for interpretive space
- Identify areas for additional burial space

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**Legend**

- LODGE AND GARAGE NOT IN USE

- PEDESTRIAN CIRCULATION

- VEHICULAR CIRCULATION

- ADP BOUNDARY

---

*Figure 94. SAHNC Existing Conditions and Conflicts*
Areas of Opportunity

Areas of Opportunity present developable areas that may be available for siting required and/or desired functions within SAHNC. Figure 95 identifies these regions. The intent is to capitalize on areas for potential development to improve circulation, enhance capacity, and streamline relationships between functions.

Area I, Superintendent’s Lodge: The lodge provides opportunities for administrative space, interpretive space, or flex space (particularly archival storage, in combination with another use).

Area II, Carriage House and Garage: Due to its proximity to the entrance at Lodge Gate, the Carriage House lends itself to easily accessible interpretive space. ANC staff currently unlocks the restrooms and security gates, and also could unlock an interpretive space during operating hours.

Area III, Contractor Maintenance Building: This building is redundant to the unused garage. If demolished, it and its surrounding laydown yard could serve as flex space, initially as supplement storage/laydown to accommodate cemetery renovation projects in the short term and then as additional burial space in the long term.

Area IV, North-South Road: Pending considerations regarding its contribution to the cemetery’s historic character, the north-south bisecting road between Section P/Q, and Section L offers a long-term opportunity for additional burial space. This is a low priority due to the limited number of burials at SAHNC annually. The midpoint of the road, where it widens slightly, features a portable canopy that serves as a committal shelter and Ceremonial Space for occasional events. Depending on the need, its portability allows it to remain in situ or be wheeled to another ceremonial site.

Area V, Perimeter: The perimeter consists of various combinations of metal fencing and a low granite wall, including metal fencing atop the granite wall at certain segments. The current fence and the existing historic gates are in need of repair and restoration.
Figure 95. SAHNC Areas of Opportunity
Preferred Alternative

The Project Team developed the Preferred Alternative through iterative discussions and meetings with ANC leadership and stakeholders. Projects address issues and opportunities while meeting the Master Plan Goals and Objectives for the cemetery. The following site plans visualize the Preferred Alternative:

- Regulating Plan: Specifies allowable functions and siting within the ADP (Figure 97)
- Spatial Implementation Plan: Highlights location of functions (Figure 98)
- Illustrative Plan: Highlights future projects keyed to an associated Project List (Figure 99)

Project List

Figure 96 provides a description for each project in the Preferred Alternative. The Project Team prioritized these Preferred Alternatives by placing them into short-, medium-, and long-term development plans. This prioritization allows the reassessment of projects based on the cemetery’s specific needs. The Development Program includes an estimate of probable costs for each project.

Additional Considerations

The unique location, landscape, and role of SAHNC require additional considerations when planning for future development. Several planning initiatives are underway for the adjacent AFRH, located one-half mile southwest of SAHNC. The General Services Administration (GSA) intends to redevelop 35 structures across 80 acres of the southeast portion of AFRH. Initial plans include the demolition and adaptive reuse of several facilities, which could yield up to 4.3 million square feet of mixed-use development (Source: Austermuhle, 2019). This redevelopment may impact SAHNC with an increase in visitors and facility use.

Other key concerns affecting SAHNC’s future development include:

- A structural evaluation of the Superintendent’s Lodge and Carriage House should take place prior to renovation and utility upgrades.
- Interpretive space improvements should consider coordination with AFRH, specifically President Lincoln’s Cottage.
- The preservation and maintenance of trees and vegetation should be at the same standard of ANC, as identified in the CPS.
- Currently, signage and seating are inconsistent across the cemetery. Upgrades to signage, benches, and water fountains should be of consistent design and align with the CPS, ANC’s inventory, or standards of similar rigor. Although some benches are available for use, the cemetery would benefit from additional resting places.
- Other infrastructure projects should only be completed following an inventory and assessment of current pavement and stormwater utility conditions, as well as the development of capital project requirements needed to bring these systems to the desired standards.

Soldiers’ and Airmen’s Home National Cemetery Project List and Estimate of Probable Costs

<table>
<thead>
<tr>
<th>Map ID No.</th>
<th>Project Title</th>
<th>Project Description</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred Alternative Projects</td>
<td>1 Demolish Contractor Building and Laydown Yard</td>
<td>Relocate contractor storage to garage and demolish contractor building to provide additional burial space.</td>
<td>Long</td>
</tr>
<tr>
<td>2 Restore Wall and Perimeter Fence</td>
<td></td>
<td>Restore dilapidated gates, fence and perimeter wall.</td>
<td>Medium</td>
</tr>
<tr>
<td>3 Rehabilitate Carriage House into Interpretive Space</td>
<td></td>
<td>Rehabilitate Carriage House into interpretive space to accommodate static displays and information kiosk(s).</td>
<td>Medium</td>
</tr>
<tr>
<td>4 Reconfigure North-South Road</td>
<td></td>
<td>Reduce size of north-south bisecting road and convert into a smaller walking path and additional burial space.</td>
<td>Medium/Long</td>
</tr>
<tr>
<td>5 Rehabilitate Lodge</td>
<td></td>
<td>Rehabilitate Lodge for use as flex space.</td>
<td>Long</td>
</tr>
</tbody>
</table>

Figure 96. SAHNC Project List
Figure 97. SAHNC Regulating Plan
Figure 98. SAHNC Spatial Implementation Plan
Figure 99. SAHNC Illustrative Plan
Future Development Plan

The Future Development Plan is an agglomeration of the various projects and initiatives articulated through the Preferred Alternative, as well as additional initiatives brought forth through the Project Team’s research, articulated primarily through the Burial Phasing Plan and listed here under Supplementary Projects. Together, these projects and initiatives create a master project list and are represented spatially through a project map (Figure 100).

The projects listed in Figure 101 directly correspond to the proceeding map. Project numbers are listed for pinpointed projects on the map.

A Project List identifying intended future development complements each ADP, which articulated each step that constitutes the Preferred Alternative. Types of projects, as listed in the righthand “Status” column, include the following:

- **Preferred Alternative (PA):** These projects and initiatives were selected from the COAs at the early stages of the planning process, comprising the Preferred Alternative.

- **Current Projects (C):** These include projects either currently under development or approved by ANC leadership, and all of which impact real property master planning.

- **Prerequisite Actions (P):** These are necessary actions that, if not performed, preclude future development projects. These include land transfers, acquisitions, and other agreements.

- **Burial Phasing (BP):** These are ambitious, outside-the-box solutions for expanding long-term burial capacity at ANC, as identified in the Burial Phasing Plan.
Figure 100. Future Development Plan Master Project Map
### Real Property Master Plan Consolidated Project List

#### ADP 1: Entry Corridor
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop Mobile Vehicle Screening Area on Memorial Avenue</td>
<td>4C</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Install Memorial Avenue Improvements</td>
<td>3D</td>
<td>Short / Medium</td>
<td>PA</td>
</tr>
<tr>
<td>3. Collaborate with WMSA Memorial Foundation, evaluate and program sustainment of core and shell</td>
<td>2A, 2B</td>
<td>Short / Medium</td>
<td>PA</td>
</tr>
<tr>
<td>4. Upgrade 110 Gate (CAC-Enabled) - Completed 2020</td>
<td>3D, 4B, 4D</td>
<td>Short / Medium</td>
<td>PA</td>
</tr>
<tr>
<td>5. Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza</td>
<td>3D, 4C, 4D</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>6. Restore Pillars at the Gates Flanking the Hemicycle as Needed to their Desired Structural Integrity</td>
<td>3C, 4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>7. Construct Vehicle Screening Facility at Visitor Parking Garage Entry with Associated Circulation</td>
<td>3D, 4C, 4D</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>8. Reconfigure Tram Plaza and Queuing</td>
<td>4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>9. Reconfigure Pedestrian Crossing from Tram Plaza to Roosevelt Drive</td>
<td>4A, 4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>10. Create Flex Space North of Memorial Avenue</td>
<td>1D</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>11. Rehabilitate First Floor of Welcome Center</td>
<td>2A, 2B, 2A</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

#### ADP 2: Memorial Amphitheater

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ADA Improvements to Memorial Amphitheater Exterior: Temporary Ramp and Seating - Completed 2021</td>
<td>4A</td>
<td>Short</td>
<td>C</td>
</tr>
<tr>
<td>1. Rehabilitate Historians’ Offices and Restrooms on Lower Level of Amphitheater for Administrative, Interpretive, Storage Space, and Guest Amenities</td>
<td>2A, 2B, 2A</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Rehabilitate Tomb Guard Space on Lower Level of Amphitheater</td>
<td>2C</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>3. Implement Pedestrian Circulation Improvements and Pedestrian Node(s) at Amphitheater</td>
<td>3B, 4A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>4. Repair Second Floor of Memorial Amphitheater Reception Building</td>
<td>2B, 3A</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>5. Improvements to Memorial Amphitheater Interior and Reception Building (including ADA)</td>
<td>4A</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>6. Construct Guest Amenities Facility Southeast of Amphitheater</td>
<td>3B, 2C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>7. ADA-Compliant Ramp to Amphitheater from Wheaton Lot with Tram Stop</td>
<td>3E, 4A, 4B</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

#### ADP 3: Service Complex

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Convert North Parcel into Permanent Service Satellite</td>
<td>1C</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Convert Sections 58 and 61 into Burial Space</td>
<td>1A, 1C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>3. Demolish Service Complex and Convert to Burial Space - Programmed in Southern Expansion</td>
<td>1A, 1C</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

#### ADP 4: Memorial-Tanner

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negotiate with NPS for Land along Sherman Drive as a Pedestrian Easement</td>
<td>4B</td>
<td>Medium</td>
<td>P</td>
</tr>
<tr>
<td>1. Develop Traffic improvements at Sherman Drive and Arlington House</td>
<td>4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>2. Develop Pedestrian Node(s)</td>
<td>3A, 3B, 4A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>3. Implement Pedestrian Pathway to Millennium Expansion and Circulation Improvements at James Tanner Amphitheater</td>
<td>3B, 4A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>4. Install Pedestrian Walkway along Sherman Drive</td>
<td>4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>5. Rehabilitate Part of Receiving Vault into Conservator Space</td>
<td>2A, 2B, 3A, 3B</td>
<td>Medium / Long</td>
<td>PA</td>
</tr>
<tr>
<td>6. Construct a Path near Receiving Vault from Wilson Drive</td>
<td>4B</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

#### Soldiers’ and Airmen’s Home National Cemetery

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demolish Contractor Building and Laydown Yard</td>
<td>1A, 1C</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Restore Gate, Wall and Perimeter Fence</td>
<td>3C</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>3. Rehabilitate Carriage House into Interpretive Space</td>
<td>2B, 3A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>4. Reconfigure North-South Road into Additional Burial Space</td>
<td>1A, 4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>5. Rehabilitate Lodge</td>
<td>2A, 2B, 2A</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

#### Supplementary Projects

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Upgrade Benches to ADA Compatibility (Installation-Wide)</td>
<td>3B, 4A</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Upgrade Water Fountains to ADA Compatibility (Installation-Wide)</td>
<td>3B, 4B</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>3. Install Wayfinding (Installation-Wide)</td>
<td>3F, 4A, 4F</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>1. Construct Friedman’s Village Project</td>
<td>3C</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>2. Reed Spring Rehabilitation Project</td>
<td>3C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>3. Interpretive Space Improvements at Coast Guard Memorial</td>
<td>3A, 3C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>4. Expand to Burial Sections with Speculative Availability</td>
<td>1B</td>
<td>Long</td>
<td>BP</td>
</tr>
</tbody>
</table>
Cemetery Planning Standards
Cemetery Planning Standards (CPS) establish general policies and design standards for Arlington National Cemetery (ANC) to ensure it maintains its image and function as the nation's premier military cemetery well into the future. The CPS is a critical guiding document for the creation of functional, harmonious, and aesthetic physical environments within the cemetery.

ANC generates its strong visual and emotional image by commemorating duty and sacrifice. Its architectural and historic character of facilities, monuments, and various site elements complement the peaceful and contemplative landscape. This element of the Real Property Master Plan guides cemetery-specific design of all facilities, roads, parking areas, sidewalks and other pedestrian paths, access control points, site furnishings, signage, lighting, utilities, and landscaping at ANC.

This CPS serves those involved in the decision-making, design, construction, and maintenance of facilities and landscapes at ANC. The Project Team conducted multiple stakeholder interviews with key personnel, including ANC leadership, the master planner, historians, and buildings and staff in maintenance, interment services, horticulture, environmental, and cultural resources departments. The end result intends to be a living document, requiring review and revision annually, based on updated information, practices, and technologies.

**Master Plan Goals and Objectives**

The CPS aligns to stipulations set forth in *UFC 2-100-01, Installation Master Planning* while recognizing the functional difference between the cemetery and other military installations. Both ANC and the Soldiers’ and Airmen’s Home National Cemetery (SAHNC) do not meet the basic physical or programmatic standards of a military installation. Therefore, these planning standards must adopt the most salient and relevant features from the UFC while deviating from those fundamentals when necessary.

The Vision Plan indicated that the Goals and Objectives are crucial to achieving the cemetery’s originally stated mission: “ANC will remain an active cemetery for first interments and inurnments to serve future generations.” Two goals are particularly important:

- **Goal 2**: Enhance the visitor experience while maintaining the iconic image of the cemetery.

  The objectives, nested within these goals, guide the Preferred Alternative projects necessary to align with the Vision Plan. They function as foundational elements that direct more tangible recommendations in the ADPs and Security Annex. These objectives typically correlate most powerfully to the two aforementioned Goals.

- **Objective 2D**: Address the deficiencies in IT infrastructure, including fiber optic capacity, conduits, and cross connections

- **Objective 2E**: Assess and upgrade the existing communications and utility infrastructure to remove obsolete or abandoned ducts and lines

- **Objective 2F**: Increase the wi-fi coverage to encompass the entire cemetery grounds

- **Objective 3B**: Provide for strategically located restroom facilities and guest amenities across the cemetery to improve visitor comfort

- **Objective 3C**: Preserve and restore the historic district and landscape elements

- **Objective 3E**: Expand tram service to include sparsely visited areas across the cemetery

- **Objective 4A**: Upgrade all the publicly-accessible facilities to include ADA ramps and/or elevators

- **Objective 4G**: Update and maintain a detailed security plan for visitors, staff, national events, foreign visitors, and VIPs (addressed in the Security Annex)

**The CPS Process**

The CPS references *UFC 2-600-01, Installation Design*, with some broader guidance from *UFC 2-100-01, Installation Master Planning*. The CPS includes a process for analysis, planning, design, and implementation of design standards. These procedures are essential to the planning and design process and incorporate the following steps:

1. **Define Goals and Objectives**: ANC leadership and staff articulated initial criteria during a week-long charrette, which, upon further refinement, evolved into the Master Plan Goals and Objectives. These tools provide for the RPMP Vision and image of the cemetery, while maintaining optimal functionality and a visually pleasing environment. The CPS uses these goals and objectives to craft principles and desired approaches for future development.
2. **Perform a Visual Inventory:** The Project Team conducted visual and spatial surveys to prepare the CPS for ANC. Surveys included documenting aesthetic and functional themes, assets, and liabilities, as well as interviewing key staff members to aggregate their interpretations of how these themes, assets, and liabilities help organize the cemetery grounds into smaller navigable units.

3. **Define Visual Zones and Themes:** The information gathered during the surveys and substantiated through interviews helped establish the visual zones and themes of the cemetery. The aesthetic or functional characteristics of an area, defined as the “look and feel,” include natural features, consistent design elements, and operational areas, all of which help delineate these zones and themes. For the purposes of simplifying these many characteristics into a few core components, the CPS has elected to apply the five navigational elements used frequently in military framework planning and endorsed in *UFC 2-100-01, Installation Master Planning*. These five elements are paths, districts, nodes, landmarks, and edges.

4. **Determine Assets and Liabilities:** The assets and liabilities identified during the visual and spatial surveys highlight positive and negative features that impact an area’s appearance or functional use. Liabilities include those elements that are in stark contrast to the verdure, serenity, and park-like setting of ANC. Assets include those features that resolve, mitigate, or counterbalance any substandard visual impressions or are simply intrinsically positive and welcoming.

5. **Build Foundation for Implemented Projects:** The preceding steps focus on the initial research into the visual and historic character of the cemetery. Visual surveys, stakeholder interviews, and data gathering propel the CPS forward, providing the baseline on which standards and guidelines can best enhance the built environment at ANC. These standards and guidelines focus on every aspect of the cemetery’s design, from site planning and building design to landscape design and site elements. They utilize best practices to ensure ANC maintains its image as the nation’s premier military cemetery. The principles and considerations throughout the CPS help to shape the aesthetic details for all future projects listed in the Development Program.

Figure 102. Linden Allée Viewshed to the Memorial Amphitheater and Tomb of the Unknown Soldier

**Guidance Documents**

The RPMP is a mechanism for ensuring that the siting of individual projects will meet overall cemetery requirements. While it provides diagrammatic and textual accounts of how the cemetery’s most fundamental and large-scale development should proceed, it cannot account for the numerous smaller initiatives, modifications, or contingencies that take place on a day-to-day level. Therefore, a core set of standards unique to ANC instead promotes unity and order to decision-making at all levels, while adhering to the values that the mission and vision articulate.

Beyond interviews, surveys, and on-site research, numerous publications helped shape the CPS, with many coming from the Department of Defense. Beyond the aforementioned UFC 2-600-01 and UFC 2-100-01, the most essential of these publications include:

- *Army Regulation (AR) 210-20, Real Property Master Planning for Army Installations*
- *Technical Instructions (TI) 800-01, Design Criteria*
- *AR 200-2, Environmental Effects of Army Actions*
- *UFC 3-201-02, Landscape Architecture*
Design Components

To create a better understanding of the information gathered during the visual and spatial surveys, as well as the interviews with key ANC personnel, the CPS organizes visual themes according to seven design components, which subsequently serve as sections of the CPS.

- **Site Planning** — arrangement of the physical environment, including natural and manmade components
- **Buildings** — character and arrangement of facilities with respect to one another and to their environment
- **Circulation** — hierarchy and organization of varying modes of transportation, including pedestrian, vehicular, and mass transit
- **Landscape** — selection, placement, and maintenance of plant material
- **Site Elements** — utilitarian elements including site furnishings, signs, lighting, and utilities
- **Sustainability** — integrating sustainable design principles to broader planning initiatives
- **Anti-Terrorism/Force Protection (AT/FP)** — balancing good planning and design with security needs

Preliminary Analysis

The Preliminary Analysis reflects upon the history, mission, and functional structure of the cemetery to plan and articulate a clear direction forward and a practical means to achieve established goals. Identified opportunities and constraints, in conjunction with efficient land use planning, illuminate what projects and initiatives are optimal to achieve the desired vision. Based on the analysis, the most relevant findings for the CPS include:

- Both ANC and SAHNC are more than 150 years old and, through their gravesites, monuments, and landscape features, they reflect key moments in American history.
- Without revisions to the current eligibility and at the current pace of interments, ANC will achieve capacity within 25 years. Efforts to improve capacity must not detract from the natural beauty, historic significance, and serene respect that these cemeteries evoke.
- Unlike most U.S. Department of the Army installations, ANC receives more than 3 million civilian guests each year and hosts a variety of events and ceremonies. The grounds must continue to accommodate these popular events safely and reverently, while continuing to host roughly 24 new interments and inurnments daily.
- Most guests not attending a funeral or committal service tend to gravitate along the paths that connect the three greatest attractions: Memorial Amphitheater and the Tomb of the Unknown Soldier; the President John F. Kennedy Gravesite; and Arlington House, The Robert E. Lee Memorial.
- While providing ease of access for service vehicles, guests in cars, ANC staff, contractors, and funeral caissons, the roads must also serve their primary user—pedestrians—with maximum safety, clarity, and comfort.
- Arlington Ridge, which bisects ANC, allows for numerous opportunities for remarkable views, both of the monuments located on cemetery grounds and the most prominent landmarks of Washington D.C. across the Potomac River. Further planning and design can enhance these viewsheds or capitalize on opportunities to create new ones.
- The number of buildings on ANC grounds are few and typically serve multiple functions. Any effort to change the programming through modification or expansion of these buildings should respect the role they play in making ANC a district within the National Register of Historic Places.
- ANC is a nationally recognized Level III Arboretum and any future planning initiatives relating to the landscape and flora should respect the cemetery’s current Level III status.
Visual Surveys

A variety of exercises help clarify and anchor the planning standards across all aesthetic and operational characteristics in the cemetery. These exercises—consisting of visual surveys, staff, and stakeholder interviews; historic development; and mapping exercises—culminate in the development of visual zones and themes, by revealing central tendencies when one navigates through the cemetery. Visual zones are unique activity nodes created by a specific function, activity, architectural style, or natural feature. Visual themes are large areas sharing broad planning principles, fostering similar design and layout characteristics. Consistent use of design principles within a visual theme weaves a spatial fabric, creating a sense of unity and place. Visual zones, when aggregated, should elicit a small number of core visual themes.

Three primary exercises were essential in developing and reaffirming these visual zones and themes, which are:

1. First Visual Survey (Windshield)
2. Interviews with Key Personnel (Framework Plan)

Figure 103 illustrates the organization and execution of the various tasks and tools, broadly paralleling the process articulated in UFC 2-600-01, Installation Design. The First Visual Survey primarily incorporates the Project Team's perceptions and conclusions. The Framework Plan integrates the varying diagrams that ANC staff created to help account for their impressions of how their duties at ANC contribute to the look and feel of the cemetery. These exercises helped advance and confirm the Visual Themes and Zones established in this chapter. The Second Visual Survey reaffirmed the previous analysis by reclassifying the cemetery by its most prominent assets and liabilities. The balance of this section chronologically depicts the steps taken by the Project Team in this Preliminary Analysis.

First Visual Survey

The visual surveys performed in the preparation of a cemetery design guide, as defined in the CPS process, help to develop, then reinforce the cemetery's visual zones and themes. This first survey served as an overview of the entire cemetery. Also known as a Windshield Survey, it helped to record initial spatial impressions that would eventually define visual zones and themes. Figure 104 and Figure 105 diagram the key observations achieved through this survey, most of which supplemented the existing conditions in other key elements of the RPMP, including the four ADPs, the Burial Phasing Plan, and the Security Annex.
Figure 104. First Visual Survey (Windshield): Primary Observed Conditions Map
<table>
<thead>
<tr>
<th>ID</th>
<th>Observed Condition</th>
<th>Key Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Primary Pedestrian Paths</td>
<td>Large number of people passing from Welcome Center to either Parking Garage or Tour Bus parking</td>
</tr>
<tr>
<td>2</td>
<td>Conflict Points</td>
<td>Potential back-ups between vehicles entering the garage and pedestrians passing between garage &amp; Welcome Center</td>
</tr>
<tr>
<td>3</td>
<td>Conflict Points</td>
<td>Potential back-ups between vehicles entering either the garage or the main gate and pedestrians crossing from Metro exit</td>
</tr>
<tr>
<td>4</td>
<td>Conflict Points</td>
<td>Lack of space in Welcome Center due to amount of functions being performed</td>
</tr>
<tr>
<td>5</td>
<td>Visual Clutter</td>
<td>High concentration of signs with different heights, styles and messages</td>
</tr>
<tr>
<td>6</td>
<td>Underutilized or Isolated</td>
<td>Lack of presence or visibility to WIMSA and Hemicycle, Memorial is disconnected from visitor experience</td>
</tr>
<tr>
<td>7</td>
<td>Prominent Viewsheds</td>
<td>View from atop the hemicycle at WIMSA down Memorial Avenue to Lincoln Memorial</td>
</tr>
<tr>
<td>8</td>
<td>Conflict Points</td>
<td>Potential collision between pedestrians, trams, and vehicles entering the cemetery</td>
</tr>
<tr>
<td>9</td>
<td>Primary Pedestrian Paths</td>
<td>Busiest crowds leaving the Welcome Center and headed toward Amphitheater (Tomb) or Arlington House</td>
</tr>
<tr>
<td>10</td>
<td>Visual Anomaly</td>
<td>McClellan Gate is prominent landmark--height, color, material--surrounded by standardized burial plots</td>
</tr>
<tr>
<td>11</td>
<td>Accessibility Issues</td>
<td>Most direct path from Welcome Center to Tomb of the Unknowns (Roosevelt Drive) has a slope steeper than desired for wheelchairs</td>
</tr>
<tr>
<td>12</td>
<td>Visual Anomaly</td>
<td>Distinctive use of columbaria in an area surrounded by interment sites</td>
</tr>
<tr>
<td>13</td>
<td>Primary Pedestrian Paths</td>
<td>Large number of people traveling Arlington Ridge to the Tomb of the Unknowns and Memorial Amphitheater</td>
</tr>
<tr>
<td>14</td>
<td>Conflict Points</td>
<td>Tomb Guard quarters need space planning; historian and archive space is poorly suited for comprehensive storage</td>
</tr>
<tr>
<td>15</td>
<td>Prominent Viewsheds</td>
<td>View from Tomb of the Unknowns along the Allee of Trees to the Fountain</td>
</tr>
<tr>
<td>16</td>
<td>Conflict Points</td>
<td>Guests accessing restrooms and Amphitheater interior often impede access to quarters for the Tomb Guard</td>
</tr>
<tr>
<td>17</td>
<td>Accessibility Issues</td>
<td>Pedestrian path from Wheaton Lot to the Amphitheater is not suitable for wheelchairs</td>
</tr>
<tr>
<td>18</td>
<td>Accessibility Issues</td>
<td>Amphitheater is largely inaccessible to visitors who cannot manage stairs, new ADA ramp completed 2021.</td>
</tr>
<tr>
<td>19</td>
<td>Visual Anomaly</td>
<td>High concentration of non-conforming, non-standardized graves</td>
</tr>
<tr>
<td>20</td>
<td>Underutilized or Isolated</td>
<td>Low visitor traffic to monuments</td>
</tr>
<tr>
<td>21</td>
<td>Visual Clutter</td>
<td>Unobstructed view of equipment storage and contractor parking, whereas most of Service Complex conceals them</td>
</tr>
<tr>
<td>22</td>
<td>Prominent Viewsheds</td>
<td>View from Arlington Ridge at the terminus of Dewey Drive</td>
</tr>
<tr>
<td>23</td>
<td>Underutilized or Isolated</td>
<td>Area with low visitation to graves and monuments</td>
</tr>
<tr>
<td>24</td>
<td>Underutilized or Isolated</td>
<td>Low visitor traffic to the oldest and most visually distinctive gravesites</td>
</tr>
<tr>
<td>25</td>
<td>Prominent Viewsheds</td>
<td>View from JBMH onto Millennium Project site</td>
</tr>
<tr>
<td>26</td>
<td>Visual Anomaly</td>
<td>High concentration of historic, non-conforming graves</td>
</tr>
<tr>
<td>27</td>
<td>Accessibility Issues</td>
<td>Steep slope and excessive distance between laydown/storage, break space and work site creates strain for ops crew</td>
</tr>
<tr>
<td>28</td>
<td>Visual Clutter</td>
<td>Large, mostly empty parking lot (partly used as equipment storage) and unmarked, underutilized buildings create unwelcoming confusion among visitors</td>
</tr>
<tr>
<td>29</td>
<td>Conflict Points</td>
<td>Potential confusion between pedestrians, trams and limited visibility from slopes</td>
</tr>
<tr>
<td>30</td>
<td>Prominent Viewsheds</td>
<td>View from Crook Walk along Arlington Ridge</td>
</tr>
<tr>
<td>31</td>
<td>Prominent Viewsheds</td>
<td>View from Arlington House near Enfant grave to Memorial Avenue and Lincoln Memorial</td>
</tr>
<tr>
<td>32</td>
<td>Prominent Viewsheds</td>
<td>View from Kennedy Gravesite down Memorial Avenue to Lincoln and Washington Memorial</td>
</tr>
<tr>
<td>33</td>
<td>Conflict Points</td>
<td>Conflicts between pedestrians &amp; vehicles on Sherman Drive, due to limited visibility caused by curved road, slope, and old-growth forest</td>
</tr>
<tr>
<td>34</td>
<td>Prominent Viewsheds</td>
<td>View along Custis Walk toward Kennedy gravesite</td>
</tr>
<tr>
<td>35</td>
<td>Underutilized or Isolated</td>
<td>Lack of permanent, dedicated satellite operations in northern half of ANC creates logistical strain for ops crew</td>
</tr>
<tr>
<td>36</td>
<td>Underutilized or Isolated</td>
<td>Mature burial sites with very little visitation</td>
</tr>
<tr>
<td>37</td>
<td>Visual Clutter</td>
<td>Awkward use of cones to regulate hard left turns onto poorly marked but essential exit ramp</td>
</tr>
<tr>
<td>38</td>
<td>Primary Pedestrian Paths</td>
<td>Crook Walk is heavily used (and physically demanding) linkage between Arlington House and Amphitheater/Tomb</td>
</tr>
<tr>
<td>39</td>
<td>Visual Anomaly</td>
<td>Unrestricted old-growth forest creates visual distinction from typical open viewsheds across most of the cemetery</td>
</tr>
<tr>
<td>40</td>
<td>Visual Clutter</td>
<td>Unappealing arrangement of outdated and non-fixed bicycle racks</td>
</tr>
<tr>
<td>41</td>
<td>Accessibility Issues</td>
<td>Custis Walk, though not as popular as Crook Walk, still has numerous stairs that limit accessibility</td>
</tr>
<tr>
<td>42</td>
<td>Prominent Viewsheds</td>
<td>Mature trees that flank MacArthur Drive create long-distance canopy</td>
</tr>
<tr>
<td>43</td>
<td>Visual Anomaly</td>
<td>Spoils and equipment storage areas impede normal views with the presence of sheathed chain-link fence</td>
</tr>
<tr>
<td>44</td>
<td>Prominent Viewsheds</td>
<td>Mature trees that flank Bradley Drive create long-distance canopy</td>
</tr>
<tr>
<td>45</td>
<td>Prominent Viewsheds</td>
<td>Mature trees that flank Arnold Drive create long-distance canopy</td>
</tr>
</tbody>
</table>

Figure 105. First Visual Survey (Windshield): Primary Observed Conditions Key
The components of the Windshield Survey are straightforward, derived primarily from organizing the Project Team’s initial impressions, as noted in Figure 105. While some of these impressions are generally positive or neutral (primary pedestrian paths, prominent viewsheds, visual anomalies), most account for challenges that good planning principles hope to address: accessibility issues, conflict points where people (either pedestrians or vehicles) do not engage harmoniously, underutilized or isolated areas, or unaesthetic areas of visual clutter. Many of these conditions will recur at later points in the development of the visual zones and themes, as well as the Assets and Liabilities identified in the Second Visual Survey.

Navigational Diagrams

The Framework Plan, which first appeared in the Site Assessment, is an instrumental aspect of the Vision Plan, stipulated by UFC 2-100-01, Installation Master Planning to show the existing features on the cemetery that are most likely to influence development patterns in the future. The purpose of this plan is to provide an on-the-ground understanding of how planning has shaped the landscape up to this point in time, and what leadership at a military cemetery can do to perpetuate its best features, while steering its less favorable characteristics to a better long-term outcome. Through mapping and diagramming, the Framework Plan distills the cemetery’s planning details to their most accessible essence.

The initial Windshield Survey revealed the Project Team’s perspective on the most basic planning considerations at ANC. Yet it was equally important for the team to talk with people who regularly work at and visit the cemetery, including ANC’s department managers (Horticulture, Historians, Events and Ceremonies, the Administration Directorate, Environmental, and Cultural Resources).

Rather than merely interviewing these key staff, the Project Team asked them to diagram how they orient themselves through the cemetery and divide it into smaller core components, using the five navigational elements first referenced in the Preliminary Analysis. The five elements that comprise the Navigational Diagrams are:

- **Districts**: relatively large sections of a landscape that possess some shared character or identity, which are sufficiently large enough that standing and pivoting a full circle will not reveal the entire space
- **Edges**: perceived boundaries, often physical (walls, buildings, major highways), but sometimes more sociological (such as between two districts or political boundaries)
- **Landmarks**: clearly identifiable, spatially compact objects with visual prominence that serve as reference points, such as monuments, architectural features, or distinctive natural features
- **Nodes**: focal points that shift a viewer’s interest but are less distinct than landmarks and can be seen by standing and pivoting at one fixed place, such as intersections, plazas, or transit stops
- **Paths**: the streets, sidewalks, trails, or other channels by which people travel, sometimes clearly defined and maintained but often merely implicit (the most direct way from A to B)

These elements can easily apply in both urban settings or areas with less intense development, such as ANC or any other military installation. They often form the core components of Framework Plans, as recommended and illustrated in Figure 3-3 from UFC 2-100-01, Installation Master Planning.

Figure 106 through Figure 111, the Navigational Diagrams, were instrumental in generating the Framework Plan for ANC. The colors in each plate illustrate how interviews with the six departmental units at ANC resulted in discrete interpretations of the five navigational elements, filtered largely through the lens of their departmental expertise.

Horticulture had differing perspectives on some of the smaller districts, paths, and nodes, but they overwhelmingly agreed on Eisenhower Drive as the powerful edge between the old (pre-1967) portion of the cemetery and the new (post-1967) version, largely determined by the road configuration (Figure 106). The variation among gardens, trees, and aesthetic styles is too great to ascribe districts as they relate to horticultural concerns.
Historians traced a variety of district boundaries, based largely on the period that certain portions of ANC actively hosted first interments (Figure 107). This Framework Plan uses the standard of the five navigational elements, which is distinct from how NRHP defines “historic district.” Two other factors helped determine their district boundaries, including topography and period aesthetics. They agreed that Eisenhower Drive serves as a strong edge between what is considered the historic side (west) and the standardized side (east). They also identified a few of the signature landmarks that reinforced the idea of eleven historic districts.

Events and Ceremonies primarily viewed the five navigational elements in terms of how certain areas must accommodate large crowds, caissons, or other honorees during key events, such as the Memorial and Veterans Day ceremonies (Figure 108). This department emphasized Roosevelt Drive (a common path), as well as entry points to the cemetery on the far north (at Ord and Weitzel Gate) and the south (at the Building 123 Gate), which require a variety of considerations, along with buffer distance to create temporary edges. The conventional nodes, according to Events and Ceremonies, are the three largest attractions: Memorial Amphitheater/Tomb of the Unknown Soldier, Arlington House, and the President John F. Kennedy Gravesite. Other nodes, due largely to the currently high number of first interments/inurnments, are Section 60 and the Columbaria near Nimitz Drive.

Leadership in the Administration Directorate recognized Eisenhower Drive as an edge, but asserted that it did not serve as a powerful demarcation between old and new. According to them, some of the older, more mature cemetery sections east of Eisenhower have achieved capacity and begun to assume the character of the much older sections on the west side of the cemetery grounds. The Administration Directorate distinguished smaller landmarks from the larger districts characterized by high concentrations of visitors, while carefully delineating paths that linked visitors from the most historically significant parts of the cemetery with those that regularly hosted new interments (Figure 109).

Environmental leadership saw the four outflow areas forming the clearest districts, while Eisenhower Drive served largely to bisect the aqueducts that provided water for the region: either Arlington County or D.C. Water and Sewage Authority. From an environmental standpoint, the most identifiable landmarks included a variety of points concentrated near the Millennium Project, the existing Service Complex, and the Welcome Center. At these locations critical research and preventative strategies took place, including Stormwater Best Management Practices and Spill Prevention, Control and Countermeasure (SPCC) initiatives (Figure 110).

Cultural Resources offered district boundaries that broadly reflected those of the Historians, as well as a historic path that today traces the Custis Walk (northeast of Arlington House) and Crook Walk (south of Arlington House). The latter terminates at a conflict point along Farragut Drive and has almost become a negative visual landmark, due to pedestrian bottlenecking from visitors approaching or leaving the stairs that comprise Crook Walk (Figure 111). According to Cultural Resources, many of the monuments serve as either landmarks (if small and defined) or nodes (if larger and surrounded by a plaza), while the Tomb of Remembrance, although small, earns enough prominence through its plaza to become a minor node. Cultural Resources leadership also identified one primary pedestrian path, encapsulating both Custis and Crook Walks.
Figure 107. Historian Department’s Navigational Diagram
Figure 108. Events and Ceremonies Department’s Navigational Diagram
Figure 110. Environmental Department’s Navigational Diagram
Figure 111. Cultural Resource Department’s Navigational Diagram
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Framework Plan and Network Plan

Each of these navigational diagrams represents an expert opinion on how to distill the cemetery grounds to its basic visual elements. While they are helpful for the insight they provide, the CPS must try to encompass all of them as much as possible, while forging a higher-level approach that retains the most essential aspects of each. Figure 112 shows the Framework Plan distilled to the simplest diagramming of the five navigational elements from the six ANC teams interviewed, as well as the Project Team’s final judgment:

- **Districts:** These areas either share a common visual language and are frequented by visitors or they clearly convey through appearance that the area is restricted to ANC staff. While most of the cemetery is unrestricted, a few places clearly do not encourage the same level of visitor exploration, sometimes through overt signals: fencing, hedges, or barriers. Other restrictions are more tacit, as in the case of the administrative area northwest of James Tanner Amphitheater, which hosts the Chaffee Lot (parking) and the old Administration Building, now the NPS ranger station. Though no barriers exist, this area offers nothing accommodating pedestrians in the form of signage or directional guidance, lending credence to the notion that these are not buildings that visitors are encouraged to visit. These districts, both open and restricted, broadly parallel both the Visual Zones and the Area Development Plans.

- **Edges:** The most agreed upon edge is Eisenhower Drive, which separates the oldest portions of the cemetery from its newer (post-1967) expansion. Another edge is the more irregularly-shaped trajectory that cuts along Leahy, McClellan, and Marshall Drives. Areas east of this edge still host active new first interments, while west of this dividing edge are closed. Each of these edges reflects operational differences—visual evidence of the human footprint on the land and ANC’s cemetery design and interment practices. Another conspicuous edge is Sherman Drive, which separates Arlington House and its manicured grounds from Arlington Woods, which is mainly a conserved forest. The visual difference here is stark: on one side of the edge, it is difficult to see evidence of a cemetery.

- **Landmarks:** While ANC features numerous well-regarded memorials, only a few have the visual prominence to serve as a landmark. Usually height or size must be considerable for landmarks to attract the eye. Among the features most appropriately classified as landmarks at ANC are McClellan Gate, the USS. Maine Monument (Mast of the Maine), the Confederate Memorial, and the Spanish-American War Memorial. Also, sufficiently prominent and visually compact is the east-facing porch of Arlington House, perched atop Arlington Ridge. In certain other contexts, a distinctive tree or hillock could serve as a landmark, though the ANC staff did not agree upon any. Although Old Post Chapel stands immediately outside the ANC boundary on JB MHH grounds, its prominent steeple forms a powerful landmark, particularly from the vantage point of the Millennium Expansion site.

- **Nodes:** Smaller than districts, these places are major points of interest, centerpieces amidst the cemetery grounds where visitors congregate. The President John F. Kennedy Gravesite is more aptly labeled a node because of its smaller size and subtle presentation: it is far less visually prominent than some of the less popular memorials. The interiors of both amphitheaters and the plaza for the Tomb of the Unknown Soldier make key focal points, as does the exit from the Welcome Center. Though seldom used, the Hemicycle adjacent to WIMSA has a distinct architectural form that could help it serve as a node. Various other locations around the Administration Building serve as staff assembly points that could function at times as nodes as well.
Figure 112. ANC Framework Plan
• **Paths:** These are the most popular routes for pedestrians, and by foot is the most frequent means of travel across ANC. Roosevelt Drive is the primary path, as identified by nearly all key staff members through interviews. Equally important is the combination of Crook and Custis Walks, which in combination form a pedestrian path linking the Memorial Amphitheater to Arlington House and then continuing to Ord and Weitzel Gate. West of Arlington House is a less used but highly visible path along Meigs Drive, leading to the Old Post Chapel Gate. The final path identified is the most common path for guests toward the site of most new committal services and first interments/inurnments. It proceeds first southward down Eisenhower Drive, then along Leahy and Marshall Drives toward the columbaria and some of the most active current burial sections. Of note is the absence of a major pedestrian presence along most of Eisenhower Drive, despite its role as the cemetery’s north-south “spine.” Only one of the six departments identified the full length of the road as a key pedestrian path, with the most heavily used segment closest to the Welcome Center and Leahy Drive. The southern portion of Eisenhower Drive is not a heavily used path.

The logical companion map to the Framework Plan is the Network Plan, as represented in Figure 113. The Network Plan expands primarily upon the understanding of nodes, landmarks, and paths to show how visitors typically orient themselves, using primarily the roadway hierarchy. It shows the principal circulation paths for pedestrians, tram routes, and commonly used primary/secondary roads for private vehicles (both honored funeral attendees and ANC staff), juxtaposed with the cemetery’s largest attractions and the radii for walking distances. Also included in the typical network plan are the most prominent utility lines; however, due to potential critical facility concerns, all utility mapping is available in the appendices to the Security Annex, a separate volume.

This Network Plan uses as its baseline the standard practice in pedestrian planning, which is to presume most people would be willing to engage in at least a five-minute walk before seeking either to rest or pursue another means of transportation. In a normal urban setting, the average person can cover approximately one-quarter mile in that time. However, given the relaxed pace of most ANC visitors, their higher than median age, and the somewhat rugged topography approaching Arlington Ridge, this Network Plan assumes a more conservative one-eighth mile coverage in a five-minute walk, or a one-quarter mile within a ten-minute walk. Using these radii, the Network Plan shows both typically accepted distances within the hierarchy of rights-of-way (paths) between nodes, but it also reinforces which portions of the cemetery remain largely unvisited, due to insufficient landmarks or points of interest. A better understanding of existing networks can help organize future planning for new rights-of-way, carefully spaced memorials, or a different configuration for tram routes and stops.
Figure 113. Network Plan
Visual Zones

The Framework and Network Plans form the analytical foundation for the Visual Zones and then the Visual Themes. Visual zones are discrete geographic sub-units that, in combination, serve to shape the most fundamental visual themes. Visual characteristics or functional requirements define the “look and feel” of a visual zone. They largely parallel the districts or nodes applied in the navigational diagramming used to create the Framework Plan. Those districts or nodes worthy of elevation to ANC’s Visual Zones must demonstrate at least one of the following characteristics:

- Enough historical/cultural distinction (as determined through departmental interviews)
- Propensity for enhancing the mission and vision at ANC
- Significant positive or negative aesthetic influence
- Capacity to host essential future development
- Exclusively serve a function otherwise unaddressed
- Prominently featured elsewhere in the RPMP

Typical visual characteristics include unique buildings, vehicular and pedestrian corridors, natural features, spatial relationships, and shared historical significance. Typical functional requirements include service, interments/inurnments, arrival, and administration. The following paragraphs present an analysis of each of the visual zones that emerged after the analyses generated through the navigational diagramming exercises, the Framework Plan, and the Network Plan. Figure 116 depicts the locations of each of the Visual Zones.

Amphitheater Zone

The Amphitheater Zone includes the Memorial Amphitheater, the Tomb of the Unknown Soldier, and surrounding landscape. The boundary is Memorial Drive to the west and the perimeter paths to the north, south, and east. ADP 2 encompasses most of this zone and extends westward.

The Amphitheater sits at one of the most prominent locations in the cemetery. The white marble of the neoclassical structure, its sheer size, and the ceremonial association with the Tomb of the Unknown Soldier create a strong focal point—both as a landmark (the massing of the Amphitheater) and as a node.

The plaza at the west entrance is subtler, lacking the prominence achieved by the slope flanking the structure to the east. As one steps into the Amphitheater, the pure white, large, symmetrical, neoclassical structure commands respect. This sets the stage for the Tomb of the Unknowns attended by the sentinels on the terrace at the east side of the monument. The Doric columns of the colonnade in the Amphitheater give way to more elaborate Corinthian pilasters on the east side of the structure where the steps provide a stage to observe the ceremony. This prominent location affords an overlook of the cemetery landscape and Washington, D.C. to the east. The largest structure in the cemetery stands out with architectural expression and ceremonial use.

Millennium Zone

The Millennium Zone consists of approximately 27-acres, part of a previous expansion that increased burial space at ANC. The site is in the northwest porti on of the cemetery, adjacent to JB MHH to the west and NPS property to the east and south. Although the stated boundaries for the Millennium Project typically account for the forested area southeast of Lewis Drive (listed as part of Cemetery Section 29 and largely under NPS operations), this Visual Zone excludes that section, because it fits visually into another zone (the Forest Zone). As seen in Figure 114, this zone includes casketed burial sections, in-ground cremains sites, and columbaria. Improvements include preset crypts for in-ground burial, columbarium niche sites and in-ground cremains sites, an ornamental and security perimeter fence that incorporates material from the historic boundary wall, retaining walls, landscaping, and environmentally sensitive pedestrian access roads and walks. Comprising the cemetery’s most recently completed expansion, the Millennium Zone will likely appear much newer even to the untrained eye.
Columbarium Zone

At the southeast corner of ANC in Section 63, a large columbarium complex stands apart from the open burial grounds. The inward-looking structure is surrounded by unadorned canted limestone walls nine feet high. A committal shelter marks the entrance and shields visitors or family members from heat or rain. The columbarium is divided into sections. No more than six vertical rows of urn niches are set into the concrete frame, so that the inscription plates are reachable and touchable for an adult of average height. Landscaping and a central open space with water features provide visual relief, shade, and connection to nature. The formal symmetrical layout of the columbarium court complex contrasts with the intimate feeling of the smaller-scale interior courtyards. Archways and a sequence of limestone gates allow for physical and visual access from the outside into the individual sections. The front inscription plates are marble, which is consistent with the classical architecture throughout the cemetery and evokes a sense of permanence. While the Columbarium Zone is currently very active with first inurnments, the majority of the columbaria are at or near capacity, so the zone is likely to experience a significant drop-off in committals in the next five to ten years.

Entry Corridor Zone

The Entry Corridor consists of Memorial Avenue, Women in Military Service for America Memorial (WIMSA), the Hemicycle, the Administration Building, Welcome Center, and parking garage. ADP 1 largely encompasses this zone, extending to both sides of Memorial Avenue.

Memorial Avenue terminates at the Hemicycle and serves as the central feature and the ceremonial entrance to ANC. The Hemicycle serves as the façade for WIMSA, a structure tucked into the base of the slope formed through Arlington Ridge.

The Administration Building is laterally oriented and elegantly spare in appearance—an archetype of modernism from the mid-twentieth century from which the architect conceived it. The rhythm of the façade and the white marble relate to the neoclassical vocabulary found elsewhere on the cemetery. The Administration Building contains offices and family visiting rooms.

![Figure 115. Gathering Space at the north entrance to the Welcome Center, near the pedestrian entrance from Memorial Avenue.](image)

The Welcome Center and the adjacent visitor parking garage were completed in 1988. The one-story building with full basement includes administrative office space, a gift shop/bookstore, exhibit space, restrooms, and tram ticket booth. The exterior walls are concrete block with stucco, limestone trim, and porticos with Tuscan columns. There is a barrel vault skylight over the main exhibit space. Plazas surround the exterior of the building on the north, east, and west sides. Figure 115 depicts the northern plaza where the Welcome Center pedestrian entrance from Memorial Avenue is located.

Administrative Zone

This zone features a mix of grounds managed by ANC and NPS. The center point is the Chaffee Lot, the largest parking lot at ANC outside of the Entry Corridor Zone not intended for construction equipment. A variety of smaller buildings surround it on the perimeter, including the Old Administration Building, Buildings 313 and 314, and Lodge #1. The lack of signage here may cause confusion, but the appearance of this zone is primarily one of office/service buildings, which does not entice visitors. Though the area lacks overt restrictions or pedestrian barriers, the primary intended purpose of the land and the buildings is to serve NPS and ANC staff. The Chaffee Lot accommodates visitors on rare occasions, usually for events at Arlington House or the James Tanner Amphitheater. Parts of this zone are featured in ADP 4 (Meigs-Tanner).
Figure 116. Visual Zones as Determined by the Framework Plan.
Historical Zone

Bounded by Meigs Drive on the south, this zone encompasses the original entrance to ANC (near the old Administration Building) and hosts Cemetery Sections 1 and 2, two of the original burial sites at ANC’s founding. A pedestrian path parallels Meigs Drive to encourage visitation, but generally Burial Section 1 is less frequented by tourists than its historical interest would suggest, perhaps because it assumes the appearance of a more conventional cemetery. Not only are these graves the oldest, but few are standardized according to ANC’s custom, and therefore offer aesthetic and sculptural interest. Many of these graves host prominent families affiliated with the Civil War. Burial Section 2 shares many of these features but receives more passers-by on their way to Arlington House. Neither section receives new first interments. ADP 4 (Meigs-Tanner) encompasses much of this zone.

