

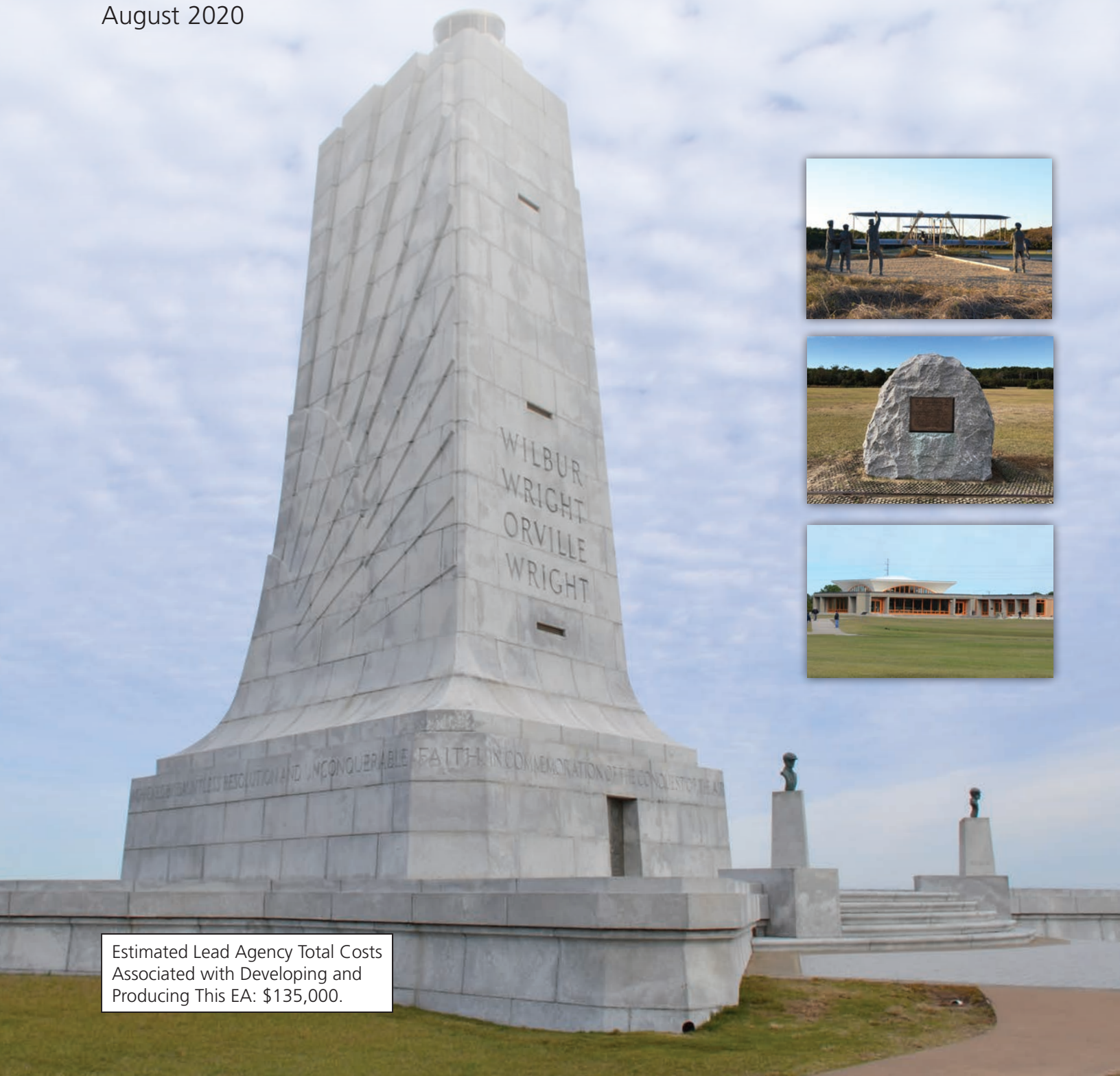


Wright Brothers National Memorial

General Management Plan Amendment

Environmental Assessment / Assessment of Effect

August 2020



Estimated Lead Agency Total Costs
Associated with Developing and
Producing This EA: \$135,000.

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**US Department of the Interior
National Park Service
Wright Brothers National Memorial**

**General Management Plan Amendment
Environmental Assessment / Assessment of Effect**

August 2020

Wright Brothers National Memorial (the park) comprises 428 acres in Kill Devil Hills, North Carolina, in the region of barrier islands known as the Outer Banks. The park is best known as the site of the first successful power-driven airplane flight made by Wilbur and Orville Wright in 1903. The park protects historic resources including the site where the Wright brothers conducted their experiments, the Wright Brothers Monument (the monument), and several commemorative markers. The park is heavily visited with between 350,000 and 500,000 visitors annually (NPS 2020a). Approximately 15-20 staff (including regular and seasonal staff) work at the park and conduct groundskeeping activities, interpretive programs, visitor center management, collection of entrance fees, and other visitor contact duties. Eastern National and Outer Banks Forever are active park partners that operate a bookstore and use administrative space for management of their operations at the park and adjacent parks including Cape Hatteras National Seashore and Fort Raleigh National Historic Site.

Management actions are guided by the park's 1997 General Management Plan (GMP). Many aspects of the GMP, largely developed in anticipation of the 2003 Centennial of Flight (the centennial), have been implemented. However, some management measures were not implemented, and a new set of issues and opportunities present themselves more than 20 years following the original development of the GMP. To address issues and provide for new opportunities, this environmental assessment (EA) was prepared.

Issues and opportunities include:

- | There are few areas suitable for education of and programming for large groups or for holding events, especially in the case of inclement weather.
- | The pavilion structures erected for the centennial were intended to be temporary, are located directly in the historic viewshed, and detract from the memorial landscape and setting.
- | Administrative office and storage space areas are limited.
- | A non-contiguous piece of land has not been developed or managed for any park or public use.
- | Viewsheds between the monument and First Flight Airstrip have been obscured by vegetation.
- | Parking capacity is limited, the drop-off/pick-up area gets congested, and circulation through the parking lot is unclear.
- | Opportunities exist for a more thorough visit through the memorial landscape with additional shade and rest areas available for visitors.
- | There is limited wayfinding and interpretive messaging throughout the memorial landscape.

This EA evaluates two alternatives that would amend the 1997 GMP and address the problems and opportunities described above: a no-action alternative and the proposed action. The no-action alternative would continue the current management of the project area. The proposed action would include constructing a new sheltered open-air interpretive/educational pavilion; removing the remaining Centennial Pavilion structures; repurposing the administrative building near the maintenance facilities to provide adequate administration space; installing recreational vehicle (RV) sites for park staff, volunteers,

or administrative use; evaluating the potential for developing half of a 15-acre parcel of park land across Highway 158; conducting vegetation thinning and screening to improve views throughout the park; redesigning the visitor center parking area; creating new trails and a multi-use path; and adding new benches, shade structures, and interpretive waysides throughout the park. Both alternatives have the potential to result in a combination of beneficial and adverse impacts on the impact topics of vegetation, the cultural landscape and historic resources, and visitor use and experience.

This document was also prepared to satisfy the requirements of Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (36 CFR Part 800) and includes an assessment of effect on historic properties.

Note to Reviewers and Respondents:

This EA will be on formal public and agency review for 30 days from the release date. If you wish to comment, please provide comments on the park's website at <http://parkplanning.nps.gov/wrbr> or by mailing to the name and address below. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

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CHAPTER 1: PURPOSE AND NEED

INTRODUCTION

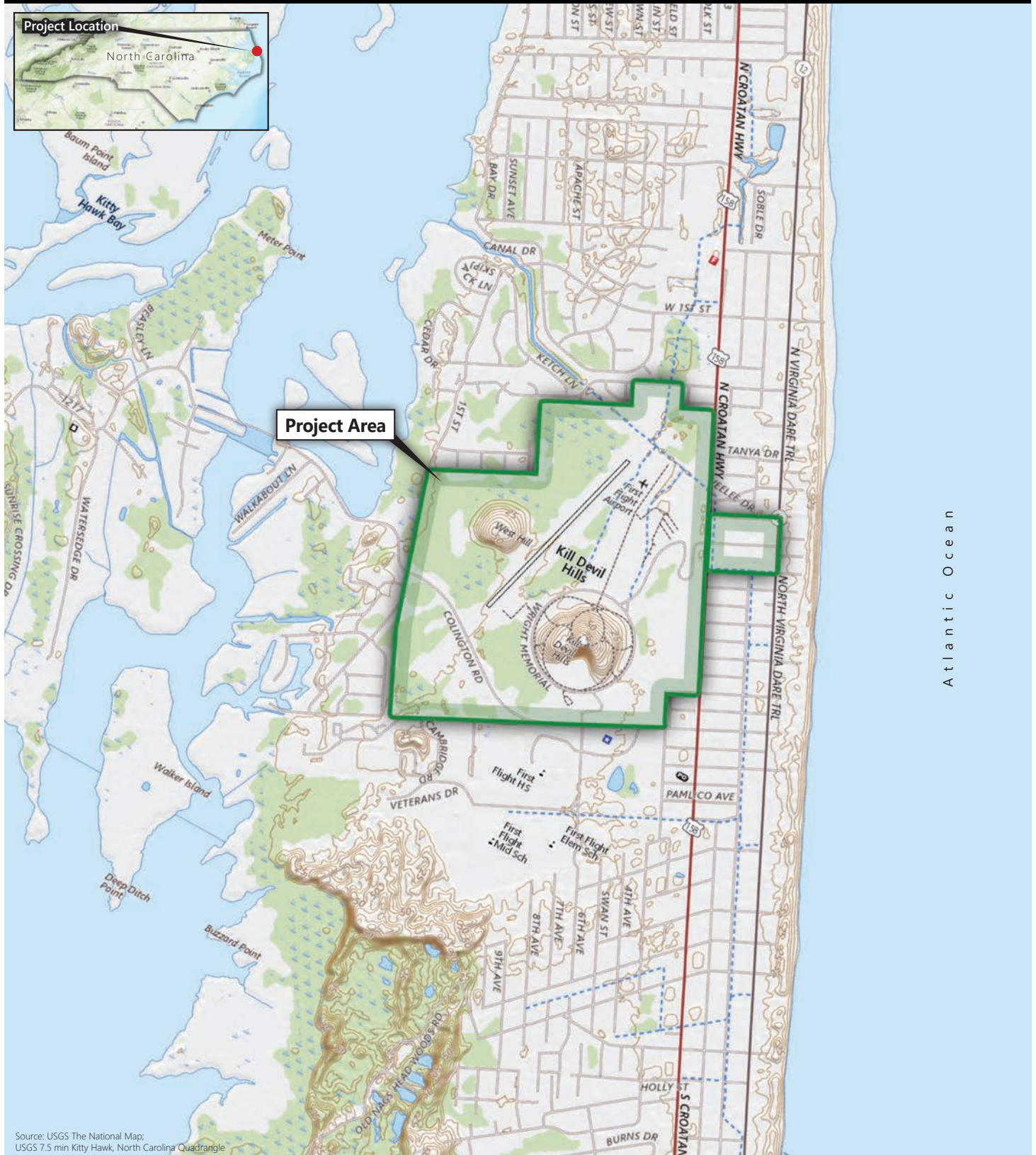
Wright Brothers National Memorial (the park) commemorates the first successful power-driven airplane flight, which was made by Wilbur and Orville Wright at Kitty Hawk, North Carolina, on December 17, 1903. The 428-acre park, listed on the National Register of Historic Places in 1966, protects historic resources including the site where the Wright brothers conducted their experiments, the Wright Brothers Monument (the monument), and several commemorative markers. See Figures 1–3 for the project location and map of the park.

Approximately 400,000 visitors come to the park each year (NPS 2020a). Visitors can engage with the park’s history and resources through interpretive programs and talks; visit the First Flight Boulder and Flight Line, the monument, and December 17, 1903 Sculpture; and experience the visitor center’s museum exhibits, bookstore, and First Flight Auditorium, which houses a reproduction of the Wright Flyer.

The National Park Service (NPS) is preparing a General Management Plan Amendment (GMPA) for the park that will review existing strategies in the park’s existing GMP (issued in 1997) and develop strategies for the next 10-20 years to provide new visitor and administrative facilities, improve the visitor experience, share the story of the Wright brothers, and maintain the important commemorative landscape.

This environmental assessment/assessment of effect (EA) evaluates two alternatives: the no-action alternative and the proposed action. The no-action alternative would continue the current management of the park. The proposed action would include improvements to the visitor experience throughout the park as well as improvements to park and partner administrative facilities. These alternatives are described in detail in “Chapter 2: Alternatives.”