Monument Zone

This zone extends west of Memorial Drive and the Memorial Amphitheater all the way to the western wall shared with JB MHH. The northern boundary is Farragut Drive, and the southern boundary is McKinley Drive. This area features the highest concentration of distinct, commemorative monuments: The Confederate Memorial, Rough Riders Memorial, Spanish-American War Nurses Memorial, and the Mast of the Maine among others. While a few—the Confederate Memorial and Mast of the Maine in particular—are tall and visually prominent enough to serve as landmarks, this portion of the cemetery receives comparatively few guests in proportion to the number of points of interest. It receives little to no new first interments. ADP 2 (Amphitheater) encompasses much of this zone.

Service Zone

The Service Complex is the dominant feature in this zone. The complex consists of low-rise buildings built into the grade to reduce their visual impact. The muted color scheme and the architectural vocabulary also help blend these structures into their surroundings. The complex consists of office space for staff, locker-room facilities, and garage and storage space for maintenance equipment. ADP 3 encompasses the majority of the Service Zone. Future plans for the Service Complex anticipate its complete or near-complete demolition, with functions relocated to a new Operations Complex at the Southern Expansion site.

Forest Zone

The Forest Zone, often referred to as Arlington Woods, is an 18.25-acre old-growth forest to the northwest of the Arlington House. It is split in management between ANC and NPS, with approximately two-thirds of the acreage under NPS control. Environmental experts claim that many of its trees may predate colonial settlement. As a contributing feature to the adjacent, NRHP-listed Arlington House, there is no intention for it to remain as anything other than untouched forested land.
Visual Themes

As defined by *UFC 2-600-01, Installation Master Planning*, Visual Themes help generalize and organize “the various broad-scale activities that occur on an installation” (or cemetery), and usually reflect similar design or layout characteristics that facilitate the execution of those activities. The establishment and conscious adherence to these themes can create visual unity, which in turn, organizes the grounds for visitors, reinforces visual contrasts, and improves navigability. ANC’s key personnel have an intimate understanding of the cemetery grounds, both through their disciplines and a rich understanding of how guests have engaged in the premises over a long period of time. Visual Zones, established previously from the districts and nodes in the Framework Plan, serve as the core elements; however, these analyses aim for a greater scale, integrating the three more palpable of the five navigational elements—the landmarks, the paths, and especially the edges—to define the Visual Themes.

Most departments at ANC agree that the cemetery has two distinct Visual Themes, with Eisenhower Drive serving as the primary dividing entity. While opinions vary greatly on what is the most appropriate label for these distinct areas, most recognize that Eisenhower Drive fundamentally separates the oldest sections of the cemetery to the west from the newer expansions to the east. Labeling the two themes as “old” and “new” is inappropriate and inaccurate, as neither section is particularly new compared to the Millennium Project or the Southern Expansion. A better distinction is to label those portions of the cemetery that pre-date 1967 (when ANC absorbed the South Post of Fort Meyer) as “established,” while referring to the lands that post-date the 1967 expansion as “contemporary.” Figure 118 adopts this approach for the Visual Themes.

Established Theme

The area west of Eisenhower Drive features meandering paths, rolling lawns, and groves of trees dotted with picturesque buildings and monuments. The planning and design of this area can be attributed to the direction of Quartermaster General Montgomery C. Meigs during the first years of ANC’s existence. The undulating land, mature vegetation, and curvilinear roadways, which largely trace the contour lines formed by the topography, are consistent with the informal style of classical English garden design. Certain cemetery sections in this portion use varied and customized headstones (particularly in the Historical Zone), serving as an unusual contrast to the iconic Arlington association of uniform white headstones placed at identical intervals, characterized by Burial Section 31 in Figure 117. Various monuments serve as landmarks and activity nodes. The mature trees, far more numerous than in the Contemporary Theme, provide shade and an intimate natural setting, often obscuring views outside the cemetery while framing views inside the cemetery. This section of the cemetery also contains the oldest forested area, which is under management by NPS.

The Established Theme hosts the majority of monuments and historic markers. Outside of funerals and committal ceremonies, this theme receives the majority of tourists and guests, since it contains ANC’s most popular attractions: Memorial Amphitheater and the Tomb of the Unknown Soldier, President John F. Kennedy Gravesite, and Arlington House. Nearly all events and ceremonies take place in the Established Theme; however, outside of the newly active Millennium Zone, this theme hosts very few first interments.

One critical exception to the characteristics described previously is the Millennium area. This 27-acre expansion incorporates land formerly controlled by JBMMH and NPS, which Congress authorized to transfer to ANC in the late 1990s as capacity concerns began to escalate. Construction began in 2014 and was completed in 2019. Although the Millennium Project site largely continues the curvilinear street design throughout the rest of the Established Theme (west of Eisenhower Drive), the function is radically different: it will host numerous first interments and committal ceremonies in the years ahead, much like the grounds east of Eisenhower under the Contemporary Theme.
Figure 118. Visual Themes as Determined by the Framework Plan
Contemporary Theme

East of Eisenhower Drive, on land formerly owned by the South Post of Fort Myer from 1941-1966, cemetery architects created roads in a rough grid pattern primarily either perpendicular or parallel to the historic Georgetown-Alexandria Road, which the 1966 expansion rechristened Eisenhower Drive. McClellan Gate, formerly an entry point to the cemetery, now sits squarely in the center of ANC’s boundary after that expansion. The Contemporary Theme consists of land from Eisenhower Drive to the eastern edge of ANC and from Memorial Avenue to the southern edge Section 26 and 69. Its age, appearance, and overarching purpose collectively endow the portion of the cemetery that is East of Eisenhower Drive with a more contemporary appearance, sharply contrasting with the older burial grounds to the west.

While the Contemporary Theme clearly prioritizes functionality over aesthetics, the differences extend to more subtle design features. The topography is more level. The trees are less mature and more deliberately placed. The gardens prioritize sustainability (rainwater harvesting) over visual distinctiveness. Its overall impression is one of a constrained landscape of organized tree-lined streets, symmetrical plans, and vast expanses of open fields of identical government headstones. The intent of this Contemporary Theme is one of order over nature, evoking less of a conscious design scheme and more of a need to maximize efficient use of the land for new interments.

The Contemporary Theme hosts the majority of first interments and commitment ceremonies. Monuments and major events are rare, resulting in a considerably lower number of visitors outside of funeral attendees. The intent for interments is to the Contemporary Theme families seeking gravesites of loved ones. While lands east of Eisenhower Drive currently fulfill the component of ANC’s mission that seeks to honor those who served, the majority of these cemetery sections have also reached capacity and no longer receive first interments. A few small sections remain largely open, as seen in Figure 119. The remaining burial sections, the columbaria, and the niche wall could also reach capacity within the next 10 to 15 years without changes to eligibility, leaving the Contemporary Theme at complete occupancy, but without the monuments, events, or tourist appeal visible in the Established Theme.

Second Visual Survey

The Second Visual Survey took place after establishing and validating visual zones and themes with ANC. This survey, operating as an inventory of any remaining or emergent zones, developed through follow-up interviews with key specialists at ANC, particularly Cultural Resources. Using visual zones and themes as framing devices, the Project Team identified and defined the visual and spatial assets and liabilities of each zone, with particular focus on the four ADPs. This collaborative second survey resulted in a map of assets and liabilities, depicted in Figure 120, further developing the analysis on viewsheds and prospective new activity nodes, which first began in the Windshield Survey.

The Assets and Liabilities Map demonstrates how these interviews diagrammed less conspicuous but optimal viewsheds, in which sight-lines toward prominent architectural or natural features should remain unimpeded. It clarified substandard views, where the aesthetics are poor, and where strong vegetation could impede areas best left concealed to cemetery guests. Lastly, Cultural Resources identified strong potential—but currently compromised—viewsheds, where a vegetation maintenance program could help open new possibilities for visitors to appreciate ANC’s most remarkable vistas. This mapping analysis similarly classified strong potential activity nodes, versus two unsuitable locations where a tendency for pedestrians to congregate could impede flow and access.

Many of these assets and liabilities served as areas of opportunity or conflict points within the four ADPs. They formed the inspiration for planning and design-based solutions, as articulated in the Preferred Alternatives in the Project List that appears at the end of the ADPs and then generates both cost estimates and a schedule in the Development Program, contained as a second volume.
Figure 120. Assets and Liabilities Map
Site Planning

Site planning refers to the physical arrangement of structures, landscape, stormwater management, and circulation in the built environment. Together, these site planning elements create an optimal relationship where natural and manmade conditions efficiently and aesthetically help meet cemetery goals.

The site planning process was incorporated into the development of the ADPs for the RPMP. Data gathering, visual and spatial surveys, stakeholder interviews, the Framework Plan, and a review of opportunities and constraints all helped build the concepts and recommendations.

Principles

Site planning design principles derive from the visual surveys of natural and manmade elements at ANC: The Windshield Survey, as well as Assets and Liabilities. The interplay between elements results in a serene, dignified, and iconic built environment. In order to maintain and preserve the landscape at ANC, manmade site conditions should minimize negative environmental impacts on natural site conditions. General site planning principles include the following:

1. Prioritize land use to maximize available burial space.
2. Incorporate natural characteristics into the design of the cemetery.
3. Cluster facilities to prevent sprawl, limit impervious surfaces, and reduce construction costs.
4. Space plan facilities for the end-user, whether guest, staff, or contractor.
5. Consider cemetery expansion when siting facilities in order to prevent reconstruction.

Policy Considerations

The site analysis concluded that the primary fit for a facility depended upon the surrounding built environment. The relevant design features use the location and organization of spatial relationships to help site a new facility or structure. These design features include: architecture (building design), circulation, landscape architecture, site elements, sustainability, and force protection, all of which should be considered when assessing the visual and spatial impacts of a site.

Form-Based Planning

Form-based planning guides construction by identifying the form for cemetery development (structure types, height, setbacks, circulation patterns, landscaping, land use, etc.) and translating that form into a set of specific planning directives. These directives use products typically developed by planners, including illustrative plans; land-use plans; and street, structure, and landscape standards to flexibly guide development. The resultant forms reflect mission needs, program requirements, environmental constraints and opportunities, and other development factors.

In a military setting, this practice gives installation commanders the ability to exercise more control in the installation development process. The purpose is to create a planning practice that is based on a sustainable form that supports the cemetery’s planning vision. Form-based planning promotes horizontal and vertical mixed-uses, compact and walkable development patterns, and spatial principles that support sustainable development.

Vertical Mixed Uses

Where feasible, designers should locate compatible uses within the same structure, which is referred to as vertical mixed-use. This approach can maximize land use and infrastructure efficiencies. To achieve vertical mixed-use development, planners and programmers need to synchronize future projects. Existing vertical mixed-use facilities include the Welcome Center, Memorial Amphitheater, and Building 123.

Accessibility

All structures and facilities must meet the standards of the Architectural Barriers Act (ABA) and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards applied in the event of conflicting guidelines (see AR 420-70, Chapter 2, Paragraph 2.8). This includes the avoidance of site barriers by using curb cuts, ramps, handrails, and grade-level entrances. All major parking lots and drop-off zones should provide designated handicapped parking spaces for persons with mobility impairments. Existing structures should be modified for handicapped accessibility whenever possible, especially facilities that are most likely to be used by families, veterans, or visitors.
National Environmental Policy Act (NEPA)

NEPA requires that an Environmental Assessment (EA) be submitted to the U.S. Environmental Protection Agency (EPA) for major projects that may significantly affect the environment. The EPA reviews and responds to filed assessments.

All NEPA documentation should be started before the site selection process, as required for the DD Form 1391 process.

Natural Site Conditions

The relief of the natural terrain is a major determinant of the location, layout, and form of structures and elements at ANC.

Topography

Slopes and changes in elevation can influence everything from viewsheds to stormwater runoff. Manmade changes to topography could have significant direct and indirect implications on such features. The following principles should be followed to maintain the natural topography of the cemetery:

1. Maintain natural ground slopes and elevations.
2. Align roadways and buildings along topography, avoiding road design that is excessively steep for certain users or vehicles.
3. Locate facilities that have expansive ground coverage on relatively flat terrain.
4. Use moderately sloping areas for buildings with less ground coverage area, while ensuring that massing does not disrupt existing viewsheds.
5. Avoid development on steep slopes.
6. Avoid development in natural drainageways and floodplains.
7. Provide a reasonable balance of cut and fill.

Hydrology

The hydrology of the cemetery should be considered when site planning. There are four main hydrologic sources at ANC: stormwater runoff, streams and drainage ditches, groundwater, and flood water. All sources can impact the natural and manmade elements at the cemetery, including existing and future gravesites. When considering future site developments, the planning team should investigate the impact of these hydrologic sources and mitigate their impacts on new structures or elements. The adoption of sustainable urban drainage systems and other practices facilitate the reclamation of natural hydrologic patterns.

Climate

Arlington County experiences hot, humid summers and generally mild to cool winters, with abundant precipitation throughout the year. Structures and site elements at ANC should be adaptive to all weather forms, including high heat, severe rain, snow, ice, and everything in between. Accounting for the variable temperate climate, the planning team should seek to balance seasonal thermal variations, promoting passive winter heating and summer cooling.

Viewsheds

ANC has many historic and scenic viewsheds that link monuments and features to the surrounding landscape, as seen in Figure 121. The preservation of these viewsheds is of great importance to ANC leadership, the Cultural Resources department, Historian team, and Horticulture team. Future design and development changes to the cemetery should preserve and enhance scenic views and screen unattractive structures or elements. Visual extensions through open spaces provide a sense of orientation, finality, and relief from the rigid horizontality of the horizon line.

Vegetation

The native and diverse vegetation at ANC has achieved the standards of a Level III Arboretum status as defined by ArbNet. The preservation and protection of existing vegetation is essential to maintaining this arboretum accreditation. Preservation of the woody species and plant collections also reduce maintenance, enhance sustainability, and provide a quality visitor experience. The vegetation at the cemetery needs to be taken into consideration when site planning for new elements or structures.

Figure 121. Viewshed from Pierre l’Enfant’s Tomb
Manmade Site Conditions

Manmade site conditions include all real property development within the cemetery borders, including buildings, roads, parking lots, walkways, walls, fences, utilities, and support facilities. Manmade elements must be planned in congruence with the natural site conditions mentioned previously. All manmade site conditions at ANC should follow these principles:

1. Cluster new construction to reduce impact on natural site elements.
2. Utilize existing topography to reduce cut and fill, preserve natural vegetation, and maintain natural drainage patterns when siting new facilities, roads, or elements.
3. Minimize solar heat gain for summer cooling and maximize solar heat gain and retention for winter heating.
4. Design outdoor pedestrian areas with pedestrian comfort as a priority.
5. Use lighter colored building surfaces exposed to the sun and darker colors on recessed surfaces to absorb radiation.
6. Consider climatic conditions when orienting fenestration.
7. Minimize broad expanses of impervious surface without considerable stormwater runoff solutions.

Infrastructure

The network of telecommunications and utility infrastructure at ANC is a foundational element of the cemetery’s day-to-day operations. Largely unseen, pipes and ducts run underneath the roadways and pathways, servicing all facilities and site elements. The infrastructure network at ANC must be cost-efficient, redundant in its capabilities, and capable of meeting minimum capacities to support current and future operations.

Telecommunications Infrastructure

Network operations are supported at two primary facilities at ANC: The Administration Building and Building 123 at the current Service Complex. Rapidly advancing technology and future projects, like the Administration Building renovation and Southern Expansion, create conflicts and deficiencies in the existing telecom infrastructure network. Interviews with telecom expertise at ANC highlight the following conflicts:

- A secondary Network Operations headquarters is needed. This secondary headquarters would alleviate current concerns by providing additional redundancy to the system, while taking into account Building 123’s proposed demolition as the Southern Expansion development advances.
- Deficient infrastructure creates network issues that could impact visitors & the ANC workforce. Abandoned and obsolete equipment occupies current ducts and, when removed, potentially breaks other working equipment. A lack of fiber optic capacity cannot be corrected due to overcrowding in existing duct network.
- Telecom improvements must be integrated into current projects, to prevent delays and inflating cost. Project plans should account for telecom upgrades, phasing them seamlessly with the design and construction of new facilities or infrastructure.

The following principles can mitigate current and future deficiencies:

1. The installation of new telecommunications equipment or the upgrade of existing equipment shall comply with UFC 3-580-01, Telecommunications Interior Infrastructure Planning and Design.
2. ANC telecom staff should remove obsolete or abandoned telecommunications equipment from existing ducts to preserve usable space for new equipment, or to allow more room for potential interment space.
3. The construction of new roadways, or renovations of existing roadways, should incorporate phased upgrades to below-ground ducts and wires to encourage cost-efficiency.

4. Above-ground telecommunications infrastructure, like wi-fi poles, shall meet the requirements noted in the Site Elements section.

5. Where possible, projects should incorporate the installation of redundant telecom capabilities to avoid outages and capacity concerns.

**Utility Infrastructure**

The utility network at the cemetery requires the same considerations as telecom infrastructure since both often occupy the same spaces. The design, maintenance, and expansion of the utility network serves current and future operational needs and must be built to house the required capacities. The following principles guide the upgrade and expanding of the utility network at ANC:

1. The installation of new utility equipment or the upgrade of existing equipment shall comply with UFC 3-401-01, Mechanical Engineering or the relevant guideline.

2. ANC utility staff should remove obsolete or abandoned structures or lines to preserve usable space for new infrastructure or potential interment space.

3. The completion of phased upgrades to below-ground lines or structures in conjunction with other roadway or infrastructure projects will maximize cost efficiency.

4. The installation of renewable energy and water-efficient systems will meet sustainable design principles.

5. The design and construction of HVAC systems should ensure human comfort, health, and safety while meeting established standards.

**Building Design**

Building design includes the structural, cultural, functional, and aesthetic considerations of facilities around the cemetery. All aspects of the building, from the exterior envelope to the interior layout, must be considered when renovating or constructing new facilities at ANC.

The building design analysis includes the structural character of the buildings, materials, use, and arrangement of buildings with respect to one another and to their environment. The visual analysis of buildings and structures also addresses placement of entrances, accessibility, service areas, plazas and courtyards, and physical security.

**Building Design Principles**

Buildings do not dominate the ANC landscape. However, because relatively few buildings span the cemetery’s sizable grounds, most of the existing ones achieve an uncharacteristically high visual prominence. Their style and placement contribute considerably to the overall character of the cemetery. Consistent use of design principles should preserve this character, reflecting the cemetery’s historic and cultural significance. **Figure 122.** James Tanner Amphitheater is a Contributing Feature within ANC as a NRHP Historic District.

Building design principles should also visually blend into the broader landscape and incorporate efficient, climate-responsive building techniques. Broad building principles include the following:

1. Maintain and preserve the iconic image of the cemetery through a unified visual language.

2. Cluster like-use facilities together to maximize operational efficiency.

3. Integrate landscape and architectural designs to optimize structure performance and maintain consistency with existing and planned development patterns.

**Figure 122.** James Tanner Amphitheater is a Contributing Feature within ANC as a NRHP Historic District.
4. Be cognizant of the natural setting of the site; its contours and vegetation are assets to be preserved and woven into the design as much as possible.

5. Implement sustainable design and construction techniques.

6. Promote equitable public health and enhance the working environment.

**Considerations**

Among the various considerations that building design principles must recognize are those highly subjective features that one typically labels as “character”—discrete elements, often difficult to describe, that appeal to the senses in a distinct fashion that unifies them. The aforementioned principles should treat character as the aspirational argument, giving definition to the often ineffable.

**Design Character**

The character of architecture varies according to the design function of the structure and when it was built. Because the cemetery grew incrementally over many years from its core near the Arlington House (initially referred to as the Custis-Lee Mansion), the design and character of facilities around the cemetery largely correlate with others in the same geographic radius. Therefore, the Visual Surveys identified nine Visual Zones, which define the look and feel of particular sections of the cemetery. Future projects and building designs should parallel the architectural character of adjacent structures, monuments, and landscapes mentioned within the Visual Zones section.

**Historic and Cultural**

Historic and cultural resources dominate the landscape at ANC and require consideration when planning for the future. ANC is listed as a historic district by the National Register of Historic Places (NRHP) with numerous contributing properties, which the Army must preserve under the National Historic Preservation Act (NHPA). Any consideration of the policies and procedures that guide future development must reference the historic and cultural landscape at the cemetery, and vice versa.

The NHPA (16 USC, 470) mandates the preservation of historically and culturally significant structures at ANC. Eligible properties on the NHRP, such as the James Tanner Amphitheater featured in Figure 122, are required to comply with the NHPA. Furthermore, Federal agencies will take into account the potential effects of their proposed actions on historic properties, and avoid, minimize, reduce, or mitigate any adverse effects to historic properties in consultation with the State Historic Preservation Office and other relevant consulting parties as per Section 106 of the NHPA, codified in 36 CFR Part 800. Direct and indirect effects to historic properties, including impacts to viewsheds of historic districts, must be reviewed by the Cultural Resources Manager during the design process, prior to any federal or local agency review.

**Rehabilitations and Additions**

Any rehabilitation or addition to existing structures should consider the architectural character. The use of materials, color, shape, size, scale, and massing of the addition or rehabilitation should be compatible with the existing structure. When considering historic structures, like the rehabilitation of the existing Administration Building or restoration of the James Tanner Amphitheater, preservation work must be done in consultation with the Cultural Resources Manager and in accordance with Section 106 of the NHPA. Additionally, the 2014 Programmatic Agreement between ANC, Virginia SHPO, and the Advisory Council on Historic Preservation provides detailed stipulations on how to resolve adverse effects, if applicable, as they pertain to historic properties. This Programmatic Agreement covers certain critical undertakings—operations, maintenance, and repair—but not others (new construction and demolition). Determining how to meet these stipulations must occur early in the planning inception.

**Facility Utilization**

The Project Team conducted a Facility Utilization Survey (FUS) as part of the RPMP to analyze existing facilities, personnel, and equipment to determine operational capacities and current deficiencies. It enumerates excess and deficient space in facilities at ANC. As noted in the FUS, future development should meet cemetery requirements with regard to space management optimization and the reuse, repurposing, or removal of existing assets.
Exterior Structure Standards

The Project Team developed exterior structure standards through discussion with the ANC Engineering department and the Cultural Resources Manager. These standards provide guidance on developing the entire structure exterior, from walls and roofs to fenestration. ANC leadership determines acceptable massing, height, and materials and exteriors must comply with the NHPA where appropriate. The best repository for additional critical references is the Secretary of the Interior’s Technical Preservation Services (available under the NPS website), which includes the Standards for the Treatment of Historic Properties, providing extensive guidelines that distinguish rehabilitation, preservation, restoration, and reconstruction. Also available within Technical Preservation Services are 50 Preservation Briefs, which provide more precise information on specific undertakings related to the preserving, rehabilitating, and restoring of historic buildings, including roofing, repointing mortar joints, repairing wooden windows, use of substitute materials, and controlling moisture, among many other volumes. Any undertaking as defined in ANC’s Programmatic Agreement should look to Preservation Briefs to see if a particular manual applies to the activity necessary for addressing an issue affecting a historic structure.

Exterior Walls

Exterior walls provide the structure with a weather-resistant exterior envelope, including flashing and drainage. They should be constructed using a natural stone veneer. White marble, limestone, granite, or other natural stones are appropriate depending on the historical designation of the structure or district as identified by the NRHP.

Painting of exterior walls should be avoided to reduce maintenance requirements. If it is necessary to paint historic structures, the paint should match the existing colors or historically-documented, previously-used colors. Environmentally-preferable paints and sealants should be used for the structure’s exterior to reduce harmful volatile organic compounds (VOC) emissions and protect the health of workers. Adhesives, sealants, and sealant primers should comply with South Coast Air Quality Management District Rule 1168. VOC emissions from paints and coatings should not exceed the limits of Green Seal Standard GS-11 requirements.

Roofing

Roofs are exposed to all climatic conditions and can expose the structure to moisture or intrusion if not properly designed and maintained. Roofing systems installed at ANC shall provide thermal insulation and prevent considerable moisture intrusion. However, to prevent sick building syndrome—generally characterized by high quantities of VOCs and insufficient ventilation—roof design must be sufficiently porous to let out entrapped moisture and air. In addition, gutters and scuppers shall mitigate potential water intrusion in weather events.

Recommended roofing materials include copper, slate, or artificial slate depending on the historical designation of the structure or its NRHP-identified district. Standing seam roofs are also suitable depending on the function of the structure.

Existing structures are threatened by weight, slope, existing and hazardous materials, and historic preservation concerns. When considering the reroofing an existing structure, an analysis of the existing roof deck should be conducted per UFC 3-110-03, Roofing.

Structure Materials

Structure materials make a major contribution to the color, texture, and character of ANC. A limited palette of durable, low maintenance materials can encourage a variety of expressions while providing a cohesive and consistent architectural character throughout the cemetery and within each visual zone. Materials should reflect the function of a structure and its hierarchy within the cemetery.

Use the following guidelines when selecting exterior structure materials:

1. Choose materials for their longevity and maintenance characteristics.
2. Use materials with integral colors; avoid painting exterior colors.
3. Use cemetery standard materials for exterior walls. Add accent colors sparingly. Accent colors can be used in recesses and to accent certain portions of a structure’s façade.
4. Use pre-finished material where possible, such as gutters, window frames, doorframes, etc.
Fire Protection

Facilities are required to establish a minimum level of fire protection under national code requirements and UFC 3-600-01, Fire Protection Engineering for Facilities. All existing and new structures are required to meet minimum requirements to be deemed habitable for personnel. Any changes in occupancy to the facility require a reassessment of the standards.

A fire protection analysis is required for all projects during the design phase of new project development. A certified Fire Protection Engineer must approve all final project developments.

Moisture Control

A moisture control strategy should help assess building materials and prevent moisture flows and condensation. Moisture flows and condensation are a significant cause of building damage, mold contamination, and other moisture-induced health risks. The strategy should meet the requirements of ASHRAE 189.1, Section 10.3.1.5 and UFC 3-101-01, Chapter 3, Building Envelope Requirements.

Fenestration

Apertures such as doors, windows, vents, and skylights serve multiple functions for each facility. They provide safety and security, aesthetic and architectural compatibility, and accessibility for guests and staff. Fenestrated features should be constructed under the following guidelines:

1. Entryways should be in a prominent location, as well as ABA and UFAS compliant. They should be oriented toward primary public spaces.
2. Fenestrated features should be compliant with AT/FP guidelines referenced in the AT/FP Design Component and Security Annex.
3. Windows and skylights should be double-pane insulated glass and maintain low U-Factor and solar heat gain coefficients in accordance with the National Fenestration Rating Council (NFRC) guidelines.
4. All new structures or facilities must meet ABA and UFAS. The more stringent standard applies in the event of conflicting guidelines.

Service Areas

Service areas provide a secondary entrance into facilities for staff and other personnel. They are located away from primary public entries and screened off for service vehicles, loading docks, and trash collection. The following guidelines shape the design for service areas at new and existing facilities:

1. Service areas should be screened from view from primary and public use areas. Buildings themselves, if sensitively designed, can shield areas placed in the interior, as indicated by Figure 123.
2. Loading docks should be located near primary roadways and provide convenient pull-up and pull-off areas for freight and other trucks.
3. Loading docks should have closeable doors to mitigate climatic effects in inclement weather.
4. Screened-off or walled-off areas should utilize materials compatible with the primary structure.
5. Trash and garbage collection areas should remain outside the appropriate standoff distance identified in the Security Annex or AT/FP Design Component and should be shielded from the view of visitors.
Plazas and Courtyards

Plazas and courtyards can be located as part of the primary entrance to a structure, or as an extension of non-primary entrance areas to the outside. They should serve at least one of several functional purposes: to accommodate high volumes of guests (often during major events or ceremonies), direct lines of sight toward a particular monument or visual target, encourage congregating among pedestrians, restrict motorized vehicles, or serve as a staging area for the viewing of interpretive installations. Wide, paved entrance plazas should have vehicular barriers between the right-of-way and the structure.

Interior Structure Standards

The project team developed interior structure design standards in coordination with ANC leadership and staff. The design of interior space is crucial to the experience and circulation of staff, guests, and families attending committal services.

Interior spaces must remain sensitive to distinctions between space open to the general public versus areas restricted to personnel or staff. Public space should account for seasonal surges, while providing adequate circulation around interpretive spaces, guest amenities, or primary points where guests queue. Semi-public space—reserved for dignitaries or those attending committal services—warrants additional consideration, because of the broader implications to telecom infrastructure, secure zones/facilities, and spaces to house additional supporting personnel. Considerations on flexible and reusable space need to be considered when space planning.

Interior configurations should seek to facilitate natural ventilation and sun exposure as strategically as possible, thereby helping to reduce energy costs associated with heating, cooling, and artificial lighting. Other interior design features—colors, materials, furnishings, equipment—should balance aesthetics, cost-effectiveness, and deployment of sustainable material.

Interior Materials

The materials used to construct interior spaces are essential to the health and well-being of staff and guests. All interior materials should balance aesthetics, cost-effectiveness, and deployment of sustainable material.

Low-Emitting Materials

All paints, coatings, adhesives, sealants, flooring elements, composite wood and agrifiber products, gypsum board, insulation, acoustical ceiling systems, and wall coverings installed in the structure interior (defined as inside the weatherproofing system and applied on-site) should meet appropriate testing and product requirements. Mineral-based finished flooring products—such as tile, masonry, terrazzo, and cut stone without integral organic-based coatings and sealants, as well as unfinished/untreated solid wood flooring, qualify without any indoor air quality testing requirements.

Air Quality

Interior spaces should meet minimum requirements for air quality. HVAC systems, outside ventilation systems, or air-cleaning devices should be installed prior to, during, and after construction. Furthermore, these items should be regularly maintained to ensure high air quality for inhabitants, staff, and guests. Please refer to the following codes for air quality, HVAC, and air filtration, respectively:

- ASHRAE Standard 52.2-2017, Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

During construction, the recommended control measures of the SMACNA IAQ Guidelines for Occupied Structures under Construction, 2nd Edition 2007, SMACNA 008-2008 (Chapter 3) should be met or exceeded.
Indoor Chemical Pollutant Source Control

- Permanent entryway systems (including permanently installed grates, grills and slotted systems that allow for cleaning underneath) at least ten feet long in the primary direction of travel should be employed to capture dirt and particulates entering the structure at regularly used exterior entrances.

- Each space where hazardous gases or chemicals may be present or used (e.g., garages, housekeeping and laundry areas, as well as copying and printing rooms) should be sufficiently exhausted to create negative pressure with respect to adjacent spaces when doors are closed. Self-closing doors and deck-to-deck partitions or a hard-lid ceiling should be used.

- The exhaust rate should be at least 0.50 cubic feet per minute (cfm) per square foot with no air recirculation. The pressure differential with the surrounding spaces should be at least 5 Pascals (0.02 inches of water gauge) on average and 1 Pascal (0.004 inches of water) at a minimum when the doors to the rooms are closed, which aligns with the U.S. Green Building Council (USGBC) indoor air quality standards for establishing negative pressure in designated rooms that allow smoking.

Interior Furnishings

Interior furnishings must meet the functional, operational, sustainability, and aesthetic needs of the facility, as seen in Figure 124. The relevant decision-makers at ANC should determine the selection, layout, and specification of interior furnishings during the design phase of the project. A fixtures, furniture, and equipment (FF&E) package developed with the project contains this information. Beyond meeting user requirements, furnishings must also adhere to relevant life-safety codes.

Lighting controls should be provided to meet facility requirements. Interior spaces should be provided with adequate, evenly distributed natural light to enhance the working environment and reduce the need for electrical lighting. For new construction, computer simulations should demonstrate that 75 percent of regularly occupied spaces achieve minimum required daylight luminance levels. Controls should be provided to prevent contrast ratios from exceeding Illuminating Engineering Society recommendations.

Figure 124. Interior Furnishings in the Administration Building
Circulation Design

The location and design of roads, parking lots, and pedestrian circulation routes influences how staff and guests physically interact at ANC. Circulation routes dictate where and how people move around the cemetery. Since the circulation network occupies a considerable amount of land, it also is a visually dominant element that influences the look and feel of the cemetery. Both the Road Hierarchies Map in the Site Assessment and the Network Plan earlier in the CPS helped to consolidate some of the analyses of circulation at ANC in its current form.

ANC hosts approximately 24 committal services daily and over 3 million visitors a year. The circulation network simultaneously balances these elements as well as the dozens of maintenance vehicles, dignitary visits, tour vehicles, and cemetery staff that move around the cemetery. Memorial Avenue serves as the primary entrance for all vehicular and bus traffic, as well as nearly all pedestrian traffic. Guest parking, tour bus parking, and the Welcome Center are located directly off Memorial Avenue.

Circulation Principles

The circulation network at ANC should preserve the iconic image and character of the cemetery while providing safe and efficient circulation, minimizing environmental impacts, and promoting sustainable development. The following principles guide the development of a sustainable and efficient circulation network:

1. Enhance the safety of staff and guests through intuitive, pedestrian-friendly design.
2. Establish hierarchies of vehicular and pedestrian traffic flow to facilitate committal services, accommodate the varied guest and tour groups, and integrate grounds maintenance and operations.
3. Adapt the circulation network to existing natural resources and landscape features.
4. Improve the existing circulation network to accommodate wayfinding and cultural resource objectives.
5. Promote maintenance and repair of existing and proposed circulation systems and rectify identified deficiencies as much as is feasible.

Themes

Interviews with the various departments at ANC helped establish two distinct visual themes, as previously discussed in the Visual Zones and Themes sections. These themes provide visual unity that orients staff and guests and improves the circulation network. The layout of roads, paths, and sidewalks is distinct in each thematic zone of the cemetery, and future development should correlate with the design of its zone.

Established Theme

The Established Theme, encompassing the area west of Eisenhower Drive, represents the most historical half of the cemetery. Its rolling hills, curvilinear roads, and saturation of historic monuments follow the natural contours of the land, creating a picturesque landscape. The circulation of vehicles, pedestrians, and the tram slowly meander around the corners of narrow roads. On those rights-of-way where sidewalks are primarily absent, pedestrians must share the travel path with vehicles, elevating safety hazards. Conflict points identified through the ADPs and Assets and Liabilities Map (Figure 120) address vehicular-pedestrian safety issues. Several of the pedestrian paths date to the establishment of the cemetery and reflect the commemorative and symbolic role of ANC during its founding near the end of the Civil War. Guests continue to use the roads and pedestrian paths today as the primary means to access ANC; however, several of the most prominent routes, such as Roosevelt Drive, are steeper than the acceptable standard within the Americans with Disability Act (ADA). Parking areas have been incorporated into the design of areas of high visitation, such as the Memorial Amphitheater.
Contemporary Theme

The half of the cemetery east of Eisenhower Drive falls into the Contemporary Theme. Since the majority of development in this zone took place after 1967, landscape and circulation layouts are more contemporary—grid-like and symmetrical due to the flat topography of the land to maximize efficiency of new interments. The design of roadways and paths contrast with the Established Theme. Its wider roadways, some with accompanying sidewalks, mitigate vehicular-pedestrian conflicts, like exists along Yellow Line Road, which at this point is Eisenhower Drive. However, longer, wider roadways with frequent four-way intersections could encourage speeding, potentially creating new conflicts. Outside of Eisenhower Drive, no other roads have consistent sidewalks, forcing visitors to walk in the streets.

While the Contemporary Theme of the cemetery receives fewer visitors than the Established Theme, it abides more closely to current road design standards, making this portion of the cemetery more accessible from a variety of measurements. First, it is more physically accessible thanks to the mostly level topography and the absence of blind corners or other visual impediments. Topography is particularly critical to disabled guests, since many of the best-used rights-of-way in the Established Theme have slopes that exceed the maximum allowable ADA standard, making them virtually unmanageable for persons in wheelchairs or those with other access and functional needs. Additionally, some slopes are too steep for the horse-drawn caissons to manage. The design in the Contemporary Theme mitigates or eliminates such challenges.

Secondly, accessibility in the Contemporary Theme is superior from a navigational standpoint, since the conventional, straightforward grid configuration offers a predictable pattern for movement with 90-degree intersections at regular intervals. This configuration also appropriately accommodates the many new committal ceremonies that take place, by creating straight, level paths by which caissons and motorcades can travel with comparative ease and clarity.

Transportation Modes

The circulation network at ANC supports multiple transportation modes. The multimodal network eases circulation around the cemetery, but has the potential to create points of conflict, as identified in the ADPs. The development of future projects and accompanying circulation standards are built on the current interplay within the circulation network at ANC.

Vehicular

Vehicles entering the cemetery typically arrive through the access control point along Memorial Avenue or at the existing service complex in the south. Public safety aides on Memorial Avenue direct guests to the parking garage adjacent to the Welcome Center. Guests with vehicle passes or visitors attending committal services can proceed, under the direction of aides, along Memorial Avenue to enter the cemetery's restricted access roads along Eisenhower Drive or Schley Drive.

Vehicular access through the service complex off Columbia Pike is for staff, contractors, deliveries, and other operational support. The aides present at the southern gate will redirect guests towards the main entry along Memorial Avenue.

Pedestrian

Pedestrians typically enter ANC from Memorial Avenue via the Metro, ride-sharing services, or from walking over Memorial Bridge from the Lincoln Memorial. The Welcome Center is the location for security screening for guests, as well as the main departure point for pedestrians into the heart of the cemetery. Pedestrian traffic is concentrated between the major tourist destinations of President John F. Kennedy Gravesite, Arlington House (the Robert E. Lee Memorial), and Memorial Amphitheater/Tomb of the Unknown Soldier.

Pedestrians typically use the vehicular drives at ANC to access the cemetery or use one of the four dedicated walks: a sidewalk along Eisenhower Drive, Crook Walk, Custis Walk, or the sidewalk along the niche wall. Access between these sites involves considerable change in grade, requiring pedestrians to walk along heavily sloped roads like Roosevelt Drive, which often exceed ADA slopes maxima for wheelchairs.
Pedestrian walkways in the cemetery are paved and tend to be lined with low fencing consisting of wooden posts and heavy iron chains, or with iron railings. Custis Walk and Crook Walk, the two oldest pedestrian paths, are notable for their concrete paving and pattern of risers and landings. Overall, there are few major pedestrian walkways throughout the cemetery, with most sections only pedestrian-accessible by the roads. Sidewalks are located in heavily visited areas. Jogging is not permitted inside ANC.

**Tram**

Trams are operated by vendors working with the ANC. Tram ticketing is done inside the Welcome Center as well as at a kiosk outside. Tours depart from the tram queuing area outside the Welcome Center and stop at Memorial Amphitheater, President John F. Kennedy Gravesite, and Arlington House. Conflict points are addressed in the ADPs.

If granted concession authority, ANC will investigate the potential of providing a transportation service that circulates throughout the cemetery.

**Bicycles**

Bicycles in general are not permitted on ANC without a family pass. Under certain circumstances, the Yellow Line Road is open to military personnel traveling between JB MHH and the primary entrance to ANC at Memorial Avenue. The Yellow Line Road is a dedicated, permanent stripe that visually links Old Post Chapel Gate with the Memorial Avenue Hemicycle via Meigs Drive, Sherman Drive, and Schley Drive. It is one of only two rights-of-way listed as primary in the Right-of-Way Hierarchy Map; the other primary road is Memorial Avenue. The circumstances that necessitate bicycle use are rare, because ANC is neither intended to serve as a shortcut between two external points, nor is it a place for recreational activity. As a general rule, bicycles are an extremely rare occurrence at ANC. Appropriate accommodations, like bike racks, should remain exclusively at major entry points for visitors that arrive at ANC by bicycle. Bike racks elsewhere within the cemetery should be removed.

**Right-of-Way Hierarchy**

Most transportation planning efforts categorize roads or rights-of-way (ROWS) hierarchically, based on their functions, capacities, and type of traffic flow. At ANC, existing roads do not fall into the standard categories used by transportation planners since they do not serve general traffic. However, these concepts can still create a functional logical hierarchy of traffic circulation, illustrated through Figure 125. The visual character of each segment of the network should appropriately convey its role and function within the overall network. The basic network is classified as follows in terms of the type, character, and appearance of the right-of-way.

**Primary Right-of-Ways**

Primary ROWs are typically arterial thruways that link traffic to urban centers. For example, Memorial Avenue and Virginia Highway 110 would be considered primary roadways. In the context of ANC, the primary arterial roadway would be Eisenhower Drive. This thoroughfare connects the service complex to the Welcome Center and Administration Building. Staff and guest vehicles, maintenance vehicles, and VIPs enter through Memorial Avenue and move along Eisenhower Drive to other parts of the cemetery. It continues northward of its intersection with Memorial Avenue—the other primary roadway—and continues to serve as the organizing circulation spine to ANC under the names Schley Drive, Sherman Drive, and Meigs Drive, all of which comprise the Yellow Line Road that ultimately links the Old Post Chapel Gate to the west with the Service Gate to the south.

**Secondary Right-of-Ways**

Secondary ROWs include streets that cover considerable distances but serve fewer volumes of traffic at lower speeds than arterials. Called “collector roads” under the Highway Functional Classification System, they are more numerous than arterials. At ANC, secondary roadways provide access to the remainder of the cemetery. They provide access to burial sections and are used as subordinate loops or connector roads. They consist of a maximum of one lane in each direction. The speed limit does not exceed 25 miles per hour, while signs mandate a speed limit of 15 miles per hour when passing pedestrians. Many of the busiest pedestrian paths, such as Roosevelt Drive, function as secondary roadways, though cemetery regulations severely restrict car use on Roosevelt.
Figure 125. Roadway Hierarchy Map
Tertiary Pathways

The third tier in the road hierarchy are tertiary pathways. At ANC, tertiary pathways are not designed to support motor vehicles. The footpaths throughout the cemetery, like Crook Walk, often employ stairs to manage changes in grade, making them completely incompliant with ADA standards. There are no proposals to modify existing tertiary pathways. Crook Walk and Custis Walk, both ADA non-compliant, would require extensive construction and intervention that would significantly diminish the historic integrity of the area. Circulation paths tend to be a contributing feature in any historic district; the Meigs-designed network of the Established Theme at ANC is no exception. A better solution to improve accessibility would be to either propose new paths where none exist, abiding by ADA standards in the design, or to improve visibility and convenience of the tram for overcoming the most topographically difficult areas and delivering visitors along a proximal path to Crook Walk.

Roadway Design Standards

The location and design of roadways at ANC must align with current and future circulation patterns. By adhering to careful design standards, renovated or new roadways should promote sustainable development objectives, including: mitigating stormwater runoff, minimizing impervious pavement use, and increasing operational efficiency. The design of roadways should strictly maintain and increase guest and staff safety from pedestrian and vehicle perspectives, as seen along Meigs Drive, where guests clearly avail themselves of the sidewalk. This design is manifested in the Street Section in Figure 126.

Intersection Design

Intersections are conflict points within the cemetery circulation network. Vehicles, pedestrians, and the tram all come together at major intersections around ANC. Any intersection improvements should provide safe and efficient flow of pedestrian and vehicular traffic. The following design techniques should be used to plan or improve intersections.

- When topography allows, roadways should intersect at right angles (90 degrees).
- Adhere to the Guide for Geometric Design of Transit Facilities on Highways and Streets, from the American Association of State Highway and Transportation Officials, when developing turning radii at intersections.
- Minimize intersections along primary roads to reduce points of conflict.
- Minimize instances of more than two streets intersecting at a single point.
- Provide traffic calming measures or designated pedestrian crosswalks, marked with paint or vinyl strips or identified by a different paving surface, at complex intersections.
- Provide pedestrian access to persons with disabilities in accordance with the ABA and UFAS.

Road Alignment

The horizontal and vertical alignment of roads and walkways should minimize landform disturbance and blend with the natural setting.

- Minimize cut and fill by aligning roadways to existing topography.
- Blend roadways, drainage ditches, bioswales, or channels into the natural landform.
- Ensure pedestrian crossings are in place at crossings of primary and secondary roads.
Figure 126. Street Section Based on the Millennium Expansion Design
Parking Lot Design Standards

The location and design of parking lots should be based on the function and type of vehicle (passenger car or service vehicle), as well as consider turning radii and other circulation elements like curbs, walkways, and drainage. Design standards should promote sustainable development objectives, including stormwater runoff mitigation, minimization of impervious pavement use, and increasing operational efficiency through well-placed ingress and egress locations.

Parking Utilization

The demand on existing parking facilities shifts during peak months in the summer and on major holidays like Memorial Day, Veterans Day, and around Christmas. The 2013 Traffic Engineering Study highlighted no significant capacity issues at the Visitor Parking Garage and the Employee Parking Lot during normal operating hours.

Figure 128 shows the distribution of parking lots throughout ANC. Staff and other personnel park at additional facilities adjacent to the Administration Building, at Wheaton Lot, and at Chaffee Lot. One of the lots near the Administration Building currently hosts the ANC Support Annex. This Annex, previously called the Mobile Office Complex (MOC) housed contractors and staff while other structures were undergoing construction. The annex is anticipated to remain on its lot until approximately 2026, eliminating the availability of most of that lot during those years.

Wheaton and Chaffee lots are also locations for storage/lay-down space, which is further described in ADP 3. Other parking facilities include the parking lots at the Service Complex. These lots hold staff vehicles and service equipment. Interviews with the Operations Department noted that the lack of available space for service equipment puts a strain on existing organizational parking.

Figure 127. Temporary Screening Facility Along Memorial Avenue

Parking Lot Location and Design

Locating and designing parking lots can enhance the surrounding visual environment while also efficiently mitigating vehicular traffic for staff, guests, and families attending committal services. Applying the following design techniques should help create aesthetically pleasing, physically comfortable parking areas:

1. Use existing buildings, natural topography, and existing trees to visually screen parking areas.
2. Do not locate parking where there is potential for future interment space.
3. Locate parking lots on level areas to avoid excessive cut and fill.
4. Design parking lots for efficient design and placement of access drives and parking spaces. All drives providing access to parking spaces should provide spaces on both sides of the drive.
5. Design parking lots to preserve existing trees. Provide a planting area around existing trees large enough to allow water to the root system.
6. Consider constructing above- and below-grade parking structures to maximize land use efficiency, reduce visual impact, and protect vehicles from inclement weather.
Figure 128. Parking Lot Locations at ANC
Parking Requirements

Parking requirements vary depending on the type of facility and number of personnel. At ANC, most staff park in the employee parking lot, Welcome Center lot, or at the Service Complex. Lesser used parking lots include Wheaton Lot, Chaffee Lot, and a small vehicular pull-off space west of the Memorial Amphitheater, afforded by the width of Memorial Drive at this section. Requirements depend on the following considerations:

1. Parking lots must be accessible to persons with disabilities per UFAS, Paragraph 4.1.1(5) (a). If parking spaces are provided for employees, visitors, or both, then accessible spaces shall be provided in conformance with the required minimum.

2. For planning and programming, allocate 51.7 square yards of parking lot area per passenger vehicle. This provides adequate minimum space for parking spaces, access drives, and planting islands.

3. Minimize parking space requirements by selecting a site that allows shared parking with related activities.

4. Small parking lots are preferable to large lots because they enhance the visual environment by increasing the ratio of landscaped area to paved area and allow better conformity to natural topography.

5. New parking areas should be constructed of permeable paving where appropriate.

6. Organizational vehicle parking, as described in the FUS, shall be calculated in accordance with DA PAM 415-28 and the requirements for Category Code 85210 – Organizational Vehicle Parking.

7. Incentive parking—particularly through conveniently placed electric charging stations—can support hybrid and electric vehicles, lowering emissions around the cemetery grounds and reducing engine noise.

8. New parking lots should serve functions that take place regularly (if not daily), rather than special events. Effective use of existing lots, combined with shuttle services as needed, should accommodate high volumes of vehicles and visitors on rare ceremonial occasions, rather than constructing new parking that will only get used a few times per year.