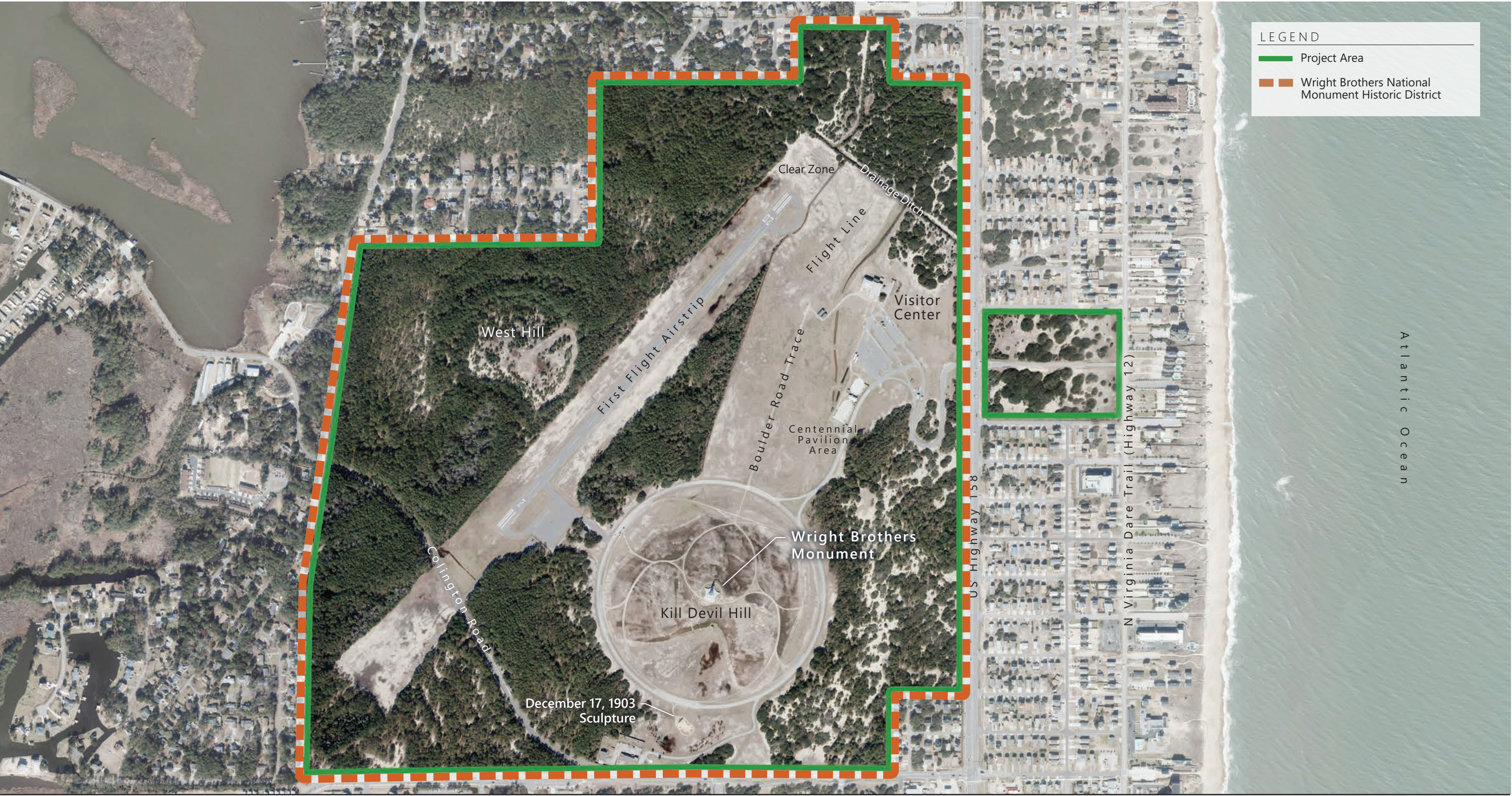
This EA analyzes the potential impacts these alternatives would have on the natural, historic, and human environment. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [USC] 4332[2] [C]); the implementing regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508.9); the Department of the Interior NEPA regulations (43 CFR Part 46); and NPS Director’s Order #12: *Conservation Planning, Environmental Impact Analysis and Decision-Making* (NPS 2011) and the accompanying NEPA Handbook (NPS 2015). This document was also prepared to satisfy the requirements of Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (36 CFR Part 800) and includes an assessment of effect on historic properties.



General Management Plan Amendment



FIGURE 1
Project Vicinity



General Management Plan Amendment

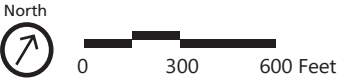


FIGURE 2
Project Area



LEGEND

- A** Visitor Center
- B** Visitor Center Parking Lot
- C** Overflow Parking Area
- D** Fee Booth and Entrance Road
- E** Centennial Pavilion Area
- F** Mall
- G** First Flight Marker
- H** Flight Line
- I** Wooded Areas
- J** Wright Brothers Monument
- K** Pilot's Facility
- L** Maintenance Complex
- M** Administrative Offices
- N** December 17, 1903 Sculpture
- O** Former Park Housing Area
- P** Undeveloped Parcel
- Project Boundary

General Management Plan Amendment

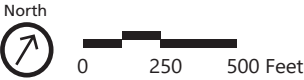


FIGURE 3
Existing Conditions

PROJECT AREA LOCATION AND DESCRIPTION

The park is located in Kill Devil Hills, North Carolina, in the region of barrier islands known today as the Outer Banks (Figure 1). The 428-acre park is located along a highly developed corridor of Highway 158, about 4 miles south of Kitty Hawk and about 2 miles north of Nags Head. The park is bounded by Highway 158 to the east (with the exception of a 15-acre parcel of undeveloped park land to the east), by Colington Road to the south (with the exception of a wooded parcel of land to the southwest of the road), and to the north and west by residential development (as shown on Figure 2).

The park memorializes the Wright brothers' achievements through several commemorative features (see Figure 3). The major features are Kill Devil Hill (the hill), which rises 90 feet above the surrounding landscape, and the open grassy mall running north of the hill. The mall is defined as the 2,852-foot-long by 750-foot-wide zone running north to south between the hill and the fourth landing site marker, bound on the east and west by drainage ditches. The takeoff point of the four powered flights made by the Wrights on December 17, 1903, is marked by a granite boulder (known as the First Flight Marker) that was dedicated in 1928; the landing sites are marked by four smaller granite markers installed in 1992. Collectively, these granite markers are known as the flight line. The Wright Brothers Monument, erected in 1931-1932 on Kill Devil Hill in the southern portion of the site, is a 60-foot, triangular-shaped pylon constructed of concrete and Mount Airy granite. The Wright Brothers National Memorial Visitor Center (the visitor center) was built in 1960 and serves as the center of visitor activities. Flat areas of pine forest are located to the east and west of Kill Devil Hill and the grassy mall. West of a strip of pine forest sits the First Flight Airstrip which is 50 feet wide and includes an asphalt-paved taxiway and turnaround.

PURPOSE OF AND NEED FOR ACTION

The park is currently managed under a GMP completed in 1997. However, not all actions proposed in the 1997 GMP have been implemented to date. This project provides an opportunity to consider how conditions at the park have changed since the previous GMP was written and how planning issues and objectives can be updated to address the current park needs. An amendment to a GMP is a plan for modifying actions approved in the park's existing GMP or adding new management actions to address new conditions or priorities that have changed since the GMP was approved. Based on those updated planning issues and objectives, the purpose of the project is to provide updated guidance for management of park facilities and operations to enhance the visitor experience and provide adequate administrative space for the park and partners. Specifically, the park seeks to address the following issues and opportunities, which are discussed in more detail in the sections below:

- | There are few areas suitable for education of and programming for large groups or for holding events, especially in the case of inclement weather.
- | The pavilion structures erected for the centennial were intended to be temporary, are located directly in the historic viewshed, and detract from the memorial landscape and setting.
- | Administrative office and storage space areas are limited.
- | A non-contiguous piece of land has not been developed or managed for any park or public use.
- | Viewsheds between the monument and First Flight Airstrip have been obscured by vegetation.
- | Parking capacity is limited, the drop-off/pick-up area gets congested, and circulation through the parking lot is unclear.

- | Opportunities exist for a more thorough visit through the memorial landscape with additional shade and rest areas available for visitors.
- | There is limited wayfinding and interpretive messaging throughout the memorial landscape.

PROPOSED ACTION

The park proposes to develop strategies to improve the overall visitor experience and administrative efficiency throughout the park. The proposed action includes improving existing facilities and constructing of new facilities to better serve the needs of visitors and staff. Specifically, the park proposes to construct a new sheltered interpretive/educational facility; to remove the remaining Centennial Pavilion structures; to expand NPS office and storage space in the existing administrative building near the maintenance facilities; to construct new RV sites for park staff, volunteers, or administrative use; and potentially to develop of the parcel of park land on the east side of Highway 158. The proposed action also includes thinning vegetation to improve views and adding vegetation screening to reduce visual intrusions on the landscape. Parking and vehicular circulation would be improved through reconfiguration of the visitor center parking lot and overflow parking area, as well as through the removal of fee booths and installation of automated fee kiosks. Pedestrian flow and accommodations would be improved through the addition of a new multiuse pathway, installation of shade structures and benches, and construction of viewing platforms and interpretive waysides throughout the park.

ISSUES AND OPPORTUNITIES

During the scoping process, specific issues and opportunities were identified as critical to this project area. Along with the purpose of and need for the proposed action, these issues and opportunities guided the development of alternatives and contributed to the selection of impact topics, as identified in the next section.

There are few areas suitable for education of and programming for large groups or for holding events, especially in the case of inclement weather. Large groups, particularly school groups, often visit the park. Educational programming and other events offered to these groups take place outside; there is no adequate space indoors or in a sheltered area for these events. As a result, these events are cancelled during inclement weather or when the heat index is too high.

The pavilion structures erected for the Centennial were intended to be temporary, are located directly in the historic viewshed, and detract from the memorial landscape and setting. At the pavilion area just south of the visitor center parking lot (identified as “E” on Figure 3), the concrete slabs and restrooms were installed to support visitor uses during the 2003 centennial celebration and the trailer and tent were installed during the 2016-2018 visitor center rehabilitation to support visitor and administrative activities. All of these structures were intended to be temporary and used during the respective events. They have remained in place and continue to be used by the park. However, these structures are located directly in the historic viewshed of the monument and mall and detract from the historic and commemorative character of the park.

Administrative office and storage space areas are limited. The visitor center does not currently provide any office space for the park and its partners. Office, staff, and storage spaces are dated, limited, and located in different areas of the park including in a trailer in the Centennial Pavilion area and in the administrative building near the maintenance facilities at the south end of the park (identified as “L” on Figure 3).

A non-contiguous piece of land has not been developed or managed for any park or public use. The undeveloped 15-acre parcel of park land across Highway 158 (identified as “P” on Figure 3) is currently unused for any park or public purpose. There is an opportunity for development of a portion of that parcel in collaboration with the Town of Kill Devil Hills.

Viewsheds between the monument and First Flight Airstrip have been obscured by vegetation. There is an opportunity to re-open the historic viewshed between the monument and the First Flight Airstrip, as well as views of the monument from outside the park along Highway 158 (identified as “I” on Figure 3), both of which have been obscured by vegetation growth.

Parking capacity is limited, the drop-off/pick-up area gets congested, and circulation through the parking lot is unclear. The main parking lot frequently fills to capacity during peak times, and a nearby grassy area is used for overflow parking. The drop-off area near the visitor center is within the drive aisle of the parking lot, which can result in congestion when buses or cars stand waiting to unload or load. There are several spaces for oversize vehicles (bus/RV) in the main parking lot, but they often fill up in the summer, sometimes with cars. As soon as a visitor enters the parking lot from the fee booth, they are faced with an unclear route. There is no defined entrance or exit to the parking lot, which creates visitor confusion.

Opportunities exist for a more thorough visit through the memorial landscape with additional shade and rest areas available for visitors. There is an opportunity to create a more thorough and immersive visit through the memorial landscape with improved wayfinding, additional interpretive waysides, and a possible tram route throughout the park. Additionally, there is an opportunity to add more shade and rest areas available for visitors. Much of the park is open to the elements with little shade. Visitors experiencing the park on foot have to walk across the open mall and to the top of the monument with little opportunity for shade or a bench to rest along the route. Existing benches and shaded areas are limited between the visitor center and the monument, which can be difficult for some visitors during the hot summers.

There is limited wayfinding and interpretive messaging throughout the memorial landscape. There is an opportunity to provide a more immersive park experience by offering new interpretive and educational information throughout the park to create new experiences, such as along the First Flight Airstrip and via a potential new tram route throughout the park.

IMPACT TOPICS

Impact Topics Analyzed in this Environmental Assessment

Impact topics are resources within the project area that could be affected, either beneficially or adversely, by the range of alternatives presented in this EA. Impact topics considered in this document were

identified based on the issues raised during scoping, site conditions, federal laws, regulations, Executive Orders, NPS *Management Policies 2006*, Director's Orders, and staff knowledge of the park's resources. During the scoping process, impact topics were either retained for further analysis in this EA or dismissed from further consideration. This section provides an overview of the impact topics that were retained for analysis in this EA.

Vegetation. Actions proposed in this EA include removal of vegetation for construction of new facilities and for general vegetation thinning. Although abundant vegetation is now present within the park, much of that vegetation was designed and planted, beginning in the 1920s to stabilize the naturally shifting sand dunes. Today, much of the wooded and scrub-shrub areas at the park make up a Significant Natural Heritage Area, which is a designation of the North Carolina Natural Heritage Program defining areas that possess exemplary natural communities characteristic of the ecosystems of North Carolina. Depending on the final location selected for proposed new facilities and tree thinning activities, native vegetation in this area could be affected. Therefore, the impact topic of vegetation was retained for further analysis.

Cultural Landscape and Historic Resources. NEPA, NHPA, the NPS Organic Act, NPS *Management Policies 2006*, Director's Order #12, and Director's Order #28: *Cultural Resource Management Guideline* require the consideration of impacts on any cultural resource that might be affected by a proposed federal action. Cultural resources within the project area include the Wright Brothers National Memorial Historic District, the Wright Brothers National Memorial Cultural Landscape, and the Wright Brothers National Memorial Visitor Center. The Wright Brothers National Memorial was administratively listed in the National Register as a historic district in 1966 with the passage of the NHPA. Contributing resources to the historic district include the Wright Brothers Monument, the First Flight Marker, Kill Devil Hill, the curvilinear trails leading up to the monument, and the spatial relationship between the monument and the First Flight Marker (NPS 1996). The major historic area of the park is considered a cultural landscape, which generally encompasses Kill Devil Hill, the commemorative mall, the air strip, and the visitor center. This cultural landscape is documented in the 2002 *Wright Brothers National Memorial Cultural Landscape Report* and is notable for its importance commemorating the site of the first-ever powered, controlled, heavier-than-air flights made on December 17, 1903 (NPS 2002). The landscape is commemorative in nature and character-defining features include the spatial organization of the monument and markers, circulation patterns for both vehicles and pedestrians, vegetation, views, structures, and small-scale features. Finally, the Wright Brothers National Memorial Visitor Center was designated as a National Historic Landmark in 2001 and is significant for its association with the Wright brothers as well as for serving as an excellent example of a Mission 66 visitor center (NPS 2001). The proposed action has the potential to result in changes to these resources, including the addition of new circulation patterns, structures, and small-scale features into the cultural landscape and historic setting. Therefore, the impact topic of the cultural landscape and historic resources was retained for detailed analysis.

Visitor Use and Experience. Recreation related to and enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks (NPS 2006). The park strives to provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the natural and cultural resources found in parks. Proposed improvements have the potential to enhance the way visitors experience the park, including improvements to comfort and safety in the form of benches and shade structures. Improvements proposed in this EA have the potential to provide new interpretive experiences for

visitors through new facilities and circulation patterns. Additionally, the alternatives have the potential to result in adverse impacts on the visitor experience during construction of the proposed improvements. Therefore, the impact topic of visitor use and experience was retained for detailed analysis.

Impact Topics Dismissed from Further Analysis

The following presents an overview of impact topics that were considered for full analysis but were ultimately dismissed from further analysis in this EA. An impact topic was initially considered for but dismissed from further analysis if it was determined that the resource is not present in the project area or because any potential impacts would be less than minor, typically temporary, and localized.

Floodplains. During the planning process, the impact topic of floodplains was considered for analysis in this EA. During development of this document, the Federal Emergency Management Agency (FEMA) flood maps were revised, and the entire park is now considered to be within an area of minimal flood hazard known as Zone X (FEMA flood maps 3720988400K and 3720988300K, effective date of June 19, 2020). Although the park is not currently within a regulatory floodplain, some areas of the park are still subject to flood risk. Flooding at the park is generally caused by rain events and when ditches are filled to capacity as large-scale storms such as tropical storms, hurricanes, and nor'easters cause water levels of Albemarle Sound to rise dramatically. The risk of flooding would likely increase for the foreseeable future due to relative sea level rise. Relative sea level rise rates locally are approximately 0.14 inches per year, as measured at the Oregon Inlet observation station (NOAA 2019). Factoring in sea level rise acceleration documented in coastal North Carolina, the park can expect 1.3 to 1 feet of rise above the 1992 mean sea level by 2050 (Boon et al. 2018). Elements of the proposed action have been sited and designed to consider this ongoing and anticipated flood risk in order to protect life and property in the case of a flood event. Facilities would be designed and sited to be flood resilient and to impede floodwaters as little as possible. Additionally, facilities and structures would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60). Because the park is not within a regulatory floodplain, and because design considerations have been implemented for project elements, there is little to no potential that the proposed action will adversely affect floodplains with respect to human health/life, capital (NPS) investment, and/or natural and beneficial floodplain values. Therefore, the impact topic of floodplains was dismissed from further analysis.

Wildlife. Construction of any proposed facilities that require the removal of wildlife habitat such as vegetation has the potential to result in disturbance or displacement of wildlife in localized areas. The surrounding land, however, would likely continue to provide abundant nesting, escape, and protective cover. Some animals may temporarily relocate to areas outside of the project area during construction activities due to noise and the presence of machinery. However, this would not be expected to have any detriment upon local populations. Wildlife would be expected to reoccupy the area after construction is completed. However, because the park is located within a developed area of the Outer Banks, wildlife in the park are generally used to human-caused sounds and activity. The park consulted with the US Fish and Wildlife Service via a phone call on June 9, 2020, to ask for technical assistance and discuss the red-cockaded woodpecker (*Picoides borealis*) and the northern long-eared bat (*Myotis septentrionalis*). The park determined that there would be no effect on these species because there is no recorded evidence of northern long-eared bats in this area of the Outer Banks and red-cockaded woodpeckers are not habitual users nor are they residents of this area, although they may migrate through from time to time. Neither

species nest in this area. For all the reasons summarized above, the impact topic of wildlife was dismissed from further analysis.

Nonnative or Exotic Species. The existing lawn at the park is composed primarily of nonnative species, as noted under the “Vegetation” sections. This topic was considered due to the potential for any ground disturbing activity to introduce and spread new nonnative or exotic plant species. Most sites for proposed improvements requiring ground disturbance are within developed and previously disturbed areas, and the spread of nonnative species would be limited and less than minor. Mitigation measures would be in place, such as those described in “Chapter 2: Alternatives,” to minimize the introduction of nonnative plant species and to eradicate any species that enter construction areas. Therefore, the impact topic was dismissed from further analysis.

Water Quality/Quantity. Canal and ditch systems drain water from the memorial landscape to a canal system that flows to the Albemarle Sound. Construction activities within the park have the potential to temporarily affect the quality and quantity of water draining to the sound via these ditches. Some elements of the proposed action would increase the impervious surfaces throughout the park, including the new multiuse pathways (approx. 2.7 acres), wayside exhibits (approx. 0.01 acre), new interpretive/educational facility with access pathway (approx. 0.09 acre), and new RV sites and associated facilities (approx. 0.4 acre); other actions would reduce the impervious surfaces, including removal of the Centennial Pavilion structures (approx. 0.7 acre). Overall, this project would result in a modest increase the impervious surfaces throughout the park by approximately 2.5 acres. This increase in impervious surfaces may increase stormwater runoff; however, site improvements would be designed to take stormwater runoff into account and would include appropriate drainage facilities, to be determined during future design phases of the project. Site design would also take into account the park’s existing ditch system and measures would be in place for erosion and sediment control, as described in “Chapter 2: Alternatives.” Therefore, impacts to water quality and water quantity would be minimized and the impact topic was dismissed from further analysis.

Geologic Features. The project site contains eight different soil properties. Most of the locations for the proposed improvements are within developed and previously disturbed areas. Any ground clearing and grading for improvements would be minor and would not alter soil properties within the project area. Therefore, the impact topic of geologic features was dismissed from further analysis.

Archeological Resources. The construction of any proposed improvement that requires ground disturbance may impact archeological resources. Although a substantial percentage of the park has a low probability of yielding archeological resources, only a very small portion of the park has been fully surveyed to current NPS standards. Known archeological sites identified to date are directly linked to the Wright Brothers’ buildings and experiments on the site and to the subsequent commemoration of their achievements (NPS 2016). These known resources would be avoided by all proposed ground-disturbing activities. Archeological surveys may be required in other locations to determine if any significant archeological resources are present prior to construction. If archeological resources are discovered during construction all work in the immediate vicinity of the discovery would be halted until the resources could be identified and documented. If significant resources could not be preserved *in situ*, an appropriate mitigation strategy (e.g., the excavation, documentation, and mapping of cultural remains prior to disturbance to ensure the recovery of archeological data that otherwise would be lost) would be developed in consultation with the Southeast Archeological Center (SEAC), the State Historic Preservation Officer

and, as appropriate, associated Native American Tribes. The park may utilize an archeological monitor during ground disturbing activities to mitigate the potential for adverse impacts. Mitigation measures have been put in place that would minimize impacts; therefore, the impact topic of archeological resources was considered but dismissed from further analysis.

Lightscares. Proposed new facilities may require lighting, which could result in impacts to dark night skies. However, night sky compliant lighting would be considered during planning and design of the new facilities to reduce light pollution. Additionally, portions of the park are already lit at night, including the monument; additional night-sky-compliant lighting would not greatly alter the overall lightscape of the park. Therefore, the impact topic of lightscares was considered, but dismissed from further analysis.

Adjacent Communities and Facilities. The undeveloped 15-acre parcel of park land on the east side of Highway 158 that sits adjacent to residential neighborhoods on the north, east, and south sides. The parcel of park land is an area with informal pull-offs along the edges of the parcel where vehicles occasionally park and where trash has been dumped illegally. Development of this parcel in partnership with the town of Kill Devil Hills would create a more formal public use area for residents and visitors. This has the potential to result in a benefit to the adjacent neighborhoods because it would enhance an existing public use area and may limit illegal trash dumping and informal parking. However, if the parcel is developed to include beach parking, it may result in some additional vehicles travelling along the local roads adjacent to the lot, particularly during peak tourist season. Because it would not be developed into a major tourist destination, it is not expected to substantially increase traffic in the area. Development of this parcel would not result in noticeable changes to the local economy or changes in tourism patterns.

The First Flight Airstrip running along the west side of the monument and mall is within the park boundaries. Maintenance of the airstrip is supported by the North Carolina Department of Transportation (NCDOT) Division of Aviation. Impacts on the airstrip facilities and visitor activities at the airstrip (flights) were considered during the development of the proposed action. Tree thinning and a new trail adjacent to the airstrip may allow more visitors to view planes taking off and landing. All viewing areas would be located outside of the airstrip area, and the existing fence would remain in place to prevent visitors from entering the airstrip. These actions would not affect the function of the airstrip. The park may coordinate with NCDOT to obtain technical recommendation on design and implementation of the improvements in the vicinity of the airstrip.

Because of the reasons described above, the impact topic of adjacent communities and facilities was considered but dismissed from further analysis.

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CHAPTER 2: ALTERNATIVES

This chapter describes actions that would take place under each alternative for improving the visitor experience and providing adequate administrative space for the park staff and partners. CEQ regulations for implementation of the NEPA process call for the alternatives considered in a document to include a no-action alternative. The description and evaluation of this alternative provides a baseline to which the action alternatives can be compared. This EA evaluates two alternatives: “Alternative 1: No Action” and “Alternative 2: Proposed Action.” The elements of these alternatives are described in the following sections. Impacts associated with the alternatives are described in “Chapter 3: Affected Environment and Environmental Consequences.”

ALTERNATIVE 1: NO ACTION

Current management at the park follows the 1997 GMP, but with updates based on the park’s current and changing needs. During the planning process for this GMPA, actions laid out in the 1997 GMP were thoroughly reviewed to determine if they would be appropriate for implementation under current conditions. Conditions, needs, and priorities have changed at the park in the 20+ years since the 1997 GMP was developed; therefore, the actions laid out in the 1997 GMP that have not been implemented to date are not included in the no action alternative. Any actions that were laid out in the 1997 GMP that not have been implemented to date and that the park is considering implementing are included in the action alternative. This is consistent with Department of Interior regulations for implementing NEPA at 40 CFR 46.30. A list of actions under the 1997 GMP that have previously been completed or are ongoing are included in appendix A.

Facilities

Under the no-action alternative, facilities throughout the park would remain in their existing configurations and generally under the same use and management. There would continue to be no permanent facility shielded from the elements for large group education/interpretive events. The remaining temporary structures located at the Centennial Pavilion area (identified as “E” in Figure 3) would remain in place. The park and partner office, staff, and storage spaces would remain in their existing configurations in the visitor center and administrative building near the maintenance facilities. There would continue to be no park staff or volunteer housing available on site. The 15-acre parcel on the east side of Highway 158 (identified as “P” in Figure 3) would remain undeveloped and informal pull-offs would remain.

Vegetation

Under the no-action alternative, vegetation throughout the park would be maintained under current management plans. Areas currently maintained as lawn would remain as such, which provides no visual screening or delineation between elements on the landscape. Likewise, wooded areas, such as those along the First Flight Airstrip and along Highway 158 (identified as “I” in Figure 3), would remain in their current conditions, which are generally natural and of a density that provides visual screening.



Centennial Pavilion Area Structures with Monument in Background

Parking and Vehicular Circulation

Under the no-action alternative, the existing visitor center parking lot would remain in its current configuration with parking for 93 cars and 8 buses/RVs (identified as “B” in Figure 3). There would continue to be no formal drop-off area for buses and other visitors near the visitor center, and the northwest corner of the parking lot closest to the visitor center would continue to be used for drop-off. Additionally, the grassy area southeast of the parking lot would continue to be used for overflow parking without a formal entry/exit area or parking spaces (identified as “C” in Figure 3).

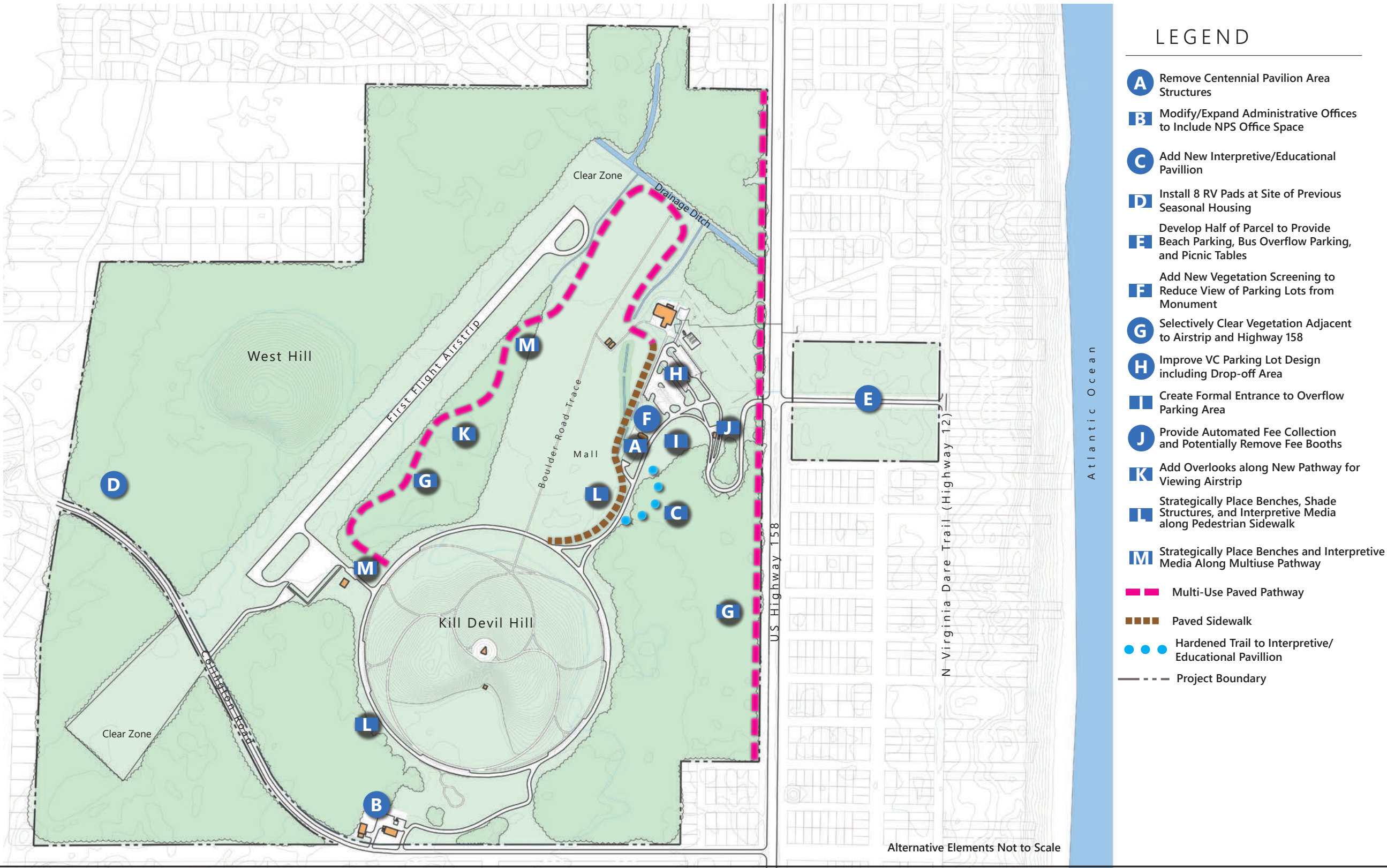
Under the no-action alternative, the existing fee booths on the entrance road would remain and fee collection would continue as under current management (identified as “D” in Figure 3). The existing road would remain in its current configuration, with multiple options in close proximity to each other to enter/exit the parking lot and to exit the park.