Drop-Off Areas

Drop-off areas near parking lots or primary gathering places should be developed in coordination with roadway development and the Security Annex. As ride-sharing and ride-hailing services become more popular, the demand for drop-off areas is likely to increase. Facilities reached by vehicle, like the Welcome Center, should include a clearly defined and marked vehicle drop-off area. Physical barriers, like curbing, planters, or pop-up bollards, together with signage, should provide clear vehicular ingress/egress and restrict access during times of high alert. Access to the driveway shall be located outside the standoff area with the initial approach parallel to the building, or a barrier must be directed to prevent direct vehicular movement toward the building.
Access Control Points
Access Control Points (ACPs) provide ingress/egress to staff, guests, contractors, VIPs, and families attending committal services. As noted in the Security Annex volume of the RPMP, they are an essential component of the controlled perimeter at ANC and the first line of defense against security threats.

Entrance Gates
The location and design of cemetery entrance gates are a primary component of the circulation network. Entrance gates must provide protection not only for the cemetery, but also for personnel and others entering the cemetery, as described in the Security Annex. Additionally, gates should serve as visual landmarks, providing a prominent and aesthetically pleasing point of ingress and egress.

Service Areas
Facilities that require pickup and deliveries should have a service area that allows for direct, easy access to a loading dock for service vehicles. Visual barriers (plants, walls, other structures) should screen them from public view to reduce negative visual impacts. The screening and ACPs for service areas are described in greater detail in the Security Annex.

Pedestrian Circulation Standards
The pedestrian circulation network at ANC is crucial to day-to-day operations, where staff are walking the grounds, in between facilities, or where guests are exploring the cemetery. Well-designed and located walkways—the tertiary pathways—encourage greater circulation, ensure pedestrian safety, and minimize vehicular and tram traffic and also provide a desirable alternative to total dependence on motor vehicles.

Principles
The principles of pedestrian walkway location and design best meet pedestrian needs while maintaining cost-efficient and responsible development objectives. They include:

1. Design pedestrian paths to be visually consistent with the topography and iconic image of the cemetery.
2. Design pedestrian walkways to be separate from vehicular traffic through raised curbs, to maximize pedestrian safety, prioritizing the primary roadways for new walkway construction.
3. Line pedestrian walkways with amenities such as seating, trash cans, wayfinding to major attractions, and water fountains, based on travel distance and traffic volumes. Refer to Site Elements for greater guidance.

Figure 129. Landscaping Outside the Administration Building
4. Ensure pedestrian walkways are accessible to all users, including physically impaired persons. All street and driveway crossings should be ramped, marked, and accessible to persons with disabilities in accordance with requirements of UFAS.

5. Provide design consistency and proper stormwater drainage on all pedestrian paths.

6. Construct accompanying sidewalks along roadways to minimize pedestrians walking on roadways and where pedestrian traffic is particularly prevalent or poses unusual hazards.

7. Design accessible and efficient dedicated pedestrian walkways, bridges, and tunnels by minimizing grade change, staircase necessity, and necessity of poles and banisters.

8. Provide traffic calming measures or designated pedestrian crosswalks, marked with paint or vinyl strips or identified by a different paving surface, at existing complex intersections: that is, intersections that are more than four-way, feature particularly acute angles, or contain visual impediments.

9. Where worn shortcut paths exist, leaving dirt trails where pedestrian traffic has thinned out the turf grass (known as “desire paths” or “social paths”), consider adapting into paved and accessible walkways.

**Landscape Design**

Landscape Design standards guide the selection, placement, and maintenance of plant material on the cemetery. Landscape plantings provide a simple and cost-effective enhancement to the general appearance of the cemetery.

ANC’s topography consists of flatlands (primarily the Contemporary Theme) and rolling hills (the Established Theme), culminating in the more steeply rising Arlington Ridge, where such prominent landmarks as Arlington House and the Tomb of the Unknown Soldier provide powerful views of the Potomac River and the key monuments of the National Mall. Flora at ANC includes over 8,600 trees, thousands of shrubs, and herbaceous plants contained in gardens, memorial sites, and buildings scattered throughout the grounds. The flora includes approximately 325 different varieties of flowering, coniferous, and shade trees, as well as shrubs of various ages and sizes. A recent inventory of trees reveals over 500 woody species. This abundance of trees and flora accounts for ANC’s Level III arboretum status, according to the Arboretum Accreditation Program from ArbNet, the international community of arboreta professionals. ANC leadership’s objective is to retain its ArbNet Level III accreditation, an honor that the cemetery received in 2018. The visual image of the cemetery is an essential component to perpetuating the character and identity of “hallowed grounds.” Far more than architecture and site organization contribute to the cemetery’s character; it also needs an attractive, organized, and well-integrated landscape design. The presence of plant material on the cemetery greatly enhances the visual character and environmental quality of the grounds and is a fundamental aspect of the iconic image of the cemetery.

ANC’s landscape is an essential component of the historical and cultural resources within the cemetery grounds. The landscape within ANC reflects a varied historical development but is most often characterized by its nineteenth-century rural cemetery character. This rural cemetery ideal emphasized expansive, park-like landscaped burial places designed to provide opportunities for leisure and commemoration. ANC offers dramatic topography that provides distinctive panoramic views, a vast array of mature trees, and—with the exception of the mostly paved Entry Corridor—a landscaped character predominantly befitting the English countryside. Furthermore, the cemetery aligns with the definition of a designated historic landscape as articulated in its own NRHP.
Registration Form: specifically, “a landscape that was consciously designed or laid out by a landscape architect, master gardener, architect, engineer, or horticulturist according to design principles, or an amateur gardener working in a recognized style or tradition.”

Plantings at ANC add human scale to open spaces, visual interest to designed facilities, and can screen undesirable views, buffer winds, reinforce the hierarchy of the circulation system, or provide a visual transition between dissimilar land uses. Conversely, the placement of shrubbery and other low-lying flora can compromise safety and security through its ability to conceal. Therefore, the placement of certain plantings—particularly around buildings, the perimeter, or places where large numbers of people congregate—must strategically consider the security implications at the cemetery by retaining unobstructed space around a building as needed. While the UFC 4-010-01, Minimum Antiterrorism Standards for Buildings provides design and dimension fundamentals, the Security Annex element of the RPMP will explore these considerations in greater detail, as they apply to ANC.

Principles of Landscape Design

The overall principles of using plant material within the cemetery are to integrate into the existing landscape habitat, maintain the visual image and character of the cemetery, and to convey the serenity and verdant beauty that the public has long expected of any final resting place. The following principles will achieve ANC’s broader landscape design ambitions:

1. Preserve and promote the collection of trees and ornamental plants in accordance with the plans and policies of the cemetery as a designated Arboretum. The Arboretum connects visitors to the rich tapestry of the cemetery’s living history and natural beauty, while offering both a greater biodiversity of flora than is typical for northern Virginia as well as the opportunity to learn about this flora.

2. In keeping with the criteria for ArbNet’s Level III arboretum status that require “substantial educational programming,” staff should endow the landscape with opportunities for visitors to interpret and learn from their surroundings. A better array of information on the biodiverse flora at ANC would help relieve the cemetery of criticisms of “information drought,” the term used to characterize the relative difficulty a visitor faces in trying to find desired details about the cemetery while navigating through it.

3. Preserve and enhance urban trees, as well as detailed planting features including shrubs and herbaceous groundcovers.

4. Preserve and enhance the park-like atmosphere within the national shrine through native and adapted plant material, expanding biodiversity while carefully monitoring for potentially invasive species.

The best implementation strategies for preserving the cemetery as a reverential park include:

- Blend the built environment with the natural environment by employing subtle, sustainable materials and design.
- Provide scale and comfort to pedestrian environments.
- Reinforce the hierarchy of the circulation system, affording highest priority to those visitors with access and functional needs or who are navigating the cemetery by foot.
- Screen and buffer unsightly views, elements, or land uses.
- Promote crime prevention through environmental design (CPTED) by deploying landscaping strategically to prevent concealment while enhancing anti-terrorism capabilities.
- Minimize maintenance using native flora and adapted plant materials whenever possible. When integrating non-native plantings to help fulfill the educational and biodiversity priorities of an arboretum, choose specimens that are well-suited to the climatic and environmental conditions of northern Virginia and that do not appear on the Virginia Invasive Plant Species List, which is provided by the Commonwealth’s Department of Conservation and Recreation (DCR).
- Expand the park-like atmosphere and sustainable practices to areas with considerable impervious and human-built material (to the degree feasible), such as building interiors, parking garages and lots, or stormwater basins and outflow points.
Cemetery Planning Standards

Landscape Design Considerations

The history of the landscape at ANC has greatly influenced the current contemporary appearance of much of the cemetery today. For example, the Custis family originally contributed to the denudation of the slopes by permitting intensive sheep grazing. This practice among other impacts to the cemetery grounds over time have resulted in a natural environment that looks very different from the time of ANC’s founding.

Despite these past impacts, ANC, which straddles a ridgeline with a grade change of over 200 feet, must retain the integrity of the viewsheds that originally attracted the Custis family to the site. In addition to its grounds, ANC must also care for its various attractions and points of interest, which serve as critical cues for navigating the cemetery, offer considerable aesthetic variation, and help punctuate the uniform texture of standardized graves that cover so much of ANC.

Cultural Elements

Future planning initiatives must continue to preserve the cherished cultural elements at ANC. The views and space that surround them should remain intact, helping endow the landscape with a sense of permanence that belies the numerous committal ceremonies and visitations that take place daily. The viewshed from the top of Arlington Ridge at Arlington House is one of the most cherished and widely photographed sites on the cemetery: however, vegetation (mostly tree growth) is starting to obscure the critical views between Arlington House and Washington D.C. Trees in particular are an issue along the sight path of Memorial Avenue, which serves as the figurative linkage between the Union and Confederates after the Civil War. The Custis family chose this location for their house for its prominence apart from the river and city, a prominence that ANC groundskeeping must maintain by preventing the encroachment of vegetation from below. Elsewhere in the cemetery, vegetation undermines the visibility of critical monuments. For example, west of Memorial Amphitheater, magnolia trees obscure the Mast of the Maine and the Confederate Memorial, making them less conspicuous to visitors and potentially reducing the public’s general awareness.

Viewing cultural elements from the opposing angle, it is equally critical that the potential enhancement or expansion of any existing structures or monuments—or the construction of new ones—must not impact the integrity of viewsheds, particularly the Administration Building, the most architecturally significant structure on Arlington Cemetery owned by ANC. Additionally, the expanse of Arlington Ridge separating the President John F. Kennedy Gravesite and Arlington House must remain free of any additional memorials, which would encroach upon the view. A clear articulation of best practices in vegetation management, coordinated with a Section 106 review for plantings, would help recover some of the most compromised landscapes at ANC, while ensuring that other cherished views—both of the natural and built environments—do not face similar threats in the future. Per the recommendation of the Cultural Resources team, an Ecological or Vegetative Succession Plan will allow the work of horticulturalists to align with new construction and establish a coherent approach to preserving the integrity of views to ANC’s most cherished cultural elements.

Historic Elements

Most of the buildings on the grounds are classified as “contributing” within the Arlington National Cemetery Historic District, which is NRHP-listed. Arlington House and the Arlington Memorial Bridge, an expanse that crosses the Potomac River, are also listed separately on the National Register of Historic Places.

Among the other features of considerable historic interest are Memorial Amphitheater, James Tanner Amphitheater, the Administration Building, Lodge #1 and Lodge #2, President John F. Kennedy Gravesite, and McClellan Gate. The Section 106 Review will offer a far more vigorous analysis of these considerations.

Outside of the buildings and other prominent landmarks, the remainder of the cemetery largely organizes itself into smaller subsections, broadly reflecting the districts that the Historians identified in their navigational diagrams from the visual surveys. They characterize the cemetery across three primary components: topography, markers/sections, and significant historical events.
Topography

The topography largely reflects the Established/Contemporary dichotomy previously discussed in the Visual Surveys section, with Eisenhower Drive serving as the primary separating edge. The oldest portions of the cemetery, located in the Established Theme west of Eisenhower, consist largely of gently rolling hills, as well as Arlington Ridge’s more dramatic grade change. At a fundamental level, this divide allows visitors to look upward at the older, established sections or downward onto the newer, more contemporary sections. Quartermaster General Montgomery C. Meigs’ original street configuration in the Established Theme largely traces the contours of the landscape, promoting an ease of access along the steeper slopes. The Established Theme also includes a few curvilinear streets near Arlington House that date from the era of the Custis estate. Conversely, the streets in the Contemporary Theme follow a more conventional grid, to allow maximum efficiency for the tightly-packed placement of burial plots.

Section and Markers

Cemetery section markers are not purely chronological, but they do loosely align with the age of the cemetery. The lowest numbered sections (particularly Sections 1) lie within original ANC burial lands. Sections with higher numbers (Sections 50 and upward), are found in the newest part of the cemetery. Markers in the 70’s tend to indicate active burial sites. Section 80 and higher (mostly part of the Millennium area) just began to open to first interments in the past few years. Cemetery sections found to be of particular note by ANC Historians include:

- Section 13: “Field of the Dead,” which includes some of the earliest burial of paupers
- Section 16: Relocated Confederate soldiers (formerly labeled “Rebels”)
- Section 19: Repatriation of World War I casualties
- Sections 21-23: Spanish-American War casualties, including nurses
- Section 25: Last racially segregated unit
- Section 27: Freedman’s Cemetery for African-Americans (formerly labeled as “Civilians,” “Contraband,” or “Citizens” if freed prior to the Civil War) and concentrated in the back of the section (away from Ord and Weitzel Drive) with low-income whites placed closer to the street

- Section 60: Military casualties from the War on Terror

A Long-Range Interpretive Plan, as a collaboration between ANC Historians and a private consultant, will reinforce those sections of the cemetery that merit an enhancement of interpretive features and signage based on their cultural significance as key burial sections or landmarks.

Landscape and Historical Events

Among the principal historical events influencing the layout, landscape design, and overall visual character of the cemetery are the following:

- 1900: Compensation provided to former residents of Freedman’s Village, a community located on ANC lands that housed over 1,000 freed slaves during the Civil War, following a seizure from the Custis-Lee family during the Civil War for non-payment of taxes. A federal court ordered that these lands be returned to the former Arlington Estate, justifying the compensation to residents.
- 1947: Demolition of a never-completed Civil War fortification, Fort McPherson, to make room for Burial Section 11. McKinley Drive traces the perimeter of the rampart. Also the introduction of the numeric sectioning system added clarity and organization to the layout of burial grounds, replacing labels (southern, western, Spanish-American, etc.) for general areas.
- 1948: President Harry S. Truman’s desegregation directive integrated burials, eliminating the practice of consigning African-Americans to certain highly concentrated sections, especially the historic Freedman’s Cemetery around Sections 27 and 49 next to Ord and Weitzel Drive. All cemetery sections platted subsequent to this directive are integrated.
- 1963: John F. Kennedy’s funeral, which stimulated tremendous interest in ANC, resulting in a surge in burial requests and straining the cemetery’s capacity.
- 1966: Purchase of considerable additional lands formerly part of Fort Myer to complete the last major expansion prior to the Millennium Project. This initiative converted the old Georgetown-Alexandria Turnpike into Eisenhower Drive, thereby shifting McClellan Gate from an entry point to a centralized landmark within the new grounds.
• **1967:** In 1967 eligibility rules for in-ground burials were made more restrictive to limit interments. These changes prevented ANC from reaching 100% occupancy at the end of that decade.

• **1980:** Opening of the first columbaria to accommodate cremains in the Contemporary Theme section of the cemetery.

• **2014:** Construction begins for the Millennium Project site, opening 27 new acres (formerly part of JBMHH) for interments and inurnments. The Millenium site was opened in the Fall of 2018.

• **2017:** NDAA incorporated land transfer to support Southern Expansion Project, which takes 50 acres of land south of the perimeter, largely formerly occupied by the Navy Annex and adjacent to the U.S. Air Force Memorial. This will result in approximately 39 new acres of burial space, plus the repurposing of 10 acres currently used as the Service Complex into long-term burial.

*Note: Full details of the evolution of the cemetery sections is available through the archives curated by ANC historians.*

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**Landscaping Installation**

Qualified horticulturists must review proposed plantings to ensure that site conditions (soil, topography, adjacent uses, and architecture) and climatic criteria (sun, shade, and moisture requirements) factor into the planting design and selection. They must also consider the functions and users of each discrete site, as well as how these plantings may impact spatially proximal or functionally related sites elsewhere on the premises.

**Locating Plant Material**

The siting of plants can involve a diverse array of strategies, showing sensitivity to environmental and historic/cultural contexts, as well as the functional use of the land in that specific area. ANC horticulturists and urban forestry personnel review landscape planting plans to provide quality assurance and promote design consistency within each visual zone.

**Interment Areas Planting**

Interment area plantings should consist of informal clustering of trees amidst the burial sections to maintain the pastoral tree grove image of the cemetery grounds. Tree planting quantities (inclusive of street trees) should accommodate an average of 14 trees per acre in the Established Theme and an average of 12 trees per acre within the Contemporary Theme. Optimally, tree plantings should be a minimum of 10 feet from the closest gravesite; however, any proposed tree plantings proximate to graves should account for the overriding need for burial space. Horticulturists and arborists should respond to potential conflicts between trees and crypts by using trees with smaller, less intrusive root systems.

Burial sections of pre-placed crypts should allow for preplanned clusters of trees. The quantity, configuration, character, and palette of the tree clusters should align with the overall character of each burial section. The planning for future tree plantings—either clusters or individual trees—should balance sensitivity to existing character and the potential damage to pavement/concrete, while pursuing the overall ambition of promoting biodiversity akin to an urban forest and a Level III Arboretum. Achieving this biodiversity means adhering to a 30/20/10 rule. That is, a newly planted grove should have no more than 30% of a single family, no more than 20% of a single genus, and no more than 10% of a species. Any future decisions for new planting should operate within the existing inventory to either achieve or retain this biodiversity, carefully calibrated with selections that are appropriate for the visual themes evoked by each burial section.

*Figure 131. Variety of Tree Species at ANC*
Foundation Planting

Foundation planting provides a background for additional plantings, adds scale and character to buildings, integrates the building with its surroundings, screens HVAC and other utilities, creates a sense of arrival, and promotes AT/FP standards by reducing opportunities for concealment.

ANC’s horticultural staff plan for the location of focal and seasonal plantings at building entries, columbaria, guest amenities, and niche walls to create pedestrian interest and improve the aesthetics of certain utilitarian infrastructure (for example, sign posts and electrical switch boxes).

Guiding principles for foundation planting include:

- The architecture of the building should inform the planting design and selection of plants.
- Plantings shall not block windows, views from interior spaces, or pose a security hazard.
- The setback between trees and buildings should be sufficient to provide space for mature growth and to prevent damage to foundations by the root system.
- Symmetrical buildings should receive symmetrical foundation planting designs.

Monuments and Memorials

According to the National Register of Historic Places, there are contributing monuments and memorials throughout the cemetery. Each monument or memorial brings its own unique history, character, scale, and location. The principles of landscape development should be carefully considered whenever creating a planting design for each monument and memorial, one that complements its individual character and scale.

Buffer Planting

Use a mixture of evergreen and deciduous trees as well as shrubs to visually separate land uses and visual zones. A formalized, deliberate tree row is more suitable in some burial sections—particularly the Contemporary Theme—while a more naturalistic approach is likely to achieve a more positive impact in the Established Theme.

Open Space Planting

Enhance open space areas with strategically placed perimeter planting. Use a mix of evergreen, deciduous, and flowering trees. Plant the same kind of trees in large groupings to impact the vast open areas.

Street Trees

Street trees should reinforce vehicular hierarchy, orient and direct traffic, upgrade views, and visually de-emphasize on-street parking. Also, in the design of a street tree planting, separate plant species may identify distinctive details or areas of the cemetery. Recommendations for street tree plantings within the cemetery include:

- Street tree plantings will be primarily used in the newer Burial Sections (54-70) to distinguish them from other visual zones.
- Use formal street trees in single rows to visually reinforce primary and secondary roads. Use regularly spaced and uniformly shaped deciduous trees to provide a regimented appearance, particularly where the visual themes reinforce this approach. Elsewhere—particularly in the Established Theme—a less regimented, more organic approach will achieve a more visually suitable result.
- Use informal groupings of street trees along tertiary routes. Use medium-sized deciduous trees to screen on-street parking along roadways. Set trees 12 to 14 feet from curbs. Spacing should be uniform except where curb cuts interrupt regular spacing.
- As a general rule, street trees should be deciduous species, resistant to salt and root pressure, and have 10 to 12 feet of clearance between the street pavement and branch height, to allow adequate clearance for pedestrian and vehicle traffic.
- The street tree palette should be diverse to avoid continuous monocultures.
- Street trees shall not be planted within sight triangles at intersections. Reference American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highway and Streets for sight triangle criteria.
- Weeping trees should not be used in locations where they may overhang a roadway or block views.
Parking Lot Planting

Parking lots are often the least attractive elements on a site. However, planting can dramatically improve the appearance of these areas, while also helping to define circulation patterns and reduce heat gain during summer months. Guidance for parking lot planting includes:

- Use shade tree plantings at parking lots to reduce glare and moderate ambient air temperatures on the lot. Optimum spacing of parking lot shade trees is 35 to 40 feet on center.
- Choose trees and shrubs that require minimal maintenance and will not litter the parking area with fruit or nuts.
- Consider sight distances near entrances and exits when selecting and placing plant material.
- Select trees, shrubs, and ground covers that can withstand harsh conditions, such as sun, glare, heat, and reduced water supply.
- Use a mix of evergreen and deciduous plant material to screen parking areas from adjacent uses.
- Intermittent spacing of landscaped islands can help reduce the unpleasant impacts of heat island conditions in the summer, add beauty to a typically visually drab setting, and minimize stormwater runoff by creating gaps in an otherwise continuous impervious surface.

Environmental Control Planting

When properly placed, plants can provide environmental benefits, in addition to addressing visual concerns. Guiding principles include:

- Use deciduous trees and shrubs at courtyards and buildings and along streets to provide shade, moderate temperatures, and reduce glare during the summer months and allow solar exposure in the winter.
- Locate deciduous plantings on the southeast and southwest corners of buildings or courtyards to mitigate solar radiation and glare due to heat build-up and lower sun angles in the mid-morning and late afternoon hours.
- Use dense-mixed massings of deciduous and evergreen shrubs as well as evergreen trees to support sound control within site specific and perimeter buffer areas.

Entrances to the Cemetery

The entrances and streetscapes into the cemetery are areas to place landscaping that will develop a strong visual image and provide visual interest during all four seasons. The entrance to the cemetery creates the first visual impression for the visitor. Guidance includes:

- Landscape materials and planting areas should be proportional in scale to the hierarchy of the street on which they are located.
- Landscaping must be integrated with force protection requirements. Low shrubs, groundcover, annual/perennial plants, and canopy trees provide seasonal interest and maintain views required to ensure force protection measures. Large evergreen trees are discouraged in these locations because they may obstruct sight lines and impact force protection. Adequate lines of sight must be maintained for guard personnel to observe vehicular and pedestrian traffic approaching the gate.

Landscaping at Walkways

Use a combination of canopy and ornamental trees along sidewalks to provide shade, define the path, provide visual interest, and discourage the creation of shortcuts or desired paths. Utilize evergreen buffer plantings to screen harsh winds and undesirable views. When using shrubbery to articulate paths, be certain that the placement and specific species align with CPTED and AT/FP standards.
Plant Material Selection

Trees, shrubs, ground cover, and turf are the major elements of a planting composition. Basic plant selection criteria should consider creating a unified composition utilizing native materials with a focus on plant diversity for lowering maintenance and increasing sustainability. Additionally, plant selection should consider avoiding incompatible colors, textures, and forms, while matching the appropriate plant to the land use, situation, and environmental condition. Plant material selection should be coordinated between the Horticulture and Interment Operations department to maximize available gravesites.

The ability of plants to provide lasting benefit is dependent upon the plant’s hardiness and its appropriateness to the site use. Major factors affecting plant hardiness are soil type and organic content, temperature, moisture, and light. Climatic conditions can be modified to an extent by specific site conditions, such as wind protection, solar orientation, and planting design to create microclimates.

The Arboretum Plan should provide most of the criteria for selecting appropriate plants for a given design condition, particularly pertaining to specific species and varieties that complement the collection.

The Virginia Invasive Plant Species List provided by the Virginia Department of Conservation and Recreation references the plant material selections not allowed for inclusion on the cemetery. Additionally, the Invasive Species Management Plan for ANC (1 February 2012) clarifies any other plants considered invasive to the cemetery. Unfortunately, many eradication programs do not receive the careful planning needed before the practitioners implement them, resulting in a failed effort at a very high cost. Among the best resources for developing a clear-cut invasive species eradication program are the following:

- U.S. Fish and Wildlife Service’s Federal Interagency Committee for the Management of Noxious and Exotic Weeds (FICMNEW)
- National Wildlife Refuge System’s Volunteers and Invasive Plants (V&IP) Program
- National Fish and Wildlife Foundation’s Pulling Together Initiative, which provides grants to government agencies interested in managing invasive and noxious plant species

Vegetation and Circulation Design

Circulation design should consider vegetation by minimizing disturbance to existing vegetation whenever possible, encouraging re-vegetation in disturbed areas, and reducing the visual impact of landscape disturbance, particularly along key viewsheds that terminate in landscapes or structures with historic or cultural significance.

- Minimize cut and fill to reduce the limits of clearing.
- Clear only for sight distances rather than uniform right-of-way clearing.
- Use tree wells or retaining walls to preserve specimen trees and significant vegetation areas.
- Provide optimum conditions for re-vegetation by following proper planting and maintenance techniques.
- Where appropriate, restore vegetation to disturbed areas using naturalistic plantings of native plant material, after careful consideration on the potential impacts to cultural resources.

Screening

Guidance for the selection of screening depends on its purpose. Recommendations include:

- Windscreens — Use a combination of evergreen and deciduous trees to provide windbreak protection from prevailing winds. Windbreak plantings should be irregular in form, rather than straight and evenly spaced, to provide more effective wind control and to visually blend with the natural character of the cemetery.
- Screening of Dumpsters — Landscape plantings should be used to supplement dumpster enclosures.
Landscaping Maintenance

The horticultural expertise at ANC ensures sensitivity to the siting of planting and specific species. Additionally, it must uphold a carefully designed maintenance program that accommodates the needs of the diverse flora at the cemetery, promoting longevity and a dignified appearance.

Irrigation

ANC adheres to Virginia Department of Environmental Quality (DEQ) standards for irrigation and water reclamation, including water quality standards and annual inspection requirements.

The use of backflow preventers meets state requirements. Xeriscaping is currently employed by ANC, reducing the need for irrigation by using ornamental grasses and other native plants that do not require as much water after the initial one-year establishment period. Rainwater harvesters on structures also reduce the amount of potable water needed for irrigation.

Fertilizers and Pest Control

To minimize the use of chemical fertilizers, application should be in strict accordance with the Cemetery Grounds Maintenance Plan (CGMP). Additional best practices include:

- 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.
- Pest management shall be in strict accordance with Arlington National Cemetery’s Integrated Pest Management Plan.

Erosion and Sedimentation Control

Erosion and sedimentation control should focus on maintaining slopes and drainage facilities. At least once a year, all stormwater management facilities should be inspected. This should be done in addition to ongoing monitoring and maintenance as needed. To reduce the impact of stormwater runoff, the following strategies may be employed to minimize the volume:

- Reduce the impervious area by using pervious paving.
- Harvest stormwater.
- Include infiltration swales, retention ponds, and planted vegetated filter strips in landscape design.

Snow and Ice Removal

To prevent the damage of ANC’s vegetation and the polluting of the Potomac River, the following steps should be taken:

- Perform snow and ice removal in an environmentally friendly manner using only ANC approved materials.

Cleaning and Maintenance

Headstone cleaning should be accomplished in an environmentally friendly manner, using only ANC-approved materials. To prevent cleaning chemicals from harming vegetation and polluting groundwater, the use of chemicals should be limited and controlled.

The CGMP provides guidelines and standard operating procedures for maintaining the grounds and ANC and SAHNC. To preserve these hallowed grounds, all plant material, maintenance, and installation will adhere to the guidelines detailed in the CGMP. It covers all aspects of turf grass management, grounds and landscape maintenance, and landscape installation, as well as pest management and maintenance of interior plants. It also outlines the required grounds maintenance tasks in accordance with the ANC Operational Standards and Measures.
Equipment

Maintenance equipment can have a negative impact by consuming fossil fuels and generating unwanted noise. Maintenance equipment can also damage the turf from the equipment weight and overload the ground. To ensure maintenance equipment does not detract from the dignity and solemnity of the cemetery or generate significant emissions, ANC should take the following steps:

- All equipment maintenance activities and schedules are included in a current Standard Army Maintenance System (SAMS). All equipment maintenance is performed according to the manufacturers’ recommendations.
- The scheduling of work will be coordinated with interment operations and will be cognizant of visitor activities.
- When feasible, replace conventional equipment with lower impact alternatives or use alternative approaches to abate impacts.

Sustainable Landscaping Practices

To support the overall landscape principles and the mission of ANC, the cemetery’s leadership has been committed, since 2010, to promoting environmentally sustainable practices that contribute to the essential benefits of plant life, soils, hydrology, wildlife, and human health and well-being.

Sustainable landscape design should be practiced in accordance with UFC 3-201-02, Landscape Architecture. This UFC establishes minimum landscape architectural requirements and best practices to promote consistent landscape architectural quality, preserve cultural and historic landscapes, protect natural plants and wildlife, and achieve environmentally sustainable development and operations.

The Sustainable Sites Initiative (SITES) is the national performance benchmark for sustainable landscapes and provides current research, technology, best practices and performance goals for the design, construction, and maintenance of sustainable landscapes. ANC sustainable landscape development should, as appropriate, incorporate guidelines and recommendations of the SITES Guidelines and Performance Benchmarks from 2009.

Earth-Friendly Landscaping

ANC is providing a more earth-friendly landscaping approach that involves:

1. **Perennials vs. Annuals** — ANC is decreasing its use of annual plants to reduce the use of plastic containers, water, and fertilizers. Traditional flowering annuals are being replaced with perennial, herbaceous plants.

2. **Biodiversity** — More native plants and trees that provide food and shelter for birds and insects will be incorporated into the landscape. In addition, being conscientious of the region’s wildlife, this practice provides the opportunity to showcase plants that are native to the coastal region of Virginia.

3. **Invasive Plants** — Invasive, potentially invasive, or species of concern (for example, English Ivy or Butterfly Bush) should not be planted to prevent the potential overrun on natural plant habitats.

4. **Insecticide/Pesticide** — The planting of pest resistant cultivars and varieties leads to a reduced dependency on pesticide use and overall pest problems.

Due to the size and mission of ANC, the sustainable grounds management plan is vital to the responsible maintenance of the cemetery’s iconic imagery and associated flora. Sustainable management involves using sustainable practices that enhance the natural functions of the site and surrounding ecology.

Because the best practices in sustainable landscaping continue to evolve, the ANC Horticulture and Environmental teams should document the pros and cons of previous major projects, so that each initiative provides a learning experience when compared to emerging trends in sustainability. A recent example is the Millennium Stream along Lewis Drive, which affords the cemetery significant stormwater credit because of the design, but it needs regular maintenance. ANC’s working relationships with JBMHH and NPS around the Millennium area also lack the level of partnership and communication needed to improve the quality of drainage outfalls at the cemetery. More specifically, certain activities taking place on NPS components and the co-mingling at JBMHH have negatively impacted ANC’s outfalls.
Protection and Preservation

Among the most critical practices to ensure protection and preservation of existing landscapes are the following:

- Adherence to best practices for Level III Arboretum Status:
  - Developing a regularly maintained and updated Collections Policy: the rationale for the particular collections, an inventory of collections, and documentation of record-keeping practices.
  - Demonstrating a professional capability to collaborate with other arboreta or relevant organizations that help share and disseminate best practices.
  - Participating in shared, networked plant collections databases, such as the Botanic Gardens Conservation International (BCGI) Plant Search Database.
  - Articulating an active agenda related to tree science, strategic planting, and conservation by conducting plant trials, habitat monitoring, pest detection, and essential research in forest ecology, physiology, seed and tissue banking, and systematics.
- Engaging in careful and regular monitoring of invasive species, and adopting a carefully conceived invasive plant eradication program attuned to the unique needs at ANC.
- Achieving a pest management program commensurate with the needs that will not compromise ANC’s fundamental character as an arboretum—that is, promoting biodiversity while limiting the installation of pest-sensitive planting.
- Adherence and periodic auditing of the CGMP to remain up-to-date on potential new best practices.

Site Elements

Site elements include utilitarian visual elements of the cemetery and prominent visual accents that constitute atypical gravesites or memorials. The specific site element features should, to the extent possible, reflect the local design standards. This allows for ease of maintenance and continuity of visual character. Categories of elements include:

1. Monuments
2. Site Furnishings and Guest Amenities
3. Signs and Wayfinding
4. Lighting

Site Elements Principles

Site elements should enhance the visual impact of the cemetery. To this end, site elements should meet the following principles:

1. Site elements should clearly convey their intended function.
2. A coordinated system of site elements should provide consistency and continuity throughout the cemetery and convey a sense of intentionality and organization.
3. Any deviations from the coordinated design and appearance should correlate to another organizational element at the cemetery, such as the visual zones.
4. The design and location of various site elements should express an image, character, and scale appropriate to the cemetery.
5. All site elements should meet AT/FP requirements.
6. Maintenance and repair should be minimized through sustainable and durable products.
7. Negative visual and environmental impacts of utility systems associated with site elements should be minimized.
8. The views of monuments should remain unimpeded; furniture, lighting, and signage should not compromise a monument’s aesthetics.
Monuments

The character, design, or location of any monument placed at ANC is subject to the approval of the Secretary of Army or his/her designee. Furthermore, the National Capital Planning Commission (NCPC) has and will continue to serve as a primary advisory body for the planning practices surrounding the installation of new monuments throughout public lands in the District of Columbia and surrounding counties, including Arlington County where ANC is located. The State Historic Preservation Officer (SHPO) is also consulted as part of the Section 106 Review process when/if a new monument or changes to existing monuments are proposed.

The Department of the Army will consult with the U.S. Commission of Fine Arts (CFA) and the Advisory Committee on ANC before approving the design of any monument. The Secretary of the Army will notify designated Congressional committees in accordance with 38 U.S.C. § 2409, Memorial Areas in Arlington National Cemetery. Monuments are more flexible in their location and must be located in areas of the cemetery not suitable for casketed remains, due to soil, terrain, or landscape features that inhibit interment capability but allow for surface installations. The size and configuration of a monument will depend on the terrain, network of roads, walks, the size of the individual memorial site, and the demand for the monument.

Site Furnishings

Site furnishings include the utilitarian outdoor amenities found within the cemetery. The planners at ANC should strategically locate these outdoor furnishings in coordinated clusters to provide concentrated amenity areas and avoid the haphazard, cluttered placement of furniture elements around the cemetery. All furnishings shall be accessible to and usable by persons with disabilities, in accordance with the requirements of ABA and UFAS, with the most stringent standards to apply in the event of conflicts. Site furnishings include the following:

- Seating
- Walls
- Fences
- Recycling/waste combo bins
- Dumpsters
- Bicycle racks
- Shading facilities
- Drinking fountains
Seating

Proper seating options should be available for all pedestrians. The location, siting, and style is dependent upon the zone and frequency of use. The following principles should be followed for seating at ANC:

- **Location**: Locate benches in areas of high pedestrian use, arranged to encourage pensive reflection and take advantage of views. This includes activity nodes, landmarks, along the primary pedestrian circulation system, at major buildings and structures, and tour vehicle or tram stops. Other suitable locations include areas where a general demand exists for visitor comfort—generally in the form of some of the other site furnishings—so that “comfort stations” feature a cluster of equipment to provide relief from the elements. Locating benches in areas that would detract from the solemn character of the interment areas (such as open spaces) should be avoided. Also avoid locating benches immediately adjacent to buildings or in areas of heavy vegetative growth where they could pose a security threat.

- **Siting**: Site benches on concrete or stone pads adjacent to walkways. Ensure benches have a proper clearance around them, a minimum 2’0” setback from adjacent sidewalks and a minimum of 5’0” between the front of the bench and any stationary object. Appropriate planting treatment for visual definition and seasonal shade should be provided, though all vegetation should receive routine maintenance to prevent overgrowth that would allow concealment or pose AT/FP concerns.

- **Design**: Preserve the overall character of each specific zone (that follow here) and the cemetery through consistent bench design. Benches throughout the cemetery should match those described under the Amphitheater Zone unless specified otherwise, such as architectural benches (stone and cast concrete) or approved “memorial” benches (for example, the Korean War Memorial Bench). Bench dimensions should meet specifications presented in the Technical Manual (TM) 5-803-5, Installation Design Manual, Figure 2.5, Page 8. Avoid using benches made from materials other than those previously listed. Visual Zones that merit certain prescriptions for the appearance and style of benches include:

  - **Amphitheater Zone**: Any new benches should match the black metal benches currently installed at Memorial Amphitheater. The installation of potential new “comfort stations,” together with added interpretive space, should align with existing design principles.

  - **Millennium and Columbarium Zones**: All new benches should match the existing concrete benches at the currently operative Columbarium in the Contemporary Theme area.

  - **Entry Corridor Zone**: Benches should match the black metal benches installed at the Memorial Amphitheater, with exception to existing backless, stone slab benches.

  - **Administrative Zone**: Little to no seating is recommended, as the area is not intended to attract visitors.

  - **Historical Zone**: Benches should align with existing designs around Arlington House and James Tanner Amphitheater, ideally along the pedestrian path parallel to Meigs Avenue and feature interpretive space to explain some of the oldest and most culturally significant graves.

  - **Monument Zone**: Benches should match the black metal benches installed at the Amphitheater Zone, with comfort stations and interpretive space mimicking the appearance at the Amphitheater.

  - **Service Zone**: Little to no seating is recommended, as this area is not intended to attract visitors.

  - **Forest Zone**: Since the zone is slated to remain old-growth forest under NPC operation and control, no seating is recommended.

Benches installed at SAHNC should follow standards used in the Amphitheater Zone.
Walls

Walls should provide security, define edges, and control flow of pedestrians and vehicles.

- **Design**: Walls should provide visual and wind screening, define pedestrian plaza areas, provide seating where appropriate, control pedestrian and vehicular traffic, retain soil, and define edges and boundaries. The design of walls should complement the character and appearance of their setting, while aligning fully with AT/FP standards articulated in the Security Annex. ANC leadership should determine the structural feasibility and the need for iron fencing atop the existing walls, as an effective and aesthetic deterrent, while using the recently completed Visual Effects Study as an informative simulation of the potential visual impact on views or critical cultural resources. Conversely, wall design should conceal any projections, such as signs or drain pipes, that would pose a hazard to passing pedestrians or maintenance equipment.

- **Materials**: Natural stone is preferred. Walls used to screen service areas or trash enclosures should incorporate landscape plantings to help reduce the negative visual impact of these areas, with landscape design adhering to AT/FP standards that avoid opportunities for the concealment of potential hazards. Conversely, exposed cast-in-place concrete, concrete block units, or wood timbers are not recommended.

- **Seating Walls**: Seating walls should generally be between 18” and 22” high, 12” to 18” wide, and constructed of stone in a manner to complement or match the materials of the adjacent buildings or memorials.

- **Perimeter Walls**: Perimeter walls define cemetery edges and boundaries. Material and design vary throughout the grounds and new or replacement walls should reflect the adjacent wall material and design. ANC leadership should identify and repair deficiencies in the existing perimeter wall—that is, areas where deterioration is noticeable to the untrained eye.

Fences

Fencing should provide visual screening, control pedestrian and vehicular access, and define edges and boundaries while screening storage/laydown spaces.

- **Design**: Fencing height is determined by use and function and follows the ground contour. It should clearly serve its restrictive purpose without appearing institutional or militarized.

- **Materials**: Permanent fencing materials include wrought iron painted a natural color or white for perimeter or decorative fencing. Temporary fencing for construction around laydown areas (Section 58) or to conceal the spoils area (Section 61) is typically made of wood painted green or black, but chain-link fencing with mesh or fabric is also allowed in certain locations (Figure 133). These materials should achieve the appropriate subtlety and concealment while effectively deterring visitors.
Recycling/Waste Combination Bins

Relatively few consumable products are available for purchase at the Welcome Center, so ANC’s visitors do not typically generate a great deal of trash. However, a consistently tidy appearance is essential for maintaining a tone of solemn reverence, so receptacles are essential for litter control. Recycling bins typically only accommodate plastic water bottles, since ANC offers no other beverages for purchase.

- **Siting**: Trash containers should be visible and accessible for effective litter control. Containers should be located conveniently along walkways and near major pedestrian intersections, building entrances, and seating and eating areas. Recycling bins will typically accompany trash containers, though they will never be as commonplace because the need is not as great. The most commonly recycled items at ANC are water bottles that visitors can purchase at the Welcome Center. Conversely, trash receptacles should not be located within or adjacent to interment or inurnment areas. This is so they do not detract from the solemn character of cemetery sections still hosting committals and active first interments (for example, the Columbarium Zone, the niche walls, and the columbaria in the Millennium Zone).

- **Design**: Black metal waste bins found near Memorial Amphitheater are good examples of acceptable waste bins. Trash receptacles should consist of metal bars, tubing, straps, and mesh configurations that visually conceal the trash receptacle liner or bag. The aesthetic character should be timeless and complement its adjacent environment and other site furnishings. Waste bins should not be made of plastic and should not feature designs perceived as “fashionable” or “contemporary” that will soon appear dated or obsolete.

Dumpsters

Dumpsters create a significant negative visual impact that may also impede views for visitors and families at the cemetery. While the status quo at ANC is to keep dumpsters completely out of view from visitors, this may prove increasingly challenging as construction work intensifies. ANC leadership should address the placement of dumpsters—either permanent or related to construction projects—as part of an overall facility design and incorporate them into site planning.

- **Design**: If a dumpster is permanent and not tied to a construction site, it should be placed on concrete pad with an apron large enough to encompass the bearing points of service vehicles. It should also be walled or fenced in at a maximum height of 6’ with a minimum 3’ clearance all the way around the dumpster to allow adequate pedestrian and truck access. Plantings should buffer the visual impact of screen walls, as seen in Figure 134.

- **Siting**: To the greatest extent possible, dumpsters should be placed in areas screened with walls, fencing, or plant material. Dumpsters should not be located along major circulation or use areas. A paved service drive or parking lot with adequate overhead clearance should be able to provide collection vehicles simple and inconspicuous access to dumpsters. AT/FP requirements noted in the AT/FP Design Component restrict the location of dumpsters around inhabited buildings and primary gathering areas, which at ANC would include the following areas previously defined as nodes:
  - Welcome Center and Administration Building
  - Memorial Amphitheater and Tomb of the Unknown Soldier
  - James Tanner Amphitheater
  - Columbarium Courts (at both Millennium Zone and Columbarium Zone)
  - President John F. Kennedy Gravesite
  - Arlington House (though not an ANC property, it fits the definition of “node” and should adhere to the same standards as other primary gathering areas)

Figure 134. Escondido Dumpster
Bicycle Racks

Bicycle racks should be provided at key entry destination locations, such as the Entry Corridor, and, if evidence suggests sufficient demand, at Ord and Weitzel Gate and at the Service Gate at the current southern perimeter. As of 26 October 2016, ANC leadership determined that bicycle use on the cemetery grounds is restricted for guests unless they acquire a family pass. Therefore, bicycle racks, along with appropriate signage, should clearly indicate that all guests must dock their bicycles at entry points. The absence of bicycle racks at anything beyond these clearly articulated locations will reinforce the policy that strongly restricts bicycling around and through the cemetery. No bicycle racks should be present in the cemetery’s interior.

Bicycle racks at the entry should be located on a concrete surface where they will not impede pedestrian movement or block building entrances. Bicycle racks should be metal ribbon type or modular ring configurations that complement adjacent site furnishings. ANC leadership has no existing agreement with Capital Bikeshare, Washington D.C.’s bicycle sharing program. However, ANC may determine that it wishes to encourage bicycle access to the grounds—but not within them—through agreements to install docking stations outside the cemetery entrance. The design of this station, however, will inevitably have an incompatible appearance with the optimal design for bike racks at ANC. If ANC decides to allow dockless bicycle sharing programs as a means of reaching the cemetery entrance, it should either provide a dedicated parking area or restrict all parking to outside of the controlled perimeter.

Drinking Fountains and Shading Facilities

Due to the heat and humidity of northern Virginia summers and the high volume of visitors to ANC, regularly positioned drinking fountains are essential for preventing heat-related illnesses and deaths. At present, the majority of the approximately 20 drinking fountains are on the north or west side of the cemetery, near major nodes: Entry Corridor (ADP 1), President John F. Kennedy Gravesite, Arlington House, and Memorial Amphitheater. The far south of the cemetery (south of Bradley Drive) only contains two fountains, and the area north of Lincoln Drive has none. While these areas receive far fewer visitors, their comparative isolation could leave a person stranded in the event of a heat emergency. ANC leadership intends to address this deficit as part of its plan for new comfort features.

Shading facilities also help combat the often inhospitable elements, particularly heat and solar radiation, but also flash thunderstorms in the late spring. The optimal location would be where people tend to congregate, optimally as a cue, which makes prominent tram stops the most practical locations. The existing tram waiting area near the Welcome Center can set the architectural standard, with smaller versions serving the identical purpose. Drinking fountains at shading facilities would serve as paradigmatic guest amenities.

An example of desired drinking fountains are seen in Figure 135.

Overall Status of Site Furnishings

During the development of the CPS, several representatives of ANC leadership have been researching the availability of site furnishings that improve guest comfort: specifically, benches, drinking fountains, and waste/trash receptacles. Figure 136 depicts the locations of these features. A forthcoming project will research methods of improving signage and wi-fi access.
Figure 136. Existing Site Furnishings

LEGEND
- WATER FOUNTAIN
- FLOWER POT
- BENCH
- RECYCLING CONTAINER
- TRASH CAN

PAGE 188
The proposed clustering of these furnishings (particularly benches) largely align with the Pedestrian Nodes proposed in the various ADPs. As indicated in the subsection on Seating, the Amphitheater Zone generally sets the standard for appearance and design. The ANC team will eventually replace all Barco-style benches at the most frequented areas with the preferred, black steel, Victor Stanley design—a brown steel version seen in Figure 137. Barco-style benches will be left along pedestrian-only paths (a modified Roosevelt Drive, for example), where benches are easy to relocate. Backless benches and historically significant benches along Custis Walk will remain in place, though the team is not looking to install anything similar. Ultimately, the new bench design and siting will not adhere strictly to TM 5-803-5, Installation Design, but instead will help reinforce a hierarchy of walkways.

While benches are the most common furnishing, other amenities will cluster near the benches at certain nodes to help reinforce their centrality and create “comfort stations.” This enhancement will include six drinking fountains at new locations and the replacement of 18 others. The Acorn design will apply to drinking fountains, which will be indoors whenever possible because the outdoor models are very large: over 5’ tall. The intention is to purchase the fountain and prepare a separate project to replace the water lines, therefore, many exterior fountains may not get installed until much later. The team determined that misting stations are unsuitable, not only because of the water wasted but because the management of run-off will be inadequate. Bottle fillers are also widely used. Trash cans currently outnumber recycling stations by a considerable margin, but the need for recycling is limited: they mostly accommodate water bottles. Most of the bins throughout the cemetery use the Victor Stanley design and new installations will continue to do so.

In addition to the site features listed previously, flower boxes, which contain portable cones that the public may use for the fresh-cut flowers they place at gravesites, are also utilized. Most flower boxes are concentrated east of Eisenhower—in the Contemporary Theme at ANC—where the majority of recent first interments have taken place. ANC staff routinely replenishes these flower boxes with new cones. Lastly, the team designing new site furnishings has coordinated with the Horticulture team for the possibility of suitable shade trees at these pedestrian nodes and comfort stations.

Signs and Wayfinding

Because signs communicate information visually, they should be conspicuous, but also attractive and complementary to their surroundings. Signage serves as a unifying element throughout the cemetery, visually tying the cemetery themes together and building a reference and continuity throughout the cemetery. Sign design must consider content, visual appearance and organization, location, and the structural support system. Standardized signage facilitates movement, provides a sense of orientation, and reinforces standards of excellence.

Army standards for signs are in UFC-3-120-01, Design: Sign Standards, stating “some installations may require unique sign solutions that reflect their cultural heritage or historical significance, as appropriate.” ANC falls into this category. The signs in use at ANC are historic cast metal with raised lettering. Other signs, like traffic control signs, are based on national highway standards. However, traffic signage should not detract from the overall character of the cemetery.

Sign System Characteristics

Several basic design characteristics are part of any successful signage system. They include:

- **Simplicity:** An effective sign system provides only needed information, avoids redundancy and precludes over-signing. Signage must be clear, simple and easy to process quickly. Key activity nodes that require considerable information should consolidate these rules on a single sign, rather than creating clutter through a multitude of proximally located smaller signs.
• **Continuity:** It is essential that the system be uniform and consistent throughout the cemetery. The importance of consistent implementation extends from the larger issues of sign type, shape, stanchion height, and size, down to accurate color continuity and typestyles.

• **Visibility:** Signs must be located at significant decision points and oriented to provide clear sight lines for the intended user. Compatibility with vegetative growth, utilities, other signage on the grounds, and various other street design elements is important to ensure long-term maximum visibility.

• **Legibility:** Sign typestyle, line spacing, color, and size are the crucial elements of legibility. This aspect of sign design should consider pedestrians as the primary users, with occasional use by motorists and rare use by bicyclists. Legibility should account for the relative travel speed at which each targeted type of user will be moving when viewing the signs.

**Types of Signs**

All signs should fall into one of the categories that follow. When creating a new sign, the leadership team should determine which category it falls under and then adhere to those design and placement rules. If a new sign does not clearly fall under any of these categories, leadership should apply stringent standards to determine if the sign is essential or adapt its content so that it unambiguously falls into one of these existing categories. These stringent standards will help guard against the proliferation of signs.

**Informational Signs**

These signs provide information about regulations and amenities in the cemetery. Signs include, but are not limited to: floral regulations, key destinations, cemetery rules, cemetery hours, restrooms, other visitor amenities, pedestrian only areas, handicap ramps, and cautions. Relatively few signs overtly restrict visitor access. The cemetery instead prefers to utilize aesthetic barriers (such as fences or hedges) or simple tacit signals like the lack of informational signage that an area (such as the Administrative Zone) discourages visitors. If the cemetery staff experiences confusion among numerous cemetery visitors, through, people mistakenly entering administrative buildings or other restricted areas, for example, a more overt approach with fencing may be necessary.

• **Recommended:** Match existing cast metal signs with dark background (painted aluminum or bronze) and white or cast natural color text raised lettering. Figure 138 provides examples of varying types of information that are distinct enough for the eye to interpret two different messages, but similar enough to demonstrate a prevailing theme.

• **Not Recommended:** Use higher maintenance material, such as painted wood or fiberglass. Use aluminum sheet signs in lieu of cast metal. “Keep off the grass” or “No trespassing” signs detract more from the landscape than help. Since they can overtly make visitors feel unwelcome, they are not recommended.

**Interpretive Signs**

These signs display interpretive information to visitors and families. They help orient and inform guests about nearby monuments and points of interest. The design of the signage should be prominent enough to capture the attention of a passersby without impacting prominent viewsheds.

**Section Markers**

These signs display the cemetery burial section numbers. They are among the most abundant and should be small and subtle. They help orient guests but should never overwhelm a section. Locate them at key vertices along the perimeter where a convergence of travel paths requires clear delineation between sections.

**Street Signs**

Provide the names of the drives in the cemetery, serving
much the same purpose as conventional street signs. Each intersection should feature the names of both streets at that corner point of convergence.

Maps

Cemetery maps display location information that provide direction for visitors. Map signs can provide a greater level of detail than a network of site-specific signage, thereby rendering signs unnecessary for points of lesser importance or key cemetery attractions.

Allowing maps to provide higher detail will help mitigate an oversupply of signage, which would result in clutter and detract from the cemetery’s appearance. Physical (paper) maps available at the Welcome Center should largely parallel the map signs, in terms of the level of detail.

- **Recommended:** Map stands should be installed at key locations throughout the cemetery. Graphics should be visually pleasing and easily understood, using a minimum of text to avoid language barriers. Design and construction should complement the materials within the cemetery. They should include shelter from the elements, a paved walk-up area, and a recycling/waste bin.

- **Not Recommended:** Do not use plexiglass or fiberglass. Primary material for the maps should be resistant to climatic changes, including the possibility for bleaching by sunlight.

Traffic Control (Regulatory) Signs

National highway standards will be used for signs to regulate vehicular traffic (AR 420-72, Transportation Infrastructure and Dams, Paragraph 2-15f). These standards are described in the Manual of Uniform Traffic Control Devices (MUTCD). See also MTMC Pamphlet 55-14, Traffic Engineering for Better Signs and Markings. This pamphlet clarifies existing standards and provides guidelines for officials to conform to the MUTCD. These standards should be used throughout the cemetery and include cemetery Access Control Points.

- **Recommended:** Traffic signage should not detract from the overall character of the cemetery. Traffic sign poles should be breakaway but resemble cemetery street signs. To reduce clutter, restricted access areas should use sleeved (removable) bollards in lieu of signage and temporary gates, or permanent bollards as stipulated by the Security Annex.

Lighting

Lighting is a functional requirement that also impacts the visual environment. The cemetery lighting system conveys a sense of order and organization. Lighting should only be used at monuments, gates, and the Entry Corridor Zone as needed for safety and security.

All lighting should be located and designed to prevent undesirable light spillover into other areas. Spotlights should be aimed or screened to prevent glare that could blind motorists or pedestrians.

ANC does not operate under routine conditions during night-time hours, and special functions or events operating at night are extremely rare. Therefore, outdoor lighting should always facilitate safety, rather than enhance comfort or aesthetics. ANC owes much of its atmosphere of serenity to the lack of visual clutter, which includes a near-absence of streetlights and the promotion of the dark-sky principles articulated by the International Dark-Sky Association (IDA). With the exception of the lights flanking Memorial Avenue, the existing light fixtures at the Entry Corridor are not historically significant; therefore, ANC leadership can replace them with lighting deemed more suitable or compliant with the existing aesthetic lighting along Memorial Avenue. Though surrounded by a heavily urban environment, ANC should retain its reputation and character as a reprieve from Arlington County’s abundant artificial lighting.

The Security Annex recommends a bidirectional communication system in the event of visitor emergencies, particularly at areas of isolation or low visibility. Any lighting deployed at these “call boxes” should be subtle and serve the function of drawing attention to the boxes, rather than serving as a means of illumination.
Sustainability

Up to this point, the CPS has largely integrated sustainability considerations into the most relevant subsections where they might apply. The cemetery-wide goals outlined herein support and largely echo applicable federal policies. They should inform the execution of all projects, as well as best practices in facility and grounds management.

Sustainable design is an integrated approach to planning, designing, building, operating, and maintaining facilities and grounds in a collaborative and holistic manner. It is a systematic process and engineering practice with established guidance, checklists, tools, and scoring systems. Sustainable design integrates the 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.

Sustainability and the Federal Government

The Federal Government has led the nation in building and site design, construction, and operation that is both energy efficient and resource-conserving. The following policies, statutes, and Executive Orders have established the principles of sustainable design for federal agencies:


Most other sustainability directives and standards function effectively within their respective chapter. Future additions to the CPS will provide technical details for further integration of sustainable design principles into new projects, which will include strategies for reducing the environmental impact of materials, optimizing energy performance/commissioning, and documenting the goals necessary to achieve eligibility within the USGBC’s Leadership in Energy and Environmental Design (LEED) certification system.

Sustainable Design Principles

Guiding principles of sustainable design include:

1. Follow earth-friendly landscaping principles to promote biodiversity.
2. Reduce the need for potable water, particularly for irrigation.
3. Reduce the negative impact of chemicals used for fertilization, pest control, ice removal, and cleaning.
4. Provide responsible erosion and sedimentation control.
5. Achieve a balance of biodiversity expected of a Level III Arboretum, with a careful monitoring of non-native species with invasive tendencies.
6. Reduce the negative impact of maintenance equipment on the cemetery grounds.
7. Optimize energy performance.
8. Enhance the working environment through improved ventilation, maximum exposure to natural light, and limiting the presence of building materials or organic compounds that can serve as allergens.
Antiterrorism/Force Protection (AT/FP) Design Component

The Antiterrorism/Force Protection (AT/FP) design component is a required part of the CPS. It guides the design of facilities and landscapes to safeguard property and critical assets against criminal and terrorist activity. AT/FP design operates in conjunction with the Security Annex and serves to enhance the security of the cemetery, while maintaining cost effectiveness, a sense of welcoming and openness, and a sensitivity to cultural and historic resources.

Principles

Principles developed in *UFC 2-600-01, Installation Design* help guide the design and development of the AT/FP component of the CPS, and include:

- Orient buildings with vulnerable areas away from potential threats.
- Locate screens to block direct lines of sight from locations where aggressors can fire weapons at a building. Trees, fences, and walls along the fence line or around buildings tend to obscure observation from outside the cemetery.
- Position exterior doors to not be easily targeted from the perimeter of the cemetery.
- Design facilities to resist the effects of explosive blast through structural design, site layout, or the use of berms, revetments, and blast walls.
- Design vehicular flow to minimize vehicle bomb threats; avoid high-speed approaches.

Although these principles were originally developed for military installations, which are typically populated by many soldiers and DoD personnel and face far greater security challenges than a cemetery, these design principles are still applicable to ANC and should be scaled to ensure the security of it as a major tourist attraction.

Security Recommendations

The Security Annex establishes a strategy to address AT/FP risks and concerns in order to articulate an appropriate Security Posture (SP). Varied interventions and security features will cumulatively achieve the desired SP, most of which draw their inspiration from *UFC 4-010-01, Minimum Antiterrorism Standards for Buildings*. Recommendations include the following:

- Design strategies for physical security measures through CPTED
- Improvements to ACPs and perimeter fencing to maintain a controlled perimeter
- Scalable security features to support elevated threat levels
- Other necessary sensitivities to site planning and building design, in which this CPS has integrated AT/FP consideration to relevant chapters
Crime Prevention Through Environmental Design (CPTED)

As articulated through the International CPTED Association, CPTED is a multi-disciplinary approach to deterring criminal behavior through environmental design. The Security Annex provides recommendations for existing areas and enhancements during major building renovations. This serves as a baseline document to protect staff and visitors, and to safeguard property and critical assets against criminal and terrorist activity.

As the previous sections of this CPS have clearly indicated, the presence of vegetation throughout the cemetery can have beneficial and detrimental impacts on security. The selection and placement of landscape plant material is an integral element in the provision of protective measures to reduce the threat of terrorism. Proper selection and placement of trees and shrubs can provide visual screening without concealing covert activity. The Horticulture department should work closely with AT/FP experts to refine the landscape plan, so that it provides visual screening without compromising AT/FP measures.

Landscape design with regard to plant material should incorporate the following aspects:

1. Avoid conditions within 33 feet of inhabited structures that permit the concealment of aggressors or obscure the view of objects or packages measuring as small as 6 inches by 6 inches from the view of security personnel.
2. Plant material selection and placement should minimize potential hiding places for bombs and aggressors.
3. Provide vegetated screening to obscure off-cemetery views.
4. Use trees to obscure sight lines of on-cemetery buildings from off-cemetery buildings.

Standards

Meeting these minimum security standards is essential in mitigating a certain level of risk to property, personnel, and visitors to the cemetery.

Controlled Perimeter

A critical component of AT/FP is the perimeter. The type of perimeter impacts the standoff to protected structures. Uncontrolled perimeters require a greater standoff distance than a controlled perimeter. The perimeter at ANC will be designed to be controlled per the Security Annex. It is important to note that a controlled perimeter and minimum standoff require dynamic structural analysis of protected buildings. New construction at ANC must comply with UFC 4-010-01, Minimum Antiterrorism Standards for Buildings.

Building Hardening

All new buildings/structures shall comply with AT/FP standards for structural and blast performance. This includes, but is not limited to, reinforced exterior masonry walls, window glazing, doors to withstand applicable American Society for Testing and Materials (ASTM) standards, and electrical/mechanical protection. Building architects should review and comply with AT/FP building hardening standards that are current at the time of planning and design.

Scalability

During the majority of ANC’s hours of operation, security processes should follow a regular routine. However, planning and adequate training should allow for the escalation of security measures in the event of a potential or imminent threat. The presence of an Emergency Operations Center will enable the monitoring of activity, while serving as a command hub, in the event of an emergency, whether generated within or outside ANC’s perimeter. A scalable security plan will address issues of notification, protection of ANC leadership, best practices for ensuring the safety of guests, and the deployment of trained personnel equipped to identify and neutralize the threat. A 100% securitization—a complete lockdown—primarily involves procedural changes, rather than additional physical improvements, though the Security Annex explores both of these approaches, providing diagrams and maps that represent what is necessary to elevate ANC’s Security Posture to the desired end state.
Soldiers’ and Airmen’s Home National Cemetery (SAHNC)

SAHNC, located in northwest Washington, D.C., abides by many of the same standards and guidelines discussed in the CPS. SAHNC maintains the same mission as ANC, and the goal of the CPS is to preserve its iconic image and function as a military cemetery. The architectural and historic character of the facilities and landscape, its natural elements, and hallowed grounds all evoke much of the same visual and emotional imagery of ANC. Many of the gravesites are as old as the oldest sections at ANC, and its Logan Mausoleum near the entrance would function as a landmark even in the largest cities. The first floor of the Superintendent’s Lodge retains its historical appearance. SAHNC remains a place of verdant beauty and solemnity. Therefore, the majority of the standards articulated in the CPS for ANC will also apply to SAHNC, particularly those referenced in the Amphitheater Visual Zone.

SAHNC, however, differs from ANC in some respects, so a slightly different interpretation of the CPS should apply in these instances. The following concepts address differences between future planning guidelines at SAHNC and ANC:

- **The size of SAHNC makes diagramming unnecessary.** SAHNC does not depend on the five navigational elements for navigating because it is small. A person can stand at almost any point in the cemetery, pivot 360 degrees, and see the cemetery in its entirety. It overwhelmingly adheres to a single visual theme, and its lack of visitors makes it difficult to assert anything more than hypothetical nodes or visual zones.

- **There is no defined ACP.** SAHNC is unmanned and uninhabited. The only routine means of access is a metal gate near the lodge, opened daily by private contractors who maintain the grounds. An additional pedestrian gate at the far east of the cemetery, near the flagpole, remains closed at nearly all times. As a result of this unmonitored entry, considerations of AT/FP and security during regular operating hours do not apply.

- **SAHNC is not an accredited arboretum.** The cemetery does not aspire to the biodiversity of an arboretum, and it lacks the presence of well-trained horticulturists who can visit regularly. Therefore, specific considerations of plant material, including the potential planting of foreign or invasive species, is not advised without onsite horticultural staff. SAHNC should exclusively use native plantings.

- **There is limited pedestrian and vehicular traffic.** Circulation design principles that address pedestrian-vehicular conflicts are not relevant, because the cemetery receives few visitors. At any given time, it never has enough visitors to generate traffic concerns. Its small footprint and limited circulation opportunities allow pedestrians and vehicles to coexist on the same roadways.

- **There is limited utility infrastructure.** There are two public restrooms and some exterior lighting, as well as rudimentary underground water, wastewater, and stormwater facilities. Opportunities highlighted within the CPS for utility expansion and phasing do not apply.

- **No facilities are occupied.** Interior design standards highlighted in the Building Design section are not applicable. However, if SAHNC becomes operational with rotating or permanent staff, building design guidelines would apply, and staff should abide by them.

These planning standards link to the overriding Vision Plan at ANC/SAHNC, the Area Development Plans, and the analytical tools nested within the Site Assessment. The prevailing Goals and Objectives of the master plan reinforce these linkages among disparate planning elements. The Goals and Objectives form the cornerstone of this comprehensive update in master planning, which will guide planning at these two historically significant cemeteries. The Department of Army intends to manage these cemeteries well into the future, for the purpose of honoring those who served and sacrificed for a grateful nation.
## Appendix A: Future Development Plan

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Develop Mobile Vehicle Screening Area on Memorial Avenue</td>
<td>4C</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Install Memorial Avenue Improvements</td>
<td>3D</td>
<td>Short/Medium</td>
<td>PA</td>
</tr>
<tr>
<td>3. Collaborate with WIMA Memorial Foundation, evaluate and program sustainment of core and shell</td>
<td>2A, 2B</td>
<td>Short/Medium</td>
<td>PA</td>
</tr>
<tr>
<td>4. Upgrade 110 Gate (CAC-Enabled) - Completed 2020</td>
<td>3D, 4B, 4D</td>
<td>Short/Medium</td>
<td>PA</td>
</tr>
<tr>
<td>5. Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza</td>
<td>3D, 4C, 4D</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>6. Restore Pillars at the Gates Flanking the Hemicycle as Needed to their Desired Structural Integrity</td>
<td>3C, 3D</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>7. Construct Vehicle Screening Facility at Visitor Parking Garage Entry with Associated Circulation</td>
<td>3D, 4C, 4D</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>8. Reconfigure Tram Plaza and Queuing</td>
<td>4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>9. Reconfigure Pedestrian Crossing from Tram Plaza to Roosevelt Drive</td>
<td>4A, 4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>10. Create Flex Space North of Memorial Avenue</td>
<td>1D</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>11. Rehabilitate First Floor of Welcome Center</td>
<td>2A, 2B, 3A</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

### ADP 2: Memorial Amphitheater

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA Improvements to Memorial Amphitheater Exterior: Temporary Ramp and Seating - Completed 2021</td>
<td>4A</td>
<td>Short</td>
<td>C</td>
</tr>
<tr>
<td>Rehabilitate Historians' Offices and Restrooms on Lower Level of Amphitheater for Administrative, Interpretive, Storage Space, and Guest Amenities</td>
<td>2A, 2B, 3A</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>Rehabilitate Tomb Guard Space on Lower Level of Amphitheater</td>
<td>2C</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Implement Pedestrian Circulation Improvements and Pedestrian Node(s) at Amphitheater</td>
<td>3B, 4A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Repair Second Floor of Memorial Amphitheater Reception Building</td>
<td>2B, 3A</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>Improvements to Memorial Amphitheater Interior and Reception Building (including ADA)</td>
<td>4A</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>Construct Guest Amenities Facility Southeast of Amphitheater</td>
<td>3B, 3C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>ADA-Compliant Ramp to Amphitheater from Wheaton Lot with Tram Stop</td>
<td>3E, 4A, 4B</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

### ADP 3: Service Complex

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Convert North Parcel into Permanent Service Satellite</td>
<td>1C</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Convert Sections S8 and E1 into Burial Space</td>
<td>1A, 1C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>3. Demolish Service Complex and Convert to Burial Space - Programmed in Southern Expansion Scope</td>
<td>1A, 1C</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

### ADP 4: James Tanner

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiate with NPS for Land along Sherman Drive as a Pedestrian Easement</td>
<td>4B</td>
<td>Medium</td>
<td>P</td>
</tr>
<tr>
<td>Develop Traffic Improvements at Sherman Drive and Arlington House</td>
<td>4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Develop Pedestrian Node(s)</td>
<td>3A, 3B, 4A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Implement Pedestrian Pathway to Millennium Expansion and Circulation Improvements at James Tanner Amphitheater</td>
<td>3B, 4A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Install Pedestrian Walkway along Sherman Drive</td>
<td>4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Rehabilitate Part of Receiving Vault for ANC Conservation Program</td>
<td>2A, 3B, 3A, 3B</td>
<td>Medium/Long</td>
<td>PA</td>
</tr>
<tr>
<td>Construct a Pathway near Receiving Vault from Wilson Drive</td>
<td>4B</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

### Soldiers' and Airmen's Home National Cemetery

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demolish Contractor Building and Laydown Yard</td>
<td>1A, 1C</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>2. Restore Gates, Wall and Perimeter Fence</td>
<td>3C</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>3. Rehabilitate Carriage House into Interpretive Space</td>
<td>2B, 3A</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>4. Reconfigure North-South Road into Additional Burial Space</td>
<td>1A, 4B</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>5. Rehabilitate Lodge</td>
<td>2A, 2B, 3A</td>
<td>Long</td>
<td>PA</td>
</tr>
</tbody>
</table>

### Supplementary Projects

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Objective(s)</th>
<th>Timeframe</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade Benches to ADA Compatibility (Installation-Wide)</td>
<td>3B, 4A</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>Upgrade Water Fountains to ADA Compatibility (Installation-Wide)</td>
<td>3B, 4A</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>Install Wayfinding (Installation-Wide)</td>
<td>2F, 3A, 4F</td>
<td>Short</td>
<td>PA</td>
</tr>
<tr>
<td>Construct Friedman's Village Project</td>
<td>3C</td>
<td>Medium</td>
<td>PA</td>
</tr>
<tr>
<td>Red Spring Rehabilitation Project</td>
<td>3C</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>Interpretive Space Improvements at Coast Guard Memorial</td>
<td>3A, 3B</td>
<td>Long</td>
<td>PA</td>
</tr>
<tr>
<td>Expand to Burial Sections with Speculative Availability</td>
<td>1B</td>
<td>Long</td>
<td>BP</td>
</tr>
</tbody>
</table>

Figure 139. Future Development Plan Project List
Appendix B: Arlington National Cemetery Transportation Management Plan

Introduction

Arlington National Cemetery (ANC) hosts over 3 million visitors annually and almost 6,000 funerals. The cemetery federal staff is comprised of roughly 200 federal workers, 80 military personnel, and up to 300 contract support staff. Roughly a third of the federal staff is teleworking while most of the contract support staff are in positions that require on-site support. Arlington National Cemetery is open to the public every day of the year 0800-1700, even Thanksgiving and Christmas. However, cemetery personnel start operations earlier than the times it is open for visitors as the grounds and visitor spaces that are open to the public must be cleared and prepared before visitors arrive. Many of the staff, especially if they provide facility maintenance, landscaping and security support arrive to their work starting at 0500.

The dominate mode of transportation to Arlington National Cemetery depends on the reason for the visit. Of the almost 6000 funerals held each year, most guests arrive by personal occupancy vehicles (POVs). While the majority of the general (non-funeral) visitors to ANC use a combination of tour buses, mass transit, ride-share or POVs.

Funeral Attendees

Most of the 6000 funerals and their respective attendees drive personal occupancy vehicles (POVs) to both deliver the remains of their fallen loved ones and to attend their service. Services are held 6 times per day Monday through Friday at 0900, 1000, 1100, 1300, 1400, and 1500. There are four services held per time slot. During special circumstances, there could also be a fifth service held during a time slot. Funeral attendees enter ANC on Memorial Avenue. For security reasons, every person and or vehicle is subject to a search and 100% identification check prior to gaining access. Once a funeral attendee is cleared for their funeral, they will be allowed to drive their POV on to Memorial Ave and forward to the Administrative Building which is inside of the ANC’s secured boundary.

Once inside, the funeral attendee is ushered to a queuing parking lot specific for funeral attendees. The queuing lot has four lanes, with each lane equipped with its own variable message sign. The sign reads out the first initial and last name of the decease’s love one. Funeral support contractors flag funeral attendees to fill the lot in a method that will create an orderly procession. In the event there is an especially large funeral or when there are five services held in the same hour, King Drive, the road that is directly in front of and parallel to the queuing lot, serves as the fifth (or overflow) lane. Once parked, funeral attendees gather inside the Administrative Building at a designated Family Gathering Room where they will meet with the ANC Cemetery Representative. The Cemetery Representative supports the families and provides any last minute details. Once all attendees have gathered and the hour of the start of funeral begins, the ANC Cemetery Representative leads the funeral procession to the grave-site.

Similar to funeral processions in public streets, funeral processions at ANC are conducted slowly with speeds limited to 15 mph. Lights are on for all in the procession. ANC staff and contractors are instructed to never pass by or cross a funeral procession or a horse pulled caisson, regardless if the caisson is in an active procession. Once the funeral procession is at the gravesite, the Cemetery Representative will park their vehicle in the middle of the road, indicating that a funeral is in progress.
and signaling to ANC staff and contractors to avoid the area and allow the family to have as private of a service as possible in a public venue.

![Figure 1. Funeral Attendee Queuing Lot](image)

Once the service is over, the family is allowed to stay at the grave site as long as ANC is open. The ANC Cemetery Representative provides the immediate family with a family pass and then the Cemetery Representative returns to the Administrative Building to assist in their next funeral. All immediate family members are provided instruction on how to receive a family pass for future visits. The family passes allow the family members to drive on to the grounds of ANC to visit their loved ones during public hours. The family passes are specifically labeled with the section that the loved one is buried. The instructions provided with the family passes state that the pass can only be used to park near the section specified to visit their loved one. This is highly monitored by ANC security staff. ANC security often verifies to ensure that a car is not parked in an inappropriate section or used to tour the cemetery grounds. This is to ensure that family pass holders do not act as tourists visiting other sites. The cemetery is not equipped to handle family pass holders acting as tourist since our roads are narrow, there are very few places with “no parking” signs, there are very few sidewalks (pedestrians use the road), and with on-going funeral services - the roads can get very congested.

**General Visitor Ridership**

Visitors comprise the bulk of ANC traffic. ANC has a parking garage that is open to the public at 0800 and closes at 1800 - one hour after public hours. Many times visitors are waiting outside of the cemetery on Memorial Ave at 0730 before the cemetery is open. The majority of visitors arrive in tour buses with many arriving in POVs or by the Washington Metropolitan Area Transit Authority (WMATA) operated metro system as well as some arriving by foot or bike/scooter. When a bus arrives before opening hours, they are instructed to turn around and return after opening. POVs are allowed to pull to
the side of the road and wait for opening – though this is discouraged due to the congestion of vehicles accessing the Route 110 ramp and the Memorial Bridge. Transit riders, walker and bikers are also allowed to wait on the sidewalk at Memorial Ave east of the entrance to the parking garage until public opening.

**Bikes**

Public bike racks are located directly in front to the Welcome Center on the north entrance inside the security fence. An over-flow bike rack is also available in the grassy area north of the parking garage. These areas are used by bikes and scooters alike, including commercial scooters and commercial bike shares. ANC does not allow bikes to park outside of the fence on Memorial Ave since the Memorial Ave view-shed is considered historic. However, this has created some access issues as the fence is secured at 1800 each day which would not allow the bike/scooter shared service to be accessible to other users or for servicing until the next morning. Despite these challenges, ANC has seen tremendous use of these services. In order to keep the solemn and respectful nature on cemetery grounds, ANC does not allow biking, scootering, jogging or other leisure activities within the cemetery grounds. The one exception is biking as a mode of transportation and not recreation for employees going to their work site or family pass holders visiting a loved one’s grave.

ANC has also been working with Arlington County on their bike/trail expansion plans. This includes a plan to extend the very popular trail that borders ANC from the Ord and Weitzel Gate on ANC’s north side and ends current at Memorial Ave. The extension would continue the bike lane along ANC’s east boundary from Memorial Ave to meet up with the new bike trail that will be constructed as part of the Southern Expansion project.

**Metro**

Metro is heavily used by both visitors and employees, operating with the first stop around 0530 and the last one at 1900. Because most of the attractions at ANC are outdoors, ridership can vary widely between the summer and winter months and other weather anomalies. According to the WMATA’s ridership portal, in 2022 average daily usage can vary from less than 200 users per day in the coldest months to over 1200 users per day during warmer months. Like most of WMATA’s stations, ridership sank to all times lows during the 2020 COVID pandemic and has yet to fully recover in 2022 to pre-pandemic levels. However, the trend is showing a good recovery with more riders by May of calendar year 2022 than all of 2021.

ANC actively partners with WMATA including attending monthly meetings, allowing WMATA contractors to park in ANC’s parking garage during the Arlington National Cemetery Station platform renovation project, providing licenses for shuttle bus stops on ANC property along Memorial Ave and working to provide permits for construction activities on ANC property including for the upcoming canopy construction project. ANC also promotes transit use by supporting a transit benefits program which reimburses ANC federal employees for their use of public transportation. There are 44 ANC employees who actively participate in the transit benefits program. Employees are not provided a parking garage access key if they participate in the transit benefit program.
Rideshare

There is evidence that visitors also use ridesharing applications like UBER and LIFT. Visitors using those means of travel are directed to off-load on Memorial Ave and walk into the pedestrian entrance to the Welcome Center. The Pedestrian entrance into the Welcome Center is the northern facing entrance on Memorial Ave. This entrance has its own separate gate that only allows for walkers, bikers, and other non-motorized access. This helps to de-conflict the pedestrian traffic from the POV and bus traffic. However, the rideshare drop offs and pick-ups create conflicts with constant U-turns on Memorial Ave. The staging of rideshares waiting on passengers is also an issue. ANC is exploring options to mitigate these issues as the use of rideshare evolves.

POVs and Tour buses

The vast majority of visitors travel to ANC using their POVs or on tour buses. The three-level public parking garage is widely used by visitors on a first-come, first serve bases. The top level of the parking garage is mostly for buses – accommodating 32 full sized buses and RVs and also has 13 visitor handicapped spaces and 70 POV spaces. The first and second level are solely for POVs and some “government vehicles only” spaces with a capacity 509 spaces. The garage has a tiered/step design with roughly half of the spaces uncovered to allow for more greenery and multiple rain gardens. The ANC horticulture team recently completed a short video of some of the care we take in selecting plants for the parking garage and throughout the cemetery – available through YouTube at Summer Plant Partners at Arlington National Cemetry - YouTube

![Figure 2. Top level view shows three-tiered Visitor Parking Garage](image)

The parking garage is operated through a lease by a private contractor. The current rates charges for POVs are $4 per hour with a maximum of $12 per day and for buses/RVs $10 per hour with a maximum of $30 per day. Special legislation allows the revenue generated from the parking garage to be deposited into an escrow account that can only be used to enhance and restore the parking garage.
ANC is prohibited from receiving funds from any outside source and even other federal agencies unless there is a special legislation.

Tram Service

Once visitors enter ANC, they have the option to use a tram service or walk by foot. The tram service is roughly used by up to 20 percent of visitors. This service is also operated by a private contractor. Through separate special legislation, the revenue collected by the tram service is deposited into an escrow account which can only be used for projects that can enhance the visitor experience. Tram service fares can range from free to $17.95. Trams runs from the Welcome Center every 20 minutes and as frequently as every 15 minutes during busier times of year. Tickets can be purchased on-line and at Welcome Center as well as at several of the tram stops. The tour is scripted between stops and visitors are allowed to hop on and off at any tram stop throughout the day. The tram stops at some ANC’s most popular attractions including the John F. Kennedy (JFK) Memorial, the National Park Service’s (NPS) Arlington House, the Memorial Amphitheater/Tomb of the Unknown Soldier, and Ord & Weitzel Gate (foot access to the NPS’s US Marine Corp War Memorial Iwo Jima). Once ANC has completed the construction of the Southern Expansion, tram service will expand to include the U. S. Air Force Memorial.

Figure 3. Tram Route and Stops

As part of the tram operations contract, one of the services that is provided is a grave-site shuttle service. This shuttle is free for family member and loved ones who want to visit a specific grave site and may either not have a family pass or their own vehicle to drive to the grave. This may also include people who may have mobility issues or prefer to take a vehicle due to the distance and terrain from the Welcome Center to the grave they want to visit. The grave-site shuttle operates on-demand as needed.
APPENDICES

and can be picked up at the tram circle across from the Welcome Center Tram stop. Operations in the summer months can include up to 100 riders a day.

Pedestrians

Visitors who choose to walk on foot have several ways to make their route to the main sites at ANC. ANC has a robust mobile application called “ANC Explorer” that can guide visitors to any grave by name and which also shows all memorials, monuments, restrooms and other visitor areas of interest. The map on the application shows the user their location and the location of the item of interest. The Welcome Center help desk also has paper maps available upon request. Signs from the Welcome Center also direct visitors towards major attractions. There are only a few sidewalks at ANC so many visitors are forced to walk in the roadway. In the older parts of the cemetery where the most popular attractions are located, the roads are established in a windy, non-standard, block design, meaning that there is generally no direct path to any of the sites. There is also an extreme elevation difference with the Welcome Center being close to the lowest level of the ANC, requiring pedestrians to walk up hill to attractions. The sidewalks on ANC include a historic sidewalk called Custis Walk which leads from the Ord & Weitzel Gate to Arlington House and a historical walkway called Crook Walk from Arlington House to Memorial Amphitheater/Tomb of the Unknown Soldier.

Figure 4. ANC Explorer Application

New sidewalks on ANC include a sidewalk on Eisenhower Drive and Meigs Dr. Both of these sidewalks were installed with special pervious pavement. There are also sidewalks that were installed and incorporated into the design around the Columbaria both in Section 63 and Millennium as well as in front of the Niche Wall. As mentioned in the RPMP, ANC is planning for the construction of new sidewalk on some parts of Yellowline Rd. This sidewalk will require significant coordination with NPS since both side of the Rd are on NPS property.
Due to overwhelming pedestrian traffic using the roadway, there are a couple of roads that ANC closes to traffic including family pass holders. This includes Roosevelt Drive and Weeks Drive leading to the JFK Memorial and Memorial Drive (not Avenue) in front of the main entrance to the Memorial Amphitheater. Both of these roadway areas are manned by Visitor Operations Support personnel to ensure that vehicular traffic is authorized.

Visitor Operations Support personnel also man six separate stations around the Welcome Center to ensure pedestrian safety. This includes between the ingress/egress point at Memorial Ave’s entrance to ANC’s parking garage, at the sidewalk at the entrance to the parking garage, at the crosswalk from the parking garage to the Welcome Center, at the pedestrian entrance on Memorial Ave on the north side of the Welcome Center, at the intersection of Memorial Avenue and Eisenhower Drive, and at Eisenhower Drive and Roosevelt Drive. As mentioned in the RPMP, ANC would like to address some of the visitor/vehicle conflict issues around the Welcome Center in the future by means of physical changes which would involve construction.

Of the three access gates that are open to the general public, more than 95 percent of visitors enter ANC using the Memorial Ave gate. This is likely due to the wider array of parking and transit options available. However, ANC also has two other gates that allow pedestrian-only accessibility, the Ord & Weitzel Gate and the 123 Gate. The Ord & Weitzel Gate is in the very northern boundary of ANC and is open daily during ANC operating hours of 0800-1700. Since the Ord & Weitzel Gate is not close to transit and parking is very limited and several blocks away, the gate is not as frequently used as Memorial Ave. However, the gate allows both visitors of ANC and NPS’s Iwo Jima Memorial to have pedestrian access to their respective sites and is along a very popular walking and biking path. A Capital Bike Share station is several blocks away northwest of the Iwo Jima Memorial as well as limited public POV and bus parking surrounding the Iwo Jima Memorial.

The 123 Gate is located at the very southern boundary of ANC and is also open to pedestrian access during ANC daily operating times of 0800-1700 Mondays – Saturdays and closed on federal holidays. This gate is convenient to visitors of the Pentagon Memorial and the Air Force Memorial and is located close to the Pentagon metro station and bus transit site. Because of its close proximity to ANC’s service complex, the 123 Gate is ANC’s main contractor and construction vehicle access as well. Despite allowing service vehicles, the gate is not open for visitor POVs and family pass holders on a regular basis.

For visitors that have Department of Defense (DoD) credentials, one additional gate option includes The Old Chapel Post Gate. This gate is only open Mondays through Saturdays and lead directly to Joint Base Myer-Henderson Hall (JBMHH). Since many of the military service personnel that support funerals (the honor guard, caissons, military bands, bugler, and the Old Guard) are stationed at JBMHH, this gate is specifically open for their support. However, visitors with DoD credentials are allowed to use the gate as well.

**Internal Traffic**

Internal to ANC, speeds are limited to 15 mph. Security enforces the speed and regularly issues warnings or remove driving privileges for people who violate traffic rules. Because of the relatively low volume, there are no traffic signals inside ANC. As referenced in the Real Property Master Plan, traffic flow is regulated through a series of regulatory and warning signs throughout the cemetery. Efforts have been made to keep overall signage to a minimum to keep the beauty and solemnity of the views.
Government Parking

There are three main areas around the cemetery that act as employee parking, the visitor parking garage, the administrative parking lot and the 123 Service Complex parking lot(s). The parking garage is under the control and operation of the private contractor that leases the space. The lease allots for a number of spaces for government vehicles and federal worker POVs. All of the divisions that work in the Welcome Center park their government vehicle in the parking garage. Parking passes are only provided to federal government workers who are not enrolled in the transit benefits program. Contractors working at ANC are not provided parking passes and must pay or use transit or other means. There are 30 spaces that are designated as “authorized vehicle only” in the parking garage and those spaces are used by the government vehicles and the government POVs that have a permit. Numbers of spaces in the garage are provided in the visitor parking section.

The administrative parking lot is for government vehicles and employees that work at the Administrative Building. The lot is divided into two separate areas. The lot closest to the Administrative Building is marked and signed for “Government vehicles only”. There are many government vehicles parked here to support the Cemetery Representatives for funeral processions and the Clergy who also sit at the Administrative Building. The lot that is further away from the administrative building is marked as “Authorized Vehicles Only” which allows for use by government worker POVs and military personnel assign to the Administrative building. Including handicapped spaces, the total number of POV spaces in the administrative parking lot is 119.

The 123 parking area is the third main parking area and is located at the very southern end of ANC. This area is comprised of multiple parking lots that support both government vehicles and government staff POVs who work in the 123 service complex. The parking areas are marked and signed with either “Government Vehicles Only” or “Authorized Vehicles Only”. The total number of spaces in the 123 area is 172.

Figure 5. 123 Service Complex
Southern Expansion

The Southern Expansion project constructs a parking garage with 274 spaces for government, staff and visitor POVs. The project however will demolish the 172 surface space that are part of the 123 Service Complex as well as 18 spaces for POVs and 5 spaces for buses at the Air Force Memorial. This will result in a total net increase of 79 POV spaces. The project will also remove the 123 Gate and replace it with a new pedestrian access point. The intention is for Memorial Ave to remain the main entrance to Arlington National Cemetery while the South Expansion will act as a secondary access point.

Summary

Though ANC is adapting to the changing environment of transportation and transit, the Transportation Management Plan has identified areas that ANC would like to improve in the future. These improvements mostly seek to increase safety to our visitors through physical construction both outside of the secured boundary as well as inside. ANC also recognizes that transit is constantly evolving; and ANC is looking to progressively address those evolving modes be it rideshare or scooters. Currently ANC is adapting various policies to address changing modes of transit and possibly in the future enhance the transit options through physical construction.
Appendix C: Complete List of Sources


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TDA for W1C9AAA (Dated: 10-Oct-2017, EDate: 01-Oct-2018)

Security Annex:

Appendix D
Programmatic Environmental Assessment
# Table of Contents

Acronyms and Abbreviations ........................................................................................................................................... v  
Executive Summary .................................................................................................................................................................. 1  
Chapter 1: Purpose and Need for the Proposed Action ............................................................................................................. 1-1  
  1.1 Document Organization ............................................................................................................................................................ 1-1  
  1.2 Background .................................................................................................................................................................................. 1-2  
    1.2.1 Terminology ............................................................................................................................................................................... 1-2  
    1.2.2 Mission ....................................................................................................................................................................................... 1-6  
    1.2.3 Real Property Master Plan ...................................................................................................................................................... 1-6  
  1.3 Purpose and Need ....................................................................................................................................................................... 1-7  
    1.3.1 Add Burial Capacity .................................................................................................................................................................... 1-7  
    1.3.2 Facilitate Future Operations .......................................................................................................................................................... 1-8  
    1.3.3 Enhance Family Experience During Committal Services ............................................................................................................ 1-8  
    1.3.4 Enhance Visitor Experience ........................................................................................................................................................... 1-8  
    1.3.5 Preserve Cultural Resources ......................................................................................................................................................... 1-8  
  1.4 NEPA Requirements ................................................................................................................................................................. 1-8  
Chapter 2: Proposed Action and Alternatives ................................................................................................................................. 2-1  
  2.1 Development of Alternatives ...................................................................................................................................................... 2-1  
    2.1.1 Evaluation Criteria ....................................................................................................................................................................... 2-1  
    2.1.2 Constraints .................................................................................................................................................................................. 2-3  
  2.2 Alternatives Considered and Dismissed from Detailed Consideration .............................................................................................. 2-9  
  2.3 No Action Alternative ................................................................................................................................................................. 2-9  
  2.4 Proposed Action .......................................................................................................................................................................... 2-9  
    2.4.1 Entry Corridor Area Development Plan Concept ...................................................................................................................... 2-9  
    2.4.2 Memorial Amphitheater Area Development Plan ...................................................................................................................... 2-14  
    2.4.3 Service Complex Area Development Plan Concept ................................................................................................................ 2-18  
    2.4.4 Meigs-Tanner Area Development Plan Concept ....................................................................................................................... 2-21  
    2.4.5 Security Environmental Assessment .............................................................................................................................................. 2-24  
    2.4.6 Supplementary Projects .......................................................................................................................................................... 2-26  
Chapter 3: Affected Environment and Environmental Consequences ................................................................................................. 3-1  
  3.1 Land Use and Sustainability ........................................................................................................................................................ 3-2
Tables
2-1 Components of the Entry Corridor ADP ....................................................................... 2-11
2-2 Components of the Memorial Amphitheater Area Development Plan ..................... 2-15
2-3 Components of the Service Complex ADP ................................................................. 2-19
2-4 Components of the Meigs-Tanner ADP ...................................................................... 2-22
2-5 Removed....................................................................................................................... 2-24
2-6 ANC Supplementary Projects ...................................................................................... 2-26
3-1 Definition of Impact Intensity Levels for Effects Assessment .................................... 3-1
3-2 Environmental Commitments ..................................................................................... 3-42
6-1 List of Preparers .......................................................................................................... 6-1

Figures
1-1 Location and Vicinity of ANC ....................................................................................... 1-4
1-2 ANC Area ..................................................................................................................... 1-5
2-1 Area Development Plan Locations at ANC ............................................................... 2-2
2-2 ANC Site Constraints ................................................................................................. 2-8
2-3 Entry Corridor ADP Implementation Plan .................................................................... 2-13
2-4 Amphitheater ADP Exterior Implementation Plan ...................................................... 2-16
2-5 Amphitheater ADP Interior Implementation Plan ...................................................... 2-17
2-6 Service Complex ADP Implementation Plan ............................................................. 2-20
2-7 Meigs-Tanner ADP Implementation Plan ................................................................... 2-23
2-8 Security Improvements ............................................................................................ 2-25
2-9 Supplementary Project Locations .............................................................................. 2-27
3-1 Preliminary Area of Potential Effects ........................................................................ 3-26
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACHP</td>
<td>Advisory Council on Historic Preservation</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>ADP</td>
<td>Area Development Plan</td>
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<tr>
<td>ANC</td>
<td>Arlington National Cemetery</td>
</tr>
<tr>
<td>ANMC</td>
<td>Army National Military Cemetery</td>
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<tr>
<td>APE</td>
<td>Area of Potential Effects</td>
</tr>
<tr>
<td>Army</td>
<td>Department of the Army</td>
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<tr>
<td>AT/FP</td>
<td>anti-terrorism and force protection</td>
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<tr>
<td>BMP</td>
<td>best management practice</td>
</tr>
<tr>
<td>CAA</td>
<td>Federal Clean Air Act of 1970</td>
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<tr>
<td>CBPA</td>
<td>Chesapeake Bay Preservation Act</td>
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<tr>
<td>CCTV</td>
<td>closed circuit television</td>
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<tr>
<td>Cemetery</td>
<td>Arlington National Cemetery</td>
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<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CO</td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>CZMP</td>
<td>Coastal Zone Management Plan</td>
</tr>
<tr>
<td>dBA</td>
<td>A-weighted decibel</td>
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<tr>
<td>DoD</td>
<td>Department of Defense</td>
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<tr>
<td>EO</td>
<td>Executive Order</td>
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<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
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<tr>
<td>EPAct05</td>
<td>Energy Policy Act of 2005</td>
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<tr>
<td>ESA</td>
<td>Endangered Species Act of 1969</td>
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<tr>
<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
</tr>
<tr>
<td>HVAC</td>
<td>heating, ventilation and air conditioning</td>
</tr>
<tr>
<td>ICRMP</td>
<td>Integrated Cultural Resources Management Plan</td>
</tr>
<tr>
<td>IPaC</td>
<td>Information for Planning and Consultation</td>
</tr>
<tr>
<td>JBMHH</td>
<td>Joint Base Myer-Henderson Hall</td>
</tr>
<tr>
<td>msl</td>
<td>mean sea level</td>
</tr>
<tr>
<td>MOA</td>
<td>memorandum of agreement</td>
</tr>
<tr>
<td>MWQAQC</td>
<td>Metropolitan Washington Air Quality Committee</td>
</tr>
<tr>
<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
</tr>
<tr>
<td>NDAA</td>
<td>National Defense Authorization Act</td>
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<tr>
<td>NEPA</td>
<td>National Environmental Policy Act of 1969</td>
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<tr>
<td>NHPA</td>
<td>National Historic Preservation Act of 1966</td>
</tr>
<tr>
<td>NO₂</td>
<td>nitrogen dioxide</td>
</tr>
<tr>
<td>NOₓ</td>
<td>nitrogen oxides</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<td>--------------</td>
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<tr>
<td>NPS</td>
<td>National Park Service</td>
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<tr>
<td>NRHP</td>
<td>National Register of Historic Places</td>
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<tr>
<td>O₃</td>
<td>8-hour ozone</td>
</tr>
<tr>
<td>PA</td>
<td>Programmatic Agreement</td>
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<tr>
<td>Pb</td>
<td>lead</td>
</tr>
<tr>
<td>PEA</td>
<td>Programmatic Environmental Assessment</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>particulate matter with aerodynamic diameters of 10 microns and less</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>particulate matter with aerodynamic diameters of 2.5 microns and less</td>
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<td>RPMP</td>
<td>Real Property Master Plan</td>
</tr>
<tr>
<td>SIP</td>
<td>State Implementation Plan</td>
</tr>
<tr>
<td>SO₂</td>
<td>sulfur dioxide</td>
</tr>
<tr>
<td>SPCC</td>
<td>spill control and countermeasures</td>
</tr>
<tr>
<td>S.R.</td>
<td>State Route</td>
</tr>
<tr>
<td>TMDL</td>
<td>Total Maximum Daily Load</td>
</tr>
<tr>
<td>tpy</td>
<td>ton(s) per year</td>
</tr>
<tr>
<td>USACE</td>
<td>U.S. Army Corps of Engineers</td>
</tr>
<tr>
<td>USFWS</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>VAC</td>
<td>Virginia Administrative Code</td>
</tr>
<tr>
<td>VDEQ</td>
<td>Virginia Department of Environmental Quality</td>
</tr>
<tr>
<td>VDOT</td>
<td>Virginia Department of Transportation</td>
</tr>
<tr>
<td>VNPS</td>
<td>Virginia Native Plant Society</td>
</tr>
<tr>
<td>VOC</td>
<td>volatile organic compound</td>
</tr>
<tr>
<td>WIMSA</td>
<td>Women in Military Service for America</td>
</tr>
<tr>
<td>WIP</td>
<td>Watershed Implementation Plan</td>
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Executive Summary

Arlington National Cemetery (ANC) developed this Programmatic Environmental Assessment of the updated Real Property Master Plan (RPMP) to identify whether implementing the updated RPMP (the Proposed Action) at the cemetery would result in significant environmental effects. To implement projects in the updated RPMP, ANC must evaluate the Proposed Action’s environmental impacts to comply with the National Environmental Policy Act of 1969, which requires evaluating and considering the environmental effects of proposed federal actions.

The Proposed Action would extend the operational life of ANC and accomplish the following:

- Add burial capacity
- Facilitate future operations
- Enhance family experience during committal services
- Enhance visitor experience

The RPMP includes four area development plan (ADP) concepts and supplementary projects to address future needs on ANC. A Security Project EA was completed by ANC in 2022 separately. ADP concepts were developed for the following four areas on ANC:

- Entry Corridor
- Memorial Amphitheater Area
- Service Complex
- Meigs-Tanner Area

The Proposed Action’s components may include interim measures that would be superseded by other components or alternative uses of areas that would not be determined until later. ADP concepts may incorporate “flex space,” defined as areas that may be used for multiple purposes through time, with specific use changing as appropriate.