Pedestrian Flow and Accommodations

Under the no-action alternative, pedestrian circulation routes and accommodations would remain in their current configurations. Visitors would continue to be able to view portions of the First Flight Air Strip from the Pilot’s Facility near the monument (identified as “K” in Figure 3) and from the northern portion of the park near the First Flight Line (identified as “H” in Figure 3). The only formal pedestrian route would continue to be from the visitor center, along the Boulder Road, and along the curvilinear walkways around the monument. Visitors would continue to walk along the roadway from the monument to the parking lot without a formal pedestrian walkway along the road. All pedestrian connections throughout the park would remain in full sun and exposed to the elements. There would continue to only be a few benches at the base of the monument on the western side of the hill.

ALTERNATIVE 2: PROPOSED ACTION

The following describes the changes and improvements that would occur under the proposed action. See Figure 4 for a graphic depiction of these changes. Some of the actions described below are modifications of actions proposed in the 1997 GMP that have been updated to meet current park needs and conditions. See appendix A for a matrix of these actions.



General Management Plan Amendment

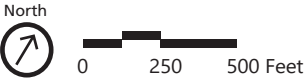


FIGURE 4
Proposed Action

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Facilities

Under the proposed action, the park would construct a new sheltered interpretive/educational facility in the scrub-shrub area south of the visitor center parking lot (identified as “C” on Figure 4). This facility would consist of an open-air covered pavilion capable of accommodating up to 150 people. The pavilion would be approximately 2,800 square feet including an enclosed climate-controlled space for uses such as storage, preparation, and restroom facilities. The enclosed areas would include lighting, air conditioning, and heating. Construction of this facility would require site clearing, including vegetation removal of up to 0.3 acre. The specific number of trees to be removed would be dependent upon specific site selection during a future design phase. A paved pathway up to 10 feet wide would be constructed between the new facility and the visitor center parking lot (identified as a dotted line on Figure 4) to provide access for users of the new interpretive/educational facility as well as emergency vehicles and/or small delivery vehicles.

The park may remove the remaining temporary structures located at the Centennial Pavilion area (identified as “E” in Figure 3). This would include the concrete pads, restroom building, one trailer, and the associated sidewalks and driveway. The existing septic system would remain in place. The trailer used as office space would be relocated to the maintenance area (identified as “L” in Figure 3). After removal of the structures and the concrete pads, the approximately 0.7-acre site would be backfilled and seeded with grass.

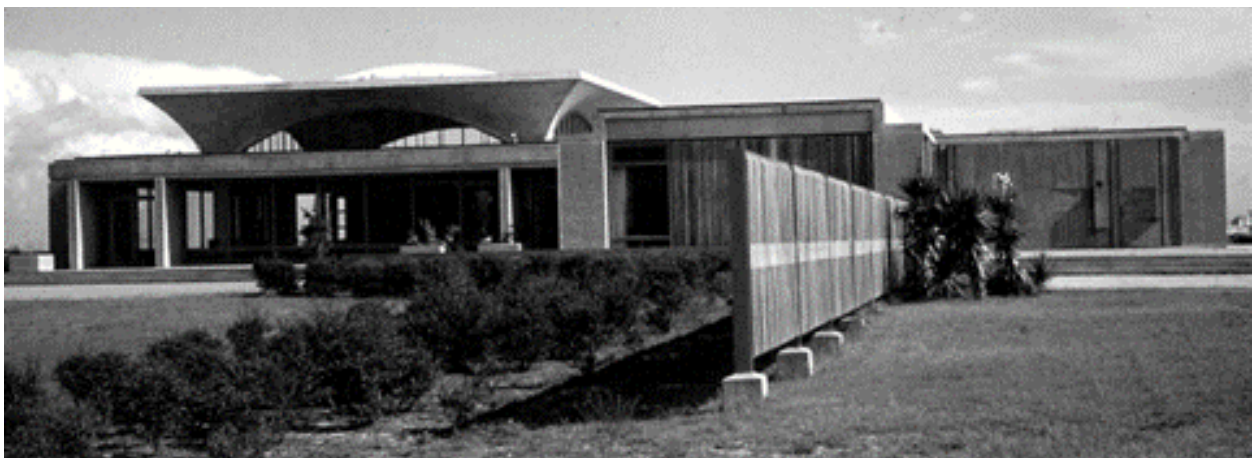
Additionally, the park would repurpose the existing administrative building near the maintenance facilities located at the southern end of the park in order to expand park and partner office and storage space (identified as “B” in Figure 4). Specific design details for the remodel would be determined at a later date. Examples of how the park could accommodate these changes within the administrative building footprint are: remodel the existing conference room into offices, convert the existing garage bay into workstations, convert the covered tractor area into a conference area, and repurpose the existing office trailer as storage space. The park may also repurpose some areas within the visitor center, which were previously used for office and administrative space, to meet park administrative needs.

At the site of the former park housing (identified as “D” on Figure 4), the park would construct up to eight RV sites park staff, volunteers, or administrative use. Each pad would be 75 feet by 16 feet and would consist of 6-inch concrete slab with pedestals for electric, water, and septic. Adjacent to each site, there would be a paved or gravel pad allowing for the placement of a picnic table or outside seating. The overall site would be designed to accommodate associated administrative facilities including the possibility of a laundry facility, outside shower, or small restroom. The existing 8-foot-wide RV road accessing the site would be widened to 24 feet to allow for two-way travel. There would be up to 0.6 acre of site clearing, including vegetation removal for widening along the 200-linear-foot road and installation of a replacement septic field. The RV sites and associated road and facilities would result in approximately 0.4 acre of impervious surfaces.

At the undeveloped 15-acre parcel of land on the east side of Highway 158 (identified as “E” on Figure 4), the park would work in conjunction with the town of Kill Devil Hills to evaluate developing the site for public use. The eastern half of the parcel (approximately 7 acres) nearest to the beach may be developed to provide parking, picnic areas, and bus and overflow parking. The parking surface would be a mixture of pervious sand, clay, and shell. The specific layout and design of these improvements would be determined during a future design phase of the project in coordination with the town of Kill Devil Hills and may be subject to an agreement between the park and the town.

Vegetation

Under the proposed action, the park would visually screen the parking lot from the memorial landscape and monument through the addition of new vegetation and a wood fence designed in a similar appearance as the original Mission 66 fence (see photo below) along the southwestern boundary of the visitor center parking lot (identified as “F” on Figure 4). The idea for screening the historic zone was a result of Mission 66 planning and the introduction of the visitor center concept. Since the site had changed dramatically since 1903, Mission 66 designers came up with new ways to introduce the visitor to the historic zone: discrete visual barriers were constructed to shield views of the parking lot and highway, and the historic flight path and mall became a "large room" entered only through the visitor center. This interpretive philosophy established the visitor center as a preparatory space to view the historic site. Vegetative screening could include a combination of native deciduous and evergreen trees; the specific species and number of trees would be determined during a future project phase.



Visitor Center and Cypress Fence with Vegetation, 1960 (Photo credit: NPS)

Existing vegetation would be selectively thinned in the scrub-shrub areas along the First Flight Air Strip and along Highway 158 (identified as “G” on Figure 4). This thinning would allow visitors to view the airstrip from more locations in the park than are currently available and would also provide a greater ability to view the monument from outside the park, particularly along Highway 158. The extent of vegetation thinning and specific species for removal would be determined during a future phase of the project and may be subject to a vegetation survey.

Parking and Vehicular Circulation

Under the proposed action, the park would rehabilitate the Mission 66-era visitor center parking lot (identified as “H” on Figure 4) to achieve critical operational and life safety goals, discussed below. The rehabilitated parking lot would be constructed within the footprint of the existing parking lot, which is shown in Figure 5. A detailed design of the rehabilitated parking lot would be developed in the future once funding for implementation is available; however, the park would follow certain design criteria to ensure the rehabilitated parking lot is compatible with the historic character and original design of the parking lot. The photo below shows the original Mission 66 parking lot in 1960.



LEGEND

- 1** Park Entrance
- 2** Fee Booths
- 3** Car Parking
- 4** Passenger Drop-Off/Pick-Up Area
- 5** RV/Bus Parking
- 6** Visitor Center
- 7** Centennial Pavilion Area

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Mission 66 Visitor Center Parking Lot, 1960 (Photo credit: NPS)

Criteria for compatibility with the Mission 66 historic character would be incorporated into the new parking lot design to the greatest extent feasible, to achieve the following design objectives:

- j Incorporate features that establish a processional, generously scaled approach to the visitor center from the park entrance, to the parking lot, to the visitor center entrance. The purpose of this design objective is to reinforce the public nature of the site and the importance of the National Historic Landmark visitor center.
- j Incorporate a fully developed pedestrian environment that leads arriving visitors to the visitor center. The purpose of this design objective is to reinforce the public nature of the site and the importance of the National Historic Landmark visitor center.
- j Develop a design that uses streamlined shapes and emphasizes clarity, simplicity, and unified overall forms. Avoid the use of small-scale features such as planting islands that add visual clutter to the setting.
- j Develop vegetation designs that reinforce the larger overall forms within the parking lot setting, such as a linear tree planting alignment that shades pedestrian walkways. Avoid the use of single tree or clusters of fewer than ten trees and the use of shrubs or turf.

In addition to the modifications to the main parking lot, the park would also create a formal entrance/exit to the existing grassy overflow parking area (identified as “I” on Figure 4). This would include a paved apron where cars enter/exit, and the park may utilize removable bollards or other methods to define the parking area as needed.

The park may also install automated fee kiosks in the vicinity of the parking lot for added visitor convenience. With automated fee booths available, the park could remove the existing fee booths along the entrance road (identified as “J” on Figure 4).

Pedestrian Flow and Accommodations

Under the proposed action, the park would create a new multiuse paved pathway, approximately 12 feet wide, that would provide a new pedestrian, bicycle, and possibly, tram, route through the park (identified as a dashed line on Figure 4). This pathway would provide a more immersive park experience by offering new vistas, interpretive and educational information, immersion around the landscape, and multimodal transportation options. The pathway would extend north from the visitor center to the end of the flight line, lead through the wooded area along the east side of the First Flight Air Strip, and connect to the existing roadway around the monument. Bicycles and the tram, if implemented, would then travel on the existing road back to the visitor center parking lot. A new sidewalk, approximately 6-feet-wide, would be constructed adjacent to the road back to the parking lot to separate pedestrians from vehicles and bicycles. The exact location of the pathway would be determined during a future project phase, but it could be up to 6,300 linear feet in length. In the future, the park could use the pathway as a circulation route for a tram to provide a new mode of transportation and new visitor experience throughout the park. The tram would be a small stature tram that would run throughout the day and possibly be operated by park rangers, park partners, or commissionaires that would provide interpretive experiences and education as the tram passes through and stops at important vistas, historical landmarks, and other landscape features that aid in telling the story of the Wright Brothers inventions at the site. Use of a tram may be subject to future planning. If a tram is implemented in the future, it would be a small tram with 2 to 3 seats per row, operate at a low speed (10-15 mph and less than 5 mph when passing pedestrians or bicyclists), and would be approximately 4-5 feet wide to allow for pedestrians and bicyclists to utilize the 12-foot pathway at the same time. If user conflicts arise, the park would evaluate the situation and consider measures to minimize conflicts. Bicycle use would be allowed on this pathway through park superintendent and NPS regional director approval for a multi-use pathway in a developed area in accordance with 36 CFR 4.30.

The park would also work collaboratively with NCDOT and the town of Kill Devil Hills to construct a multiuse pathway along the park’s eastern boundary. The pathway would be up to 10 feet wide and would be located along the existing grassy road shoulder with minimal intrusion into the area planted with trees. The pathway alignment would follow the park’s eastern boundary adjacent to Highway 158 from the northern terminus of the park’s boundary to the southern terminus of the park’s boundary; thereby, connecting with an existing sidewalk that flanks the highway through the town of Kill Devil Hills.

One or more viewing platforms may be constructed adjacent to the multiuse pathway in the wooded area adjacent to the First Flight Air Strip (identified as “K” on Figure 4). These viewing platforms, along with benches and wayside exhibits, would provide information and viewing opportunities related to the airstrip and modern flight.

To improve visitor comfort throughout the park, benches and shade structures would be strategically designed and placed at locations where they would not obscure or detract from historic features or important viewsheds. Placement of features such as benches, shade structures, and interpretive media (ie. waysides, ground level pavers, or built-ins to benches and shade structures) would be limited along the proposed multiuse path, proposed pedestrian sidewalk, and existing pedestrian path (Boulder Road Trace)

to minimize the visual impact on the landscape and historic setting. Benches, shade structures and interpretive media would be low profile, meet Architectural Barriers Act (ABA) standards and would be designed and placed as to have no adverse effects on the cultural landscape. Features would be designed to generally blend into the landscape with color and material. Bench design would be inspired by existing Mission 66 features at Wright Brothers National Memorial, including the long rail "bench" south of the visitor center lobby (see photo below) and may mimic the original extant Mission 66 benches at the Fort Raleigh Visitor Center plaza. See appendix B for examples of the design of benches and shade structures that may be considered for implementation. See Figure 4 for general areas where new features may be added. Interpretive media would be designed to be low profile so they blend into the landscape or digital which visitors can access from their own devices. This would potentially reduce the size and number of interpretive exhibits that one might traditionally expect to be placed on the landscape.



Original rail bench outside of the visitor center (Photo credit: NPS)

Benches and/or shade structures with benches and interpretive media may be added along areas of the proposed pedestrian path along the east side of the mall between the circular driveway and the visitor center parking lot as well as the sidewalk along the monument tour road that encircles Kill Devil Hill. Although these features would be within the viewshed from the monument and the mall, they would visually blend into the backdrop of the parking lot and wooded area. In addition, tree plantings would be installed to restore the historic landscape of the site along this section of the pedestrian path and could provide natural shade opportunities.

On the west side of the mall, the benches and interpretive media would be located near the airstrip and along the edge of and within the wooded area. Vegetation in the wooded area would visually screen these structures from view and would provide natural shade for the benches. Two to six benches and

interpretive media may be added along the existing pedestrian pathway from the flight line to the monument (Boulder Road Trace). Benches would be low profile and likely not include a back support and meet ABA guidelines. Interpretive media may be installed in-ground or on the benches, or on signs that are generally low profile and matching the bench heights. These features would be designed and placed as to not impede the spatial relationship between the monument and marker as reasonably as possible.

MITIGATION MEASURES OF THE ACTION ALTERNATIVES

To minimize negative environmental impacts related to the action alternative, the park would implement mitigation measures whenever feasible. Exact mitigation measures to be implemented would depend upon the final design and approval of plans by relevant agencies and would be determined during future design and construction phases. The following is a list of actions that the park may implement directly or may require of contractors:

- j Instruct all personnel engaged in undertaking any of the proposed actions on the sensitivity of the general environment and monitor their activities in order to mitigate and minimize potential impacts on natural and cultural resources during construction. Corridors for construction vehicle movement would be established and defined on the ground. Staging of construction equipment would be restricted to the road corridor, parking lots, and other identified previously disturbed areas to avoid impacts on natural and cultural resources.
- j Clearly state all protection measures in the construction specifications and instruct workers to avoid conducting activities beyond the fenced construction zone.
- j Fence all areas in order to keep related disturbances within an NPS-defined and minimal impact area required for construction.
- j Implement standard noise abatement measures during construction. Standard noise abatement measures could include the following elements: a schedule that minimizes impacts on adjacent noise-sensitive uses, the use of the best available noise control techniques wherever feasible, the use of hydraulically or electrically powered impact tools when feasible, and location of temporary noise sources as far from sensitive uses as possible.
- j Minimize soil erosion by limiting the time that soil is left exposed and by applying other erosion control measures, such as erosion matting and silt fencing in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
- j Implement measures to prevent invasive plants from entering construction areas, such as ensuring that construction-related equipment arrives at the site free of mud or seed-bearing materials and certifying that all seeds and straw material are weed-free.
- j Remove invasive plants that may have entered construction areas using approaches prescribed in the park Integrated Pest Management Program.
- j Rehabilitate areas that are disturbed, either during construction or areas that were previously disturbed, with NPS-approved vegetation, as per NPS standards and consistent with the cultural landscape report. Immediately implement NHPA Section 106 procedures if any unknown significant archeological resources are uncovered during ground-disturbing activities. If previously unknown archeological resources are discovered during construction, all work in the immediate vicinity of the discovery shall be halted until the resources are identified and documented and an appropriate mitigation strategy developed, if necessary, in accordance with pertinent laws and regulations, including the stipulations of the 2008 Programmatic Agreement

Among the park (US Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers.

- j When possible, construction should be performed over the late fall and winter months when visitation is lowest in order to minimize the impact on the visitor experience.
- j Surveys for state rare or sensitive plants would be conducted prior to future design phase of the project to ensure avoidance of these plant species.
- j Design facilities to be flood resilient and to impede flow of floodwaters as little as possible, in terms of materials, design, and siting.
- j Design facilities and structures to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60).
- j Follow the park's Severe Weather Plan in the event of severe weather to minimize the risk to human health and safety as well as to minimize potential property damage.
- j Apply the *Secretary of the Interior Standards for Treatment of Historic Properties* to the extent practicable for all proposed new features on the landscape.

ALTERNATIVES CONSIDERED BUT DISMISSED

In November 2018, a GMPA workshop was held with the park and their partners to identify concept elements to consider during the planning process. These elements were combined into several concepts, which were further refined into alternatives to be considered. In November 2019, a workshop was held to evaluate the alternatives using multiple criteria. Through these workshops and internal discussions, the park narrowed down the reasonable range of alternatives to those included in this EA. Some of the alternative elements identified earlier in the process were determined to be unnecessary or much less desirable than similar options included in the analysis and were therefore not carried forward for analysis in this EA. The descriptions below summarize the alternative elements that were considered but dismissed from further analysis and the rationale behind the dismissal.

Other Locations for NPS And Partner Administrative Space

The park considered other locations within the park boundary for NPS and partner office, staff, and storage space. One of the locations considered was a new building constructed behind the visitor center to the north. This area was dismissed from consideration due to cost, potential impacts to the landscape surrounding the National Historic Landmark visitor center, and the potential for flooding in this area of the park. As noted earlier, flooding at the park is generally caused by rain events and when ditches are filled to capacity as large-scale storms such as tropical storms, hurricanes, and nor'easters cause water levels of Albemarle Sound to rise dramatically. The northern area of the park is low-lying and is in the vicinity of the culvert and ditch system. Therefore, it is at a higher risk of flooding during rain and storm events than the southern area of the park, which is at a higher elevation and generally further away from the ditch system. The frequency of flooding would likely increase as sea levels rise (approximately 0.14 inches per year [NOAA 2019]). Therefore, the located adjacent to or near the visitor center was dismissed from further consideration.

Other locations for the new administrative space considered included a new administrative space within an enclosed interpretive/educational building south of the visitor center parking lot, and a new administrative space as an addition to the existing administrative building near the maintenance facilities

located at the southern end of the park. These locations were considered, but ultimately dismissed because they were less suited than the proposed action to meet the project purpose and need while taking into account site constraints, potential impacts on park resources, and cost.

Fully Enclosed Interpretive/Educational Building

The park considered construction of a new air-conditioned interpretive/educational building (with or without the park/partner administrative space discussed above) for up to 150 people and including restrooms. The building would be located in the scrub-shrub area south of the visitor center parking lot. The park considered two design options for this building: 1) a fully-enclosed building or 2) an enclosed building with large doors and windows that would open for an open-air feel. This alternative element was dismissed from consideration because many of its functions could be achieved with the open-air facility in the proposed action, but an enclosed building would be a much greater cost.

Other Actions in the 1997 General Management Plan

The 1997 GMP included several actions that were not implemented and are no longer under consideration due to changes in existing conditions or park needs. For example, the GMP proposed removing the existing visitor center and replacing it with a new visitor center with additional administrative space. However, the visitor center has since been designated a National Historic Landmark in 2001 and underwent an extensive rehabilitation in 2016-2018. Therefore, demolition and replacement of the visitor center is no longer considered as part of this plan. Another action no longer considered is the creation of a jug handle turn to enter the park from Highway 158 to alleviate traffic congestion. Since the GMP was written, the entrance road into the park from Highway 158 was reconfigured and provides a greater capacity for vehicles. Because this is no longer a need, the action was dismissed from further consideration. See appendix A for a matrix of actions proposed in the GMP including those actions no longer under consideration.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the current environmental conditions in and surrounding the project as they relate to each impact topic retained for analysis, as outlined in chapter 1. These conditions serve as a baseline for understanding the resources that could be impacted by implementing the project. This chapter then analyzes the beneficial and adverse impacts that would result from implementing any of the alternatives considered in this EA.

GENERAL METHODOLOGY FOR ANALYZING IMPACTS

In accordance with the CEQ regulations for implementation of NEPA, direct, indirect, and cumulative impacts are described under each impact topic (40 CFR 1502.16), and the impacts are assessed in terms of context and intensity (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts are also described and incorporated into the evaluation of impacts. The specific methods used to assess impacts for each resource may vary; therefore, these methodologies are described under each impact topic.

Cumulative Impacts Analysis Methodology

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts were determined for each impact topic by combining the impacts of the alternative being analyzed and other past, present, and reasonably foreseeable future actions that would also result in beneficial or adverse impacts. Several actions were identified through the project scoping process and are summarized below.

Past, Present, and Reasonably Foreseeable Future Actions

Maintain Fuel Breaks. The park is in the process of updating the existing 2014 fire management plan for the park. The plan will include reducing hazardous fuels by mechanically removing trees and vegetation along the park boundary to create a gap in vegetation (fuel break) between the park and adjacent development. These fuel breaks would be maintained at 30 to 50 feet wide, depending on whether or not the tree species would carry fire. These fuel breaks would cover approximately 12 acres. Vegetation would be removed using mulching tractors and/or chainsaws. Maintenance of the fuel breaks would occur annually to keep the gap clear of vegetation. This action has the potential to affect resources included under the impact topic of vegetation.

Vegetation Maintenance on Kill Devil Hill. The park anticipates developing a maintenance plan for vegetation growth on Kill Devil Hill that will be implemented by NPS staff, volunteers, or contractors (NEPA compliance will be accomplished through a separate categorical exclusion). Under this maintenance plan, the currently overgrown woody vegetation (e.g., small and medium trees, shrubs, and vines) will be cut back but will remain in place to maintain stabilization of the hill. This action has the potential to affect resources included under the impact topic of cultural landscape and historic resources.

Colington Road Improvement Project. NCDOT is undertaking an improvement project to address flooding and safety concerns along Colington Road, which runs along the southern boundary and through the southwestern portion of the park. The project includes resurfacing, raising, and straightening sections of the roadway, as well as extending the existing bicycle lane to the western portion of the road. The project would also widen the eastbound lane to accommodate a 7-foot-wide high-speed bicycle lane to connect to the sidewalk at Baum Street. Construction is anticipated to begin in the fall of 2020 and to last 18 months (Wagner 2019). This action has the potential to affect resources included under the impact topic of visitor use and experience.

VEGETATION

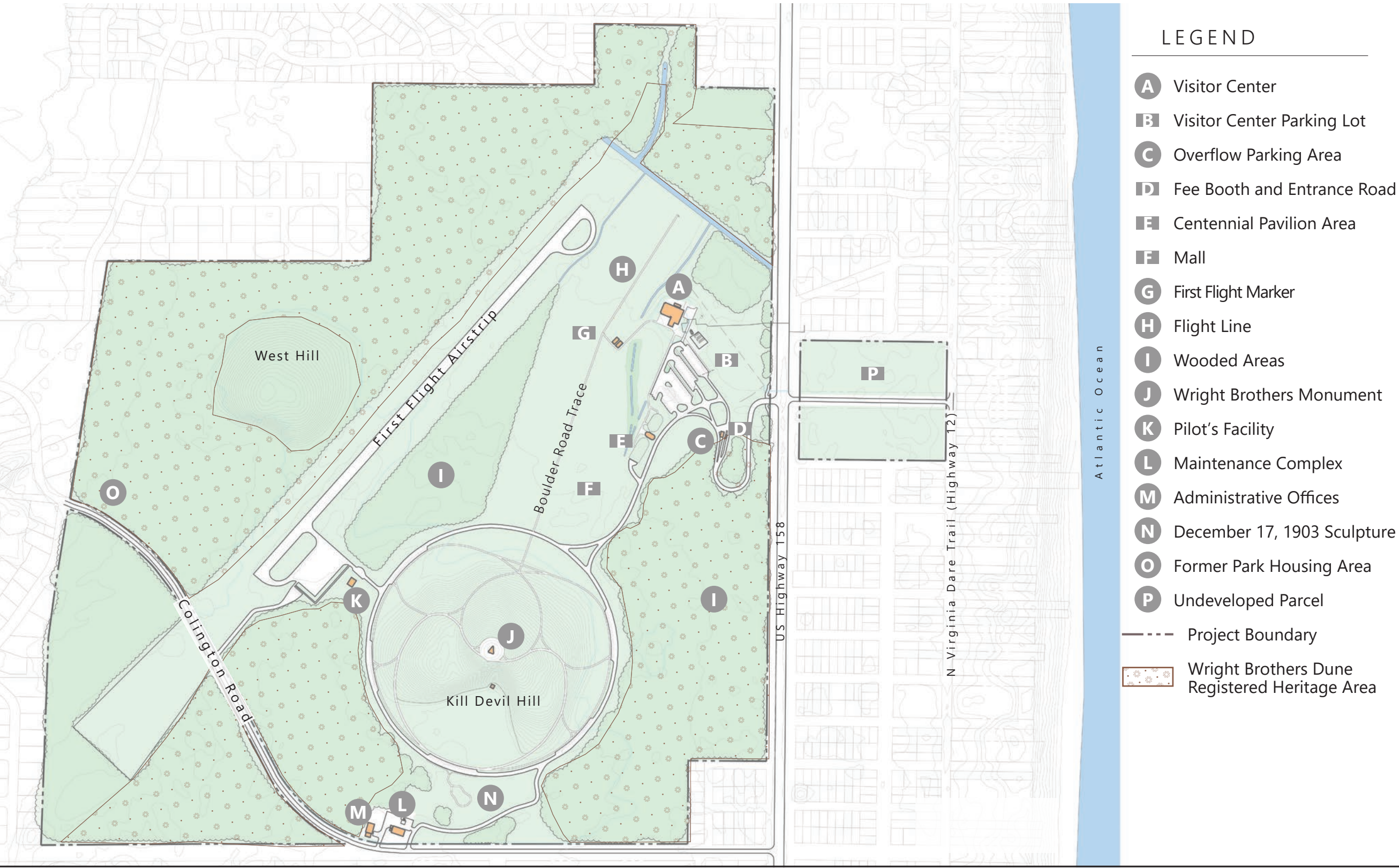
Affected Environment

Although many areas of the park are now vegetated, historically, the land that is now the park was open sand dunes with limited vegetation. The vegetation on the commemorative landscape was designed and planted beginning in the 1920s in order to stabilize the naturally-shifting sand dunes and create the monument. In the 1930s, additional planting projects were completed including lining the circular drive with trees, creating the grassy mall lined with bushes, and planting numerous shrubs. According to the 1967 administrative history of the park, Public Works funds paid for the “planting of 290 acres” in the mid-1930s (NPS 1967, pp. 55-56). Projects in the early 1940s included a budget of \$62,000 for additional planting throughout the park (NPS 1967, pp. 63). Maintenance of the planted landscape continued through the park’s history. Additionally, as the park and surrounding area was developed over time, the natural processes such as ocean overwash, fire, and flooding were largely halted through landscape interventions such as plantings and the creation of the existing culvert and ditch system. These factors have all resulted in the vegetation communities that exist in the park today.