The No Action Alternative is to continue operations at ANC without an updated RPMP. The No Action Alternative would result in no effects to land use, air quality, noise, soils, topography, geology, groundwater, surface water, floodplains, wetlands, coastal resources, vegetation, wildlife, threatened and endangered species, designated critical habitat, cultural resources, socioeconomics, environmental justice populations, protection of children, and hazardous materials or wastes. The No Action Alternative would result in minor, long-term adverse effects to sustainability and the visual and aesthetic setting; moderate, long-term adverse effects to traffic and transportation; and minor, long-term benefits to stormwater management and water quality. The No Action Alternative would not meet the purpose and need for the project.

The Proposed Action would result in no effects to geology, floodplains, coastal resources, stormwater management, threatened and endangered species, designated critical habitat, environmental justice populations, and protection of children. The Proposed Action would result in negligible adverse effects to land use and recurring negligible short-term recurring
benefits to socioeconomics; and short-term, minor adverse effects to air quality, soils, wildlife, traffic, and utilities. Construction would result in the potential for indirect, short-term adverse effects to water quality, surface water, groundwater, and wetlands. Construction would result in recurring short-term adverse effects from noise and long-term negligible to minor adverse effects to topography. There would be long-term minor benefits to sustainability and stormwater management. Minor, long-term adverse effects to air quality would result from operating ANC. The Proposed Action would result in both beneficial and adverse effects to vegetation, with a net benefit expected. There would be minor-to-moderate long-term benefits to both visual and aesthetic setting and traffic and transportation. Minor, short-term and long-term adverse effects on solid waste and long-term minor to moderate effect to hazardous materials and wastes would occur. No unmitigated adverse effect on cultural resources would be expected.

The component projects in the updated RPMP would be implemented over a period of years. Specific component projects have not been designed, so additional project-specific environmental analysis would need to be completed prior to implementation. Once designed, all component projects of the Proposed Action would be evaluated for site-specific effects to cultural resources, stormwater management, visual and aesthetic setting, and visitor use. ANC will implement environmental commitments to minimize the effects associated with the Proposed Action. See Section 3.15 and Table 3-2 for a discussion of environmental commitments associated with the Proposed Action and No Action Alternative. There would be no significant effects to the resources analyzed in detail, though ANC will carry out mitigation measures to further reduce impacts. The potential effects to cultural resources would be analyzed on a project-specific basis in accordance with the Section 106 consultation process prior to implementation of individual projects, and any necessary mitigation will be implemented prior to project implementation.
Chapter 1: Purpose and Need for the Proposed Action

Arlington National Cemetery (ANC) developed this Programmatic Environmental Assessment (PEA) of the updated Real Property Master Plan (RPMP) to identify whether implementing the updated RPMP (the Proposed Action) at the cemetery would result in significant environmental effects. To implement projects in the updated RPMP, ANC must evaluate the Proposed Action’s environmental impacts to comply with the National Environmental Policy Act of 1969, which requires evaluating and considering the environmental effects of proposed federal actions. The ANC is the lead federal agency for the analysis under the National Environmental Policy Act of 1969 (NEPA).

ANC elected to prepare a PEA because the updated RPMP includes phased and conceptual development. The proposed development is evaluated based on available information in the PEA and, where complete information is lacking, the PEA specifies that additional site-specific, analysis will be necessary prior to implementation. Future site-specific NEPA documentation will be prepared by tiering from this PEA, as applicable, to avoid redundant or duplicate analysis. If a future site-specific NEPA analysis reveals direct or indirect effects beyond those evaluated in this PEA, the cumulative effects analysis for ANC will be reassessed as appropriate to consider those effects.

1.1 Document Organization

This PEA was prepared in accordance with Title 32 Code of Federal Regulations (CFR) Part 651, Environmental Analysis of Army Actions. Per 32 CFR Section 651.20, a PEA includes brief discussions of the need for the proposed action, alternatives to implement the proposed action, environmental effects, and a listing of persons and agencies consulted.

This PEA is organized in the following manner:

- **Chapter 1: Purpose and Need for the Proposed Action** provides background information, describes the need for the Proposed Action, and summarizes the primary regulatory requirements.

- **Chapter 2: Proposed Action and Alternatives** defines the Proposed Action and discusses the alternatives considered for implementing the Proposed Action and why the PEA dismissed the alternatives from detailed consideration or carried them forward for detailed analysis.

- **Chapter 3: Affected Environment and Environmental Consequences** describes the existing conditions of potentially affected environmental resources and discloses the potential environmental effects of the alternatives carried forward for detailed analysis.

- **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 active military cemetery, a popular visitor destination, and the headquarters for the Army National Military Cemetery (ANMC) organizations. ANC and the U.S. Soldiers’ and Airmen’s Home National Cemetery (SAHNC) are sub-elements of the ANMC.

ANC is just west of Washington, DC in Arlington, Virginia (Figure 1-1). The cemetery is at the west end of Memorial Avenue and directly across the Arlington Memorial Bridge from the Lincoln Memorial.

ANC is considered the most hallowed burial ground of our nation’s fallen. Over 400,000 people have been laid to rest in ANC. This military cemetery honors the fallen through burial. In a normal day, ANC professionals bury between 27 to 30 veterans, active duty service members, or their family members. The cemetery memorializes history as the final resting place for the heroes and patriots who built, preserved, and protected our Nation through military service from every American conflict, from the Revolutionary War to the current time (ANC, 2018a).

From the Soldiers of The Old Guard stepping in solemn vigilance before the Tomb of the Unknown Soldier (Tomb of the Unknowns), 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 (Army, 2012).

ANC is one of the most visited tourist sites in the Washington, DC area. Over three million people visit annually (Army, 2012). The memorials and the landscape provide a sense of peace and beauty for visitors. The iconic image of ANC is captured by its ordered grid of simple white headstones set amidst grassy fields and rolling terrain of pastoral tree groves.

ANC encompasses a 639-acre (and growing) mostly developed area (Figure 1-2). The developed area includes multiple cemetery sections and features memorials and monuments, as well as the burial grounds. Additionally, it includes a variety of structures with discrete purposes: the Welcome Center (accommodating visitors on the first floor and administrative space below ground), the Administration Building (accommodating the family members of those interred or inurned at the cemetery and the supportive admin), the Service Complex (not open to visitors but serving various aspects of operations and maintenance staff), two residential lodges, the old Administration Building (housing NPS offices), and key visitor destinations such as Memorial Amphitheater (featuring the Tomb of the Unknown Soldier), Women in Military Service for America Memorial (WIMSA), and Arlington House, The Robert E. Lee Memorial. ANC does not own or operate the latter two structures: the WIMSA Memorial Foundation, Inc., a 501(c)(3) nonprofit, owns and operates the former, while National Park Service (NPS) owns and operates Arlington House.

1.2.1 Terminology

This document includes terminology specific to cemeteries and burials. The following terms may be unfamiliar to the reader, so they are defined here in the context they are used in this document:
• Columbarium—a structure, room, or other space in a building or structure containing niches for cremation urns.

• First interment—the first use of an interment site. 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, and a standard niche can accommodate two urns.
Figure 1-1. Location and Vicinity of ANC
LEGEND

- EXISTING NPS LAND
- LAND SWAP FROM ANC TO NPS
- LAND SWAP FROM NPS TO ANC
- VDOT OWNED
- W/MSA
- FUTURE ANC BOUNDARY
- ADP BOUNDARY

Figure 1-2. ANC Area
• Interment—encompasses all methods of “burying” or placing human remains in their final resting place, including placing a casket or urn in the ground or an urn in a niche.

• Inurnment—act of placing an urn into a niche.

• Niche—hollowed-out space in a wall made to place urns containing cremated remains.

• Niche wall—type of columbarium with rows of niches in a wall.

1.2.2 Mission

The ANC mission is as follows:

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. (ANC, 2018b)

ANC is administered and operated in accordance with 10 United States Code (U.S.C.) Chapter 446, 24 U.S.C. Chapter 7, and 38 U.S.C. Chapter 24. Implementation regulations are specified in 32 CFR Section 553.13 and direct the 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 cemeteries 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.

ANC developed the Army National Military Cemeteries Campaign Plan to serve as a detailed roadmap to guide ANC in achieving its mission. Implementation of the Campaign Plan ensures that the cemetery remains a place where every generation may honor, remember, and explore the creation of this Nation and the heroes who made incredible sacrifices for freedom. The Campaign Plan includes measurable standards (metrics) and quarterly milestones that allow the Army to track progress in meeting its mission (ANC, 2018b).

1.2.3 Real Property Master Plan

The RPMP is the foundation for future development of ANC. It reflects the primary goal of extending the cemetery’s burial capacity in a manner that respects its heritage, identity, and
mission. The RPMP update for ANC fulfills Department of Defense (DoD) Instruction 4165.70, which requires a master plan update every 5 years. Key considerations in development of the RPMP update include the following:

- Aligning with the most recent update to United Facilities Criteria 2-100-01, *Installation Master Planning*;
- Extending the burial life and capacity of ANC beyond the Millennium Expansion and Southern Expansion;
- Addressing ways to strengthen the visitor experience, whether through technological advancements, interpretive exhibits, or other educational opportunities;
- Addressing antiterrorism and force protection (AT/FP) standards while maintaining the cemetery’s iconic image and role as a sacred shrine.

The updated RPMP will guide strategic decisions at ANC and will enable the cemetery to better communicate and coordinate with stakeholders. The RPMP update was prepared by analyzing existing conditions, functional requirements, current and future needs, and alternatives. It provides recommendations for both short-term and long-term operations and will serve as the foundation for future development.

This RPMP update does not address the recently completed Millennium Expansion, which added 27 acres to ANC, and the in-design development of the Southern Expansion, which will add approximately 37 acres to ANC. The planned uses of the Millennium Expansion were clearly defined and evaluated under NEPA (USACE, 2013), and no changes will result from the RPMP update. The uses for the Southern Expansion were also determined and evaluated under NEPA (USACE, 2018), and no changes will result from the RPMP update.

### 1.3 Purpose and Need

The purpose of the Proposed Action is to extend the operational life of ANC while honoring the nation’s fallen military heroes and to provide accommodations and services to their relatives and the public that befit a national shrine. The Proposed Action would address several needs, as described in the following sections.

#### 1.3.1 Add Burial Capacity

The primary need is to expand the burial capacity at ANC to enable ANC to remain a premier military cemetery as far into the future as possible. Development and implementation of the updated RPMP recognizes this need and is intended to prepare ANC to continue to operate into the future.

The demand for burials does not diminish, as the population of veterans eligible for interment at ANC ages and the military adds new members to its ranks. Modeling indicates that available aboveground and inground first interment spaces would be exhausted by 2037 and 2035, respectively. Therefore, the cemetery’s burial capacity must be increased to accommodate interment demand beyond 2037. (The addition of approximately 37 acres in the Southern Expansion is estimated to extend the capacity into the late 2050s.)
1.3.2 Facilitate Future Operations

Daily operations at ANC include committal services, visitations by persons not associated with committal services, and routine operations and maintenance of the grounds. Development and implementation of the updated RPMP would maintain the administrative and maintenance areas to support operations. The updated RPMP would separate the business of operating and maintaining the cemetery from committal services and the general visitor experience to the extent possible.

1.3.3 Enhance Family Experience During Committal Services

The most important ANC mission is to honor the fallen by laying to rest those who have served our Nation with dignity and honor and by treating their families with respect and compassion. ANC welcomes dozens of families and veterans attending committal services. Friends and associates of the deceased gather at the Administration Building and queue their vehicles to prepare to drive in a procession to the committal service site (ANC, 2018b).

Developing and implementing the updated RPMP would provide adequate support facilities and an adequate queuing area for attendees at committal services. The updated RPMP would incorporate efficiency of design to minimize interference between routine operations and maintenance and the experiences of those attending committal services.

1.3.4 Enhance Visitor Experience

Developing and implementing the updated RPMP would provide additional amenities for visitors to ANC, including increased accessibility for people with disabilities, enhanced self-guided tours, and additional cooling stations and benches for visitor use.

1.3.5 Preserve Cultural Resources

Developing and implementing the updated RPMP would support preservation of cultural resources at ANC. Preservation of the existing cultural resources is integral to honoring the nation’s fallen military heroes.

1.4 NEPA Requirements

NEPA established the national policy for the environment and the Council on Environmental Quality (CEQ). To implement 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 federal agencies to establish procedures to comply with the intended purpose of NEPA and encourage and facilitate public involvement in the NEPA process.

Army procedures to comply with NEPA are established in 32 CFR Part 651, Environmental Analysis of Army Actions. These regulations establish 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 included in these regulations.
Note: ANC submitted a draft of the RPMP to the National Capital Planning Commission prior to development of the PEA. Comments from the National Capital Planning Commission were considered in development of the final RPMP and within the PEA, as appropriate.
Chapter 2: Proposed Action and Alternatives

This chapter describes the Proposed Action and No Action Alternative and provides the justification for not considering other alternatives in detail in the PEA.

2.1 Development of Alternatives

In developing alternatives, reports and planning documents recently completed for ANC were considered, including the following:

- *The Future of Arlington National Cemetery: Report on the Cemetery’s Interment and Inurnment Capacity* (ANC, 2018f) captures the history of managing capacity issues at ANC. It also estimates capacity and recommends courses of action to extend the cemetery’s life.

- *Arlington National Cemetery Visitor Experience* (Booz Allen Hamilton, 2017) is a white paper offering an in-depth assessment of the tourist experience and what can be done to upgrade and improve the ability of visitors to engage and remain comfortable while navigating the grounds.

- *ANMC Strategic Plan* is the fundamental document articulating how the Executive Director acts to achieve the ANMC mission by establishing a framework for setting priorities.

The RPMP update is based on four Area Development Plan (ADP) concepts designed to optimize future development in areas of ANC that would not be used for burials. In addition to the ADP concepts, the RPMP includes supplementary projects that would occur across the cemetery. Each ADP is designed for a specific area within ANC (Figure 2-1) and based on evaluation criteria and existing constraints, which are described in the following sections.

2.1.1 Evaluation Criteria

The Army considered multiple concepts for inclusion in the updated RPMP, including alternative ADPs for the four areas. ANC used the following evaluation criteria, as appropriate:

1. Mitigate congestion between visitors and vehicles.
2. Craft distinctive AT/FP standards.
3. Enhance Memorial Avenue as the cemetery’s front door.
4. Minimize the overlaps of operations.
5. Create new interpretive space.
6. Relieve the information drought through better access to communications material.
7. Enhance the Tomb Guard space.
8. Ensure guest amenities are within a 10-minute walk.
Figure 2-1 Area Development Plan Locations at ANC
10. Improve vehicular flow at critical nodes.¹
11. Advocate for incremental future development by organizing phased planning.
12. Enhance the safety, clarity, and appeal of the pedestrian experience for visitors and staff.
13. Expand the area and strategic assignment of administrative functions.
14. Create a strategic, long-term plan for the lodges.
15. Establish joint-use agreements with adjacent property owners.
16. Maximize efficiency of land use for first interments to extend the life of cemetery sections.
17. Enhance Memorial Amphitheater’s accessibility and reconfigure the space.
18. Designate efficient break space for staff and contractors.

2.1.2 Constraints

The Army is constrained by its existing development and by the lack of control of certain lands that appear suitable for cemetery development. The following sections discuss the constraints related to the existing built environment and land control.

2.1.2.1 Constraints related to the Built Environment

Built constraints largely consist of facilities, roads, parking lots, other major developed surfaces, including existing graves and dedicated burial sites, and any other impervious surfaces. At ANC, these elements are a small portion of the built constraints within the grounds. Most conventional built constraints are within small subareas correlated to the four ADPs, specifically, the following zones:

**Entry Corridor:** This area includes built constraints of varying degrees of imperviousness. The most permanent built constraints are the Welcome Center, the Administration Building, a large parking garage, three parking lots (one for tour buses, one for employees and guests, and one for employees), a tram circulation path, the funeral queuing area, the hemicycle abutting the memorial for Women in Military Service for America (WIMSA), and the road network, including Memorial Avenue, Schley Drive, Halsey Drive, King Drive, and Eisenhower Road. Less intense constraints are more amenable to modification and include the various pedestrian paths linking the structures to the roads and parking areas, the plazas surrounding the Welcome Center on three sides, and existing fencing and barriers to enhance security at this Access Control Point (ACP).

**Amphitheater:** The most intense built constraints at this node are the Memorial Amphitheater, the Plaza hosting the Tomb of the Unknown Soldier and the changing of the Old Guard, the Wheaton Parking Lot, the numerous memorials west of Memorial Drive, the comprehensive road network, and the western perimeter wall adjacent to Joint Base Myer-Henderson Hall (JBMHH). Other constraints are more amenable to modification and include the various

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¹ Nodes include smaller, more geographically distinct areas that tend to concentrate guests through the appeal of the sights contained within, coupled with adequate space for gathering and congregation.

ANC PEA – CORRECTED FINAL
pedestrian paths linking the Amphitheater to the roads and parking lot and the vantage point east of the allée of trees (Linden Allée). Most of this area, particularly the portion west of Memorial Drive, is free of built constraints.

**Service Complex:** Most of this zone includes built constraints in the form of facilities and parking. Two large paved expanses serve a variety of purposes: parking for passenger vehicles, storage for construction equipment, laydown for supplies, and circulation. Buildings ring each lot, east and west of a service road, collectively serving as the hub for cemetery operations. Other constraints include the perimeter wall, which will be subject to modification concurrent with the Southern Expansion. The most recently articulated plans for the Southern Expansion also include recommendations for demolishing most or all of the existing Service Complex, making it highly susceptible to modification, even though most built constraints are fundamentally permanent. Only the far western portion of this zone, which serves as laydown space, is free of built constraints.

**Meigs-Tanner Area:** Most built constraints at this zone are in the eastern half, including many grounds that the National Park Service (NPS) owns and operates. Among the facilities are the James Tanner Amphitheater, the Receiving Vault, the NPS Administration Building, two additional structures (Buildings B313 and B314) in limited use, and Lodge 1. Other built constraints are the western perimeter wall abutting JBMHH and the road network. Less intense constraints are the pedestrian paths linking the roads to the attractions. An additional major source of impervious surface is the Chaffee Parking Lot, which is the largest lot on the cemetery grounds outside the Entry Corridor. The Chaffee lot, while large and impervious, never reaches capacity with parked vehicles and is considered a less intense built constraint. Most of the western half of this area is largely free of built constraints.

**Burial Space:** While much of the grounds lacks built constraints, relatively little space is open for development because of the prevalence of burial grounds. Although the burial lands lack a concentration of impervious surface (aside from columbaria or niche walls), they pose as great a constraint as the built areas: grounds with facilities, historic roads, and unnegotiable perimeter walls. The Army is unwilling to compromise on land hosting interred/inurned remains or slated to host remains in the future because the burial space is intrinsic to the ANC mission and vision. Therefore, burial land is the most severe constraint, exceeding that of the built constraints.

Outside the four ADP areas and burial space, the ANC grounds are largely free of built constraints. Among the other facilities are the Lodge 2 and facilities owned by NPS, including Arlington House (The Robert E. Lee Memorial), ancillary structures and interpretive buildings surrounding Arlington House, and the WIMSA Memorial. Other built constraints include the road network, most of the perimeter wall, the President John F. Kennedy Gravesite and plaza, the columbarium court in the southeast, the columbaria at the Millennium Expansion site, and various other monuments and landmarks. The less intense built constraints include any remaining pedestrian paths, scattered plazas and viewing areas, the southern perimeter.
wall (subject to demolition upon implementation of the Southern Expansion), and the various barriers and fencing along Memorial Avenue near and adjacent to the Entry Corridor.

2.1.2.2 Constraints Related to Land Control
Development of the Proposed Alternatives was limited by land control constraints: land within or adjacent to ANC controlled by other entities cannot be used for development of ANC without obtaining title to the lands or through development of a Memorandum of Agreement (MOA) to allow control by the Army. Parcels within or abutting ANC (Figure 2-2) are under control of either the NPS or JBMHH and are described below. **ANC has no plans to expand beyond its current footprint including the parcels mentioned below.**

Arlington Ridge Park/Marine Corps Memorial Site (A): This 32-acre parcel immediately north of ANC belongs to NPS. Marshall Drive forms the southern border and separates the tract from ANC’s perimeter wall and the Ord and Weitzel Gate. Like ANC, Arlington Ridge Park is on the Arlington Ridge Line, so the western side is approximately 200 feet higher than the eastern side. The highest profile attraction on Arlington Ridge Park is the U.S. Marine Corps Memorial (Iwo Jima Statue), and the Netherlands Carillon is the tallest visual landmark. Although the majority of Arlington Ridge Park consists of turf grass and landscaping, the southwestern corner is heavily forested.

WIMSA and the Hemicyle (B): The hemicyle has served as a visual landmark for the western terminus to Memorial Avenue since 1932. Though Memorial Avenue now falls entirely under ANC control (as of the land exchange enabled by the 2020 NDAA), the WIMSA Memorial Foundation, Inc. continues to operate the WIMSA Memorial, dedicated in 1997. The WIMSA Memorial subtly occupies the largely subsurface space directly behind the hemicyle, with the hemicyle serving as a façade to the memorial and museum. However, due to unclear signage and the ambiguous functionality of the structure, visitor attendance for the WIMSA Memorial is a fraction of that for the rest of the cemetery. ANC seeks to build a stronger relationship with the WIMSA Memorial Foundation to more vigorously integrate WIMSA into the rest of the cemetery and improve visitation.

Henderson Hall (C): The entire JBMHH installation measures approximately 265 acres. Although no plans currently exist to close either Fort Myer (239 acres) or Henderson Hall (25 acres), they serve as the largest opportunity for burial expansion in the distant future. Should a Base Realignment and Closure (BRAC) announcement include JBMHH as a decommissioned base, ANC would serve as the most likely option for any subsequent land use.

North Parcel (North of Burial Section 50) (D): This narrow 8-acre parcel, wedged between the ANC perimeter wall and JMBHH’s Wright Gate at Marshall Drive, has fallen under ANC’s operational control since a 2004 Memorandum of Agreement, though it continues to sit outside the ANC perimeter wall and receives minimal usage. Long-term plans for the parcel vary, but
the proposed JBMHH wall improvements must account for ANC’s control over the parcel. An improved integration of the parcel with the rest of ANC will open up a range of land use opportunities. This parcel is under ANC’s control but lacks contiguity. Coordination with JBMHH Command group will be necessary to determine the full scale of impacts to both Marshall Drive and a possible reconfigured perimeter fence, if contiguity is necessary between Section 50 and the rest of ANC.

Southern Expansion (E): Planning for the expansion began many years prior to the current initiatives, but the largest effort to prepare these lands for ANC’s eventual new southern perimeter culminated in the 2013 demolition of the Navy Annex, a massive structure just to the west of the Air Force Memorial. As with the land north of Section 50, ANC already owns these properties so site control isn’t an issue. However, it still lacks contiguity, both because it falls outside the perimeter wall and because multiple state and county roads bisect it. Future plans to improve contiguity include the vacation of Southgate Road (immediately to the south of Patton Drive and the southern perimeter wall) and a reconfiguration of Columbia Pike. When complete, this tract will add approximately 70 acres of land to ANC, with approximately 39 acres dedicated for new interment and inurnment space.

JBMHH Borderlands (F, G): Absent a BRAC announcement, the possibility for use of undeveloped lands at Fort Myer are minimal.

The 2020 NDAA land exchange between ANC and NPS resulted in the following exchange of land:

Memorial Avenue: Until the recent land swap agreement, NPS controlled the avenue and the grassy periphery to the north and south, which, along with the hedges and various memorials, accentuate the promenade-like entrance to the cemetery. Since the 2020 NDAA, these lands now belong entirely to ANC. These peripheral lands not only represent opportunities for expanding the Welcome Center’s function and visitor screening but also offer potential additional burial space.

Mature Forest Tract: Approximately two-thirds of the 18.25-acre forested tract, commonly referred to as Arlington Woods, is owned by NPS, while the remaining one-third is owned by the Army. The Army-owned portion abuts the Millennium Expansion. The NPS-owned portion dates to before Arlington House’s construction.

Building 313: This is the northernmost building of a row of three small buildings directly north of the Old Administration Building and east of the Chaffee Parking Lot. It is owned by NPS, and prior to the 2020 NDAA land exchange, it was an “island parcel” consisting only of the building. Since the land exchange, it and the adjacent structures and their surrounding lands all fall under
NPS control and are no longer part of future development prospects for ANC. This building hosts two NPS rangers.

Lastly, additional constraints to the east include a network of limited access roads—Virginia State Route 110 (Richmond Highway), Virginia State Route 27 (Washington Boulevard), Arlington Boulevard, and the George Washington Memorial Parkway—all overlapping in the land between ANC’s eastern perimeter and the Potomac River. These limited access roads and their adjacent land—most of it reserved as parkland—fall under ownership of either Virginia Department of Transportation (VDOT) or NPS. The largest constraints to the south include an additional segment of Virginia S.R. 27 (Washington Boulevard) to the southeast, the Pentagon immediately across S.R. 27 from ANC, and Interstate 395 (Henry G. Shirley Memorial Highway) south of the proposed Southern Expansion and future southern perimeter to ANC.
Figure 2-2. ANC Site Constraints
2.2 Alternatives Considered and Dismissed from Detailed Consideration

The Army evaluated multiple options for updating the RPMP. These options were identified in early concepts submitted to the Army. Based on consideration of existing constraints and following the application of the evaluation criteria, the Army determined that the four ADP concepts, and supplementary projects selected for the Proposed Action would best meet the purpose and need for the project. Because of this, no alternatives to the Proposed Action are considered feasible. Therefore, no other alternatives are considered in this PEA.

2.3 No Action Alternative

The No Action Alternative would continue operations of ANC without an updated RPMP. Improvements to visitor amenities, security, traffic and pedestrian flow would not be implemented. The No Action Alternative would have no directed effort to address long-term burial capacity. One expansion project, Southern Expansion, is underway and were the subject of prior NEPA analyses. These projects would be fully implemented under the No Action Alternative. While the No Action Alternative is evaluated, it would not meet the purpose and need for the project.

2.4 Proposed Action

The Proposed Action consists of implementing four ADP concepts and supplementary projects to address future needs on ANC. ADP concepts have been developed for four distinct areas on ANC:

- Entry Corridor
- Memorial Amphitheater Area
- Service Complex
- Meigs-Tanner Area

These ADP concepts and the supplementary projects are described in the following sections. The Proposed Action’s components may include interim measures that would be superseded by other components or alternative uses of areas that would not be determined until later. ADP concepts may incorporate “flex space,” which is defined as areas that may be used for multiple purposes through time, with specific use changing as appropriate.

2.4.1 Entry Corridor Area Development Plan Concept

The Entry Corridor is on the northeast corner of ANC and, with access via Memorial Avenue, is the primary entrance for guests, staff, and funeral attendees. The Entry Corridor is a hub of activity for guest functions, and most guests begin exploring the cemetery at the Welcome Center. The Entry Corridor accommodates most vehicle parking for ANC users and paid parking.
for guests is available in the Visitor Parking Garage. Surface parking is provided for staff and funeral attendees.

Facilities in the Entry Corridor include the Administration Building (Building 200), the Welcome Center (Building 222), and the Visitor Parking Garage (Building 210). While the WIMSA Memorial (Building 236) is not officially within the Entry Corridor boundary, it is considered in part of the area addressed in the Entry Corridor ADP. The WIMSA Memorial Foundation, Inc. controls the WIMSA building itself, while all the land adjacent to the building is under ANC control.

Assessment of current conditions within the Entry Corridor ADP area identified several issues that could be resolved through the ADP’s development and implementation. These issues include the following:

- Vehicular and pedestrian conflicts occur on Memorial Avenue. Visitor Operations Support (VOS) staff are stationed at Memorial Avenue in front of the driveway entrance into ANC. They direct guest traffic, committal service attendees, and tours into ANC, as well as facilitate pedestrians crossing Memorial Avenue. This intersection includes conflicts with pedestrians, privately owned vehicles, and tour buses and it often becomes congested, especially at peak park hours and during events.

- The pedestrian flow from the Visitor Parking Garage and Memorial Avenue into the Welcome Center security screening area is unclear and confusing. The Welcome Center building has two entrance doors. A pedestrian approaching the doorway from the Visitor Parking Garage first encounters the Welcome Center’s side entrance, which is reserved for employee and handicapped entry. Signs direct all other guests to continue around the corner to the building’s formal front door, which faces north toward Memorial Avenue, and leads to the security screening area.

- There is lack of sufficient space in the Welcome Center due to the multiple functions conducted at this facility. The Welcome Center hosts several overlapping functions, including security screening operations using metal detectors and associated staff; administrative space; interpretive exhibits and kiosks; and guest amenities, such as an information desk, tram ticket sales, a small book/giftshop, and toilet facilities.

- Vehicular and pedestrian conflicts occur at Eisenhower Drive and Roosevelt Drive. Upon exiting the Welcome Center’s western door, pedestrians may head to the tram plaza to wait under a pavilion or proceed on foot across the crosswalk on Eisenhower Drive and up the hill onto Roosevelt Drive. Along with the stream of pedestrians, vehicles crossing this intersection include staff, contractors (trucks, trailers, vans), the tram, tour buses, funeral processions, and caissons heading to ceremonies. Due to the number of pedestrians and vehicles passing through, the intersection is manned by a crossing guard during ANC hours of operation.

- The WIMSA Memorial is disjointed from guest experience. The WIMSA Memorial offers several exhibits in its interpretive space, but the means to enter the WIMSA Memorial is unclear to guests. VOS stationed at the WIMSA hemicycle and at the Eisenhower
Drive entry gate require pedestrians on Memorial Avenue to turn back eastward and pass through the security screening at the Welcome Center, then walk on the southern side of the hedgerow before accessing WIMSA Memorial. By this point, most pedestrians continue eastward along Roosevelt Drive instead of toward the hemicycle and WIMSA Memorial, leaving the museum with low daily attendance.

One project is ongoing in the Entry Corridor ADP area: The Administration Building is being rehabilitated. This project is not part of the RPMP update. No further rehabilitation of the Administration Building is proposed.

The Entry Complex ADP addresses the identified issues. Table 2-1 identifies the components of the Entry Complex ADP that would be implemented. Figure 2-3 shows these components’ locations.

Table 2-1. Components of the Entry Corridor ADP

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop Mobile Screening Area on Memorial Avenue</td>
<td>Mobile guard shack and associated infrastructure to accommodate 100% undercarriage vehicle screening capability for buses and vehicles entering ANC via Memorial Drive (close to WIMSA). Project includes pavement of pull-off lane, pop-up bollards, associated utility lines, and infrastructure. Long-term plan should organize space for a rejection lane.</td>
</tr>
<tr>
<td>Collaborate with WIMSA Memorial Foundation Inc. to Elevate WIMSA’s Role and Visibility as a Museum and Attraction</td>
<td>Support existing WIMSA operations and help to renovate interior as needed, to accommodate interpretive space that more effectively links the building with the ANC mission. Help improve WIMSA’s visibility through superior signage, organized events and ceremonies, and improved access to guest amenities.</td>
</tr>
<tr>
<td>Install Memorial Avenue Improvements</td>
<td>Reconfigure pedestrian plaza adjacent to north side of Welcome Center; close existing entry to north side of Welcome Center, infill hedgerow just north of Welcome Center to provide continuous visual theme from Memorial Avenue; define pedestrian circulation from Memorial Avenue into Security Screening Facility.</td>
</tr>
<tr>
<td>Construct Vehicle Screening Facility at Parking Garage Entry with Associated Circulation</td>
<td>Structure and associated infrastructure to accommodate 100 percent undercarriage vehicle screening capability for buses and vehicles entering the parking garage. Project would include pavement for pull-off lane, rejection lane, pop-up bollards, egress lane, associated utility lines, and infrastructure.</td>
</tr>
<tr>
<td>Construct Pedestrian Screening Facility and Associated Pedestrian Plaza</td>
<td>Construct standalone, 1- or 2- story facility (with one floor as a basement) east of the Welcome Center to accommodate security screening of pedestrians. Facility would include space for guest amenities such as ticket sales, toilet facilities, information kiosks, and a gift shop. Facility also would include space for administrative and security support functions. Project would include development of clearly-defined pedestrian entry from Memorial Avenue into pedestrian plaza to streamline ingress and egress for foot-traffic from the Metro, Memorial Avenue, the Visitor Parking Garage, and Welcome Center.</td>
</tr>
<tr>
<td>Component</td>
<td>Description</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>Construct Improved Pedestrian Crossing from Tram Plaza to Roosevelt Drive</td>
<td>Americans with Disabilities Act (ADA)-compliant Improved pedestrian crossing at tram plaza crossing Eisenhower Drive. Project includes landscaping at both sides, wayfinding, stormwater mitigation and any associated utilities (lighting, communications). Possible roadway table installation to increase pedestrian safety. Design and materials will be carefully selected to blend into ANC aesthetic and comply with the Cemetery Planning Standards.</td>
</tr>
<tr>
<td>Reconfigure Tram Plaza and Queuing</td>
<td>Reconfigure tram plaza and associated queuing area into a smaller footprint and redesign queuing area for more streamlined use of space. Project may include ticketing kiosk at tram plaza near pedestrian flyover bridge.</td>
</tr>
<tr>
<td>Upgrade 110 Gate (CAC-Enabled)</td>
<td>Expand egress at 110 Gate; install a card-reading apparatus allowing only individuals with Common Access Cards to use this ACP for entry.</td>
</tr>
<tr>
<td>Create Flex Space North of Memorial Avenue</td>
<td>Transform land north of Memorial Avenue into flex space. Mitigate potential drainage issues on site if feasible. This could include columbaria construction.</td>
</tr>
<tr>
<td>Rehabilitate First Floor of Welcome Center</td>
<td>Rehabilitate first floor of Welcome Center into an enhanced Interpretive Space and Education Center with audio-visual capabilities, screening room, and information kiosks. Project may include associated repairs to existing infrastructure to accommodate desired functions. Project includes upgrades to utilities (water, communications, etc.).</td>
</tr>
<tr>
<td>Restore Pillars at Gates Flanking the Hemicycle</td>
<td>Renovate and restore historic pillars at gates flanking the Hemicycle to return to their desired structural integrity. Evaluate foundational structure of pillars and address deficiencies.</td>
</tr>
</tbody>
</table>
Figure 2-3. Entry Corridor ADP Implementation Plan
2.4.2 Memorial Amphitheater Area Development Plan

The Memorial Amphitheater ADP covers an area in the southwestern part of ANC and contains the Memorial Amphitheater and Reception Building, the Tomb of the Unknown Soldier, considerable burial space (particularly south and west of the Memorial Amphitheater), and several key monuments and memorials. The Memorial Amphitheater serves as a ceremonial centerpiece, hosting the Changing of the Guard ceremony at the Tomb of the Unknown Soldier and major ceremonies that occur annually, including Memorial Day and Veterans Day.

Assessment of current conditions within the Memorial Amphitheater ADP area identified several issues that could be resolved through developing and implementing the ADP. These issues include the following:

- The Amphitheater is inaccessible to guests who cannot manage stairs. A small toilet facility on the ground floor is accessible to persons in wheelchairs via a ramp. The only other way to access the upper floors is through a small elevator and stair lift in the Grand Stair Hall. The operationality and capacity of this elevator is limited, which creates a bottleneck during large crowds, impedes access, and curtails the ability of disabled individuals to participate fully in ceremonies and events.

- The Tomb Guard Quarters are insufficient. The ground floor in the Amphitheater has served as the quarters for the Tomb Guard since the 1970s, with few updates. The rooms are small and cramped, ceilings are low, users are forced to be uncomfortably near one another, access to electrical outlets is sub-standard, water drains poorly, and insufficient ventilation creates persistent mold problems.

- The History Office and Archives require more space. While the historians consider their offices to be suitable, the space for archives and artifacts is insufficient due to shared space with contractors, guests, and the Tomb Guard. This results in classification challenges as well as missed opportunities for displays to engage guests and serve as additional interpretive space.

- Wayfinding for pedestrians and handicap vehicle arrival lacks continuity. Most paths in the cemetery pre-date the ADA and are incompatible with it because of the steep slopes. The Wheaton Parking Lot would be a suitable place for a vehicle to stop and allow guests to approach the Amphitheater from the east. However, all paths from the Wheaton Parking Lot require visitors to negotiate many stairs.

- There is low guest traffic to monuments because the tram route does not fully connect McPherson Drive, preventing the western monuments from being included in the guided tour program. Signage west of the Amphitheater does not direct pedestrians to these infrequently visited sites.

- There is a guest bottleneck at the Memorial Amphitheater because the entrance to the toilet facilities coincides with the point of ingress and egress for the Tomb Guard Quarters.

The Memorial Amphitheater ADP addresses the identified issues. Table 2-2 identifies the components of the Memorial Amphitheater ADP that would be implemented, and Figures 2-4
and 2-5 show these components’ locations. The components for this ADP are contributing elements to the NRHP-listed ANC and Memorial Avenue historic districts. Details are provided in Section 3.7, Cultural Resources.

**Table 2-2. Components of the Memorial Amphitheater Area Development Plan**

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rehabilitate Tomb Guard Quarters on Lower Level of Amphitheater</strong></td>
<td>Reconfigure Tomb Guard Quarters to improve internal circulation and functional use of space. Project includes upgrades to internal utilities and infrastructure (communications, electricity, water, sewer, and heating, ventilation, and air conditioning [HVAC]). Reduce the size of the toilet facilities on the lower level and reconfigure to accommodate Tomb Guard functions.</td>
</tr>
<tr>
<td><strong>Rehabilitate Historians’ Offices on Lower Level of Amphitheater for Administrative, Interpretive, Storage Space, and Guest Amenities</strong></td>
<td>Improve configuration, functionality, and efficiency of Historians’ offices and their respective archival space, more clearly integrate the guest amenities that serve the Amphitheater’s interior (specifically restrooms). Catacombs may prove a relevant long-term consideration for storage or archives, though no mechanical improvements are slated to take place.</td>
</tr>
<tr>
<td><strong>Repair Second Floor of Memorial Amphitheater Reception Building</strong></td>
<td>Repair and rehabilitate second floor loft of Reception Building for use as archival storage and possible interpretive space.</td>
</tr>
<tr>
<td><strong>ADA Improvements to Memorial Amphitheater Exterior: Temporary Ramp and Seating</strong></td>
<td>Construct ADA-compliant ramp along the side of Memorial Amphitheater; provide ADA-compliant seating and space for wheelchairs.</td>
</tr>
<tr>
<td><strong>Construct Guest Amenities Facility Southeast of Amphitheater</strong></td>
<td>Construct a guest amenities facility to house toilet facilities and water fountains, with some additional flex space reserved for other potential guest amenities or interpretive space.</td>
</tr>
<tr>
<td><strong>Implement Pedestrian Circulation Improvements and Pedestrian Node(s)² at Amphitheater</strong></td>
<td>Implement the following: new tram stop along McPherson Drive, enhanced tram pick-up/drop-off to northwest of Amphitheater, addition of new or improved paths between Amphitheater and surrounding pedestrian nodes, and improved pedestrian crossing west of Amphitheater across Memorial Drive. To support guests and facilitate further exploration of the area, construct nodes at (A) Wilson Avenue and Farragut Drive, (B) west of Amphitheater, (C) Battle of the Bulge, and (D) Linden Allée near Roosevelt Fountain.</td>
</tr>
<tr>
<td><strong>ADA-Compliant Ramp to Amphitheater from Wheaton Lot Improvements to Memorial Amphitheater Interior and Reception Building (including ADA)</strong></td>
<td>Construct ADA-compliant ramp from Wheaton Lot to the Amphitheater from the east tram stop near Pedestrian Node D. Construct new elevator and necessary ADA provisions to connect the viewing platform and second-floor loft of the Reception Building.</td>
</tr>
</tbody>
</table>

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² Pedestrian nodes focus on minimal infrastructure and involve strategically placed wayfinding and guest amenities and serve as opportunities for pedestrians to pause, regroup and pivot to their next point of exploration to various areas, monuments, and elements.
Figure 2-4. Amphitheater ADP Exterior Implementation Plan
Figure 2-5. Amphitheater ADP Interior Implementation Plan
2.4.3 **Service Complex Area Development Plan Concept**

In contrast to the other ADPs, the area considered for the Service Complex ADP spans the entire cemetery. The Service Complex ADP consists of several geographically dispersed storage and laydown locations. Most functions are concentrated at the Service Complex along the southern perimeter, which contains a designated ACP for service vehicles, vehicle storage, motor pool and maintenance shops, and an operations building (Building 123). The Southern Expansion project (analyzed under separate NEPA documentation and not part of the RPMP) would demolish the existing Service Complex. As a result, the functions and services provided in the existing Service Complex need to be phased out or relocated ahead of the Southern Expansion project’s completion.

Because the existing Service Complex would relocate to the Southern Expansion as an Operations Complex, development for future facilities and laydown yards is planned adjacent to the southern ANC perimeter and extending to Interstate 395. Most current service and operations vehicles, equipment, and storage would relocate to this new site. Several cemetery operations staff work out of Building 123, although in the future this administrative function will likely relocate southward. Once the relocation is complete, most of the current Service Complex, excluding any salvaged facilities, will become burial space. Relocating the existing Service Complex and considering which onsite functions cannot or should not migrate exclusively to the Southern Expansion site form the basis of most of the Service Complex ADP.

Assessment of current conditions within the Service Complex ADP area identified several issues that could be resolved through ADP development and implementation. These issues include the following:

- There is a lack of vehicle equipment and maintenance parking. The Service Complex contains construction equipment, small tractors, grounds equipment, and vehicles. Conflicts often arise when navigating and parking these vehicles because of the constrained area. There is a deficiency in organizational parking space. Adequately sized parking stalls, covered equipment storage bays, access driveways, and navigable turning radii are lacking.

- There is a lack of visual screening of service vehicles and equipment from visitors. Minimal infrastructure is in place for screening service vehicles via the southern Service Complex.

- There is insufficient break space for contractors. No spaces are clearly defined for staff and contractor breaks. Building 123 hosts a break area in its basement and Building 116 has a small break space, but both buildings would be demolished and turned into burial space upon the completion of the Southern Expansion.

- There is a lack of dedicated satellite operations. Several parcels of land throughout ANC support service functions or construction projects. These parcels include laydown yards, temporary spoils yards, contractor vehicle parking, horticulture storage, and miscellaneous storage. The lack of designated satellite operations areas with defined functions results in otherwise suitable land not being available for burial space.
The distance between storage/laydown areas to primary work areas is excessive. Service contractors and operations staff depend on service vehicles to reach work sites throughout the cemetery. Moving Service Complex functions to the Southern Expansion site will exacerbate the distance between the hub of operations activity and the various work sites northward, increasing the time service vehicles spend on roads and potentially interfering with the serenity of ANC and disrupting committal services and guests and dignitary visits. The distance of the relocated Operations Complex in the Southern Expansion would create a burden for some cemetery operations, particularly groundskeeping and gravesite preparations, and result in these normally behind-the-scenes functions becoming too visible and disruptive.

The Service Complex ADP addresses the identified issues. Table 2-3 identifies the components of the Service Complex ADP that would be implemented, and Figure 2-6 shows these components’ locations.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convert North Parcel into Permanent Service Satellite</td>
<td>Integrate 2.3-acre land parcel north of Section 50 into ANC land use and convert into permanent satellite laydown/storage yard, using a design that allows for potential relocation of perimeter wall to integrate the parcel with the rest of ANC.</td>
</tr>
<tr>
<td>Demolish Service Complex and Convert to Burial Space</td>
<td>Upon completion of the Operations Complex at the Southern Expansion, demolish buildings and infrastructure and convert to flex space, first to serve as storage/laydown, then, when its utility as storage/laydown is exhausted, reconvert to burial space.</td>
</tr>
<tr>
<td>Convert Sections 58 and 61 into Burial Space</td>
<td>Convert laydown area/spoils yard to burial space in Sections 58 and 61, engaging in pavement removal and environmental remediation as necessary to revert these long-industrial parcels to suitable grounds for interments/inurnments.</td>
</tr>
</tbody>
</table>
Figure 2-6. Service Complex ADP Implementation Plan

ANC PEA+ CORRECTED FINAL
2.4.4 Meigs-Tanner Area Development Plan Concept

The Meigs-Tanner ADP area is in the northwest quadrant of ANC, west of the NPS-owned President John F. Kennedy Gravesite and Arlington House. The ADP includes the drive immediately west of Arlington House, which is one of the primary destinations for guests visiting ANC. Burial Sections 1 and 13 are within the ADP boundary.

Facilities in the Meigs-Tanner ADP area include the Old Administration Building, serving as the NPS Ranger Station (Building 300), the James Tanner Amphitheater (Building 310), the Receiving Vault (Building 308), Lodge 1 (Building 316), the NPS Administration Building (Building 313), a vacant administrative structure (Building 314), and a modular structure used by USACE (Building 315), the latter of which is slated to be relocated off of NPS lands.

Assessment of current conditions within the Meigs-Tanner ADP area identified several issues that development and implementation of the ADP could resolve. These issues include the following:

- The lack of information for visitors impedes pedestrian circulation through the ADP area and contributes to low guest traffic to the ADP’s western portion. Guests frequently arrive at the Meigs-Tanner ADP area and visit Arlington House without spending much time exploring the western areas, where many of the oldest and most visually distinctive gravestones are.

- In terms of space management, the Receiving Vault is operational, but could be better used. ANC is working to restore the building and convert the space for use by the conservation program.

- Building 313 hosts two NPS personnel, and this function will remain as is. The Receiving Vault, which provides temporary storage of caskets and remains, is equipped with HVAC and a toilet facility. While the receiving function is used only intermittently throughout the year, its function is essential.

- When Arlington House is fully operational, it is one of the most popular attractions at ANC, and vehicle/pedestrian conflicts occur on nearby roads. Sherman Drive, west of Arlington house, serves a higher volume of traffic than most roads in the cemetery. Traffic includes employee vehicles, the trams, and—due to the lack of sidewalks—pedestrians. Sherman Drive poses considerable safety hazards to pedestrians who share this road with vehicles because of numerous curves, trees close to the road, and a substantial change in elevation.

- NPS owns approximately two-thirds of the 12-acre tract of mature woods adjacent to Arlington House, referred to as Arlington Woods.

- Lodge 1, which is in the far north of the ADP area, houses ANC staff. This function will remain for the foreseeable future.

- Guest amenities in the Meigs-Tanner ADP area are insufficient. Toilet facilities are north of Arlington House in a standalone building. Additional guest amenities (benches, water fountains, and wayfinding) are inadequate to provide for guest comfort or to encourage guests to further explore the surrounding sections, monuments, and memorials.
The James Tanner Amphitheater recently completed rehabilitation, focusing on structural and aesthetic repairs, to accommodate ceremonial and educational functions. No further rehabilitation of this structure is included in this RPMP update.

The Meigs-Tanner ADP addresses the identified issues. Table 2-4 identifies the components of the Meigs-Tanner ADP that would be implemented. Figure 2-7 shows these components’ locations.

Table 2-4. Components of the Meigs-Tanner ADP

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiate with NPS for Land along East Side of Sherman Drive as a Pedestrian Easement</td>
<td>Acquire a pedestrian easement that will extend from the existing sidewalk’s terminus behind the Arlington House toward Arlington Woods to the north. Create the easement with the goals of minimal compromise to the environment, ADA compliance to extent possible, and (C) minimal impacts to viewsheds and historic/cultural resources as they apply to Arlington House grounds.</td>
</tr>
<tr>
<td>Rehabilitate Part of Receiving Vault into Conservator Space</td>
<td>Create partition to separate unused portion of the Receiving Vault (with restrooms and water) for conservator space.</td>
</tr>
<tr>
<td>Develop Improvements at Sherman Drive and Arlington House</td>
<td>Expand tram stop at Arlington House to include widening of a segment of Sherman Drive for pedestrians. Replace stormdrain and reconstruct road.</td>
</tr>
<tr>
<td>Develop Pedestrian Node(s)</td>
<td>Construct targeted pedestrian collection points/nodes (A) west of Arlington House, (B) at the north end of Crook Walk, and (C) at the James Tanner Amphitheater to support guests and facilitate further exploration of the area. Nodes enhance pedestrian accessibility; increase safety among pedestrian-vehicular conflicts; and provide educational information kiosks, wayfinding, and guest amenities. This project coordinates with ANC-wide water fountain and bench plan. Project elements subscribe to guidelines set forth in Cemetery Planning Standards.</td>
</tr>
<tr>
<td>Implement Pedestrian Pathway to Millennium Expansion and Circulation Improvements at James Tanner Amphitheater</td>
<td>Construct an ADA-compliant pedestrian pathway from Humphreys Drive to Millennium Expansion area. Install a clear and safe pedestrian path linking Pedestrian Node B to Node C. by extending Lee Drive crossing from Sherman Drive north of the Kearney Monument, across Wilson Drive.</td>
</tr>
<tr>
<td>Construct Direct Path to Back of Receiving Vault from Wilson Drive</td>
<td>Construct a direct pedestrian pathway to the back of the Receiving Vault from Wilson Drive to alleviate pedestrian-vehicle conflict and improve the Receiving Vault’s visibility.</td>
</tr>
<tr>
<td>Install Pedestrian Walkway along East Side of Sherman Drive</td>
<td>Construct walkway along Sherman Drive to allow safe pedestrian flow.</td>
</tr>
</tbody>
</table>
Figure 2-7. Meigs-Tanner ADP Implementation Plan
2.4.5 Security Environmental Assessment

The proposals for the Security Annex are in a separate document but some features are in the RPMP including four components previously identified for the Entry Corridor: Construct Mobile Screening Facility on Memorial Avenue, Construct Vehicle Screening Facility at Parking Garage Entry, Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza, and Upgrade 110 Gate. ANC completed a Security Environmental Assessment in 2022. The document is available on ANC’s public website.
Figure 2-8. Security Improvements
2.4.6 Supplementary Projects

Supplementary projects would occur outside the defined ADPs. Table 2-6 identifies the supplementary projects that would be implemented, and Figure 2-9 shows these components’ locations (yellow dots). Supplementary projects not fully defined or that would result in land use changes would require further analysis under NEPA in supplemental or tiered NEPA documents prior to the projects being implemented.

Table 2-6. ANC Supplementary Projects
Arlington National Cemetery Real Property Master Plan Update

<table>
<thead>
<tr>
<th>Map Location</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not shown</td>
<td>Install Wayfinding (ANC-wide)</td>
<td>Install discreet interpretive signage and/or digital wayfinding at Pedestrian Nodes and other identified locations across the cemetery.</td>
</tr>
<tr>
<td>1</td>
<td>Construct Freedman’s Village Project</td>
<td>Construct commemorative memorial to the Freedman’s Village.</td>
</tr>
<tr>
<td>2</td>
<td>Red Spring Rehabilitation Project</td>
<td>Restore the lower plaza and spring outlet at Red Spring south of Arlington House into its originally intended design, while making stairs compliant with Architectural Barriers Act Accessibility Standard (ABAAS).</td>
</tr>
<tr>
<td>3</td>
<td>Interpretive Space Improvements at Coast Guard Memorial</td>
<td>Install interpretive space at the Coast Guard Memorial for visitors at the tram stop.</td>
</tr>
<tr>
<td>4</td>
<td>Expand to Burial Sections with Speculative Availability</td>
<td>Assess areas that are graded and cleared but have no other slated use: for example, the roundabouts at the north and south end of Marshall Drive, the hillsides northeast and southeast of the Memorial Amphitheater, and the parcel south of the Visitor Parking Garage.</td>
</tr>
<tr>
<td>5</td>
<td>Coordinate with JBMHH</td>
<td>Continue to coordinate with JBMHH on access control and operations.</td>
</tr>
<tr>
<td>6</td>
<td>Coordinate with NPS</td>
<td>Continue to coordinate with NPS on mutually agreeable concerns regarding access and operations.</td>
</tr>
<tr>
<td>7</td>
<td>Coordinate with JBMHH</td>
<td>Continue to coordinate with JBMHH on access control and operations.</td>
</tr>
<tr>
<td>Not shown</td>
<td>Repair or Replace Existing Information Technology/Utility Infrastructure (ANC-wide)</td>
<td>Replace or remove obsolete information technology infrastructure and utility lines across the cemetery. If removed, investigate use of vacated space as flex space or future burial space.</td>
</tr>
</tbody>
</table>
Figure 2-9. Supplementary Project Locations
Chapter 3: Affected Environment and Environmental Consequences

This chapter describes the affected environment relevant to the Proposed Action and discusses the potential consequences of the Proposed Action and the No Action Alternative. Sections 3.1 through 3.14 describe the existing conditions of each environmental resource potentially affected by the alternatives and provide resource-focused analyses of the potential environmental effects. Because this is a PEA, the Proposed Action’s components are evaluated to the extent possible. Where complete analysis is not possible, this report specifies additional steps that must be completed prior to implementing a component.

Pursuant to NEPA regulations (40 CFR Parts 1500–1508), project effects were evaluated based on context and intensity. Context refers to the affected environment where a proposed project occurs. Each effect’s intensity was assessed based on quality (negative versus beneficial), duration (short term versus long term), and magnitude (ranging from no effect to major effect). Table 3-1 defines the levels of intensity. Major effects are significant in the context of this NEPA analysis.

Table 3-1. Definition of Impact Intensity Levels for Effects Assessment

<table>
<thead>
<tr>
<th>Impact Intensity Level</th>
<th>Definition</th>
<th>Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Effect</td>
<td>The action would have no discernable effect to the resource.</td>
<td>No</td>
</tr>
<tr>
<td>Negligible Effects</td>
<td>The action would have an effect, but the effect would be so slight as to be barely perceptible.</td>
<td>No</td>
</tr>
<tr>
<td>Minor Effects</td>
<td>The action would result in a detectable change to resource; however, the resource would be expected to quickly recover from the effect.</td>
<td>No</td>
</tr>
<tr>
<td>Moderate Effects</td>
<td>The action would have measurable effects that alter the resource such that recovery would be extended through time.</td>
<td>No</td>
</tr>
<tr>
<td>Major Effects</td>
<td>The action would have obvious effects on the resource that would permanently alter the resource or require a very long time for the resource to recover.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The NEPA analysis also identifies the necessary environmental protection measures, including best management practices (BMPs), mitigation measures, plans, permits, and agency coordination appropriate for the Proposed Action. These environmental protection measures offset negative effects from the Proposed Action. The following is a definition of each environmental protection measure:

- Mitigation Measure: A measure required to reduce the magnitude of an effect and based on a legal or regulatory requirement.
- BMP: A standard industry practice used to minimize or avoid effects.
• **Plan or Permit:** A document that must be obtained before implementing the Proposed Action or select components of the Proposed Action.

• **Agency Coordination:** Instances where the Army will need to coordinate with an outside agency to obtain concurrence on an affect determination and determine whether additional mitigation measures are warranted.

BMPs, plans, permits, agency coordination, and mitigation measures are identified for each resource, as appropriate. In Section 3.14, Cumulative Effects, descriptions of the cumulative effects of each resource area are provided. In addition, the analyses required by NEPA regarding the relationship of local, short-term uses of the environment and long-term productivity and irreversible or irretrievable commitment of resources are discussed.

Unless specifically attributed to other sources, the information on the affected environment is taken from the 2014 *Programmatic Environmental Assessment for the Arlington National Cemetery Real Property Master Plan* (HNTB, 2014), which is incorporated by reference.

The analysis of the No Action Alternative’s effects includes the effects analyzed in the *Arlington National Cemetery Millennium Project Final Environmental Assessment* (USACE, 2013) and the *Environmental Assessment for the Southern Expansion and Associated Roadway Alignment* (USACE, 2018), which are incorporated into this PEA by reference.

### 3.1 Land Use and Sustainability

Land use refers to how land is classified and developed, and it can be categorized as urban, suburban, rural, or undeveloped. Land uses within these categories include residential, commercial, office, institutional (churches and schools), industrial, military, agricultural, transportation, and parks and open space.

Land use is guided by the plans and policies of local governments and is implemented by adopting and enforcing local zoning codes and land use plans. Land use plans guide the type and extent of allowable land use to plan for the growth needs of a community and ensure compatibility among adjacent uses. Land use plans and zoning help maintain and improve social, cultural, and physical amenities; promote a stable economy; maintain scenic areas; supply adequate housing; ensure the availability of necessary public services and utilities; and protect specially designated or environmentally sensitive areas.

Sustainable design is an integrated approach to planning, designing, building, operating, and maintaining facilities that reduces the demand for, or degradation of, depletable resources and reduces the generation of waste. It is a systematic process with established guidance, checklists, tools, and evaluation systems. Sustainable design recognizes the interrelationship of actions with the natural environment and integrates decision-making for all projects on a site, basing decisions on the greatest long-term benefits. The Army, under its Sustainable Design and Development policy, is tasked with incorporating sustainable design into design standards for site planning, buildings, vehicular and pedestrian circulation, landscaping, site elements (such as utilities), and force protection. The Sustainable Design and Development policy includes...
incorporating site design and planning techniques to mimic natural infiltration-based hydrology systems to efficiently and cost-effectively manage stormwater runoff.

The land uses at ANC and on other properties that may be affected by the Proposed Action are described in Section 3.1.1. The potential for effects to occur to designated land uses and sustainability are discussed in Section 3.1.2.

3.1.1 Affected Environment

3.1.1.1 Existing Land Use at ANC
ANC land use is characterized by activity zones related to interments, visitor accommodations and destinations, and cemetery operations.

Visitor accommodations and destinations include the Arrival Zone and the portions of ANC regularly visited. The Arrival Zone is the ANC entrance, where visitors and families enter ANC via Memorial Avenue. This zone includes a parking garage, the Welcome Center, and the Administration Building. The cemetery has five primary visitor destinations:

- WIMSA Memorial
- President John F. Kennedy’s Gravesite
- Arlington House (the Robert E. Lee Memorial)
- Tomb of the Unknown Soldier
- Memorial Amphitheater

NPS is substantially involved with the visitor experience, because it owns Arlington House, George Washington Memorial Parkway, Memorial Bridge, the portion of Memorial Avenue east of the Metro station, Arlington Ridge Park, and Arlington Woods.

Interment zones include a discontinuous area for in-ground interments, Columbarium Court 9, the Niche Wall for inurnments, and the Millennium Expansion area for both interments and inurnments. Additional interment zones will be in the Southern Expansion Site.

The Cemetery Operations Zones consist of areas used primarily 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.

The remainder of ANC lands consist of unused lands that are open space.

3.1.1.2 Local Land Use
The Arlington Cemetery Metro Station (WMATA) is the only local land use within the area that may be affected by the Proposed Action. The Arlington Cemetery Metro Station is in the Entry Corridor of ANC along Memorial Avenue. This station connects ANC with Metrorail through its
Blue Line. Adjacent streets that serve traffic entering ANC are either state-managed—including S.R. 110 (Richmond Highway), S.R. 27 (Washington Boulevard)—or they are NPS-managed—including Memorial Avenue (east of the Arlington Cemetery Metro Station) and George Washington Memorial Parkway. To determine what degree other local roads in the general area (either in Arlington County or District of Columbia) might be affected by the Proposed Action, a Traffic Impact Study would be necessary.

3.1.1.3 Sustainability
ANC promotes sustainability through the following (ANC, 2018c):

- Designing conservation-oriented landscapes that serve an ecological function as well as being aesthetically pleasing;
- Creating gardens that thrive without continuous irrigation and consist of native plants and non-invasive, non-native plants;
- Selecting trees for their disease-resistance as well as aesthetic and wildlife qualities;
- Incorporating rain gardens to reduce nutrient and sediment run-off.

3.1.2 Environmental Consequences of the Alternatives on Land Use and Sustainability
This section describes the environmental effects of the Proposed Action and the No Action Alternative on land use and sustainability.

3.1.2.1 Threshold of Significance
The threshold of significance for land use effects is a substantial alteration of, or conflict with, the present or planned land use in the area. A significant effect in terms of sustainability would occur if the action is not consistent with the requirements of the Energy Policy Act of 2005 (EPAct05), the Energy Independence and Security Act of 2007 (EISA), or Executive Order (EO) 13834.

3.1.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPM, and the Southern Expansion would proceed. There would be no change to the existing land uses and no effects to land use.

Current sustainability measures would continue to be implemented, but proposed activities to further incorporate sustainability into ANC would not be implemented, thereby creating minor, long-term, adverse effects to sustainability.

3.1.2.3 Proposed Action
Changes in the types of activities conducted in some areas could occur under the Proposed Action. The potential effects of any changes would be analyzed through site-specific NEPA analysis as projects are developed.

Component projects involving the transfer or sharing of federal agency control (component projects of the Entry Corridor ADP Meigs-Tanner ADP, and certain supplementary projects)
would be reviewed for compatibility of land use and management between the current agency and ANC. This review would be documented through subsequent tiered NEPA analysis.

The land cover in some areas would change, and the locations of certain activities would change, but none of the changes would be inconsistent with designated land uses. Any effects to land use would be negligible. However, because specific component projects have not yet been designed, additional analysis of future land cover changes would be required prior to implementation.

There would be a small area currently part of Memorial Avenue right-of-way that would be accommodate the pull-off lane for the mobile screening facility.

Specific component designs would incorporate sustainability and would be beneficial to ANC. Prior to implementation, individual components would be reviewed for sustainability and compliance with EIPAct05, EISA, and EO 13834. If new sustainability regulations or EOs were enacted prior to implementing a component project, compliance reviews would incorporate any applicable regulations and EOs. Implementing the updated RPMP would be expected to result in minor, long-term benefits to sustainability.

3.2 Air Quality

Air quality is governed by the Federal Clean Air Act of 1970 (CAA). The U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) to define outdoor levels of air pollutants considered safe for public health, welfare, and the environment. NAAQS have been established for outdoor concentrations of criteria pollutants, including:

- Carbon monoxide (CO)
- Nitrogen dioxide (NO₂)
- 8-hour ozone (O₃)
- Sulfur dioxide (SO₂)
- Lead (Pb)
- Particulate matter with aerodynamic diameters of 10 microns or less (PM₁₀)
- Particulate matter with aerodynamic diameters of 2.5 microns or less (PM₂.₅)

For each criteria pollutant, states and the District of Columbia must identify geographic regions not meeting the NAAQS. Regions are designated as attainment or nonattainment for the criteria pollutants, depending on whether local air quality complies with the respective NAAQS. For any nonattainment designation, a state implementation plan (SIP) must be developed to achieve future attainment of the applicable NAAQS.

3.2.1 Affected Environment

Arlington, Virginia, is in the Metropolitan Washington Air Quality Committee (MWAQC) Region, which is designated as in attainment with NAAQS for NO₂, SO₂, Pb, and PM₁₀. Historically, the region was designated as maintenance for the 1997 NAAQS for PM₂.₅ (EPA, 2018a). However,
when EPA issued the final rule for Fine Particulate Matter NAAQS: SIP Requirements (EPA, 2016), revoking the 1997 NAAQS, the area met the new 2012 NAAQS for PM$_{2.5}$ and is considered in attainment for PM$_{2.5}$. The region is designated as a maintenance area for CO (EPA, 2018b) and is designated as nonattainment for ground-level O$_3$ (EPA, 2018c). The following sections discuss the current conditions for O$_3$ and CO.

3.2.1.1 Ozone
Ozone forms from chemical reactions between volatile organic compounds (VOCs) and nitrogen oxides (NOx) in the presence of sunlight during hot, stagnant days. The CAA regulates VOCs and NOx because O$_3$ is not directly emitted. The MWAQC prepared a SIP for 8-hour ozone in May 2007 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 and expanded energy efficiency programs. In February of 2012, the EPA determined the Metropolitan Washington Area had attained the 8-hour ozone NAAQS. However, as of August 2018, the Metropolitan Washington Area has not been re-designated as a maintenance area for ground-level ozone (EPA, 2018c).

3.2.1.2 Carbon Monoxide
Most CO emissions are from transportation sources, with the largest from highway motor vehicles. Levels of CO in ambient air may reduce blood’s oxygen-carrying capacity. Health threats from CO are most serious for those with angina or peripheral vascular disease. The Metropolitan Washington Area was designated a CO nonattainment area. In 1996, the EPA redesignated the area as in attainment for CO and approved the CO Maintenance Plan. The CAA requires two 10-year maintenance plans following re-designation to demonstrate the region will maintain the NAAQS. The second (revised) CO Maintenance Plan was approved by the MWAQC in February 2004 for the period 2007–2016 to demonstrate the region will continue to attain the 8-hour CO standard. As of August 2018, the Metropolitan Washington Area has not been re-designated as an attainment area for 8-hour CO (EPA, 2018b).

3.2.2 Environmental Consequences of the Alternatives on Air Quality
This section describes the environmental effects of the Proposed Action and the No Action Alternative on air quality.

3.2.2.1 Threshold of Significance
Thresholds of significance for air quality are as follows:

- Emissions exceeding established NAAQS.
- Increases in emissions to levels exceeding federal major source thresholds. The major source thresholds for Arlington County, which is in the Ozone Transport Region, are 100 tons per year (tpy) of NOx or 50 tpy of VOCs, or 100 tpy of CO.

3.2.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change to the existing environment for air emission and no effects to air quality.
3.2.2.3 Proposed Action

All component projects would be implemented in compliance with applicable state and federal standards for air quality. Therefore, construction emissions related to implementing the component projects of the updated RPMP are not expected to result in significant air quality effects.

Construction would result in minor, short-term effects on air quality in the local area because of fugitive dust from earthwork excavation and vehicle and equipment emissions during construction. The temporary increases in PM$_{2.5}$ and CO emissions and ozone precursors (VOCs and NOx) as a result of construction vehicle and equipment emissions would be minor compared to daily traffic emissions in the area. The proposed component projects in the updated RPMP would be implemented over a period of years and not all at once. While specific component projects have not been designed, none would be as large as the Southern Expansion. Emission from the Southern Expansion project would be 11.2 tpy of NOx and 4.4 tpy of VOCs (USACE, 2018), well below the major source thresholds of 100 tpy. Because the updated RPMP projects would be smaller and result in less construction emissions per project, emissions of NOx and VOCs would be well below regulatory thresholds, even if multiple projects were to be implemented simultaneously. Any adverse effects would be short term and minor. All projects would be compliant with the CAA and the appropriate SIP.

Fugitive dust from construction activities would not be expected to approach threshold levels for particulate emissions because individual component projects would be small and mostly implemented at different times. However, fugitive dust could migrate from construction sites to nearby areas within ANC and adversely affect the visitor experience. Appropriate dust control BMPs would be implemented by contractors to minimize the potential generation of fugitive dust. Any effects would be short term and minor, although these short-term effects would recur as projects are implemented.

Following implementation of the updated RPMP projects, there could be increases in landscape and lawn maintenance, which in turn could increase VOCs, NOx, PM$_{2.5}$, and CO emissions. Emissions would not be expected to exceed regulatory thresholds. Any changes in emissions would be negligible to minor compared to the activities already occurring at ANC.

Sustainability measures included in project designs would minimize emissions increases associated with new stationary sources. The Army requires new construction to be built to a standard capable of achieving a U.S. Green Building Council Leadership in Energy and Environmental Design New Construction Silver rating. To meet this requirement, new facilities would be designed to include energy conservation measures to reduce energy consumption and associated air emissions. Adverse air quality effects would be long term and minor.

Proposed components could include new stationary sources, such as generators and HVAC systems. Component projects would be reviewed to determine whether stationary source permits are required; any required permits would be obtained.
3.3 Noise

The Noise Control Act of 1972 establishes a national policy to promote an environment for all Americans free from noise jeopardizing their health and welfare. Noise is defined as unwanted sound. This section addresses the potential for noise to affect the human environment. The potential for noise to affect wildlife is discussed in Section 3.6, Biological Resources.

3.3.1 Affected Environment

ANC is intended to be a serene area, and noise is generally kept to a minimum. Sources of noise at the cemetery come from maintenance operations, such as lawn mowers and maintenance shops, and committal services, which have intermittent noises such as rifle salutes, bugles, and military bands. Routine noise produced within the cemetery is negligible and non-disruptive.

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

The Arlington County Code Chapter 15, Noise Control (Arlington County, 2011) was enacted to promote the health, safety, and welfare of county inhabitants. The Code limits construction noise levels to 90 A-weighted decibels (dBA) measured at 50 feet from the construction site during daytime hours. Adherence to this ordinance is a policy decision on the part of ANC.

Sensitive receptors for noise are defined as schools, churches, libraries, residences, and hospitals. The nearest sensitive noise receptor to ANC is the Fort Meyer Memorial Chapel on JBMHH, approximately 1,400 feet from the nearest proposed work area. The next nearest church is St. John’s Baptist Church, approximately 3,500 feet from ANC. The nearest school is the Strayer University Arlington Campus, approximately 3,500 feet from ANC. The nearest libraries are the Fort Meyer Post Library, approximately 2,700 feet from ANC, and the Walter T. McCarthy Law Library, approximately 3,000 feet from ANC. The nearest residences are in the Radnor-Fort Meyer Heights area, which abut ANC and JBMHH to the northeast, and the Foxcroft Heights neighborhood, which abuts the southern expansion area and the southern boundary of JBMHH. Homes in the Radnor-Fort Meyer Heights area are 2,200 feet from Proposed Action components, and homes in Foxcroft Heights are more than 2,500 feet from Proposed Action components. Georgetown University Hospital is the closest hospital and is approximately 8,500 feet from ANC.

3.3.2 Environmental Consequences of the Alternatives on Noise

This section describes the environmental effects of the Proposed Action and the No Action Alternative on noise.

3.3.2.1 Threshold of Significance

The following thresholds would determine a significant noise effect:

- Construction noise exceeding the 90-dBA limit established in the Arlington County Code;
• Noise causing physical injury to workers, visitors, or offsite persons;
• Permanent new noise sources increasing the noise environment at an offsite noise-sensitive receptor.

3.3.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. Because no change to the existing noise environment would result, there would be no effects to the noise environment and no effects to ANC activities from noise.

3.3.2.3 Proposed Action
Implementing the Proposed Action would not create any new permanent noise sources. Short-term increases in noise levels within the cemetery would occur during construction and rehabilitation activities. Construction-related noise would vary depending on the types and locations of construction activity. The noise would result from the use of heavy machinery and equipment for earthwork and foundation work and for the construction of buildings, parking areas, roads, and visitor amenities.

Construction workers would wear noise reduction protection to prevent injury to their hearing. The noise levels outside active construction areas would not cause hearing damage in visitors to ANC or anyone outside ANC.

Construction-related noise would be reduced through attenuation to approximately 70 dBA at the nearest offsite sensitive receptor, the Fort Meyer Memorial Chapel, when construction occurs at the site nearest the chapel (Meigs-Tanner ADP) and to lower levels when construction occurs at other proposed locations within ANC. Construction-related noise would be reduced further at other nearby sensitive receptors because of the greater distances to those sensitive receptors. Construction-related noise would result in minor, short-term adverse effects to nearby offsite sensitive receptors. These effects would recur at multiple locations as construction is implemented in different areas of ANC.

Typical construction equipment produces noise levels between 80 and 101 dBA at 50 feet from the piece of equipment (U.S. Department of Transportation, 2006). However, the loudest construction equipment (pile driver and rock drill) are unlikely to be used during construction at ANC. The construction equipment expected to be used at ANC would produce noise levels between 80 and 90 dBA at 50 feet from the piece of equipment. ANC would comply with the Arlington County Code Chapter 15, Noise Control. ANC would require contractors to ensure construction-related noise does not exceed 90 dBA at 50 feet from their worksite boundaries. Component projects with construction activities would receive additional environmental review for expected noise levels once design is complete to determine whether site-specific noise mitigation measures are necessary. If the noise is expected to be significant (greater than 90 dBA at 50 feet from the construction site boundary), site-specific mitigation measures to reduce the noise effects to less than significant will be required.

Construction-related noise would be a temporary, minor-to-moderate adverse effect on visitor experience. Committal services are concentrated in areas of ANC where construction would not
occur, and the spatial separation from construction areas would reduce the level of construction-related noise at burials, though it would not eliminate the noise. Visitors to existing graves in areas near active construction sites would be exposed to construction noise, and the noise would likely detract from their visitor experience. Construction-related noise would be less than the peak noise associated with rifle salutes for burials with full military honors, but visitors would experience construction-related noise for a longer duration. Visitors would be informed of ongoing construction upon entering ANC to make them aware of the potential for noise from the construction activities. While individual responses to construction noise during visits will vary, it is expected that adverse effects to the visitor experience would be moderate and short term. These short-term, moderate effects would recur with different visitors as construction is implemented in different areas of ANC.

The occurrences of intermittent noises such as rifle salutes, bugles, and military bands during interment ceremonies would not increase under the Proposed Action. Such intermittent noises may occur in areas within ANC not experiencing these noises at present. However, because these noises would be of very short duration and occur only intermittently, noise produced within during interment ceremonies would be expected to remain negligible and non-disruptive to other activities within ANC or at off-site sensitive receptors.

Use of lawn mowers and maintenance equipment would be extended to areas within ANC not now regularly maintained. Noise from maintenance equipment would be comparable to noise from construction equipment. The nearest offsite sensitive receptor, the Fort Meyer Memorial Chapel, currently experiences noise from mowing and maintenance activities on ANC, and this noise does not significantly affect activities at the chapel. Other noise-sensitive receptors are farther from ANC than the Fort Meyer Memorial Chapel, and noise from mowing and maintenance would be less at these receptors than at the chapel. No significant impacts from mowing and maintenance activities at off-site receptors would be expected.

3.4 Topography, Soils and Geology

3.4.1 Affected Environment

3.4.1.1 Topography
The topography of ANC varies from relatively flat, low-lying areas in the east to steep slopes of the Arlington Ridge in the west. The Arlington Ridge is the dominant landform in the cemetery. The topography gently rises from approximately 10 feet above mean sea level (msl) at the southeastern corner to approximately 100 feet above msl at the base of Arlington Ridge. Ascending Arlington ridge, the land slopes at a moderately steep gradient to the cemetery’s highest elevations along the ridge in the western portion of the cemetery near the JBMHH gate. In this area, elevations range from approximately 200 to 215 feet above msl. Arlington House is at this approximate elevation. From the high point on Arlington Ridge, the topography steeply descends into valleys north and south and more gently to Eisenhower Drive and Memorial Avenue to the east. Memorial Avenue and Eisenhower Drive are 150 feet lower than Arlington House. The lowest points in the cemetery are between Eisenhower Drive and the eastern boundary, where contours range from 10 to 50 feet above msl.
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. Within ANC, soils are identified as either Arlington National Cemetery map unit or Urban Land-Udorthents Complex 2 to 15 percent slope (NRCS, 2018).

The Arlington National Cemetery map unit covers most of ANC and consists of areas where the surface is covered by headstones, monuments, buildings, and access roads. No description of the soils within this map unit is provided (NRCS, 2018).

The Urban Land-Udorthents Complex 2 to 15 percent slope soils are mapped for much of the Entry Corridor and JBMHH. These soils consist of a mix of Urban land and Udorthents or similar soils. Urban land is covered by buildings, asphalt, concrete, or other impervious materials. The Udorthents and similar soils consist of areas of deep to very deep, nearly level to moderately sloping, well and moderately drained soils. The Urban land and Udorthents are intermingled and it is not practical to map them separately. This unit is about 85 percent Urban land, 10 percent Udorthents, and 5 percent other similar soils. The Udorthents consist of material 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 (NRCS, 2018).

Neither soil map unit is classified as hydric soils or prime or unique farmland (NRCS, 2018).

3.4.1.3 Geology
ANC is within the North Atlantic Inner Coastal Plain physiographic province and adjacent to the Piedmont Plateau province to the northwest. The boundary between these two provinces aligns with Rock Creek in the District of Columbia. The Inner Coastal Plain is characterized by rolling uplands. The Inner Coastal Plain is underlain by younger, less consolidated sediments than those in the Piedmont province. The sediments of the Inner Coastal Plain include unconsolidated marine and riverine deposits of gravel, sand, silt, and clay, and they 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 in the vicinity of ANC are derived from Quaternary age sediments.

3.4.2 Environmental Consequences of the Alternatives on Topography, Soils, and Geology
This section analyzes the potential effects of the Proposed Action and the No Action Alternative on topography, soils, and geology.

3.4.2.1 Threshold of Significance
The thresholds for significance for topography, soils, and geology depend on whether implementing a component project would:

- Result in a geologic hazard;
• Change topography to alter the character of ANC;
• Result in conditions causing rill or scour erosion that removes vegetation and soil;
• Be inconsistent with the Virginia Erosion and Sediment Control Regulations.

3.4.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPM P, and the Southern Expansion would proceed. There would be no significant alteration of soils or topography and no geologic hazards would be created.

3.4.2.3 Proposed Action
Implementing the proposed RPMP would result in no effects to underlying geology at ANC. Project design would avoid creating conditions that could result in slope instability. No underlying geologic conditions exist that would affect implementation of the Proposed Action.

No major grading would occur under the Proposed Action. Any topographic alterations would be slight and local and would not be out of character with the surrounding portions of ANC. Any adverse effects to topography would be long term and negligible to minor.

Soils would be disturbed during construction and would be at risk to wind and water erosion. Require component projects in any of the ADPs or any of the supplementary projects where ground disturbance would occur to include and maintain construction stormwater BMPs at least as protective as the requirements of the Virginia Erosion and Sediment Control Regulations (9 Virginia Administrative Code [VAC] 25-840). Contractors would be required to implement approved spill control and countermeasures (SPCC) plans. Projects also would be required to implement and maintain post-construction stormwater controls that meet sustainability requirements and are compliant with 9 VAC 25-870. With implementation of appropriate BMPs and post-construction stormwater controls, any adverse effects to soils would be short term and minor.

3.5 Water Resources
Water resources include groundwater, surface water, floodplains, water quality, wetlands, and coastal resources.

3.5.1 Affected Environment
ANC is in the Middle Potomac-Anacostia-Occouquan Watershed, approximately 0.5 mile west of the Potomac River. ANC is within the “Cemetery/Pentagon” subwatershed, as defined by Arlington County. Surface waters drain to the Potomac River and ultimately into Chesapeake Bay.

3.5.1.1 Groundwater
ANC includes portions of two aquifers: the Northern Atlantic Coastal Plain Aquifer System and the Piedmont and Blue Ridge crystalline-rock aquifers. The Northern Atlantic Coastal Plain Aquifer System is a semiconsolidated sand aquifer typical of the coastal plain. The Piedmont and Blue Ridge crystalline-rock aquifers are igneous and metamorphic-rock aquifers. 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. 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 at ANC, and no groundwater wells are within 1 mile of ANC.

3.5.1.2 Surface Water
Surface water drains eastward to the Potomac via the Boundary Channel. Streams subject to regulation under the Clean Water Act occur in Section 29 and adjacent to the Old Warehouse Area. Active springs and culverted streams have been identified in Sections 2, 9, and 37.

Three streams at ANC are within the Millennium Expansion site in Section 29: a second-order perennial stream (North Branch) and its two intermittent tributaries (Middle Branch and South Branch). These streams flow generally northward through the Millennium Expansion site. The Millennium Expansion’s implementation caused unavoidable impacts to these streams, and onsite restoration of the streams and associated riparian buffer areas was completed to mitigate these unavoidable impacts (USACE, 2013).

The Potomac River provides the drinking water supply for Arlington County. No surface water intakes are within 5 miles of ANC, and ANC is not within the watershed contributing areas of any public water supplies.

Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System program to limit pollutant discharges into streams, rivers, and bays. In the Commonwealth of Virginia, the Virginia Department of Environmental Quality (VDEQ) administers the program as the Virginia Pollutant Discharge Elimination System and issues permits for point source discharges to surface waters, dischargers of stormwater from Municipal Separate Storm Sewer Systems, and dischargers of stormwater from Industrial Activities. VDEQ also issues Virginia Stormwater Management Program permits to dischargers of stormwater from construction activities (VDEQ, 2018).

3.5.1.3 Water Quality
The designated uses of the Potomac River near ANC are 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. The Potomac River near ANC is classified as impaired because this section of the river does not meet the water quality standards associated with its designated use. While classified as “good” for navigation, this reach is classified as “impaired” for aquatic life harvesting.

Total maximum daily loads (TMDLs) have been developed to improve the water quality in the Potomac River. A TMDL is the calculated maximum amount of a pollutant a waterbody can receive and safely meet water quality standards. Two TMDLs apply to the Potomac River near ANC:
The EPA established the Chesapeake Bay TMDL in 2010 to restore the waters of the Chesapeake Bay and the its associated streams, creeks, and rivers and to address nutrient (nitrogen and phosphorus) and sediment impairments. To meet the TMDL, Virginia developed a Phase I Watershed Implementation Plan (WIP) (Commonwealth of Virginia, 2010) identifying strategies and outlining programs and resources needed to reach the TMDL. EPA approved the Virginia Phase I WIP in December 2010. Virginia submitted a Final Phase II WIP to the EPA on March 30, 2012, and the EPA provided its evaluation of the Final Phase II WIP on May 30, 2012.

3.5.1.4 Stormwater Management
The ANC stormwater system collects runoff from all of ANC as well as from JBMHH. Runoff from JBMHH enters the ANC system through three piped infalls on the cemetery’s northwestern boundary. ANC has two outfalls discharging directly to the Boundary Channel, one discharging to the Pentagon stormwater system and one to an open channel/ditch on NPS property that subsequently discharges to the Boundary Channel. Portions of the ANC storm sewer system need repair, and ANC is developing a Stormwater Management Plan.

The Arlington County Stormwater Detention Ordinance requires onsite stormwater detention facilities to maintain a peak runoff rate close to predevelopment levels unless a waiver is granted. Implementing this ordinance reduces the harmful effects of stormwater runoff on streambeds, stream banks, and other areas in the county. Adhering to this ordinance is a policy decision by the DoD.

3.5.1.5 Floodplains
The Federal Emergency Management Agency Flood Map Service Center website indicates that the NPS property in the Entry Corridor ADP area is classified as an area of minimal flood hazard (Zone X), and the remainder of ANC, including NPS-controlled areas, is classified as an area of undetermined flood hazards (Zone D) (FEMA, 2018). No other FEMA-mapped floodplains occur within the area considered for the Proposed Action.

3.5.1.6 Wetlands
Two riverine wetlands associated with streams on the Millennium Expansion site are the only wetlands identified on ANC. These wetlands were confirmed by the USACE Norfolk Regulatory District as subject to jurisdiction under the Clean Water Act. These wetlands were avoided during the Millennium Expansion’s implementation, including the stream restoration associated with the Millennium Expansion (USACE, 2013).

3.5.1.7 Coastal Zone Management Act
The Coastal Zone Management Act of 1972 (16 U.S.C. 1451, et seq.) was enacted in 1972 to provide assistance to states for the management of coastal resources. The Virginia Coastal Zone
Management Program (CZMP) was approved in 1986. Arlington County, including ANC, is within the Virginia coastal zone. Federal development projects in the coastal zone are subject to consistency regulations and require a federal consistency determination that they are consistent with the Virginia CZMP to the maximum extent practicable. Therefore, coordination and review by the VDEQ, Office of Environmental Impact Review is necessary.

The Chesapeake Bay Preservation Act (CBPA), passed in 1988 to improve the health of the Chesapeake Bay and its tributaries, is an enforceable policy of the Virginia CZMP. The CBPA established the Bay Act Program, which requires the use of conservation planning and pollution prevention practices when developing sensitive coastal lands to balance the goals of improved water quality with continued land development. Within the Chesapeake Bay watershed, there are two types of land features:

- Resource Protection Areas, to protect and benefit water quality;
- Resource Management Areas, with potential to damage water quality without proper management.

Under the CBPA, Arlington County designated Resource Protection Areas in Section 61-5 of its Chesapeake Bay Preservation Ordinance, and no designated Resource Protection Areas are within ANC.

### 3.5.2 Environmental Consequences of the Alternatives on Water Resources

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on water resources.

#### 3.5.2.1 Threshold of Significance

The thresholds of significance for water resources effects are:

- Noncompliance with existing TMDLs;
- Unpermitted degradation of wetlands;
- Unpermitted alteration of local surface water;
- Change to regional groundwater patterns;
- Depletion of groundwater;
- Reduction in natural and beneficial floodplain values;
- Violation of the Coastal Zone Management Act.

#### 3.5.2.2 No Action Alternative

Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change to the existing conditions. ANC would continue to comply with applicable regulations and statutes governing water resources. No adverse effects to water resources would be expected. Planned upgrades under the Stormwater Management Plan would be implemented and would result in a minor, positive effect by reducing contamination from the deteriorated system.
3.5.2.3 Proposed Action

No consumptive use of groundwater would occur under the Proposed Action and no depletion of groundwater resources would result. Implementing the component projects of the updated RPMP would have no potential to directly affect groundwater resources. Construction stormwater permits are required for construction projects disturbing more than 1 acre or for components of a common plan of development that would disturb more than 1 acre. Regardless of the size of individual component projects, ANC would require contractors to implement appropriate construction stormwater BMPs and an approved SPCC plan to minimize the potential for indirect effects to groundwater through transport of potential contaminants to offsite recharge areas during construction activities. These measures will be consistent with 9 VAC 25-840 and 9 VAC 25-870.

No direct effects to water supplies would occur because these resources do not occur within the project area.

Direct effects to surface waters, including wetlands, and floodplains would not be expected, as planned activities would avoid known water resources. However, on a project-specific basis, ANC would conduct delineations of surface waters in portions of the project area not delineated previously prior to any activities being conducted in these areas. Any surface water features, including wetlands, identified during delineations would be submitted to the USACE Norfolk Regulatory District for an approved jurisdictional determination to determine whether any identified features are regulated under the Clean Water Act Section 404 program. If any waters regulated under Section 404 are present in a proposed work area, ANC would follow the Section 404 process of avoidance to the extent possible and then minimize unavoidable impacts in developing projects for permitting. Any required permits would be obtained, and any required mitigation implemented prior to conducting the activity.

Component projects that include ground disturbance would be required to include and maintain construction stormwater BMPs at least as protective as the requirements of the Virginia Erosion and Sediment Control Regulations (9 VAC 25-840). Contractors would be required to have and implement approved SPCC plans. Projects would be required to implement and maintain post-construction stormwater controls that meet sustainability requirements and are compliant with 9 VAC 25-870. With implementation of appropriate BMPs and post-construction stormwater controls, any indirect effects to water resources would be minor.

Each proposed component would be reviewed to determine whether proposed BMPs and other stormwater management measures are sufficient. Any required permits would be obtained for each component project prior to its implementation.

Upgrades to the stormwater system under the No Action Alternative also would be implemented under the Proposed Action, with the same beneficial effects.

While no degradation of coastal resources would be expected, individual component projects will be evaluated for consistency with the enforceable provision of the Virginia CZMP prior to implementation.
3.6 Biological Resources

Biological resources include flora, fauna, and ecological communities within the analysis area. Species protected under the Endangered Species Act of 1969 (ESA), as amended, are considered biological resources. The following sections describe the existing conditions and discuss the potential effects.

3.6.1 Affected Environment

Limited biological resources are found within ANC and the NPS properties within or contiguous with ANC. Most of the cemetery grounds consists of impervious surfaces, landscaped areas, or burial grounds.

3.6.1.1 Vegetation

Most of the area within ANC consists of maintained mowed burial grounds. Most buildings have landscaped grounds immediately surrounding them. However, two aspects of vegetation within the Proposed Action area are notable: the Arlington National Cemetery Memorial Arboretum and the Arlington House Woodlands.

ANC has more than 8,600 trees, with more than 300 species and varieties. The ArbNet Arboretum Accreditation Program and the Morton Arboretum awarded the cemetery Level II arboretum accreditation in 2015 for meeting specific standards deemed important for arboreta and botanic gardens, and in 2018, ANC attained Level III arboretum status. The oldest trees pre-date the first burials and are nearly 250 years old. ANC has three Virginia State Champion and two Virginia State Co-Champion trees among its many specimen trees. Many trees have been planted and dedicated by visiting dignitaries, family members, organizations, and presidents. The cemetery is listed on the Morton Register of Arboreta, a worldwide registry of arboreta and other public gardens having a focus on woody plants (ANC, 2018d, 2018e).

The Arlington House Woodlands are on NPS property and occupy approximately 12 acres of the Mature Forest Tract situated along a ravine adjacent to Arlington House. The Arlington House Woodlands have never been logged or tilled and contain mature and over mature trees, some dating to the time of the American Revolution. The ravine forest consists of canopy species, including oaks (*Quercus* spp.), hickories (*Carya* spp.), tulip tree (*Liriodendron tulipifera*), and American beech (*Fagus grandifolia*). Common understory species include fringetree (*Chionanthus virginicus*), witch-hazel (*Hamamelis virginiana*), pinxter azalea (*Rhododendron canescens*), black haw (*Viburnum prunifolium*), and maple-leaved viburnum (*Viburnum acerifolium*). The woodlot has been designated a Virginia Native Plant Society (VNPS) Registry Site because of its rarity as a documented, old-growth forest remnant near the Nation’s capital (VNPS, 2018).

No regionally unique ecological communities or rare plant species have been identified in ANC. The Arlington House Woodlands is a habitat of local significance due to the age of the oldest trees and its inclusion of multiple locally rare habitat types.

EO 13112, *Invasive Species*, and EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species*, require federal agencies to prevent the introduction of invasive species,
provide for their control, and minimize the economic, ecological, and human health effects caused by invasive species. Invasive, as defined in EO 13751, means a non-native organism in a particular ecosystem whose introduction causes, or is likely to cause, economic or environmental harm or harm to human, animal, or plant health. Invasive plant species are defined as non-native plants that escape cultivation and become agriculture pests or lawn weeds, displace native plant species, reduce wildlife habitat, and alter ecosystem processes. The Virginia Department of Conservation and Recreation Invasive Plant List (Heffernan et al., 2014) identifies the species currently considered as invasive in Virginia. Twenty-eight species on ANC are classified as invasive by the Virginia Department of Conservation and Recreation, including one landscape plant (tree-of-heaven \([\text{Ailanthus altissima}]\)) and two lawn weeds (Canada thistle \([\text{Cirsium arvense}]\) and Johnson grass \([\text{Sorghum halapense}]\)) considered highly invasive. The ANC Invasive Species Management Plan guides management and control of invasive species on the cemetery.

3.6.1.2 Wildlife

Wildlife that may occur at ANC includes species accommodated to urban development. Mammals observed or expected to occur include raccoon \((\text{Procyon lotor})\), opossum \((\text{Didelphis virginiana})\), white-tailed deer \((\text{Odocoileus virginianus})\), eastern cottontail \((\text{Sylvilagus floridanus})\), gray squirrel \((\text{Sciurus carolinensis})\), eastern chipmunk \((\text{Tamias striatus})\), and red fox \((\text{Vulpes vulpes})\). Birds expected to occur include blue jay \((\text{Cyanocitta cristata})\), red-winged blackbird \((\text{Agelaius phoeniceus})\), American robin \((\text{Turdus migratorius})\), eastern bluebird \((\text{Sialia sialis})\), and red-tailed hawk \((\text{Buteo jamaicensis})\). The eastern garter snake \((\text{Thamnophis sirtalis sirtalis})\) also would be expected to occur on ANC.

The Migratory Bird Treaty Act and EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, require federal agencies to protect and conserve migratory birds and their habitats. Any activity intentionally resulting in a “take” of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (USFWS). Migratory birds nest throughout North America, and many occur in urban habitats. Many migratory songbirds, shorebirds, and raptors rest and refuel in the ANC area during their spring and fall migrations. Others winter to the south, in places such as Latin America or the Caribbean islands, and return to the Chesapeake Bay watershed to breed in the spring. The USFWS Information for Planning and Consultation (IPaC) website database identifies 24 migratory birds that could occur at or near ANC (USFWS, 2018a):

- One year-round resident (bald eagle \([\text{Haliaeetus leucocephalus}]\))
- Three winter residents (rusty blackbird \([\text{Euphagus carolinus}]\), red-throated loon \([\text{Gavia stellata}]\), and snowy owl \([\text{Bubo scandiaca}]\))
- Thirteen summer breeding residents (black-billed cuckoo \([\text{Coccyzus erythropthalmus}]\), bobolink \([\text{Dolichonyx oryzivorus}]\), Canada warbler \([\text{Cardellina canadensis}]\), cerulean warbler \([\text{Dendroica cerulea}]\), eastern whip-poor-will \([\text{Antrostomus vociferus}]\), golden-winged warbler \([\text{Vermivora chrysoptera}]\), Kentucky warbler \([\text{Oporornis formosus}]\), least tern \([\text{Sterna antillarum}]\), Prairie warbler \([\text{Dendroica discolor}]\), Prothonotary warbler \([\text{Protonotaria citrea}]\),
red-headed woodpecker (*Melanerpes erythrocephalus*), willett (*Tringa semipalmata*), and wood thrush (*Hylocichla mustelina*)

- Seven migrant species (dunlin (*Calidris alpina arctica*), golden eagle (*Aquila chrysaetos*), lesser yellowlegs (*Tringa flavipes*), ruddy turnstone (*Arenaria interpres* ssp. *morinella*), semipalmated sandpiper (*Calidris pusilla*), short-billed dowitcher (*Limnodromus griseus*), and Whimbrel (*Numenius phaeopus*)

The Bald and Golden Eagle Protection Act prevents actions resulting in the taking of either bald eagles or golden eagles. The golden eagle is not a resident of the region, but bald eagles occur as year-round residents near ANC. The closest eagle nest to the proposed action area is 0.95 mile north of the northernmost boundary of the proposed action area (The Center for Conservation Biology, 2018).

Several introduced insect species can greatly damage ornamental trees and shrubs. Many of these, such as the European elm bark beetle, hemlock wooly adelgid, and gypsy moth, have had established populations for many decades. Management for these insects is part of the Integrated Pest Management program. Recent introductions of additional non-native invasive insect species have increased the threat to trees at ANC. The emerald ash borer has been detected in Maryland and Northern Virginia and kills all species of ash trees (*Fraxinus* spp.). The *saxix* wood wasp attacks pine trees (*Pinus* spp.), which make up approximately 5 percent of the tree population at ANC. These species should be closely monitored as their populations spread.

### 3.6.1.3 Protected Species

A request was submitted to the USFWS IPaC website for an official species list for the project area. Responses from the USFWS Virginia Ecological Service Field Office and the USFWS Chesapeake Bay Ecological Services Field Office confirmed no species listed as endangered or threatened under the ESA and no candidate species or species proposed for listing under the ESA occur at ANC (USFWS, 2018a, 2018b, 2018c). These offices also confirmed that no critical habitat, as defined under the ESA, has been designated at ANC (USFWS, 2018a, 2018b, 2018c).

The Virginia Department of Game and Inland Fisheries Geographic Search (2019) and the Virginia Department of Conservation and Recreation database search tool (2019) identified 10 species listed by the state as potentially occurring at ANC. Two of these species are also federally listed (the endangered Atlantic sturgeon (*Acipenser oxyrinchus*) and the threatened northern long-eared bat (*Myotis septentrionalis*)). The other species are the state endangered Appalachian springsnail (*Fontigens bottimeri*), little brown bat (*Myotis lucifugus*), tri-colored bat (*Perimyotis subflavus*), brook floater (*Alasmidonta varicosa*), wood turtle (*Glyptemys insculpta*), Appalachian grizzled skipper (*Pyrgus centaureae Wyandot*), loggerhead shrike (*Lanius ludovicianus*), and migrant loggerhead shrike (*L. I. migrans*). In addition, the Virginia Department of Game and Inland Fisheries identified two species as collection concerns: spotted turtle (*Clemmys guttata*) and timber rattlesnake (*Crotalus horridus*).
3.6.2 Environmental Consequences of the Alternatives on Biological Resources

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on biological resources.

3.6.2.1 Threshold of Significance
The thresholds of significance for biological resources are as follows:

- Jeopardize the continued existence of any federally listed threatened or endangered species;
- Destroy or adversely modify critical habitat, as defined in the ESA;
- Decrease the available habitat for common species to the extent the species could no longer exist in the area;
- 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;
- Result in establishment of a new population of a Virginia invasive pest plant or invasive insect species.