The central portion of the project area consists of developed areas, open dunes, and grasslands. This includes the grassy mall, Kill Devil Hill, the visitor center, the First Flight Airstrip, and associated park roads. The rest of the project area, however, includes substantial areas of vegetation. According to a 2014 inventory of natural areas by the North Carolina Natural Heritage Program, these vegetated areas consist of Stable Dune Barren (Beach Heather Subtype) and Maritime Evergreen Forest communities (NCNHP 2014).

In 2012, 193 acres of the park were designated as Significant Natural Heritage Areas (SNHA) under the North Carolina Natural Heritage Program, as shown on Figure 6. Although these areas were historically open sand dunes that were intentionally planted during the creation and management of the park, these areas are now considered to “possess natural values justifying recognition by the State as an outstanding part of the natural heritage of North Carolina” (NCNHP 2014). The SNHA-designated areas within the project area host the largest known population in North Carolina of the maritime pinweed (*Lechea maritima* var. *virginica*), a State-listed endangered species, and one of the largest populations of the beach heather (*Hudsonia tomentosa*), a State-listed threatened species (Gadd and Finnegan 2012).

The distinctive Stable Dune Barren (Beach Heather Subtype) communities are characterized as interior dunes of relatively mature age that have little tendency for sand movement, often including substantial bare sand or patchy cover of woody vines, shrubs, and trees (Schafale 2012). Though small, the Stable Beach Heather Dune Barren at the park is one of the few remaining occurrences of this rare community type that was historically characteristic of the region (NPS 2016).



General Management Plan Amendment

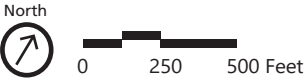


FIGURE 6
Significant Natural Heritage Areas

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The vegetation in this community is sparse and includes beach heather, sand greenbrier (*Smilax bona-nox* var. *littoralis*), silkgrass (*Pityopsis graminifolia*), witchgrasses (*Dichanthelium* spp.), Canada sunrose (*Crocianthemum canadense*), maritime pinweed, dune cactus (*Opuntia pusilla*), and poor-joe (*Diodia teres*). Thickets of small, spreading live oak (*Quercus virginiana*) and loblolly pine (*Pinus taeda*) are also present (NCNHP 2014).

The Maritime Evergreen Forest communities are dominated by tall loblolly pines and live oaks, with persimmon (*Diospyros virginiana*) and sand laurel oak (*Q. hemisphaerica*) in the understory. Openings in the forest support dune barren species described above as well as oak toes lichen (*Cladina evansii*). The easternmost portion of the park nearest to the Albemarle Sound consists of moist flats that support slender spikegrass (*Chasmanthium laxum*) and pond pine (*Pinus serotina*) (NCNHP 2014).

Methodology

The analysis of impacts on vegetation within the project area is based on a review of existing data for the project area. Available data is limited to general information from existing park planning documents and site-specific summary of species provided by natural resource specialists. The current conditions of vegetation, as presented under the “Affected Environment” section above, were compared with the alternatives described in chapter 2 to determine the impacts on vegetation. Because specific locations and size of proposed elements would be determined during a future phase of the project, the analysis is based on the typical vegetation in the area identified for each element. Assumptions made regarding specific acreage of vegetation disturbance are described in the analysis below; fewer acres of actual vegetation disturbance may occur after specific location and design of proposed elements are determined.

Alternative 1: No Action

Impacts

There would be no noteworthy changes to vegetation under the no-action alternative.

Cumulative Impacts

The no-action alternative would not noticeably affect vegetation within the project area and would therefore not noticeably contribute to the impacts of other actions.

Conclusion

There would be no changes to vegetation under the no-action alternative; therefore, there would be no impacts as a result of this plan. The grassy mall would continue to be maintained as mowed lawn, and the wooded areas to the east and west of the hill and mall would remain in their current state.

Alternative 2: Proposed Action

Impacts

Under alternative 2, after removal of the Centennial Pavilion structures, the approximately 0.7-acre site would be backfilled and reseeded. Additionally, vegetation clearing would be required for several project elements. Proposed features such as the interpretive/educational facility and the RV sites and associated

access road widening would require vegetation clearing with the SNHA-designated areas. Specific impacts, including area and number of mature trees that may need to be cleared would depend on final design and siting of each proposed feature. However, these features could result in up to 0.9 acre of vegetation to be cleared within the SNHA-designated areas (0.3 acres for the proposed interpretive/educational pavilion and 0.6 acres for the RV pads and associated utilities). The sensitive nature of the SNHA-designated areas would be considered when determining the specific locations and design of all proposed features within these areas. The specific location of each proposed new feature would be chosen to avoid or minimize any impacts on the State-listed maritime pinweed and beach heather. Prior to any vegetation clearing within the SNHA-designated areas, surveys would be conducted to determine the presence of these species. If it is determined that these plant species are present, the park would coordinate with the North Carolina Natural Heritage Program to develop measures to avoid adverse impacts on these species.

Additionally, vegetation thinning is proposed in the wooded areas adjacent to Highway 158 and the airstrip. Minimal vegetation would be removed that would still allow for visual connections between Highway 158 and the monument and the mall and the airstrip, respectively. The species and extent of vegetation removal would be specified during a future project phase. This planning would consider the sensitive nature of the SNHA-designated area adjacent to Highway 158 and removal or disturbance to all sensitive plant species would be avoided.

Cumulative Impacts

Other past, present, and reasonably foreseeable future actions that may affect vegetation within the project area include maintaining fuel breaks. This action would result in the clearing of approximately 12 acres of vegetation, including Stable Dune Barren and Maritime Evergreen Forest communities. Portions of this project would include clearing vegetation along the edges of the SNHA-designated areas, primarily on the northwest and southeast boundaries of the park. The specific width of the fuel breaks may vary, but this project would require the clearing of an approximately 9-acre area within the SNHA-designated areas. This action would contribute an adverse increment of the cumulative impact on vegetation.

Under alternative 2, implementation of proposed project elements would require vegetation clearing, notably up to 0.9 acre of vegetation within SNHA-designated areas. This would result in an adverse increment to the overall cumulative impact on vegetation. When considered together, the adverse impact of fuel break maintenance and alternative 2 would result in an overall adverse impact on vegetation; however, this adverse cumulative impact would be relatively small at a total of less than 10 acres of vegetation disturbance within SNHA-designated areas when compared with the overall 193 acres of designated areas.

Conclusion

Under alternative 2, vegetation clearing would be required for several proposed features. In particular, the interpretive/educational facility and the new RV pads and associated road would require clearing within SNHA-designated areas where state-listed threatened and endangered plant species may occur. However, the vegetation disturbance of up to 0.9 acre within the SNHA-designated areas would be relatively small when considered with the overall 193 acres that are designated within the park. Special status species surveys would be conducted prior to final site selection for all proposed features to avoid adverse impacts on these species. Under both the no-action and the proposed action, the park would continue to maintain

the natural character and integrity of the significant vegetative communities and the species they support in the park, as agreed upon under the SNHA designation agreement with the North Carolina Natural Heritage Program.

CULTURAL LANDSCAPE AND HISTORIC RESOURCES

Affected Environment

The park was established in 1927 as the Kill Devil Hill Monument to commemorate the site of Wilbur and Orville Wright's first successful, powered, heavier-than-air, controlled flight. Over time, the site has been developed as a commemorative landscape and has been dramatically altered from the landscape the Wrights encountered during their time in Kitty Hawk. During what is known as the Wright Era (1900-1911), when the Wright Brothers used the site for their experimentation in flight, Kitty Hawk was an isolated fishing village, and Kill Devil Hill was a sand dune rising above the surrounding flat, sandy landscape, bare of vegetation. When the park was established in 1927, it was administered by the War Department. By then, Kill Devil Hill has already shifted southwestward approximately 300 to 600 feet from its location during the Wright Era due to prevailing winds and its composition of sand (NPS 2002). In 1928, the first stabilization efforts of Kill Devil Hill were undertaken, including planting shrubs, grass, and sand, and spreading wood mulch around the base and up the sides, to stop future movement and allow a monument to be constructed at the peak of the hill. That same year, the First Flight Marker was dedicated at the approximate location of the 1903 lift-off of the first successful flight; the exact location was difficult to determine because the site topography had changed substantially (NPS 2002). The site was transferred to the NPS in 1933, and the park was renamed Wright Brothers National Memorial on the fiftieth anniversary of the First Flight in 1953.

The major historic area of the park is considered a cultural landscape, which generally encompasses Kill Devil Hill, the commemorative mall, the air strip, and the visitor center. This cultural landscape is documented in the 2002 *Wright Brothers National Memorial Cultural Landscape Report* (NPS 2002). Because the landscape has been developed and changed since its establishment as a commemorative landscape, it now features multiple layers of significance. The park's 2002 cultural landscape report defines the period of significance as 1900 to 1960, which includes the Wright brothers' flight experiments, establishment of the park, commemorative efforts, and ending with the construction of the visitor center in 1960 (NPS 2002). The park's cultural landscape is designed as a commemorative landscape, rather than one preserving its original appearance. Character-defining features of the cultural landscape include spatial organization, circulation patterns, vegetation, views, structures, and small-scale features.

The Wright Brothers National Memorial was administratively listed in the National Register as a historic district in 1966 with the passage of the NHPA; documentation for the historic district was submitted in 1978 and additional documentation for the listing was submitted in 1996. The historic district boundary excludes the 15-acre property across Highway 158 because the land is outside of the historic scene and was acquired only as a buffer zone (NPS 1996). Contributing resources to the historic district include the Wright Brothers Monument and associated powerhouse, the First Flight Marker, the curvilinear trails leading up Kill Devil Hill to the monument, the spatial relationship between the monument and the First Flight Marker, Kill Devil Hill, and West Hill (NPS 1996).

The Wright Brothers National Memorial Visitor Center was constructed in 1960 as part of the park Mission 66 program. It was designated as a National Historic Landmark in 2001 and is nationally

significant for its association with the Wright brothers as well as for serving as an early example of how modern construction techniques and style could be used for NPS visitor centers (NPS 2001 and 2017).

Although there are many historic features within the park boundaries that contribute to the significance of the cultural landscape, the historic district, and the visitor center, only those features or resources that may be affected by the alternatives in this EA are discussed in more detail below.

Spatial organization

The historic spatial relationship of Kill Devil Hill (including the monument pylon) and the First Flight Marker is reinforced by the open, grassy mall that was established to distinguish the area from the surrounding woody landscape. This spatial relationship was established in 1932 when the monument pylon was constructed, its cornerstone purposefully aligned with the First Flight Marker. The construction of the visitor center in 1960 shifted the spatial relationship established in 1930s by directing visitor focus from the monument to the visitor center upon first arrival in the park. This was achieved through a cypress fence and vegetation installed between the grassy mall and the parking area visually screening Kill Devil Hill and the first flight line from view from the parking lot. The fence and associated vegetation have since been removed, diminishing the mid-20th century spatial organization between the visitor center and the first flight line.



Aerial photograph showing spatial relationship of park features

Circulation Patterns

Development throughout the park's period of significance has changed the historic circulation patterns in the park. The original circulation route established during the War Department administration period of 1927-1933 included an entrance road southeast of Kill Devil Hill that wrapped around the east side of the hill and to the First Flight Marker along what became known as Boulder Road. This pattern focused the visitor attention on the monument pylon first, then to the marker. Pedestrian circulation to the top of Kill Devil Hill was provided by a concrete block footpath on axis with Boulder Road. After the NPS took over administration of the park, the circulation system was altered. Between 1934 and 1936, the original entrance road was removed and a new circulation road around Kill Devil Hill was built. The original concrete block pedestrian path up to the top of the hill was removed and replaced with four symmetrical, curvilinear paths. Between 1947 and 1960, as part of the 1947 Master Plan and the subsequent plans for the visitor center, the original entrance was closed and a new entrance road was opened on the east side of the park that provided access from the newly constructed Highway 158. With the construction of the visitor center and associated parking lot, circulation was changed from a focus on vehicular travel through the park to pedestrian travel. These circulation changes altered the initial visitor orientation of the park from Kill Devil Hill and the monument pylon to the visitor center. The circulation patterns initiated by the 1947 Master Plan retain their integrity today.

The visitor center parking lot and associated circulation patterns were designed features of the overall Mission 66 visitor center design and are contributing features to the cultural landscape. The parking lot was designed to orient visitors at a 45-degree angle to the entry terrace of the visitor center and followed the Mission 66 philosophy that parks were "for the people" and should accommodate large numbers of visitors and their cars. The visitor center and parking lot were sited and oriented to complement the visitor circulation patterns and to "efficiently intercept visitor traffic" (NPS 2001). The goal of the original design was to funnel visitors from their cars, into the visitor center, and finally to the commemorative mall and monument.

Changes initiated within more recent decades have altered historic circulation patterns. The park entrance road was altered when it was realigned to the south, creating the existing hairpin turn to allow additional queueing space for cars waiting to approach the fee booths. The visitor center parking lot has also been enlarged since its original design to its existing configuration, although it remains in the same orientation in relation to the visitor center entrance.

Vegetation

During the Wright Era, there was very little vegetation in the area. It was primarily open, sandy dunes. As discussed under the impact topic of "Vegetation" above, vegetation was introduced as a dune stabilization effort in 1928. Ornamental plantings were introduced in the 1930s, including creation of the grassy mall with bands of heavier vegetation on the east and west boundaries. By the 1940s, vegetation was limited to grass and shrubs within the mall and around Kill Devil Hill to maintain the open viewshed; vegetation outside of this area was released to natural succession. Vegetation was planted outside the visitor center to screen the parking lot from view from the mall, as well as limit the initial views of the mall and monument pylon from the parking lot. Today, the vegetation of the mall and Kill Devil Hill maintain the open viewshed while the areas outside of the mall are forested, screening outside development from view within the park. The vegetation screening between the parking lot and the mall have been removed, and the parking lot is no longer screened from view.