3.6.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. No changes to the existing conditions for vegetation and wildlife would occur. There would be no effects to threatened and endangered species and no destruction or adverse modification of designated critical habitat.

3.6.2.3 Proposed Action
Construction associated with the Proposed Action could result in the temporary displacement of some common wildlife species. No substantial changes to land cover are expected and displacement would be expected to end once construction is complete. Any effects to wildlife would be temporary and minor.

All component projects would be evaluated prior to implementation to ensure implementation would not adversely affect the ANC Arboretum or alter its status.

Implementing the Proposed Action would result in changes to vegetation. Some impervious areas would be converted to burial grounds and become vegetated. These conversions would be a minor long-term benefit to vegetation. Areas that would be converted from vegetation to impervious surfaces would have minor, long-term adverse effects to vegetation. While designs have not been completed, a minor, long-term net increase in vegetation is expected to occur as additional grass-covered interment space is created.

No work is proposed in the Arlington House Woodlands. There would be no effects to this wooded area. Should any project be proposed in the wooded area adjacent to the Arlington House Woodlands that would result in clearing trees adjacent to the Arlington House Woodlands, the project would be reviewed to determine whether the effects would be significant and whether mitigation would be necessary.
Component projects with ground disturbance would be required to include and maintain construction stormwater BMPs at least as protective as the requirements of the Virginia erosion and sediment control regulations. Contractors would be required to have and implement approved SPCC plans. Projects would be required to implement and maintain post-construction stormwater controls that meet sustainability requirements and prevent changes to the volume and rate of stormwater runoff from preconstruction conditions. By implementing appropriate BMPs and post-construction stormwater controls, any indirect effects to biological resources would be negligible.

As noted in Section 3.5, each proposed component would be reviewed to determine whether proposed BMPs and other stormwater management measures are sufficient, and any required permits would be obtained for each component project prior to its implementation.

ANC would require contractors to implement methods to minimize the potential for establishment or spread of invasive plant species. ANC would continue to implement its Invasive Species Management Plan and integrated pest management practices to control invasive insects. No more than negligible effects from invasive plant species would be expected from the Proposed Action.

There is no intent to take migratory birds through implementing the Proposed Action. Some disruption of nesting behavior may occur during construction activities, but no loss of species would be expected. A Migratory Bird Treaty Act incidental take statement from the U.S. Fish and Wildlife Service is not required.

Because of the distance (0.95 mile) between the proposed action area and the nearest bald eagle nest and because there is substantial intervening urban development and activity, implementing the Proposed Action would not adversely affect the bald eagle. No proposed activities would occur within designated eagle nest buffers. A take authorization under the Bald and Golden Eagle Protection Act is not required.

Because no listed species would occur (USFWS, 2018b, 2018c) and because there is no potential to affect critical habitat, ANC has determined there would be no affect to species listed under the ESA and no destruction or adverse modification of critical habitat as a result of the Proposed Action. Therefore, consultation with USFWS under Section 7 of the ESA is not warranted.

No significant adverse impacts to state-listed species would be expected. Based on the information from USFWS, the two species that also are federally listed (Atlantic sturgeon and the northern long-eared bat) would not occur on ANC or adjacent properties. There would be no potential to adversely affect these two species. There is no suitable habitat for the Appalachian springsnail, brook floater, or spotted turtle on or adjacent to ANC, and there would be no adverse effects to these species as they would not occur in the areas where work is proposed. The Appalachian grizzled skipper would not be expected to occur because its required host plants would not occur in the open maintained areas on ANC and the wooded areas lack suitable openings to support the species. No adverse effects would be expected. The wood turtle would not occur in areas where disturbances would occur, and there would be no
adverse effects to this species. The little brown bat and tri-colored bat may forage in areas where projects would occur, but the habitat is unsuitable for roosting in the areas where disturbance would occur. Any adverse effects would be limited to temporary displacement from foraging areas and would be short term and minor. The loggerhead shrike and migrant loggerhead shrike would avoid areas where work was occurring. Any adverse effects would be limited to temporary displacement from foraging areas and would be short term and minor. The timber rattlesnake may occur in or near proposed work areas, but its occurrence is unlikely due to the level of ongoing maintenance activities at ANC. Should it occur, this species likely would avoid areas of activity, and any adverse effect would be limited to temporary displacement from foraging areas and would be short term and minor.

While the northern long-eared bat is not known to occur in the project area and the USFWS has not identified this species as a concern for the Proposed Action, the Virginia Department of Game and Inland Fisheries Geographic Search (2019) and the Virginia Department of Conservation and Recreation database search tool (2019) identified the species as potentially occurring. ANC is within the white-nose zone, the area where the northern long-eared bat is being affected by a fungal disease known as white-nose syndrome. Because ANC is within the white-nose zone and the species has been identified as potentially occurring on ANC, ANC will evaluate component projects with the potential to affect the northern long-eared bat or its habitat through the Key to the Northern Long-Eared Bat 4(d) Rule for Federal Actions that May Affect Northern Long-Eared Bats (USFWS, 2016) and, as appropriate, follow the Optional Framework to Streamline Section 7 Consultation for the Northern Long-Eared Bat, which was published with the key.

### 3.7 Cultural Resources

The term “cultural resources” encompasses properties of the built environment; archeological sites and artifacts; and Native American sites, artifacts, and cultural properties. The National Historic Preservation Act (NHPA) was passed in 1966 as a reflection of the importance of those resources to our national, regional, and local culture. According to 36 CFR Section 800.16(l)(1), the definition of a historic property is any “historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places.” In addition, NEPA mandates preservation of important historic, cultural, and natural aspects of our national heritage.

NHPA encourages federal agencies to coordinate Section 106 consultation with NEPA for the efficient execution of both laws. ANC, the lead federal agency, with assistance from USACE, is coordinating NEPA requirements for public involvement with Section 106.

The regulations implementing Section 106 are codified at 36 CFR Part 800. The Section 106 review process involves the following four steps:

1. Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.

2. Identify cultural resources within an Area of Potential Effects (APE) and evaluate their eligibility for inclusion in the National Register of Historic Places (NRHP).
3. Assess adverse effects by applying the criteria of adverse effect on historic properties.

4. Resolve adverse effects by consulting with the State Historic Preservation Officer and other agencies and consulting parties, including the Advisory Council on Historic Preservation, if necessary, to develop an agreement addressing the treatment of historic properties.

Section 106 of the NHPA outlines the consultation process and requires federal agencies to consider their undertakings’ effects on historic properties. If the analysis identifies adverse effects on historic properties, then the agency must consider avoidance, minimization, or mitigation measures to reduce impacts to resources considered important in our nation’s history. If there is an adverse effect on a historic property, the lead federal agency must address the adverse effect through consultation.

Section 110 of the NHPA sets forth historic preservation responsibilities of federal agencies, including the requirement to have a historic preservation program in place to identify, evaluate, and nominate properties to the NRHP. 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 programs to develop integrated cultural resources management plans (ICRMPs) for use as a planning tool. Arlington National Cemetery prepared the Arlington National Cemetery (Including Soldiers’ and Airmen’s Home National Cemetery) Integrated Cultural Resources Management Plan to appropriately document cultural resources at ANC and to describe program objectives, policies and methods (ANC, 2013a). One accomplishment of the fiscal year 2013 to 2018 ICRMP was the April 11, 2014, listing of ANC on the NRHP, which fulfills one of ANC’s responsibilities under Section 110 of the NHPA.

ANC must also follow the stipulations set forth in the 2014 Programmatic Agreement Among Arlington National Cemetery, the Virginia State Historic Preservation Officer, and the Advisory Council on Historic Preservation for the Operation, Maintenance, and Repair Activities at Arlington National Cemetery, Arlington County, Virginia (PA), which is attached in Appendix B (ANC, 2014).

3.7.1 Affected Environment

The APE is the area where the direct and indirect effects of the project may cause alterations to the character-defining features of identified historic properties. The Preliminary APE for cultural resources for the PEA (Figure 3-1) encompasses the entire ANC; viewsheds from the Lincoln Memorial across the river and to and from the Pentagon, the U.S. Air Force Memorial, and the Netherlands Carillon; and other areas just outside the ANC boundary. Figure 2 of the 2014 PA shows these vistas and viewsheds. A specific APE for each project component, as they are implemented, must be developed as part of each Section 106 consultation. The following resources are the identified cultural resources within the APE.

3.7.1.1 Archaeological Resources

Two sites on NPS property adjacent to ANC property are within the Preliminary APE: Sites 44AR0017 and 44AR0032. Site 44AR0017 includes the immediate grounds and supporting buildings of Arlington House, which are contributing elements to the NRHP-listed Arlington
House, are eligible for listing on the NRHP, and are on NPS property bordering ANC property. Site 44AR0032 is on NPS property and is eligible for listing on the NRHP. The site has a prehistoric quarry component, midden, and remnants of an ice house associated with Arlington House.

3.7.1.2 Historic Resources

Arlington National Cemetery was listed on the NRHP on April 11, 2014, as a historic district (NPS, 2014). The *National Register Eligibility of National Cemeteries—A Clarification of Policy*, dated September 8, 2011, states, “All national cemeteries are considered exceptionally significant as a result of their Congressional designation as national significant places of burial and commemoration, and the period of significance extends to the present” (NPS, 2011). The historic district includes the cultural landscape categories of topography, natural features, vegetation, circulation systems, groupings of headstones (USACE, 2013), and small-scale features along with buildings, structures, and objects (ANC, 2013a). Refer to the ANC NRHP nomination for detailed descriptions of the resources in the district (ANC, 2014).

Numerous NRHP-listed or -eligible cultural landscapes, memorials, historic structures and small-scale features are within the ANC and more are within its viewshed. The following is a list of historic properties within the Preliminary APE.

- Arlington House (the Robert E. Lee Memorial) Historic District (listed on the NRHP)
- Fort Myer Historic District (listed on the NRHP)
- George Washington Memorial Parkway (listed on the NRHP)
- Pentagon Office Building Complex (National Historic Landmark)
- Memorial Avenue/Arlington Memorial Bridge (listed on the NRHP)
- Arlington Ridge Park (includes the Netherlands Carillon and U.S. Marine Corps War Memorial) (listed on the NRHP)
- Lincoln Memorial (listed on the NRHP)
- Air Force Memorial (contributing element of the ANC historic district)
- Virginia Department of Transportation Central Control Building (potentially eligible for listing on NRHP)
- Freedman’s Village (potentially eligible for listing on NRHP)
- Lyndon Baines Johnson Memorial Grove on the Potomac (listed on the NRHP)
- Lady Bird Johnson Park (cultural landscape listed on the NRHP)

The 12-acre forest (Arlington House Woodlands) west of Arlington House is identified as a contributing element to the Arlington House historic district. The forest existed at the time Arlington House was constructed and was intentionally preserved during the Custis-Lee occupation and during the Civil War.
3.7.1.3 Native American Resources
ANC does not occupy identified tribal lands, and there are no known properties of religious or cultural significance to Native American tribes on ANC. There are no known human remains or artifacts pertinent to the Native American Graves Protection and Repatriation Act at ANC and no known sites at ANC with religious significance to Native Americans. However, representatives of identified tribes must be contacted prior to implementation of each project component as part of the Section 106 consultation process.

3.7.2 Environmental Consequences of the Alternatives on Cultural Resources
Section 106 of the NHPA requires federal agencies to consider the effects a proposed undertaking may have on historic properties and includes specific criteria for adverse effects.

An adverse effect is found when an undertaking may alter characteristics of a historic property qualifying the property for listing in the NRHP in a manner that would diminish the property’s integrity. This includes diminishing the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time or be further removed in distance, or effects that may be cumulative.

As required under Section 106 of the NHPA, ANC will consult with the Virginia and District of Columbia State Historic Preservation Officers, Advisory Council on Historic Preservation, Indian Tribes, and other consulting parties.

3.7.2.1 Threshold of Significance
The threshold of significance for cultural resources will be exceeded if an adverse effect to a resource listed in or eligible for listing in the NRHP cannot be resolved through the Section 106 Consultation process with Virginia State Historic Preservation Officer, the Advisory Council on Historic Preservation, and other Section 106 consulting parties.

3.7.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change to existing conditions for cultural resources. No effects to cultural resources would be expected.

3.7.2.3 Proposed Action
The development of the RPMP is not a federal undertaking and its preparation has no potential to cause adverse effects to historic properties. ANC will analyze the potential for adverse effects on identified historic properties as component projects in the updated RPMP and of each ADP are developed and designed. There is insufficient detail at this level of planning to make determinations of effect for each historic property for each ADP; determinations of effect require consultation with State Historic Preservation Officers, the Advisory Council on Historic Preservation, and other consulting parties, which the RPMP does not do.

As each component project of the ADPs in the RPMP is planned and developed, ANC will follow the NHPA Section 106 consultation process, as specified in 36 CFR Part 800, and take into consideration the effects from each project to the identified historic properties at ANC.
Figure 3-1. Preliminary Area of Potential Effects
The 2014 PA, in Appendix A, identifies the types of projects requiring Section 106 consultation (ANC, 2014). The ANC ICRM details the steps to be taken to comply with Section 106 (ANC, 2013a). The ANC Cultural Resources Manager must consult the PA and the ICRM prior to implementation of any individual project identified in the RPMP.

3.8 Visual and Aesthetic Resources and Visitor Experience

The visual aspect and the aesthetics of ANC are intertwined with the overall visitor experience. Visitor use and experience at ANC combines an atmosphere of dignity and repose with facilities for public visitation, private interments, and public ceremonies. Whether one is at ANC as a visitor or to attend committal services, the total experience is tied to ease of access to the cemetery, use of visitor amenities, and the cemetery’s aesthetics and history. ANC receives over four million visitors annually, including those attending funerals, those visiting graves of family members, and general tourists.

3.8.1 Affected Environment

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. Alternatively, visitors may arrive via the Arlington Cemetery Metro Station on Memorial Avenue.

Cemetery visitors typically visit the following three primary areas:

- Tomb of the Unknown Soldier (and the changing of the guard) and the Memorial Amphitheater
- President Kennedy’s Gravesite
- Arlington House

3.8.1.1 Visual and Aesthetic Setting

The visual image conveyed by the cemetery is an essential component to its character and identity. The memorials and the landscape, consisting of an ordered grid of simple white headstones set amidst grassy fields and rolling terrain of pastoral tree groves, provide a sense of peace and beauty for visitors. ANC is the most hallowed military burial ground in the nation and honors the fallen through burial. The cemetery’s character results from its topography, tree canopy and manicured appearance, picturesque circulation patterns, and distinctive rows of headstones. Maintenance activities and the movement of maintenance vehicles and equipment are the primary detractions to the ANC setting. These activities generate noise and visual aspects out of character with the general setting.

The entry screening process results in visitors who arrive early having to wait to enter ANC until security screening begins. Such visitors congregate near the entry area and tend to leave substantial amounts of trash on the ground.

3.8.1.2 Ingress/Egress and Movement within ANC

General visitors start their experience at the Welcome Center and then walk across Eisenhower Drive to Roosevelt Drive toward the President John F. Kennedy Gravesite. From there, they go...
up the hill to Arlington House, or they head across Crook Walk to the Memorial Amphitheater to see the Changing of the Guard at the Tomb of the Unknown Soldier. From the Tomb of the Unknown Soldier, visitors then continue through ANC. Tours of the cemetery are offered from the Welcome Center via tour vehicles.

Family members and friends of the deceased who return to be near their loved ones are granted gate passes allowing them to drive personal vehicles to a location close to family member interment sites. Interments occur throughout the cemetery, but at present, the majority of initial or first interments take place in the sections east of Eisenhower Drive.

Visitors attending committal services start at the Administration Building before proceeding to committal services at the site of interment, along the niche wall, or in the committal shelters of the columbarium courts. The relationships between Memorial Avenue, the Administration Building, the Old Post Chapel, and the procession from these points to interment locations are important.

Ingress and egress is primarily via Memorial Avenue, though some guests arrive via the ANC WMATA Metro stop. From Memorial Avenue, security staff at the front of the driveway entrance into ANC direct guest traffic, committal service attendees, and tours into ANC. These staff also facilitate pedestrians crossing Memorial Avenue into or out of ANC. Most guests are directed to the Visitor Parking Garage. From the parking garage, guests enter the Welcome Center security screening area prior to being allowed into ANC.

Pedestrian traffic and vehicle traffic originate from the Welcome Center area. The intersection of Eisenhower Drive and Roosevelt Drive, outside the Welcome Center’s western door, receives a high volume of traffic. Pedestrians may head to the tram plaza to wait under a pavilion or proceed across the crosswalk on Eisenhower Drive and up the hill onto Roosevelt Drive. Generally, there is a steady stream of pedestrians, so vehicles passing through this intersection must negotiate the pedestrian traffic. Vehicle traffic includes staff, contractors (trucks, trailers, vans), the tram, tour buses, funeral processions, and caissons heading to ceremonies. The intersection is manned by a crossing guard to facilitate traffic flow. Pedestrian and vehicle traffic also interact substantially at the Tomb of the Unknown Soldier, President Kennedy’s Gravesite, and Arlington House. Roads and pedestrian paths provide for internal flow of traffic throughout the remainder of ANC.

3.8.1.3 Visitor Amenities
Visitor amenities include self-guided tours, toilet facilities, benches, water fountains, cooling stations, the tram, the Welcome Center, and the gift shop. Visitor amenities also include ADA-compliant access. Visitor amenities are concentrated near the primary visitor destinations and are lacking in much of ANC. Much of the cemetery lacks or has only limited accessibility to those with disabilities. The concentration of visitor amenities into only a few locations contributes to congestion in those areas, adversely affecting the visitor experience. Because the concentration of amenities functions as an attractant to guests, it limits visitation to much of the cemetery.
3.8.2  Environmental Consequences of the Alternatives on Visitor Use and Experience

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on visitor use.

3.8.2.1  Threshold of Significance
The thresholds of significance for effects to visitor use and experience are as follows:

- Visitors would perceive a substantial change to the character of the ANC’s visual setting;
- Visitors could not visit family members’ gravesites;
- Visitors could not experience key destinations within ANC.

3.8.2.2  No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change to the visual and aesthetic environment, and the cemetery’s setting would remain unchanged. No upgrades to enhance the visitor use experience would be implemented. Poor flow of visitors through the cemetery would continue and guest amenities would remain insufficient. Trash left by visitors waiting to pass through the security screening process would continue to be a minor adverse effect to the visual and aesthetic setting. No efforts to improve accessibility for those who are disabled would be implemented. Long-term, moderate adverse effects to visitor use under the No Action Alternative would result.

3.8.2.3  Proposed Action
Component projects would be subjected to additional, site-specific NEPA analysis to determine whether the design would conflict with the general setting of ANC or would substantially alter the cemetery’s visual and aesthetic character. Projects requiring additional evaluation would include all proposed construction projects, installation of utility infrastructure, installation of CCTV and call boxes, and security upgrades to the perimeter wall. As appropriate, component projects would be modified to eliminate setting conflicts or to conform to the cemetery’s visual and aesthetic character.

Component projects reducing the visibility of maintenance facilities and support areas would enhance the overall setting and visual appeal from the perception of visitors. Long-term minor benefits to the setting at ANC would be expected.

The proposed Pedestrian Screening Facility is not yet designed, but it is planned as either a one-story or two-story building, with the second floor as a basement, to conform with the setting at ANC.

Under the Proposed Action, the visitor experience would be enhanced by improving ingress and egress at ANC and increasing the number of visitor amenities within the cemetery. In the entrance area, parking and security screening would be modified to improve the flow of vehicles and pedestrians and to streamline the security screening process. The following component projects in the Entry Corridor ADP would enhance the efficiency...
of security screening and improve visitor ingress and egress and would have a beneficial effect for all visitors.

- Mobile Screening Facility on Memorial Avenue: This component project would increase the efficiency of the vehicle screening process, reduce traffic queues associated with entry to ANC, and enhance ingress and egress.

- Construct Vehicle Screening Facility at Parking Garage Entry: This component project would increase the efficiency of the vehicle screening process, reduce traffic queues associated with entry to ANC, and enhance ingress and egress.

- Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza: This component project would increase the efficiency of the personal screening process, reduce pedestrian congestion at vehicle screening areas, and enhance ingress and egress.

- Upgrade 110 Gate: This component project would separate most contractor and staff traffic from visitor traffic and would increase the efficiency of the vehicle screening process, reduce traffic queues associated with entry to ANC, and enhance ingress and egress.

Sherman Drive has curves with limited visibility for motorists. At present, pedestrians share this roadway with vehicle traffic, creating a risk for pedestrian-vehicular collisions. The proposed pedestrian walkway along the east side of Sherman Drive, which would be implemented after a pedestrian easement is negotiated with NPS, would separate pedestrians from vehicle traffic and increase safety for both pedestrians and motorists, establishing a long-term moderate benefit to the visitor experience.

The proposed pedestrian nodes near the Memorial Amphitheater and in the Meigs-Tanner area would enhance pedestrian accessibility, increase safety by reducing pedestrian-vehicular conflicts, and provide educational information kiosks, wayfinding, and guest amenities. Construction of new pedestrian nodes and enhancement of existing pedestrian nodes would be a long-term, moderate benefit to the visitor experience.

Component projects would be implemented to increase visitor amenities throughout ANC and reduce conflicts between pedestrian and vehicle traffic inside the cemetery by separating pedestrian and vehicle flows in some areas. Restrooms would be rehabilitated to provide greater service and to be more accessible to visitors. The tram, Welcome Center, and gift shop would be enhanced to improve services and flow of visitors. ADA-compliant accessibility would be enhanced at many locations throughout ANC. The technology supporting self-guided tours would be enhanced to interface with current technologies to be more interactive.

Specific component projects would be evaluated as they are designed to determine whether contractors would be required to develop and implement traffic management plans to minimize internal conflicts with visitors or to reduce effects to visitor traffic into and out of ANC.

Long-term minor-to-moderate benefits to visitor use and the visitor experience would be expected from implementing the Proposed Action.
3.9 Socioeconomics

3.9.1 Affected Environment

This subsection discusses socioeconomic conditions in the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area and Arlington County, Virginia. Because implementing the Proposed Action would not result in the creation or loss of any permanent jobs, the Proposed Action would not contribute to changes in population numbers, demographics, or housing demand. Therefore, only employment, protection of children, and environmental justice are considered for evaluating effects associated with the Proposed Action.

3.9.1.1 Economic Activity

The Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area has an employment of approximately 3,360,000 people in non-farm jobs, with professional and business services and government as the two largest employer categories. Mining, logging, and construction provide approximately 169,000 jobs, with most of those in construction due to the statistical area’s highly urban nature (BLS, 2018a).

Arlington County has approximately 9,300 employers and approximately 176,000 employed persons. Employment in Arlington County increased by 0.9 percent from March 2017 through March 2018 (BLS, 2018b). Arlington County has an unemployment rate of 2.2 percent, which is the lowest unemployment rate in the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area (BLS, 2018c).

3.9.1.2 Protection of Children

EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, directs federal agencies to identify and assess disproportionate effects to the environmental health and safety risks for children as a result of federal actions. As defined in EO 13045, environmental health risks and safety risks are attributable to products or substances that a child is likely to come in contact with or ingest, including air, food, water, soil, and products we are exposed to or use. The assessment of potential effects to air quality, hazardous materials, and water quality are relevant to this category.

Children are on ANC only as guests or to attend committal services. ANC limits access to the cemetery areas and uses fencing to prevent children from entering areas where hazards may exist.

3.9.1.3 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 and avoid disproportionate adverse effects on these populations by federal policies and actions.

The EPA EJScreen tool was queried for ANC and the surrounding 0.5-mile area. Minority and low-income populations within the area are comparable to, or lower than, regional and national averages (EPA, 2018d). The EJScreen query’s results are provided in Appendix B.
Census tract and community data indicate that two local populations should be analyzed for environmental justice. Foxcroft Heights, with 69 percent minority residents nested within a Census tract with only 15.6 percent minority residents is treated as a minority population for analysis. Census Tract 1017.03, which includes Radnor-Fort Meyer Heights, has more than three times the rate of individuals and families living below the poverty rate as other census tracts abutting ANC and almost double the rate for Arlington County. Therefore, Census Tract 1017.03 is considered to include a low-income population for analysis.

3.9.2 Environmental Consequences of the Alternatives on Socioeconomics

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on socioeconomic resources.

3.9.2.1 Threshold of Significance

The thresholds of significance for socioeconomics are as follows:

- Substantial change in income, employment, or tax base;
- High and adverse human health or environmental effects disproportionately affecting minority and low-income populations;
- High and adverse health or environmental safety risks for children.

3.9.2.2 No Action Alternative

Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change from current conditions and no socioeconomic effects would occur within the region. There would be no disproportionate effects to environmental justice populations and no environmental health and safety risks to children.

3.9.2.3 Proposed Action

Individual components of the Proposed Action would be spaced out in time. The regional construction workforce can support the multiple construction projects that would occur, and no permanent jobs would be created or lost as a result of the Proposed Action. No movement of people into or out of the region would occur as a result of the Proposed Action, and there would be no change in demand for housing and services. Recurring short-term benefits to the local economy from construction-related spending and secondary spending by those employed in the construction field would occur. This spending would be a negligible in the context of the regional economy.

No negative socioeconomic effects would be expected at JBMHH. The land considered for acquisition is not in use by JBMHH. Acquiring this land would result only in the temporary benefits from construction discussed previously.

All components implemented under the updated RPMP would occur on ANC or contiguous federal properties that ANC would acquire control of. All actions would be within federal properties, and the effects of the actions, except for air quality, would not extend outside those properties. Air quality effects would be minor and temporary outside the boundaries of the

ANC PEA – CORRECTED FINAL

3-32
identified properties and would not disproportionately affect persons in Census Tract 1017.03. Therefore, no disproportionate effects to environmental justice populations would occur.

Proposed Action components would involve construction near areas within ANC with visitors, including children. These construction areas would be secured from unauthorized access and children would not be exposed to any hazardous substances or wastes at construction sites. Implementing the Proposed Action would not generate hazardous air emission and would not result in hazardous materials or wastes entering surface waters. Therefore, implementing the Proposed Action would not create environmental health and safety risks to children.

3.10 Traffic and Transportation

The Proposed Action would have no effect on traffic and transportation on surface streets outside ANC other than the potential to reduce traffic backup related to entering ANC. Due to delays related to security screening, entering traffic can back up on Memorial Avenue. Traffic analysis for the Southern Expansion area has been addressed through a previous NEPA analysis (USACE, 2018) that is incorporated by reference. Because none of the RPMP update’s components would affect traffic in the Southern Expansion area, this area is not further discussed. No effects to commuter rail or air transportation would result. All other traffic effects would be internal to ANC and related to improving the visitor experience, including enhancing visitor safety (Section 3.8). Therefore, the analysis of traffic in this PEA is limited to entering and leaving ANC via Memorial Avenue.

3.10.1 Affected Environment

Visitors to ANC must pass through security screening prior to entering ANC. Screening vehicles and guests results in vehicle queuing to enter parking areas. During times of heavy visitation, vehicle queues may extend back onto Memorial Avenue, creating safety risks, and block drives, delaying guests trying to leave ANC. Memorial Avenue is the only surface route for guests to reach the ANC Entry Corridor in their personal vehicles.

3.10.2 Environmental Consequences of the Alternatives on Socioeconomics

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on traffic and transportation.

3.10.2.1 Threshold of Significance

The thresholds of significance for traffic and transportation are as follows:

- Substantial increase in entry and exit time for guests;
- Adverse safety risks for guests due to traffic congestion.

3.10.2.2 No Action Alternative

Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. Traffic entering ANC would continue to back up because of entry delays associated with security screening. Traffic queues from entry backups would continue to extend along entry drives and block traffic attempting to exit the parking area.
Long-term moderate adverse effects to traffic on Memorial Avenue entering or leaving ANC would occur.

3.10.2.3 Proposed Action

Construction associated with component projects for the ADPs and the supplementary projects would create short-term increases in traffic to and from ANC. Construction-related traffic would contribute to short-term minor adverse traffic effects for the duration of specific construction projects. Individual component projects would occur across a period of years, so these short-term effects would be recurrent. Specific component projects would be evaluated as they are designed to determine whether contractors would be required to develop and implement traffic management plans to reduce effects to visitor traffic into and out of ANC.

Other than the construction-related traffic, the Memorial Amphitheater ADP, Service Complex ADP, the Meigs-Tanner ADP, and the supplementary projects would have no effect on traffic entering and leaving ANC. Component projects in the Entry Corridor ADP would enhance the efficiency of security screening and improve the flow of traffic as follows.

- **Mobile Screening Facility on Memorial Avenue:** This component project would increase the efficiency of the vehicle screening process, reduce traffic queues associated with entry to ANC, and enhance ingress and egress.

- **Construct Vehicle Screening Facility at Parking Garage Entry:** This component project would increase the efficiency of the vehicle screening process and reduce the traffic queues associated with entry to ANC.

- **Construct Pedestrian Security Screening Facility and Associated Pedestrian Plaza:** This component project would increase the efficiency of the personal screening process and reduce pedestrian congestion at vehicle screening areas, enhancing the efficiency of both processes.

- **Upgrade 110 Gate:** This component project would separate most contractor and staff traffic from visitor traffic, thereby increasing the efficiency of the vehicle screening process and reducing traffic queues associated with entry to ANC.

With implementation of these three component projects, long-term minor-to-moderate beneficial effects to traffic on Memorial Avenue entering or leaving ANC would result.

3.11 Utilities

3.11.1 Affected Environment

ANC is served by underground electric, water, sewer, and stormwater utilities. In general, these utilities are in serviceable condition. Dominion Power supplies electrical service to ANC from the Fort Myer substation. Natural gas is provided by Washington Gas Company. Potable water is supplied to ANC by the USACE Washington Aqueduct Division, which is the municipal source of drinking water for Washington, DC, Arlington County, and the City of Falls Church and its service area.
Municipal sewage service is provided by Arlington County. The primary sanitary sewer service line is the Potomac Interceptor line, a 42-inch sanitary sewer line generally following the alignment of Eisenhower Drive. Gravity service lines and laterals drain to the principal facilities in the cemetery, including the Service Complex, the Memorial Amphitheater, the Superintendent’s Lodge, Arlington House, and the WIMSA 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. The Potomac Interceptor line connects with a 54-inch county main extending south along Joyce Street. Effluent is treated at the Arlington County Sewage Treatment Plant south of the Pentagon.

The ANC stormwater system collects runoff from all of ANC and receives stormwater from JBMHH through piped infalls on the cemetery’s northwestern boundary. ANC has two outfalls discharging directly to the Boundary Channel: one discharging to the Pentagon stormwater system and one discharging to an open channel/ditch on NPS property that subsequently discharges to the Boundary Channel. Portions of the ANC storm sewer system need repairs, and ANC is developing a Stormwater Management Plan.

### 3.11.2 Environmental Consequences of the Alternatives on Utilities

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on utilities.

#### 3.11.2.1 Threshold of Significance

The thresholds of significance for utility effects are as follows:

- Increase in demand, requiring capacity upgrade or substantial utility improvements.
- Disruption of utilities in the neighboring areas for more than an 8-hour period.

#### 3.11.2.2 No Action Alternative

Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change to demand for utility service. Planned upgrades under the Stormwater Management Plan would be implemented and would result in a long-term positive effect by reducing contamination from the deteriorated system.

#### 3.11.2.3 Proposed Action

No large-scale relocation of existing utility infrastructure would occur. There would be no substantial gain or loss in utility service demands. Utility distribution systems serving ANC are adequate to support the component projects under the Proposed Action. Individual projects may require connection to distribution systems and minor improvements to provide continued delivery of potable water, electricity, and natural gas throughout ANC. Stormwater system upgrades implemented under the No Action Alternative also would be implemented under the Proposed Action, with the same beneficial effects.

Component projects would not affect the performance of the utility distribution system, but there could be minor short-term effect due to site-specific utility relocation or utility tie-in connections. Once the design is complete, component projects with potential to affect utilities would be evaluated individually and cumulatively under separate NEPA analysis. Proposed
upgrades to utility systems that would result in new utility infrastructure would receive additional environmental analysis to ensure the proposed infrastructure is compatible with the visual and aesthetic character of ANC.

3.12 Solid Waste

This section specifically addresses nonhazardous solid wastes. Hazardous wastes are discussed in Section 3.13, Hazardous Materials and Wastes.

Solid waste is regulated under federal, state, and local laws. The Resource Conservation and Recovery Act is the federal act governing the collection, treatment, storage, and disposal of solid waste. Virginia solid waste management regulations establish standards and procedures for the management of solid wastes including requirements for siting, design, construction, operation, maintenance, closure, and post-closure care of solid waste management facilities to protect the public health, public safety and environment, and natural resources in the Commonwealth. The Virginia solid waste planning and recycling regulations require every city, county and town in the Commonwealth develop a solid waste management plan. ANC submits annual recycling reports to Arlington County.

3.12.1 Affected Environment

The main nonhazardous solid waste generators at ANC are the administrative facilities, maintenance activities, interments, and visitors, with yard waste from maintenance activities and floral debris from visitor grave decorations providing the bulk of the waste.

ANC has a recycling program. Materials such as general office waste, yard waste, metals, used tires, and scrap wood are collected and recycled offsite by contractors. In 2011, ANC recycled nearly 1,800 tons of materials, including yard waste, scrap wood, cardboard, truck batteries, and oil filters. ANC has an Integrated Solid Waste Management Plan that guides reducing, reusing, and recycling solid waste to the maximum extent possible, emphasizes source reduction, and identifies opportunities for additional recycling. The Plan is implemented through its integration into the ANC Environmental Management System.

The entry screening process results in visitors who arrive early having to wait to enter ANC until security screening begins. Such visitors congregate near the entry area and tend to leave substantial amounts of trash on the ground.

3.12.2 Environmental Consequences of the Alternatives on Solid Waste

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on solid waste.

3.12.2.1 Threshold of Significance

The threshold of significance for solid waste are as follows:

- Generating solid waste exceeding the capacity of regional disposal facilities;
- Reducing the diversion rate (the percentage of nonhazardous solid waste diverted from entering a disposal facility) of nonhazardous solid waste at ANC to less than 50 percent.
3.12.2.2 No Action Alternative
Under the No Action Alternative, ANC would continue to operate under its 2013 RPM P, and the Southern Expansion would proceed. The existing waste generation and waste diversion activities would continue. Trash left by visitors waiting to pass through the security screening process would continue to be a long-term, minor, adverse effect to solid waste. No other adverse effects to solid waste would be expected.

3.12.2.3 Proposed Action
The Proposed Action would have short-term effects on solid waste generation and disposal during demolition and construction activities. Waste generated during the demolition and construction would be disposed of at local landfills. Waste would be reduced through recycling and reuse to the extent practicable. In accordance with Army Regulation 420-1, contracts for construction will include a performance requirement to divert a minimum of 50 percent of construction waste from landfill disposal. The solid waste generated is not anticipated to decrease diversion rates. Therefore, the Proposed Action would have minor, short-term and long-term adverse effects on solid waste.

Additional interment space would be made available at the ANC. This is not expected to increase the annual amount of solid waste generated during interments because the number of interments per year is not expected to increase.

3.13 Hazardous Materials and Waste
Hazardous materials are substances 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” (ANC, 2013b). Hazardous waste is “any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that poses a substantial present or potential hazard to human health or the environment” (ANC, 2013b).

The generation, treatment, storage, and disposal of hazardous wastes are regulated under the Resource, Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act.

3.13.1 Affected Environment
Operations and grounds maintenance at ANC results in the use of small amounts of hazardous materials such as solvents, petroleum products, lubricants, lawn chemicals, and pesticides. Use and disposal of these materials is done in accordance with applicable local, state, and federal regulations.

Asbestos-containing materials and lead-based paint have been encountered at ANC facilities. ANC has asbestos and lead paint programs to ensure proper handling and disposal of these materials. ANC also has a radon program to protect indoor air quality.

Areas of contamination identified within the Southern Expansion site were addressed in the EA for the Southern Expansion (USACE, 2013), which is incorporated by reference into this PEA.
3.13.2 Environmental Consequences of the Alternatives on Hazardous Materials and Waste

This section analyzes the potential effects of the Proposed Action and the No Action Alternative on hazardous materials and waste.

3.13.2.1 Threshold of Significance

The threshold of significance would be a substantial increase in the amount of hazardous wastes generated at ANC that causes ANC to be classified as a small quantity generator.

3.13.2.2 No Action Alternative

Under the No Action Alternative, ANC would continue to operate under its 2013 RPMP, and the Southern Expansion would proceed. There would be no change to hazardous material storage or use or hazardous waste generation. ANC would continue to use small amounts of hazardous materials for routine operations and maintenance, and this use would be in compliance with applicable local, state, and federal regulations. No adverse effects to hazardous materials or hazardous would be expected.

The existing ANC programs for asbestos-containing materials, lead-based paint, and radon would be continued under the No Action Alternative.

3.13.2.3 Proposed Action

The Proposed Action would have a long-term minor effect on hazardous materials storage and use and hazardous waste generation because of increased routine operations and maintenance on the additional burial space. Storage, use, and disposal of hazardous materials and wastes would comply with applicable local, state, and federal regulations.

The existing ANC programs for asbestos-containing materials, lead-based paint, and radon would be continued under the Proposed Action. ANC would continue to use integrated pest management approaches and to increase the use of pest resistant plants to minimize the use of chemicals.

Buildings slated for demolition or rehabilitation would be assessed for presence of asbestos and lead-based paint prior to work. If either is identified, the ANC program for the identified material will be implemented, as appropriate.

No contamination would be expected to be encountered during construction under the Proposed Action because intrusive work would not occur in any areas known to be contaminated. Therefore, no effects to humans or the environment would be expected.

Should previously unknown potential contamination be encountered, work in the area would cease until the potential contamination could be verified and addressed. Appropriate federal and state regulators would be contacted regarding the potential contamination and, if warranted, a plan to appropriately remove or contain the contamination would be developed and implemented.
3.14 Cumulative Effects

The CEQ regulations implementing NEPA (40 CFR Section 1508.7) define a “cumulative impact” as follows:

Cumulative impact is 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 the actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

For this analysis, “cumulative impact” and “cumulative effect” are synonymous. Cumulative effects would occur if the incremental effects of the Proposed Action resulted in an increased effect when added to the environmental effects of past, ongoing, and reasonably foreseeable activities. Reasonably foreseeable activities are defined as activities identified in current development plans or with an application pending and that would occur in a time frame where interaction with the Proposed Action could occur. Past activities are considered only when their effects would still be occurring during implementation of the Proposed Action or for which recovery of the resource would not be complete at the time of the Proposed Action. It is assumed the environmental protection measures (BMPs, mitigations, plans, permits, and coordination) described for the Proposed Action would be implemented and that other past, present, and reasonably foreseeable projects considered in the cumulative effects assessment would comply with applicable state and federal laws and regulations.

For a past, ongoing, or reasonably foreseeable future activity to be considered in the cumulative analysis, the incremental effects of the activity and the Proposed Action must be related in space or time and the actions must be of a similar character with potential to affect the same environmental resources as the Proposed Action.

One ongoing ANC project was considered for their potential to contribute to cumulative effects:

- Construction and operation of the ANC Southern Expansion. Potential cumulative effects of this project have been analyzed previously (USACE, 2018) and are incorporated by reference. No additional potential cumulative effects, beyond those previously analyzed, were identified.

This project’s cumulative effects was analyzed previously with regard to the prior RPMP for ANC. The Southern Expansion is spatially separated from most of the component projects in this updated RPMP. While the RPMP’s content has changed, no environmental effects from the component projects of the updated RPMP have the potential to interact with these two ongoing projects to cause or contribute to new cumulative effects. Therefore, these projects are not further discussed for cumulative effects.

The following projects could interact with the Proposed Action to contribute to cumulative effects:

- Rehabilitation of Arlington Memorial Bridge
• Construction and operation of the Pentagon Visitor Education Center
• Construction and operation of Columbia Pike Transit Stations (Arlington County, 2018b)
• Construction and operation of Washington Boulevard Trail to install bike and pedestrian trails along the street (Arlington County, 2018b)
• Construction and operation of Lee Highway and Washington Boulevard Bus Stop Consolidation and Accessibility Improvements (Arlington County, 2018b)
• Construction and operation of the private development Gables North Rolfe Street (Arlington County, 2018b)
• Construction and operation of the private development of the Best Western Arlington Boulevard (Arlington County, 2018b)
• Upgrade and installation of ADA-compliant sidewalk ramps throughout the Northern Virginia District (VDOT, 2018)
• Bridge maintenance and repairs at I-395 and Glebe Road, 1.35 miles southwest of ANC (VDOT, 2018)
• Bridge rehabilitation on I-395 over Four Mile Run, 1.6 miles southwest of ANC (VDOT, 2018)
• Potential safety and operational enhancements at the I-395 Shirlington Interchange in the City of Alexandria and Arlington County, 2.5 miles southwest of ANC. Currently the I-395 Shirlington Interchange Improvements Study is underway (VDOT, 2018)
• Bridge rehabilitation at I-66 over Route 110 and George Washington Memorial Parkway ramps, just northeast of ANC (VDOT, 2018)
• I-395 Express Lanes Extension from the Turkeycock Run Interchange to near Eads Street, approximately 6 miles of work beginning approximately 5 miles southwest of ANC and ending south of the Pentagon, approximately 0.5 mile southeast of ANC (VDOT, 2018)
• Bicycle and pedestrian improvements along the Lynn Street Esplanade and Custis Trail, 7 miles north of ANC (VDOT, 2018)
• Development of a regional trail network plan for Northern Virginia following completion of the Regional Bike and Trail Network Study Update (VDOT, 2018)
• Rehabilitation of the Washington Boulevard bridge (Route 27) over Richmond Highway (Route 110), 0.6 mile southeast of ANC (VDOT, 2018)

Arlington County has no planned street or paving projects near ANC (Arlington County, 2018c). No other projects were identified with potential to interact with the Proposed Action to create cumulative effects. Therefore, no other projects are considered in the cumulative effects analysis.

The potential for cumulative effects is analyzed only for those environmental resources with more than negligible adverse effects by the updated RPMP projects and with potential for effects from updated RPMP projects to interact with other past, present, and reasonably
foreseeable projects. Resources with adverse effects confined within the boundaries of ANC are not considered in the cumulative effects analysis due to the lack of potential for interaction with other projects. The Proposed Action would not interact with other projects to cause or contribute to significant cumulative effects to environmental justice, protection of children, demographics, housing, community services, land use, topography, geology, surface waters, groundwater, wetlands, floodplains, biological resources, public transportation, visual and aesthetic resources, or hazardous materials and wastes. The previously identified projects could interact with the Proposed Action to contribute to cumulative effects to air quality, cultural resources, noise, soils, employment, traffic, and solid waste. The following cumulative effects discussion addresses the resource areas with potential for cumulative effects.

**Air Quality:** If component projects at ANC coincide with construction associated with the previously identified projects, there could be incremental contributions to cumulative effects to air quality from the Proposed Action. Because individual component projects would be small and spread out over time, any contribution of construction emissions to cumulative effects to air quality would be short term and minor. Component projects that would reduce vehicle queuing and idling associated with entry to ANC would reduce vehicle emission and would provide incremental benefits to air quality in the region. The private development projects identified previously would create new stationary and mobile emissions sources in the region. Because the new buildings at ANC would be energy efficient and relatively small, an incremental contribution to adverse air quality effects with the new stationary sources from private development would be negligible to minor.

**Cultural Resources:** Development of the RPMP will not contribute to cumulative effects on cultural resources, but implementing each component project could contribute to cumulative effects. The NHPA Section 106 consultation process for each component project will consider cumulative effects on cultural resources.

**Noise:** Roadway and general construction projects in the ANC vicinity could interact with noise from construction and ongoing operations at ANC to contribute to short-term cumulative effects to noise.

**Soils:** No direct cumulative effects to soils would be expected due to the spatial separation of the component projects in the updated RPMP and the previously identified projects. However, stormwater runoff from construction activities or post-construction stormwater runoff from completed projects could interact with construction and operational stormwater runoff from ANC to contribute to cumulative effects to soils due to sediment transport and scour from increased volume or velocity. Construction stormwater BMPs and post-construction stormwater management at ANC would prevent substantial changes in the character of stormwater leaving the property. Because the other projects are expected to comply with the Arlington County Stormwater Detention Ordinance, the Virginia Erosion and Sediment Control Regulations (9 VAC 25-840), and with 9 VAC 25-870, any cumulative effects to soils from stormwater runoff would be expected to be negligible.
Employment: The Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area has approximately 169,000 jobs in mining, logging, and construction, with most of those in construction due to the area’s highly urban nature. Construction of the Proposed Action, which would not create any new jobs or cause people to move into the region and would be spread across multiple years, would have no more than negligible cumulative effects on employment in the region through interaction with the previously identified projects identified above. Because the construction workforce would come from within the region, any indirect effects from the Proposed Action due to construction-related purchasing or secondary spending by construction workers to create additional jobs within the region would be negligible. Any cumulative effects to employment from the interaction of the Proposed Action with other projects would be negligible.

Traffic: The interaction of construction-related traffic from the Proposed Action and construction-related traffic from the previously identified projects could contribute to minor to moderate, short-term effects to traffic at ANC and nearby Arlington County due to increased congestion that would recur through time as different projects are constructed. Long-term cumulative benefits to traffic in the region would be expected once construction of the ANC Entry Corridor ADP and construction of the nearby roadway improvement projects are complete.

Solid Waste: Construction and operational waste from the previously identified projects would combine with waste generated during construction and operation at ANC to contribute to cumulative effects on solid waste. While it is expected that all projects would incorporate reuse and recycling to the extent practicable, additional solid wastes will be generated that must be disposed of in limited regional disposal facilities. Cumulative effects to solid waste are expected to be minor within the region.

3.15 Environmental Commitments

Additional site-specific NEPA analysis will be necessary for component and supplementa projects evaluated programmatically in this PEA. Table 3-2 summarizes the additional environmental commitments associated with the Proposed Action for those resources analyzed in detail.

Table 3-2. Environmental Commitments

<table>
<thead>
<tr>
<th>Resource</th>
<th>Environmental Commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use and Sustainability</td>
<td>Component projects will be evaluated for land cover changes to ensure consistency with ANC visual character. Prior to implementation, individual components would be reviewed for sustainability and compliance with EPAct05, EISA, and EO 13834. Should new sustainability regulations or EOs be enacted prior to implementation of a component project, compliance reviews would incorporate any applicable regulations and EOs.</td>
</tr>
</tbody>
</table>
### Table 3-2. Environmental Commitments

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

<table>
<thead>
<tr>
<th>Resource</th>
<th>Environmental Commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Air Quality</strong></td>
<td>Appropriate BMPs to address vehicle emissions and fugitive dust will be implemented during construction of component projects.</td>
</tr>
<tr>
<td></td>
<td>Component projects would be reviewed to determine whether stationary source permits are required; any required permits would be obtained.</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Inform visitors of noise associated with active construction areas upon their entry to ANC.</td>
</tr>
<tr>
<td></td>
<td>Component projects that would include construction would receive additional environmental review for expected noise levels once design is complete to determine whether site-specific noise mitigation measures are necessary. Adherence to the Arlington County Code Chapter 15, Noise Control is a policy decision on the part of ANC. If the noise is expected to be significant (greater than 90 dBA at 50 feet from the construction site boundary), site-specific mitigation measures to reduce noise effects to less than significant would be required.</td>
</tr>
<tr>
<td><strong>Topography, Soils, and Geology</strong></td>
<td>Component projects that include ground disturbance would be required to include and maintain construction stormwater BMPs at least as protective as the requirements of the Virginia Erosion and Sediment Control Regulations (9 VAC 25-840).</td>
</tr>
<tr>
<td></td>
<td>Contractors would be required to implement approved SPCC plans. Projects would be required to implement and maintain post-construction stormwater controls that meet sustainability requirements and are compliant with 9 VAC 25-870.</td>
</tr>
<tr>
<td><strong>Water Resources</strong></td>
<td>Component projects that include ground disturbance would be required to include and maintain construction stormwater BMPs at least as protective as the requirements of the Virginia Erosion and Sediment Control Regulations (9 VAC 25-840).</td>
</tr>
<tr>
<td></td>
<td>Contractors would be required to implement approved SPCC plans. Projects would be required to implement and maintain post-construction stormwater controls that meet sustainability requirements and are compliant with 9 VAC 25-870.</td>
</tr>
<tr>
<td></td>
<td>Required permits would be obtained for each component project prior to its implementation.</td>
</tr>
<tr>
<td></td>
<td>On a project-by-project basis, ANC would conduct delineations of surface waters in portions of the project area not delineated previously prior to any activities being conducted in these areas. The results of the delineations would be submitted to the USACE Norfolk Regulatory District for an approved jurisdictional determination to determine whether any identified features are regulated under the Clean Water Act Section 404 program. If any waters regulated under Section 404 are present in a proposed work area, ANC would follow the Section 404 process of avoidance to the extent possible and then minimization of unavoidable impacts in developing projects for permitting. Any required permits would be obtained, and any required mitigation implemented prior to conducting the activity.</td>
</tr>
</tbody>
</table>
Table 3-2. Environmental Commitments
Arlington National Cemetery Real Property Master Plan Update

<table>
<thead>
<tr>
<th>Resource</th>
<th>Environmental Commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Resources</td>
<td>Component projects that include ground disturbance would be required to include and maintain construction stormwater BMPs at least as protective as the requirements of the Virginia Erosion and Sediment Control Regulations (9 VAC 25-840). Contractors would be required to implement approved SPCC plans. Projects would be required to implement and maintain post-construction stormwater controls that meet sustainability requirements and are compliant with 9 VAC 25-870. Required permits would be obtained for each component project prior to its implementation. Construction contractors would be required to implement methods to minimize the potential for establishment or spread of invasive plant species.</td>
</tr>
<tr>
<td>Cultural Resources</td>
<td>ANC will follow the process required under Section 106 of the National Historic Preservation Act of 1966 for each identified undertaking, including implementation of any required mitigation for unavoidable impacts. Surveys, protection, recovery, analysis, publication, and curation of archaeological sites and materials will be conducted as required under federal law. The threshold of significance for cultural resources will be exceeded if an adverse effect to a resource on or eligible for listing on the NRHP cannot be resolved through the Section 106 consultation process.</td>
</tr>
<tr>
<td>Visual and Aesthetic Resources and Visitor Experience</td>
<td>Component projects would be subjected to additional, site-specific NEPA analysis to determine whether the design would conflict with the general setting of ANC or would substantially alter the cemetery’s visual and aesthetic character. As appropriate, component projects would be modified to eliminate setting conflicts or to conform to the cemetery’s visual and aesthetic character. If the Pedestrian Screening facility would be a three-story structure, it would consist of two aboveground levels and one below ground level. Specific component projects would be evaluated as they are designed to determine whether contractors would be required to develop and implement traffic management plans to minimize internal conflicts with visitors or to reduce effects to visitor traffic into and out of ANC.</td>
</tr>
<tr>
<td>Socioeconomics</td>
<td>Construction areas would be secured to prevent unauthorized access.</td>
</tr>
<tr>
<td>Traffic and Transportation</td>
<td>Specific component projects would be evaluated as they are designed to determine whether contractors would be required to develop and implement traffic management plans to reduce effects to traffic into and out of ANC.</td>
</tr>
<tr>
<td>Utilities</td>
<td>Component projects that would have potential to affect utilities would be evaluated individually and cumulatively under separate NEPA analysis. Proposed upgrades to utility systems that would result in new utility infrastructure would receive additional environmental analysis to ensure the</td>
</tr>
</tbody>
</table>
### Table 3-2. Environmental Commitments
**Arlington National Cemetery Real Property Master Plan Update**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Environmental Commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solid Waste</strong></td>
<td>Component projects will be evaluated to determine whether they are consistent with ANC solid waste reuse/recycle goals.</td>
</tr>
<tr>
<td></td>
<td>Storage, use, and disposal of hazardous materials and wastes would comply with applicable local, state, and federal regulations.</td>
</tr>
<tr>
<td></td>
<td>The existing ANC programs for asbestos-containing materials, lead-based paint, and radon would be continued under the No Action Alternative.</td>
</tr>
<tr>
<td></td>
<td>Buildings slated for demolition or rehabilitation would be assessed for presence of asbestos and lead-based paint prior to work. If either is identified, the ANC program for the identified material will be implemented, as appropriate.</td>
</tr>
<tr>
<td></td>
<td>Should previously unknown potential contamination be encountered, work in the area would cease until the potential contamination could be verified and addressed. Appropriate federal and state regulators would be contacted regarding the potential contamination and, if warranted, a plan developed to appropriately remove or contain the contamination would be developed and implemented.</td>
</tr>
<tr>
<td><strong>Hazardous Materials and Waste</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 4: List of Persons and Agencies Consulted

<table>
<thead>
<tr>
<th>Date</th>
<th>Individuals Interviewed</th>
<th>Focus of Conversation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/16/2017</td>
<td>Chief Howard Gump</td>
<td>FUS details and site visits to Safety Complex facilities</td>
</tr>
<tr>
<td>10/17/2017</td>
<td>Franklin Barrett, Wilson Frantz</td>
<td>Security preliminary questions and extensive tour of ANC Perimeter</td>
</tr>
<tr>
<td>10/23/2017</td>
<td>Joe Mercer, Brion Moore, Bob Quackenbush</td>
<td>Interviews on Mission and Vision w/ Deputy Superintendents of Cemetery Operations &amp; Support (DSCS, DSCO), and a rep from Cemetery Administration (Joe Mercer)</td>
</tr>
<tr>
<td>10/24/2017</td>
<td>Kevin Melson</td>
<td>Initial inquiry on GIS Shapefiles/Data</td>
</tr>
<tr>
<td>10/25/2017</td>
<td>Michelle Fulton</td>
<td>Inquiry on access to RPLANS</td>
</tr>
<tr>
<td>11/5/2017</td>
<td>Linda Tuttle</td>
<td>Inquiry on access to TAB and facility criteria</td>
</tr>
<tr>
<td>11/13/2017</td>
<td>Kevin Melson</td>
<td>Delivery of primary GIS shapefiles through AMRDEC</td>
</tr>
<tr>
<td>11/22/2017</td>
<td>Kevin Melson</td>
<td>Delivery of additional GIS shapefiles through AMRDEC</td>
</tr>
<tr>
<td>11/28/2017</td>
<td>Linda Tuttle</td>
<td>RPLANS and attributes files</td>
</tr>
<tr>
<td>12/7/2017</td>
<td>Stephen Van Hoven, Kelly Wilson, Gregory Huse, Aaron Pettit</td>
<td>Questions for Horticulture Team related to Cemetery Design Guide</td>
</tr>
<tr>
<td>12/7/2017</td>
<td>Tim Frank</td>
<td>Questions of Historian related to Cemetery Design Guide</td>
</tr>
<tr>
<td>12/7/2017</td>
<td>Rebecca Stevens</td>
<td>Confirmation of Project Team's Section 106 approach</td>
</tr>
<tr>
<td>12/7/2017</td>
<td>Rebecca Stevens</td>
<td>Questions of Cultural Resources related to Cemetery Design Guide</td>
</tr>
<tr>
<td>12/22/2017</td>
<td>Rebecca Stevens, Dave Fedroff</td>
<td>Finalizing the mapping of sections related to Cemetery Design Guide</td>
</tr>
<tr>
<td>12/29/2017</td>
<td>Renea Yates</td>
<td>Updating details on Burial Phasing Plan, mapping the grounds according to districts, other individuals to interview regarding occupancy rates</td>
</tr>
<tr>
<td>1/4/2018</td>
<td>MAJ Shannon Way, Joe Alberti</td>
<td>Burial Phasing Considerations: strategy and tactics (ops)</td>
</tr>
<tr>
<td>1/16/2018</td>
<td>Stacey Rosenquist</td>
<td>Questions of Environment related to Cemetery Design Guide, also NEPA &amp; VA fundamentals</td>
</tr>
<tr>
<td>1/17/2018</td>
<td>LTC Karl Sonderrmann</td>
<td>Questions related to Cemetery Design Guide and Burial Phasing Plan</td>
</tr>
<tr>
<td>1/30/2018</td>
<td>LTC Brent Kauffman</td>
<td>Questions related to Vision and Goals, Mission statements, Objectives</td>
</tr>
<tr>
<td>3/7/2018</td>
<td>MAJ Michael Erlandson, MAJ Maxwell Pappas</td>
<td>Tomb Guard functionality and physical constraints, prospect of new facility and best practices for deconflicting spaces shared by Old Guard and guests</td>
</tr>
<tr>
<td>3/8/2018</td>
<td>CPT Kathryn Rivera</td>
<td>Placement of benches/fountains/trash cans and alignment with ADP 2 &amp; 4</td>
</tr>
<tr>
<td>3/28/2018</td>
<td>MAJ Way</td>
<td>Brief discussion on Vision Plan and functional overlap (pedestrian issues)</td>
</tr>
<tr>
<td>4/13/2018</td>
<td>Brion Moore, Mr. Alberti</td>
<td>Discussion of major Operations issues: burial phasing, Southern Expansion, permanent and short-term satellite locations for laydown/storage</td>
</tr>
<tr>
<td>5/24/2018</td>
<td>LTC Greg Coburn</td>
<td>Interview regarding primary IT/Comms issues and associated utility concerns</td>
</tr>
<tr>
<td>8/16/2018</td>
<td>Alicia Yanchisin</td>
<td>Discussion of primary safety considerations and alignment with Security</td>
</tr>
<tr>
<td>10/17/2019</td>
<td>Dr. Gerald Lowe, LTC Austin</td>
<td>Discussion of considerations that need updating at the end of the RPMP hold, in prep for the 95% deliverable</td>
</tr>
</tbody>
</table>
Chapter 5: References


ANC PEA – CORRECTED FINAL


## Chapter 6: List of Preparers

Table 6-1 identifies the individuals assisting in the preparation and independent review of this PEA along with each preparer’s responsibilities.

<table>
<thead>
<tr>
<th>Name and Entity</th>
<th>Education and Experience</th>
<th>Primary Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erika McGinley, Jacobs</td>
<td>B.A., Architecture</td>
<td>Project Management and Master Planning</td>
</tr>
<tr>
<td>Rich Reaves, Jacobs</td>
<td>PhD, Wetland and Wildlife Ecology</td>
<td>Purpose and Need, Alternatives, Affected Environment, Environmental Consequences</td>
</tr>
<tr>
<td></td>
<td>B.S., Wildlife Ecology and Resource</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Laura Haught, Jacobs</td>
<td>B.S., Biology</td>
<td>Alternatives, Affected Environment, Environmental Consequences</td>
</tr>
<tr>
<td>Sara S. Orton, Jacobs</td>
<td>MPS, Master of Preservation Studies</td>
<td>Cultural Resources, Visual and Aesthetics, Cumulative</td>
</tr>
<tr>
<td></td>
<td>BS, Political Science</td>
<td></td>
</tr>
</tbody>
</table>
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PEA Appendix A
Programmatic Agreement Among
Arlington National Cemetery, the
Virginia State Historic Preservation
Officer, and the Advisory Council On
Historic Preservation for the
Operation, Maintenance, and Repair
Activities at Arlington National
Cemetery, Arlington County, Virginia
WHEREAS, the organization known as Arlington National Cemetery maintains and operates Arlington National Cemetery (hereinafter ANC) in Arlington County, Virginia, proposes to continue to coordinate and administer ongoing programs of operations, maintenance, and repair, including grounds work and associated landscaping (Projects), as part of its mission 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 those hallowed grounds befitting the sacrifice of all those who rest there in quiet repose; and

WHEREAS, ANC, a federally owned and operated facility, plans to carry out these Projects which are undertakings subject to review under Section 106 of the National Historic Preservation Act (hereinafter NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 C.F.R. Part 800; and

WHEREAS, ANC defined the area of potential effects (hereinafter APE) as within the parcel in Arlington County, Virginia, known as the ANC Historic District and associated viewsheds as defined in Attachment C; and

WHEREAS, ANC determined that these undertakings may affect the ANC Historic District (DHR# 000-0042) and the Memorial Amphitheater (DHR# 000-0042-0006) which are listed in the National Register of Historic Places (hereinafter NRHP) (both under NRHP Reference # 14000146), as well as Arlington Memorial Bridge (DHR# 000-0014) and Arlington House (DHR# 000-0001) which are listed in the NRHP, and has consulted with the Virginia State Historic Preservation Office (hereinafter SHPO) pursuant to 36 C.F.R. Part 800; and

WHEREAS, ANC, in accordance with 36 C.F.R. §§ 800.2(c)(2) and 800.6(c)(3), invited the following federally recognized Indian tribes, for which land ANC occupies may have religious and cultural significance, to be consulting parties to this Programmatic Agreement (hereinafter Agreement): the Absentee-Shawnee Tribe of Indians of Oklahoma, Cayuga Nation, Delaware Tribe of Indians, Eastern Shawnee Tribe of Oklahoma, Oneida Indian Nation, Oneida Tribe of Indians of Wisconsin, Onondaga Indian Nation, Saint Regis Mohawk Tribe, Seneca-Cayuga Tribe of Oklahoma, Seneca Nation of New York, Shawnee Tribe, Tonawanda Band of Seneca Indians of New York, Tuscarora Nation, Cherokee Nation, Eastern Band of Cherokee Indians, United Keetoowah Band of Cherokee Indians, and the Catawba Indian Tribe; and

WHEREAS, ANC did not receive a request from a federally recognized Indian tribe for participation on the development of this Agreement; and
WHEREAS, ANC, in accordance with 36 C.F.R. §§ 800.2(c)(3), 800.2(c)(5), and 800.6(c)(3), identified and invited the following organizations to participate as consulting or potential concurring parties to this Agreement: the National Park Service – George Washington Memorial Parkway (hereinafter NPS-GWMP) the U.S. Commission of Fine Arts (hereinafter CFA), the National Capitol Planning Commission (hereinafter NCPC), Washington Headquarters Service (hereinafter WHS), Joint Base Myer-Henderson Hall (hereinafter JBM-HH), the National Trust for Historic Preservation (hereinafter NTHP), Preservation Virginia (formerly the Association for the Preservation of Virginia Antiquities), the Virginia Council on Indians (disbanded in July 2012), the Arlington Historical Society, Inc., the Historical Society of Washington DC, and Arlington County; and

WHEREAS, the CFA, the NCPC, WHS, JBM-HH, the Virginia Council on Indians, the NTHP, Preservation Virginia, the Arlington Historical Society, Inc., and the Historical Society of Washington DC declined or did not respond to the invitation to participate in the development of this Agreement; and

WHEREAS, ANC received requests from Arlington County and NPS-GWMP, for participation on the development of this Agreement, and they are Concurring Parties to this Agreement; and

WHEREAS, ANC, pursuant to 36 C.F.R. § 800.14(b)(2)(ii), provided the public an opportunity to review and comment on this Agreement by posting it on the official ANC web site (http://www.arlingtoncemetery.mil); and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), ANC notified the Advisory Council on Historic Preservation (hereinafter ACHP) of its assessment of effects providing the specified documentation, and the ACHP chose to participate in the consultation in accordance with 36 C.F.R. § 800.6(a)(1)(iii) and

WHEREAS, ANC, SHPO, and the ACHP are participating in this agreement and are therefore Signatories (hereinafter Signatories); and

WHEREAS, a survey and evaluation, entitled “Historic Resources Inventory for Arlington National Cemetery, Arlington, Virginia” (May 2012) (Attachment C), was undertaken to identify resources contributing to a NRHP eligible historic district at ANC under Criteria A and C with an ongoing period of significance starting in 1864, in accordance with 36 C.F.R. § 60.9(a), and identified the Memorial Amphitheater as individually eligible to the NRHP under Criteria A and C with an ongoing period of significance starting in 1920, and the SHPO has concurred with this survey and evaluation; and

WHEREAS, no historic properties of an archaeological nature eligible for listing in the NRHP have been identified on ANC property, however, ANC recognizes the potential for undiscovered archaeological sites in specific areas within the APE varies in probability, discussed and mapped in Attachment D; and
WHEREAS, ANC has developed an Integrated Cultural Resources Management Plan (ICRMP) for ANC which provides direction for the management and treatment for historic properties at ANC, and which was approved 06 March 2013 by the ANC Chief of Staff; and

WHEREAS, ANC has been provided with a *Sourcebook for Historic Preservation* (hereinafter *Sourcebook*) compiled by US Army Corps of Engineers, Norfolk District from National Park Service publications, which includes preservation and maintenance guidelines and procedures for conducting work on historic buildings, landscapes, monuments, and memorials, the contents of which is listed in Attachment B, to guide operation, repair and maintenance activities within ANC; and

WHEREAS, undertakings at ANC for which effects have been taken into account through the ACHP *Program Comment for DoD Rehabilitation Treatment Measures* (removal of mortar joints and repointing, preparation of lime and cement-amended mortars, preparation of lime- or Portland based stucco, repair of historic stucco, and identifying masonry types and failures) are not subject to review under this Agreement; and

WHEREAS, ANC is consulting with the SHPO and other identified consulting parties separately regarding the planned expansions of ANC in the Millennium Area and Navy Annex Area, and therefore, these large-scale construction projects are not subject to review under this Agreement;

NOW, THEREFORE, ANC, the SHPO, and the ACHP agree that this Agreement shall be implemented in accordance with the following stipulations to take into account the effect of the undertakings on historic properties at ANC.

**STIPULATIONS**

ANC shall ensure that the following measures are carried out:

I. **Roles and Responsibilities**

   A. **Agency Official**

      1. Executive Director, as defined by Department of the Army Directive 2010-04, is designated the Agency Official for Section 106 in accordance with 36 C.F.R. § 800.2(a) and has delegated the Chief Engineer of ANC responsible for carrying out Section 106 under authority of 10 U.S.C. § 4721 and 4724.

      2. The Chief Engineer shall ensure that:
a) A staff person designated as the Cultural Resources Manager (hereinafter CRM) who meets the Secretary of the Interior's Professional Qualification Standards (Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines [As Amended and Annotated], 48 Fed. Reg. 44716, Sept. 1983 [hereinafter SOI Professional Qualifications]) shall be assigned responsibility for administering the process outlined in this Agreement.

b) all prudent and feasible efforts to conduct undertakings are in accordance with the preservation and maintenance guidelines for historic buildings, landscapes, monuments and memorials in the Sourcebook and be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (36 C.F.R. Part 68; hereinafter Standards).

c) the Standards are referenced in all scopes of work for undertakings so that contractors seeking to undertake work on historic architectural properties at ANC shall show past performance in the successful application of the Standards for the treatments required in statements of qualifications for bids and proposals and be pre-qualified based on demonstrated experience in the successful application of the Standards.

d) The provisions of Stipulation VII are included in all ANC operations and contracts involving ground disturbance.

B. Cultural Resources Manager

1. For the purposes of this Agreement, the CRM's responsibilities shall include, but are not limited to:

a) Serving as the point of contact with the SHPO, the ACHP, other consulting parties, and the public as appropriate for questions and concerns about historic properties and preservation at ANC.

b) Analyzing existing and future ANC documents, to identify specific undertakings that may be subject to review under the terms of this Agreement, including, but are not limited to:

(1) the SHPO Data Sharing System (DSS) records or its successor database technology;

(2) cultural resource reports;
(3) National Environmental Policy Act (hereinafter NEPA) compliance documents;

(4) the ANC Master Plan;

(5) the ANC ICRMP; and

(6) construction and operations plans.

c) Establishing treatment plans, schedules, and priorities within the planning cycle for historic properties that might be affected by undertakings.

d) Ensuring that information is available to ANC senior management and involved offices on review requirements and ANC’s responsibilities under this Agreement, so that adverse effects may be identified and avoided early in the planning process.

e) Overseeing the Streamline Review Process in accordance with Stipulation II.

f) The CRM shall ensure that all identification and evaluation survey documentation and all resource treatment documentation carried out pursuant to the terms of this Agreement shall be completed by or under the direct supervision of an individual or individuals who meet SOI Professional Qualifications in the appropriate discipline.

g) The CRM shall post an electronic copy of this Agreement and of the Sourcebook to the ANC internal website within twenty-one (21) calendar days of execution of this Agreement and notify via email all appropriate ANC and U.S. Army Corps of Engineers personnel involved with carrying out actions under this Agreement within thirty (30) calendar days of execution of this Agreement.

h) The CRM shall notify via email new personnel of this Agreement and the Sourcebook within fourteen (14) calendar days of that personnel coming into relevant positions. New notifications via email shall be made within fourteen (14) calendar days of amendments or updates to the Agreement or Sourcebook.
i) The CRM shall conduct a training opportunity, including scheduling workshops in the application of the *Standards* and other appropriate historic preservation topics, for personnel undertaking repair and maintenance work involving historic buildings. The training shall occur annually, within one (1) year of execution of this Agreement, and repeated within one (1) year of that date annually. Training opportunities may include, but are not limited to, internally lead or courses in association with outside interests.

C. Horticultural Division

The preservation of the historic character of ANC shall be preserved by the ANC Horticultural Division staff by directing replacement of trees and shrubs with the same species and in the same location, with exceptions given in Attachment A.

II. Streamlined Review Process for Undertakings

A. Determine the Undertaking

1. The CRM shall determine if the proposed project is an undertaking as defined in 36 C.F.R. § 800.16(y).

2. If the CRM determines the proposed project is an undertaking that has no potential to cause effects on historic properties as defined in 36 C.F.R. § 800.16(i), the CRM shall document this determination for inclusion in the Annual Report (Stipulation X), and ANC has no further obligations under this Agreement.

3. If the CRM determines the proposed project is an undertaking with the potential to cause effects on historic properties, the CRM shall continue on in the Streamlined Review Process.

4. If the CRM determines the undertaking is an activity that is listed in Attachment A, the CRM shall document this determination for inclusion in the Annual Report (Stipulation X), and ANC has no further obligations under this Agreement.

5. If the CRM determines the undertaking is not an activity that is listed in Attachment A, the CRM shall continue on in the Streamlined Review Process.

B. Define the Area of Potential Effects and Identify Historic Properties

1. The CRM shall determine and document the undertaking’s APE taking
into account direct, indirect, and cumulative effects.

2. The CRM shall identify historic properties within the APE using Attachments C, D, and E, or require additional surveys if warranted.

3. If the CRM determines that the APE contains only contributing resources not requiring further review as identified in Attachment E, and the proposed undertaking will not directly or indirectly affect historic properties identified in Attachment C, the CRM shall document this determination for inclusion in the Annual Report (Stipulation X), and ANC has no further obligations under this Agreement.

4. If the CRM identifies a historic property listed in Attachment C that may be directly, indirectly, or cumulatively affected within the APE, the CRM shall continue on in the Streamlined Review Process.

C. Evaluate Effects of the Undertaking

1. The CRM shall assess the effects of the proposed undertaking, to include direct, indirect, and cumulative effects, on historic properties using the criteria of adverse effects (36 C.F.R. § 800.5[a][1]).

2. No Adverse Effects

a) If the CRM determines that the undertaking will not have adverse effects on identified historic properties, the CRM shall notify the SHPO using the following process:

(1) The CRM shall prepare a notification package for the SHPO that includes a description of the undertaking, an illustration of the APE, a list of identified historic properties within the APE, and the justification for the finding of no adverse effects.

(2) The CRM shall send the notification package to the SHPO via its ePix project notification system, or its successor technology. Upon receipt of the notification package, the SHPO has thirty (30) calendar days to provide a written response to the CRM.
(3) The CRM shall post the notification package on the official ANC website (http://www.arlingtoncemetery.mil) for a minimum of thirty (30) days for public review and comment. The information posted may be redacted, as appropriate for publication, in accordance with 36 C.F.R. § 800.11(c).

(4) The CRM shall send the notification package electronically via AMRDEC S.A.F.E. to Consulting Parties identified by the CRM pursuant to 36 C.F.R. §§ 800.2(c)(5). Consulting Parties shall have thirty (30) days to review and comment on the proposed undertaking.

(5) The CRM shall inform the SHPO of any comments about the undertaking received from the public or Consulting Parties during the thirty (30)-day review period.

b) If the SHPO concurs with the no adverse effects finding, the CRM shall document this concurrence for inclusion in the Annual Report (Stipulation X), and ANC has no further obligations under this Agreement.

c) If the SHPO does not concur with the finding of no adverse effects, the CRM shall consult with the SHPO to attempt to resolve concerns as identified by the SHPO.

(1) If after further consultation the SHPO concurs with the finding of no adverse effects, the CRM shall document this concurrence for inclusion in the Annual Report (Stipulation X), and ANC has no further obligations under this Agreement.

(2) If after further consultation the SHPO does not concur with the finding of no adverse effects, the CRM may accept the SHPO’s comments and continue on in the Streamlined Review Process in order to address the adverse effects pursuant to Stipulation II(D), below; or request the involvement of the ACHP pursuant to 36 C.F.R. § 800.5(c)(2).

3. Adverse Effects

a) If the CRM determines that the undertaking will have adverse effects on identified historic properties, the CRM shall notify the SHPO using the following process:
(1) The CRM shall prepare a notification package for the SHPO that includes a description of the undertaking, an illustration of the APE, a list of identified historic properties within the APE, the explanation for the finding of adverse effects, and steps taken or considered to avoid or minimize the adverse effects.

(2) The CRM shall send the notification package to the SHPO via its ePix project notification system, or its successor technology. Upon receipt of the notification package, the SHPO has thirty (30) calendar days to provide a written response to the CRM.

(3) The CRM will post the notification package on the ANC website (http://www.arlingtoncemeterymil) for a minimum of thirty (30) days for public review and comment. The information posted may be redacted, as appropriate for publication, in accordance with 36 C.F.R. § 800.11(c).

(4) The CRM shall send the notification package electronically via AMRDEC S.A.F.E. to Consulting Parties identified by the CRM pursuant to 36 C.F.R. §§ 800.2(c)(5). Consulting Parties shall have thirty (30) days to review and comment on the proposed undertaking.

(5) The CRM shall inform the SHPO of any comments about the undertaking received from the public or Consulting Parties received during the thirty (30)-day review period.

b) If the SHPO does not concur with the finding of adverse effects, the CRM shall consult with the SHPO to attempt to resolve concerns as identified by the CRM.

(1) If after further consultation with the SHPO the CRM changes the finding to no adverse effects, the CRM shall document this concurrence for inclusion in the Annual Report (Stipulation X), and ANC has no further obligations under this Agreement.

(2) If after further consultation with the SHPO the CRM maintains the finding of adverse effects, the CRM shall continue pursuant to 36 C.F.R. §§ 800.6(b)(v).
c) If the SHPO concurs with the finding of adverse effects, the CRM shall proceed to the "Resolution of Adverse Effects" pursuant to Stipulation II(D). below.

D. Resolution of Adverse Effects

1. The CRM shall notify Consulting Parties and the public within ten (10) calendar days of receiving the SHPO’s concurrence of an adverse effect finding for an undertaking using the following process:
   a) The CRM shall prepare a notification package for the Consulting Parties including the explanation for the finding of adverse effects, steps taken or considered by ANC to avoid or minimize the adverse effects, any SHPO comments received by ANC regarding the undertaking, an invitation to participate in a consultation to resolve adverse effects, and the proposed date for a Consulting Parties meeting.
   b) The CRM shall send the notification package electronically via AMRDEC S.A.F.E. to the Consulting Parties.
   c) The CRM shall post a notice of the adverse effects finding on the official ANC website to include an explanation for the finding of adverse effects, steps taken or considered by ANC to avoid or minimize the adverse effects, any SHPO comments received by ANC regarding the undertaking, and an invitation for the public to review the adverse effect finding and to provide written comment within thirty (30) calendar days of posting to the CRM.
   d) Upon receipt of the notification package, Consulting Parties have thirty (30) calendar days to provide a written response to the CRM accepting the invitation to participate in the consultation. No response within thirty (30) calendar days shall be understood to mean that the Concurring Parties are not interested and they will not receive any additional information concerning the undertaking or consultation.

2. The CRM shall organize a Consulting Parties meeting, to include the SHPO, forty-five (45) calendar days after notifying Concurring Parties to discuss alternatives to avoid, minimize, or mitigate the adverse effects. Additional meetings shall be scheduled as needed.

3. If through consultation with the SHPO and Consulting Parties the undertaking avoids or minimizes the adverse effects, the CRM shall document the alternatives utilized in an attempt to reduce the effects of the undertaking to a no adverse effects finding and include them in the Annual Report (Stipulation X),
and ANC has no further obligations under this Agreement.

4. If through consultation with the SHPO and Consulting Parties the adverse effects are mitigated, the measures agreed to by ANC, the SHPO, and any other party that may have a responsibility outlined in the letter agreement can be specified in a minimization and/or mitigation modification form as found in Attachment F and signed by ANC, the SHPO, and any other party that may have a responsibility outlined in the letter agreement. If such a minimization and/or modification form is completed and signed by ANC, the SHPO, and any other party that may have a responsibility outlined in the letter agreement, ANC will include it in the annual report in accordance with Stipulation X. Other Consulting Parties may be asked to sign the letter agreement as Concurring Parties; however, their signature is not required for the letter agreement to be considered executed.

5. If through consultation with the SHPO and Consulting Parties the adverse effects are mitigated, but ANC or the SHPO requires more thorough documentation than a minimization and/or mitigation form, then the measures agreed to by ANC, the SHPO, and any other party that may have a responsibility shall be specified in a Memorandum of Agreement in accordance with 36 C.F.R. § 800.6(c) and filed with the ACHP upon execution.

6. The ACHP will only participate in the resolution of adverse effects for individual undertakings if a written request is received from ANC or the SHPO.

III. Addition of Signatories and Concurring Parties

A. In the event that there is additional federal involvement in a proposed undertaking, that federal agency will have the option to accept the terms of this Agreement, which will not require an amendment. If the federal agency signs as an invited signatory, ANC must notify the Signatories in advance of the federal agency committing to the terms of this Agreement.

B. Organizations desiring participation in this Agreement after its execution may submit a written request to the Chief Engineer to sign as a Concurring Party. Such a request will not require an amendment to the Agreement, ANC will provide the organization with a Concurring Party signatory page, and ANC will inform the Signatories within thirty (30) calendar days of receiving that organization’s newly executed Concurring Party signatory page.
IV. Annual Inspection

Within one hundred-eighty (180) calendar days of the execution of this Agreement, ANC shall distribute to the SHPO and Concurring Parties a plan outlining an annual inspection of all historic properties (to include contributing resources) within ANC. The plan will include, but need not be limited to, a list of historic properties (including contributing resources) at ANC, the method of the annual inspection, and the baseline information for each historic property (including contributing resources) that will be used for the annual inspection to gauge changes. The results of the annual inspection will be documented for inclusion in the Annual Report (Stipulation X).

V. Confidentiality

In accordance with 36 C.F.R. § 800.11(c) ANC agrees to protect all sensitive, confidential, or proprietary information concerning Native American historic, cultural, or archaeological site locations. Property specific information will not appear in public documents or be made available to the public. Property-specific information will, however, be provided to the SHPO for inclusion in the state inventory files, as well as to appropriate ANC management staff, and to legitimate scholars carrying out related research. Such information may also be included in scholarly reports as appropriate and necessary. Every effort shall be made to present archaeological site locations at a scale which will not allow precise site location in inappropriate contexts.

VI. Curation

ANC shall deposit all archaeological materials and appropriate field and research notes, maps, drawing and photographic records collected as part of projects carried out under this Agreement (with the exception of human skeletal remains and associated funerary objects which shall be treated in accordance with Stipulation VII[B]) with a repository which meets the requirements in 36 C.F.R. Part 79, Curation of Federally Owned and Administered Archeological Collections. All such items shall be made available to educational institutions and individual scholars for appropriate exhibit and/or research under the operating policies of the selected repository which shall be specified in a Memorandum of Understanding between ANC and therpository per the example at 36 C.F.R. Part 79 Appendix B within thirty-six (36) months of the conclusion of this Agreement.

VII. Post Review Discovery

A. Cultural Resources or Unanticipated Effects

1. If previously unidentified cultural resources or unanticipated effects are discovered during the implementation of an undertaking, reviewed in accordance with the Streamline Review Process or standard Section 106 review, the ANC personnel or contractor shall immediately halt the undertaking in the immediate area of the finding and notify the Chief Engineer and CRM of the discovery and
implement interim measures to protect the discovery.

2. Immediately upon receipt of the notification from the ANC personnel or contractor, the CRM shall:
   a) inspect the work site to determine the extent of the discovery and ensure that the project manager and contractor supervisors know that construction activities with the potential to affect the historic property in question must be halted as a legal and contractual requirement;
   b) clearly mark the area of discovery and establish an appropriate buffer between the discovery and ground disturbing activities or other potential effects, as appropriate;
   c) implement additional measures, e.g., surveillance or concealment as appropriate, to protect the discovery from looting and vandalism, as appropriate;
   d) have an individual meeting the SOI Professional Standards for the appropriate discipline inspect the work site to determine the extent of the discovery and provide recommendations regarding NRHP eligibility and treatment; and

3. Within two (2) business days of the discovery, the CRM shall notify the SHPO and Concurring Parties via electronic mail.

4. Within seven (7) business days of the discovery, the CRM shall develop a notification package for the SHPO and Concurring Parties that includes a description of the undertaking and how it was reviewed in accordance with the Streamline Review Process, photographs of the discovery, the recommendation of NRHP eligibility, and a treatment plan.
   a) The CRM shall send the notification package via electronic mail to the SHPO and Concurring Parties.
   b) Upon receipt of the notification package, the SHPO and Concurring Parties have two (2) business days to provide a response to the CRM on the NRHP eligibility and treatment plan. No response within two (2) business days shall be understood to mean that the non-responding party has no comment.

5. ANC shall take into account the recommendations received on eligibility and treatment of the discovery and carry out any appropriate required actions
within five (5) working days of receipt.

6. The CRM shall provide the SHPO and Concurring Parties with a report on the actions taken within fourteen (14) calendar days of implementation.

7. Interment activities may proceed in the area of the discovery once the Chief Engineer has determined that the treatment plan is complete.

B. Unidentified Human Remains Dating Prior to the Establishment of Arlington National Cemetery

1. ANC shall make all reasonable efforts to avoid disturbing non-ANC gravesites. ANC shall treat those in a manner consistent with the ACHP “Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects” (23 February 2007; http://www.achp.gov/docs/hrpolicy0207.pdf) or ACHP policy in effect at the time remains and funerary artifacts are handled.

2. If the unidentified non-ANC remains are determined to be of Native American origin, ANC shall comply with the provisions of the Native American Graves Protection and Repatriation Act (hereinafter NAGPRA [25 U.S.C. Sec 3001 et seq.]), and shall use reasonable efforts to ensure that the general public is excluded from viewing any Native American or other human remains or associated funerary artifacts.

3. If the unidentified non-ANC remains are determined not to be of Native American origin, ANC shall consult with the SHPO and consulting parties, except for the ACHP. Prior to the archaeological excavation of any remains, the following information shall be submitted to the SHPO and consulting parties for consultation:

   a) The name of the property or archaeological site, and the specific location therein, from which the recovery is proposed. If the recovery is from a known historic property, a state-issued site number must be included.
b) Indication of whether a waiver of public notice is requested and why. If a waiver is not requested, a copy of the public notice (to be published in a newspaper having general circulation in the area for a minimum of thirty (30) calendar days prior to recovery) must be submitted.

c) A copy of the curriculum vitae of the skeletal biologist who will perform the analysis of the remains.

d) A statement that the treatment of human skeletal remains and associated artifacts will be respectful.

e) An expected timetable for excavation, osteological analysis, preparation of final report, and final disposition of remains.

f) A statement of the goals and objectives of the removal (to include both excavation and osteological analysis).

g) If a disposition other than reburial is proposed, a statement of justification.

4. No photographs of any human remains or associated funerary artifacts shall be released to the press or general public subject to the requirements of the federal Freedom of Information Act, 16 U.S.C. 470w-3 of the NHPA, and other laws as applicable.

VIII. Dispute Resolution

A. Any party to this Agreement may raise objections to actions carried out or proposed by ANC with regard to the implementation of measures stipulated in this Agreement. ANC shall notify the other parties of any objections raised and shall consult with the objecting party to resolve the objection.

B. If the objection remains unresolved, ANC shall forward all documentation relevant to the objection to the ACHP, including the proposed response to the objection. The ACHP shall provide ANC with its advice on the resolution of the objection within thirty (30) calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, ANC shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. ANC will then proceed according to its final decision.

C. If the ACHP does not provide its advice regarding the dispute within the thirty (30) calendar day time period, ANC may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, ANC shall prepare a written
response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to this Agreement, and provide them and the ACHP with a copy of such written response.

D. ANC's responsibility to carry out all other actions subject to the terms of this Agreement, that are not the subject of the dispute, remain unchanged.

E. At any time during implementation of the measures stipulated in this Agreement, should a member of the public object to ANC regarding the manner in which the measures stipulated in this Agreement are being implemented, ANC shall notify the signatories to this Agreement and consult with the signatories to evaluate and address the objection.

IX. Efficient Communications

In accordance with Executive Order 13563 “Improving Regulation and Regulatory Review,” and Executive Order 13589 “Promoting Efficient Spending” communications between signatories of this Agreement and consulting parties discussed herein shall be in electronic form whenever practicable, permitted by law, and consistent with applicable records retention requirements. Unless specifically requested in another form (i.e., mail/hard copy) by the SHPO, Concurring Parties, or Consulting Parties in writing to ANC.

X. Annual Reporting and Monitoring

On the first day of July of each year this Agreement remains in force, ANC shall prepare and provide an annual report that reviews the implementation of the terms of this Agreement and to determine whether amendments are needed to consulting parties. The annual status report shall address the following topics:

1. Problems with implementation or issues encountered during the previous year.

2. Amendments or changes ANC believes should be made in implementation of this Agreement.

3. A list of projects/undertakings reviewed in accordance with the Streamlined Review Process.

4. A list of all ANC professional training opportunities relative to this Agreement provided during the reporting period and number of participants and organizations.

5. Management summaries of cultural resource reports completed during the previous year.
6. Copies of any minimization and/or mitigation measure modification agreement letters concluded during the previous 12 months.

B. ANC shall ensure that the public is made aware of the availability of the Annual Report on its website, and that interested members of the public are invited to provide comments to the ANC.

C. The SHPO and the ACHP may monitor and review the activities carried out pursuant to this Agreement. ANC shall cooperate with the SHPO and the ACHP in their monitoring and review responsibilities.

D. ANC shall hold an annual meeting with SHPO, ACHP, and the Concurring Parties to this Agreement to review the implementation of this Agreement and any amendments that may be proposed.

E. One year after the execution of this Agreement, in conjunction with the first Annual Report, ANC shall consult with SHPO and ACHP about revising the Streamlined Review Process, specifically not requiring ANC to notify the SHPO of a no adverse effects finding.

XI. Amendment

This Agreement may be amended when such an amendment is agreed to in writing by all Signatories. The amendment shall be effective on the date a copy signed by all of the Signatories is filed with the ACHP.

XII. Termination

A. If any Signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other Signatories to attempt to develop an amendment per Stipulation XI, above. If within thirty (30) calendar days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the Agreement upon written notification to the other signatories.

B. Once the Agreement is terminated, and prior to work continuing on undertakings, ANC must either (a) execute a Memorandum of Agreement pursuant to 36 C.F.R. § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. ANC shall notify the Signatories as to the course of action it will pursue.

C. Should the position of CRM be vacated, the Chief Engineer shall notify SHPO and the ACHP within five (5) calendar days of the position becoming vacant, and shall consult on each individual undertaking pursuant to 36 C.F.R. §§ 800.3 through 800.6 until the CRM position is appropriately filled.
XIII. Anti-Deficiency Act

ANC’s future efforts to execute requirements arising from the stipulations of this Agreement are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs ANC’s ability to implement the stipulations of this Agreement, ANC shall consult in accordance with the amendment and termination procedures found at Stipulation XI and XII of this Agreement. No provision of this Agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, Title 31 U.S.C. § 1341.

XIV. Duration of Agreement

This Agreement shall remain in full force and effect for ten (10) years after the date of the last signatory’s signature. This Agreement shall be reviewed periodically, not less than five (5) years from the execution of the Agreement. Sixty (60) calendar days prior to the date this Agreement would otherwise expire, ANC shall consult with the Signatories to determine whether the Agreement needs to be extended, amended, or terminated and take such actions as appropriate.

Execution of this Agreement by ANC, the SHPO, and the ACHP and implementation of its terms, evidence that ANC has taken into account the effects of the undertakings on historic properties and afforded the ACHP an opportunity to comment.
PROGRAMMATIC AGREEMENT AMONG ARLINGTON NATIONAL CEMETERY, THE VIRGINIA STATE HISTORIC PRESERVATION OFFICER, AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION FOR THE OPERATION, MAINTENANCE, AND REPAIR ACTIVITIES AT ARLINGTON NATIONAL CEMETERY, ARLINGTON COUNTY, VIRGINIA

SIGNATORIES:

ARLINGTON NATIONAL CEMETERY

By: Michelle J. Stewart Date: 22 May 14
Colonel Michelle J. Stewart, Chief Engineer, Arlington National Cemetery

VIRGINIA STATE HISTORIC PRESERVATION OFFICER

By: Julie V. Langan Date: 6/16/17
Ms. Julie V. Langan, Director, Department of Historic Resources

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: John M. Fowler Date: 7/18/14
Mr. John M. Fowler, Executive Director
CONCUR:

ARLINGTON COUNTY

By: ___________________________ Date: 8/7/14
Barbara Donnellan, County Manager

NATIONAL PARK SERVICE-GEORGE WASHINGTON MEMORIAL PARKWAY

By: ___________________________ Date: 9/25/14
Alexey Romero, Superintendent
PEA Appendix B
EPA EJScreen Tool Query Results
Approximate Population: 40,415

EJ SCREEN Report (Version 2018)

.5 mile Ring around the Area, VIRGINIA, EPA Region 3

Input Area (sq. miles): 4.35

Arlington National cemetery

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>State Percentile</th>
<th>EPA Region Percentile</th>
<th>USA Percentile</th>
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</thead>
<tbody>
<tr>
<td>EJ Index for PM2.5</td>
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<td>57</td>
<td>45</td>
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<tr>
<td>EJ Index for Ozone</td>
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<td>56</td>
<td>44</td>
</tr>
<tr>
<td>EJ Index for NATA(^*) Diesel PM</td>
<td>9</td>
<td>13</td>
<td>10</td>
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<tr>
<td>EJ Index for NATA(^*) Air Toxics Cancer Risk</td>
<td>39</td>
<td>42</td>
<td>32</td>
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<tr>
<td>EJ Index for NATA(^*) Respiratory Hazard Index</td>
<td>29</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>EJ Index for Traffic Proximity and Volume</td>
<td>4</td>
<td>3</td>
<td>3</td>
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<tr>
<td>EJ Index for Lead Paint Indicator</td>
<td>32</td>
<td>51</td>
<td>34</td>
</tr>
<tr>
<td>EJ Index for Superfund Proximity</td>
<td>32</td>
<td>38</td>
<td>27</td>
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<tr>
<td>EJ Index for RMP Proximity</td>
<td>49</td>
<td>55</td>
<td>46</td>
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<tr>
<td>EJ Index for Hazardous Waste Proximity</td>
<td>5</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>EJ Index for Wastewater Discharge Indicator</td>
<td>10</td>
<td>28</td>
<td>20</td>
</tr>
</tbody>
</table>

This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.
.5 mile Ring around the Area, VIRGINIA, EPA Region 3

Approximate Population: 40,415
Input Area (sq. miles): 4.35
Arlington National cemetery

September 13, 2018

Sites reporting to EPA

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Superfund NPL</td>
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<tr>
<td>Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)</td>
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</tr>
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</table>
### Environmental Indicators

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
<th>State Avg.</th>
<th>%ile in State</th>
<th>EPA Region Avg.</th>
<th>%ile in EPA Region</th>
<th>USA Avg.</th>
<th>%ile in USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter (PM 2.5 in µg/m³)</td>
<td>9.69</td>
<td>8.92</td>
<td>97</td>
<td>9.97</td>
<td>42</td>
<td>9.53</td>
<td>50</td>
</tr>
<tr>
<td>Ozone (ppb)</td>
<td>46.8</td>
<td>43.6</td>
<td>99</td>
<td>44.3</td>
<td>95</td>
<td>42.5</td>
<td>84</td>
</tr>
<tr>
<td>NATA Diesel PM (µg/m³)</td>
<td>3.1</td>
<td>0.77</td>
<td>99</td>
<td>0.921</td>
<td>95-100th</td>
<td>0.938</td>
<td>95-100th</td>
</tr>
<tr>
<td>NATA Cancer Risk (lifetime risk per million)</td>
<td>67</td>
<td>42</td>
<td>99</td>
<td>42</td>
<td>42</td>
<td>95-100th</td>
<td>40</td>
</tr>
<tr>
<td>NATA Respiratory Hazard Index</td>
<td>3.7</td>
<td>1.8</td>
<td>98</td>
<td>1.8</td>
<td>95-100th</td>
<td>1.8</td>
<td>95-100th</td>
</tr>
<tr>
<td>Traffic Proximity and Volume (daily traffic count/distance to road)</td>
<td>340</td>
<td>430</td>
<td>97</td>
<td>360</td>
<td>98</td>
<td>600</td>
<td>95</td>
</tr>
<tr>
<td>Lead Paint Indicator (% Pre-1960 Housing)</td>
<td>0.29</td>
<td>0.21</td>
<td>73</td>
<td>0.38</td>
<td>51</td>
<td>0.29</td>
<td>61</td>
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<tr>
<td>Superfund Proximity (site count/km distance)</td>
<td>0.42</td>
<td>0.4</td>
<td>79</td>
<td>0.44</td>
<td>70</td>
<td>0.42</td>
<td>75</td>
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<tr>
<td>RMP Proximity (facility count/km distance)</td>
<td>0.43</td>
<td>0.37</td>
<td>45</td>
<td>0.6</td>
<td>35</td>
<td>0.72</td>
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<tr>
<td>Hazardous Waste Proximity (facility count/km distance)</td>
<td>2.3</td>
<td>0.67</td>
<td>93</td>
<td>1.3</td>
<td>82</td>
<td>4.3</td>
<td>80</td>
</tr>
<tr>
<td>Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)</td>
<td>0.0008</td>
<td>2.7</td>
<td>84</td>
<td>100</td>
<td>61</td>
<td>30</td>
<td>66</td>
</tr>
</tbody>
</table>

### Demographic Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>State %</th>
<th>%ile in State</th>
<th>EPA Region %</th>
<th>%ile in EPA Region</th>
<th>USA %</th>
<th>%ile in USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Index</td>
<td>29%</td>
<td>32%</td>
<td>51</td>
<td>30%</td>
<td>59</td>
<td>36%</td>
<td>47</td>
</tr>
<tr>
<td>Minority Population</td>
<td>40%</td>
<td>37%</td>
<td>59</td>
<td>32%</td>
<td>68</td>
<td>38%</td>
<td>60</td>
</tr>
<tr>
<td>Low Income Population</td>
<td>17%</td>
<td>27%</td>
<td>38</td>
<td>28%</td>
<td>34</td>
<td>34%</td>
<td>26</td>
</tr>
<tr>
<td>Linguistically Isolated Population</td>
<td>4%</td>
<td>3%</td>
<td>77</td>
<td>2%</td>
<td>79</td>
<td>4%</td>
<td>67</td>
</tr>
<tr>
<td>Population With Less Than High School Education</td>
<td>5%</td>
<td>11%</td>
<td>29</td>
<td>11%</td>
<td>27</td>
<td>13%</td>
<td>25</td>
</tr>
<tr>
<td>Population Under 5 years of age</td>
<td>4%</td>
<td>6%</td>
<td>32</td>
<td>6%</td>
<td>35</td>
<td>6%</td>
<td>32</td>
</tr>
<tr>
<td>Population over 64 years of age</td>
<td>5%</td>
<td>14%</td>
<td>16</td>
<td>15%</td>
<td>10</td>
<td>14%</td>
<td>11</td>
</tr>
</tbody>
</table>

*The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: [https://www.epa.gov/national-air-toxics-assessment](https://www.epa.gov/national-air-toxics-assessment).*

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

September 13, 2018