Views

The unobstructed view from Kill Devil Hill to the first flight line is a major character-defining feature of the landscape and has been maintained throughout the park's history and development (NPS 2002). Similarly, there is an important view from the flight line to Kill Devil Hill and the monument. Throughout the park's history, the sight lines between the monument and the flight line have been maintained as an important element of the park's commemorative landscape. Placement of the visitor center at the eastern edge of the mall and planting plans allowing no vertical plantings within that sight line have maintained the important view (NPS 2002). Screened views were an important part of the landscape design when the visitor center was built in 1960. A cypress fence and vegetation screened the parking lot from view from the mall, and vice versa. Both the fence and vegetation have since been removed, which has opened up and altered those views. Vegetation growth has obscured views of the airstrip from the grassy mall, limiting views of the airstrip to only a few points in the park, including the top of the monument and north of the mall.



View of grassy mall from peak of Kill Devil Hill

Structures

Important structures considered to be contributing resources to cultural landscape include the monument pylon and the visitor center. The monument at the peak of Kill Devil Hill is a 60-foot granite pylon resting on a star-shaped granite base constructed in an Art Deco style in 1932. The structure maintains its integrity of design and represents the earliest commemorative development at the park.

The visitor center was constructed in 1960 as part of the park Mission 66 program. The building is a reinforced-concrete, steel-and-glass structure with a concrete domed flight room as its dominant feature. The building is nationally important as one of the four most significant visitor centers of the Mission 66 program and as an early example of how modern construction techniques and style could be used for NPS visitor centers (NPS 2017). The visitor center was designated a National Historic Landmark in 2001.

Other structures within the cultural landscape, such as the Centennial Pavilion structures and the administrative building near the maintenance facilities, were constructed outside of the period of significance and are not considered contributing resources.



Wright Brothers Monument Pylon



Wright Brothers National Memorial Visitor Center

Small-Scale Features

Contributing small-scale features of the cultural landscape include the First Flight Marker and the War Department entrance gateposts. Other small-scale features on the landscape have been added after the period of significance but are important interpretive features. These include the four granite boulders added in 1992 to replace the original 1953 markers that identify the landing zones of the first four successful flights (collectively known as the flight line) as well as the December 17, 1903 Sculpture,

located south of Kill Devil Hill, which depicts a full-scale reproduction of the 1903 Flyer along with life-size statues of the men present at the time of the first successful flight. The December 17, 1903 Sculpture was dedicated in 2005 and is considered an important resource and value of the park according to the park's Foundation Document (NPS 2017).

Methodology

Potential impacts on the cultural landscape and historic resources are evaluated based on changes to character-defining features of the resource, which are the characteristics of a historic property that qualify the property for inclusion in the National Register. This approach is derived from the *Secretary of the Interior's Standards for Treatment of Historic Properties*, Director's Order #28: *Cultural Resource Management Guidelines*, as well as the regulations of the Advisory Council on Historic Preservation implementing the provisions of NHPA. Character-defining features contribute to a property's integrity, which is composed of location, design, setting, materials, workmanship, feeling, and/or association. Shaped through time by historical land-use and management practices, as well as politics and property laws, levels of technology, and economic conditions, cultural landscapes provide a living record of an area's past, as well as a visual chronicle of its history. The current conditions of the cultural landscape and historic resources, as presented under the "Affected Environment" section above, were compared with the alternatives described in chapter 2 to determine the impacts on the cultural landscape and historic resources.

Alternative 1: No-Action Alternative

Impacts

Under the no-action alternative, the remaining Centennial Pavilion structures would continue to be located directly in the historic viewshed of the monument and mall and detract from the historic and commemorative character of the park. The lack of vegetation screening along the visitor center parking lot would continue to result in the parking lot visually detracting from the commemorative landscape of the grassy mall.

Cumulative Impacts

Other past, present, or reasonably foreseeable actions that have or would contribute to the cumulative impacts on the cultural landscape and historic resources include vegetation maintenance on Kill Devil Hill. Currently, vegetation on the hill is overgrown and rising more than 10 feet in many places. Historically, the hill was a sand dune that naturally shifted overtime with the winds. Grasses were planted in the 1920s and 1930s to stabilize the dune (NPS 2002). By the 1940s, efforts were made to remove shrubs and trees from the grassy areas to maintain the historic, open character of the mall. Maintaining the vegetation will restore and preserve the commemorative appearance of the hill and ensure the hill remains stabilized in place. This action would contribute a beneficial increment to the cumulative impact on the cultural landscape and historic resources.

Under the no-action alternative, the intrusive non-historic Centennial Pavilion structures and the lack of vegetation screening would continue to contribute an adverse increment to the cumulative impact because the non-historic features would continue to detract from the commemorative landscape and historic character. The beneficial impact of vegetation maintenance on Kill Devil Hill would not outweigh the

adverse cumulative impact of the no-action alternative. Therefore, the overall cumulative impact on the cultural landscape and historic resources under the no-action alternative would be adverse.

Conclusion

The no-action alternative would allow existing intrusions on the commemorative landscape to remain, which would continue to detract from the historic character. However, the overall historic character and commemorative feeling of the cultural landscape and historic setting would remain intact. No changes would be made to the character-defining features of the cultural landscape or historic district in a manner that would diminish their overall integrity in terms of location, design, setting, materials, workmanship, feeling, or association. The historic property would continue to represent its association with the Wright brothers, early flight, and the commemorative period in which the park was established.

Alternative 2: Proposed Action

Impacts

Under alternative 2, removal of the remaining Centennial Pavilion structures and concrete pads would result in the removal of non-historic and non-contributing structures from the cultural landscape and historic district. This would improve the appearance and feeling of the cultural landscape and historic setting by restoring the area to an open, grassy character compatible with the commemorative grassy mall.

The addition of a new interpretive/educational facility would introduce a new structure into the landscape; however, it would be located outside of the mall and would be mostly screened from view by existing vegetation. Depending on the final location and vegetation clearing required, the proposed facility may be partially visible from within the mall or from the monument at the peak of Kill Devil Hill. Although the new facility may slightly detract from the historic views within the landscape, it would be designed to be as inconspicuous as possible when viewed from a distance. The facility would be designed to be compatible with the historic setting in terms of color, scale, and materials, and potential intrusion in the historic viewshed would be considered during selection of final location and design.

Under the proposed action, introduction of vegetation screening and fencing along the visitor center parking lot would improve the appearance and feeling of the commemorative grassy mall by visually screening the parking lot from view. The parking lot would be visually less intrusive on the landscape than under the existing conditions, improving the character and appearance of the cultural landscape and historic district. Additionally, the vegetation and fencing would restore some Mission 66 design elements. These elements would visually screen the commemorative landscape from the park entrance and parking lot, focusing visitor's attention and guiding them to the visitor center, which was the original intent of the Mission 66 visitor center and parking lot design. By adopting some aspects of the Mission 66 approach to vegetation, which used native plant material and clusters plantings to achieve screening effects, some of the previously lost historic character and integrity of design of the Mission 66 visitor center would be restored.

Selective vegetation thinning on the east side of the park along Highway 158 would increase the visibility of adjacent development from within the cultural landscape and historic district. This increased visibility may detract from the open and commemorative appearance and feeling of the landscape. However, the adjacent development is already visible from the monument and the peak of Kill Devil Hill, so the visual impact would be most intense when visitors are on the mall or travelling along the roads and sidewalks

below the hill. Selective vegetation thinning along the airstrip would reintroduce the designed view of the airstrip from the monument and mall. Although the airstrip was constructed outside of the period of significance, it is an important feature that provides the opportunity for visitors to connect modern flight to the Wright brothers era. The amount of vegetation thinning to be undertaken would be determined during a future phase of the project; however, the action would be undertaken in a manner such that the overall historic character would not be diminished and the cultural landscape and historic resources would retain their integrity of setting and feeling.

Modifications to the visitor center parking lot have the potential to impact the historic circulation patterns introduced during the Mission 66 era and as part of the overall Mission 66 visitor center design. However, as discussed in “Chapter 2: Alternatives,” design criteria would be incorporated into the new parking lot design to ensure its compatibility with the Mission 66 historic character and avoid or minimize any negative impacts on the historic circulation patterns, vegetation design, viewsheds or character.

The multiuse paved pathway proposed throughout the park would introduce a new circulation pattern within the cultural landscape and historic district. The pathway would partially follow existing circulation patterns, including the roadway between the monument and the visitor center parking lot. However, a roughly 4,000-linear-foot segment of proposed pathway along the western edge of the mall and adjacent to the First Flight Airstrip would be a new circulation pattern. Historically, vehicular circulation patterns included the circular drive around the monument, Boulder Road to the First Flight Marker, and the road between the monument and the visitor center parking lot. If the park uses the pathway as a tram route in the future, it would introduce a new vehicular circulation route along the northern end of the mall and on the western portion of the site adjacent to the airstrip. Additionally, the vehicles may be a visual intrusion within the landscape, particularly as they travel around the mall area. However, the visual intrusion would be minimal because the tram would be of small stature and would likely run hourly, limiting the time the vehicle would be within the landscape.

Under the proposed action, the installation of new benches, shade structures, and interpretive media along the pedestrian sidewalks and multiuse pathway would result in the introduction of non-historic small-scale features onto the cultural landscape and within the historic district. Because the new benches, shade structures, and interpretive media may be visible throughout the park, they may slightly detract from the overall historic character and feeling of the landscape. However, the features would be designed to be compatible with the historic setting in terms of color, scale, and materials. Additionally, the specific location for each feature would be carefully considered to minimize intrusion on the landscape to the extent practicable. The intensity of the impact on the cultural landscape and historic resources would depend on the final design, location, and number of these features, which would be determined during a future project phase. Through the final design process, the park would ensure impacts on the landscape were minimized, particularly for those features placed within the mall or on Kill Devil Hill.

Cumulative Impacts

Other past, present, or reasonably foreseeable actions that have or would contribute to the cumulative impacts on the cultural landscape and historic resources include vegetation maintenance on Kill Devil Hill. This action would contribute a beneficial increment to the cumulative impact on the cultural landscape and historic resources. This beneficial increment is discussed under alternative 1 above.

Alternative 2 would result in both adverse and beneficial impacts on the cultural landscape and historic resources. The beneficial impacts of removing the remaining temporary Centennial Pavilion structures and of planting vegetation screening between the mall and the parking lot would outweigh the adverse impacts of introducing new features to the landscape such as a paved pathway, benches, shade structures, wayside exhibits, and an interpretive/educational facility. Therefore, alternative 2 would contribute an overall beneficial increment to the cumulative impact on the cultural landscape and historic resources. When considered together, the beneficial impact of vegetation maintenance on Kill Devil Hill combined with the beneficial impact of alternative 2 would result in an overall, cumulative beneficial impact on the cultural landscape and historic resources.

Conclusion

Alternative 2 would result in changes to the cultural landscape and historic resources, both beneficial and adverse. Beneficial impacts under alternative 2 would result from the removal of the remaining Centennial Pavilion area structures from the mall, which would improve the appearance of the cultural landscape and historic setting. Additionally, vegetation screening and fencing proposed along the edge of the visitor center parking lot would visually screen the development from view from the mall. This vegetation screening and fencing would create a visually defined boundary on the eastern edge of the commemorative mall and restore screening that was historically part of the Mission 66 visitor center design. Other proposed improvements under alternative 2, including the new interpretive/educational facility, new paved pathway, benches, shade structures, and wayside exhibits would introduce non-historic features into the cultural landscape and historic district, which could detract from the historic character, alter views, and change circulation patterns. The sensitive nature of the landscape would be considered during future design of the proposed features, including the specific location, orientation, size, materials, and color; adverse impacts on the cultural landscape and historic resources would be mitigated through the design process to the extent practicable.

Under alternative 2, the overall historic character and commemorative feeling of the cultural landscape and historic district would remain intact. No changes would be made to the character-defining features of the cultural landscape or and historic resources in a manner that would diminish their overall integrity in terms of location, design, setting, materials, workmanship, feeling, or association. The park would apply the *Secretary of the Interior's Standards for the Treatment of Cultural Landscapes* to the extent practicable for all new elements proposed on the landscape. The historic property would continue to represent its association with the Wright brothers, early flight, and the commemorative period in which the park was established. The visitor center would remain a National Historic Landmark and would have no alterations to its historic fabric. There would be no direct impacts on the monument pylon, the First Flight Marker, the flight line, the Boulder Road Trace, or the December 17, 1903 Sculpture.

VISITOR USE AND EXPERIENCE

Affected Environment

In 2019, over 400,000 people visited the park; the months with the highest visitation levels were June, July, and August (NPS 2020b). Visitors to the park have the opportunity to learn about the Wright brothers' historic achievements through the commemorative landscape and interpretive features. The visitor center, which underwent an extensive rehabilitation from 2016-2018, offers visitors the

opportunity to learn about the Wright brothers and the history of flight through museum exhibits. Outside of the visitor center, visitors have the opportunity to experience the Wright brothers' story at a number of commemorative locations and other interpretive sites. These include the flight line commemorating the first four successful flights, the reconstructed 1903 camp buildings, the monument pylon on Kill Devil Hill, and the December 17, 1903 Sculpture. When large groups visit the park, particularly school groups, interpretive/educational events occur outside on the site.

Visitors enter the park from Highway 158 via a curving entrance road that leads to entrance fee booths. After paying the entrance fee at the fee booths, visitors follow the entrance road to the parking area where there is no defined entrance or exit to the parking lot. The vehicle drop-off/pick-up location is currently at the northwestern corner of the parking lot closest to the visitor center, sharing space with the main drive aisle around the perimeter of the parking lot. Most visitors drive straight into the parking lot, but during heavy visitation, vehicles dropping off or picking up passengers may block the drive aisle, causing congestion. When the parking lot is full during periods of high visitation, visitors are directed to park in an informal overflow parking lot southeast of the visitor center parking lot. During these periods, the parking lot entrance/exit is marked with temporary signage and traffic cones and no parking spaces are delineated.



Overflow parking lot

Visitors exploring the park on foot often circulate in a loop from the visitor center, along the flight line, to the monument, and back to the parking lot. Following existing walkways requires visitors to backtrack to the flight path and visitor center before reaching the parking lot. The most direct route from the monument to the parking lot is along the roadway running along the east side of the grassy mall; however, this road has no sidewalk or other pedestrian accommodation. This leads to visitors walking along the road, which can cause conflicts between vehicles and pedestrians.

The First Flight Airstrip provides visitors the opportunity to view small planes take off and land, connecting the Wright brothers' story to modern flight. Visitors are able to watch the planes from the Pilot Facility, the airstrip parking lot, or the northern end of the mall. However, thick vegetation between the airstrip and the grassy mall screens most of the airstrip from view from other points below the top of Kill Devil Hill.



View of plane landing within limited view of the airstrip

The climate of Kill Devil Hills includes hot summers with high heat indices. Because of the park's open, commemorative nature, there are very limited opportunities for visitors to sit and rest in the shade. Much of the site is experienced under the hot summer sun during the peak visitation season. Because large group events occur outside, these events are cancelled during inclement weather or periods of high heat indices.

Outside of the main block of the park, the park includes land area on the east side of Highway 158. This parcel of park land is not currently used for formal visitor use, but several informal pull-offs exist along the edges of the parcel. Occasionally, vehicles park in these pull-offs to access the nearby beaches. Illegal trash dumping has also occurred in these locations.

Methodology

Potential impacts on visitor use and experience are assessed based on changes to the way people use the project area, as well as how the alternatives would alter visitors' experiences. Recreation related to and enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks (NPS 2006). The park strives to provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the natural and cultural resources found in parks. The current conditions of visitor use and experience, as presented in the "Affected Environment" section above, were compared with the alternatives described in chapter 2 to determine how visitor use and experience would be affected.

Alternative 1: No Action

Impacts

Under the no-action alternative, continuation of existing management would result in continued impacts to the visitor experience. Visitors would continue to enter the park on the existing entrance road and pay the park fee at the existing fee booths. During periods of heavy visitation, a queue of vehicles awaiting their turn to pay may form, resulting in visitors needing to wait to enter the park.

Visitors would continue to follow the entrance road to the parking area where they are confronted with several decision points for how to circulate through the parking lot. Because there would continue to be multiple options to enter and exit to the parking lot, most drivers would continue to use the first (northernmost) drive aisle of the parking lot to enter. This drive aisle would continue to get congested during busy periods, particularly when several buses are queued up at the drop-off/pick-up area in the northwest corner of the parking lot.

The no-action alternative would allow the current intrusions within the viewshed to remain. When visitors arrive at the parking lot, they would continue to have a view of most of the park, including the visitor center, the mall, Kill Devil Hill, and the pylon. There would continue to be no visual emphasis on any particular feature. Additionally, the Centennial Pavilion structures and the parking lot would continue to be within the view shed of the hill and the mall with no visual delineation between the parking lot and the commemorative landscape.

The continuation of the current condition of the thick wooded area between the grassy mall and the First Flight Airstrip would continue to limit visitors' view of small aircraft landing and taking off. Views would continue to be limited to the northern end of the airstrip near the flight line and the southern end near the Pilot Facility. Limiting the views of the airstrip results in missed opportunities for visitors to further connect the Wright brothers' story to modern flight.

Because the formal pedestrian route between the visitor center and the monument is limited to the sidewalk (Boulder Road Trace) through the center of the mall, visitors are required to backtrack their route to return to the parking lot after visiting the monument on foot. At this point, many visitors do not desire to revisit the visitor center and seek out the most direct route back to the parking lot. Therefore, many visitors walk on the roadway to take the shortest route back to the parking lot. This occurs often when the weather is hot and visitors have spent time unsheltered from the sun and heat. This results in pedestrians sharing the road with vehicles without any sidewalks or other pedestrian accommodations.

Under the no-action alternative, there would continue to be very limited opportunities for visitors to sit and rest in the shade as they experience the park on foot. The open landscape of the park requires visitors exploring the resources by foot to spend time outside unsheltered from the elements. This may lead to some discomfort among visitors during periods of inclement weather or high heat index. Additionally, without any sheltered area large enough for planned group events, these events would continue to be modified or cancelled during inclement weather or periods of high head indices.

Although not a direct impact on visitor use and experience within the park, the continued use of the undeveloped park parcel on the east side of Highway 158 for informal parking and illegal trash dumping may result in a poor experience for visitors traveling through or adjacent to the parcel to access the park if they see illegally-dumped trash.

Cumulative Impacts

Other past, present, or reasonably foreseeable actions that have or would contribute to the cumulative impacts on visitor use and experience include the Colington Road improvement project. Extending the bicycle lane would create new bicycle connection to residents and visitors along Colington Road to portions within the park boundaries, where a bicycle lane already exists. The bicycle lane extension may

provide a more pleasant experience for bicyclists already using Colington Road to reach the park because they would no longer have to share the road with vehicles on portions of the road to the west of the park that do not currently have a separate bike lane. This would contribute a small beneficial increment to the cumulative impact on visitor use and experience.

Under the no-action alternative, the lack of intuitive wayfinding, the visual intrusions, and the lack of shaded areas and benches throughout the park would contribute an adverse increment to the cumulative impact on visitor use and experience. The small beneficial increment of the Colington Road project would not outweigh the adverse increment of the no-action alternative. Therefore, the overall cumulative impact on visitor use and experience would be adverse.

Conclusion

Under the no-action alternative ongoing impacts on visitor use and experience would continue, including the lack of intuitive wayfinding when entering the visitor center parking lot, the lack of vegetation screening between the mall and the parking lot, and the lack of shaded areas and benches along the pedestrian routes throughout the park.

Under the no-action alternative, the overall visitor experience would remain focused on the Wright brothers' story and the history of flight. Visitors would continue to be able to experience the commemorative landscape that was established in the 1920s and 1930s. The park would continue to provide a variety of experiences for visitors, including museum exhibits, reconstructed buildings, commemorative markers, viewing of the modern airstrip, and visiting the top of Kill Devil Hill.

Alternative 2: Proposed Action

Impacts

Under alternative 2, the visitor experience would be improved from the time visitors enter the park. If automated fee kiosks are installed in the vicinity of the parking lot and the fee booths are removed, visitors would no longer be required to stop before entering the parking lot. This may limit queueing before entering the park during periods of heavy visitation. If the fee booths are removed, the park would be able to better utilize fee staff members in a manner that enhances the visitor experience, rather than only for fee collection.

Changes to the parking lots would improve vehicular traffic flow and wayfinding for visitors while reducing confusion. The reconfigured visitor center parking lot would provide a clear and intuitive circulation pattern for visitors in vehicles to follow to find the appropriate parking space. This would reduce visitor confusion by eliminating the existing decision points for how to enter and circulate through the parking lot. Additionally, because the drop-off/pick-up point closest to the visitor center would be separated from the main circulation route, queuing buses would not block the shared drive aisle, which would limit congestion in the parking lot. At the overflow parking area, a formalized entrance/exit would reduce visitor confusion and improve wayfinding into the lot. Overall, the more intuitive wayfinding and reduced visitor confusion would improve overall traffic flow through the parking lot, limiting congestion and improving the visitor experience entering the park.

Changes in vegetation throughout the park would change how visitors experience the park visually. The addition of vegetation screening between the parking lot and the mall would create a visual boundary that would focus the visitor's attention away from the parking lot. Although it would not completely screen the parking lot from view, vegetation screening would help soften distracting sights and focus visitor attention on the Wright Brother's story. Landscaped medians in the parking lot would also somewhat soften the visual intrusion of the pavement within the viewshed. Thinning of vegetation along the airstrip would open up views from the mall. These views would enable visitors to observe small aircraft take off and land, providing an opportunity for a new way to experience the park and broaden their understanding of the story of flight. Thinning of vegetation along Highway 158 would allow the monument to be more visible from points along Highway 158 outside of the park, which may allow drivers passing through the area to better appreciate the view of the monument. However, this tree thinning would also allow adjacent development to be partially visible from areas within the park. This may visually distract from the commemorative feeling of the landscape, which may be an adverse impact on the visitor experience of the park. The intensity of the impact would depend on the amount of vegetation thinning that would be undertaken in this area, which would be determined during a future phase of the project.

Under the alternative 2, the removal of the remaining Centennial Pavilion facilities would result in one fewer set of restrooms within the park for visitors. The Centennial Pavilion restrooms are currently located roughly 700 feet from the visitor center along designated pedestrian pathways. The remaining restrooms would be located at the visitor center and at the Pilot Facility at the southern end of the First Flight Airstrip, a distance of approximately 0.6 mile along designated pedestrian pathways. This would also result in the loss of an area of respite between the visitor center and Kill Devil Hill, including an area to step out of the sun during the peak summer months. However, the removal of these structures would remove non-historic features from the cultural landscape and historic setting, allowing visitors to experience a landscape that is closer in appearance to the historic commemorative landscape designed during the park's period of significance.

The addition of a new multiuse paved pathway throughout the park would provide an additional route for visitors to tour the park, offering a pathway to new locations, and creating new experiences for visitors. It would allow visitors a more diverse range of activities, inclusive of the entire park, such as viewing and learning about the airstrip and experiencing new views from there back to the monument. The pathway would allow visitors to circulate through the park in a loop, eliminating the need to backtrack to avoid walking along the road. The portion of the pathway that would travel through the wooded area adjacent to the airstrip would allow visitors a way to watch small aircraft take off and land, connecting modern flight to the history of the park. This pathway, along with viewing platforms and interpretive waysides would allow the visitor the opportunity to more fully engage with the story of flight from the Wright brothers to modern airplanes. Travelling through this wooded area would also provide shade, allowing visitors to take respite from the sun during the hot summer months and periods of high heat indices. The shade would likely improve visitor comfort while visiting the site. The pathway would also allow visitors to take a more direct route from the monument hill back to the parking lot without walking on the roadway. This may increase visitor comfort because they would not be sharing road space with vehicles.

Because this pathway would be a multiuse path, bicycle use would be permitted along it. This would improve the visitor experience for some visitors because it would provide a new activity and mode of transportation they can use throughout the park, rather than being limited to using bicycles on park roads. However, sharing a pathway with bicycles may make some pedestrians less comfortable in the case of

user conflicts. The park would strive to limit user conflicts through educational materials such as bicycle and pedestrian etiquette posted in some areas. Similarly, if the pathway was used as a tram route in the future, it would provide a new way for visitors to experience the park, particularly those who have limited mobility. The NPS would consider measures to separate use such as not allowing bicycle or pedestrian use on the pathway during tram operation, either seasonally or on particular days, if there are conflicts. This may eliminate the discomfort some pedestrian users may have when sharing a pathway with a vehicle. However, some visitors may be unhappy that they have to share the pathway with other user groups. The pathway would provide new experiences for viewing the park, memorial landscape, viewshed west towards the monument, and views of the airstrip.

The multiuse pathway proposed for the eastern boundary of the park along Highway 158 may in a small benefit to visitor use and experience because it would increase connectivity between the park and adjacent areas. It may allow visitors living or staying near the park a new way to access the park without a car or without using the roadway.

The addition of strategically placed benches and shade structures along existing and proposed pathways would improve visitor comfort throughout the park. Visitors would have more opportunities to sit and rest than under current conditions. Visitors would also have the ability to seek respite from the sun during periods of hot weather under shade structures. These comfort features may allow some visitors the ability to experience more of the site because they may be able to spend more time in the park than they could have without places to sit and rest or shady places to escape the hot sun. This would improve the visitor experience overall, both in terms of comfort and in terms of the variety of sites at the park they are able to visit.

The new interpretive/educational facility would enhance the visitor experience by providing a facility that can accommodate large groups sheltered from the elements. Large groups, particularly school groups, would be able to attend a scheduled programming event during periods of high heat indices or inclement weather. There would likely be fewer instances of events canceled due to the weather than under the existing conditions. This facility would also allow the park to offer a wider range of experiences for visitors to the park.

Under alternative 2, improved facilities for the park staff would allow them to operate more efficiently, which may indirectly improve the visitor experience. Similarly, the new RV sites would help the park recruit and retain volunteers and staff, and may result in an indirect benefit to the visitor experience if there are additional staff at the park to provide information and interpretation of site features as well as maintain upkeep of the facilities and landscape.

Development of the undeveloped parcel of park land across Highway 158 into a beach parking area, picnic area, and potential bus overflow parking lot may not have direct impacts on the visitors to the park but would provide additional amenities available to visitors and residents to the town of Kill Devil Hills. These new amenities could result in an indirect benefit on visitor use and experience by offering a nearby convenience to visit the beach or other sites before or after visiting the park.

Construction of the proposed changes throughout the park would result in temporary adverse impacts on visitor use and experience in the park. These impacts may include temporary closures of areas of the park as well as visual and noise intrusions due to construction activity and equipment on site. The specific

impacts, including duration and intensity would vary based on the feature being constructed. For example, reconfiguration of the parking lot would require closure of the existing parking lot, either fully or in portions, and may require visitors to park in the overflow lot or other designated areas during this time. These closures could result in fewer available parking spaces or visitors having to walk a farther distance to the visitor center. Specific impacts would be dependent on the final design of the parking lot and the construction plan, which would be determined during a future project phase. The parking lot construction would be more disruptive to visitors than would construction of the proposed interpretive/educational facility because that would be constructed in an area not currently used by visitors. Although the area would be fenced off to visitors during construction, it would not limit the use of any existing facility. Removal of the Centennial Pavilion structures and construction of the multiuse paved pathway would result in the visual and noise intrusion of construction activity and equipment directly within or adjacent to the grassy mall and the viewshed from Kill Devil Hill. These intrusions would distract the visitor attention from the open, commemorative space and may somewhat diminish the overall experience of the park. The intensity of these construction impacts would depend on final design and whether or not several facilities are constructed at the same time. For example, if multiple facilities are constructed concurrently, more of the park may be closed off at one time; however, if multiple facilities are constructed sequentially, overall construction duration may last a longer time. When possible, construction should be performed over the late fall and winter months when visitation is lowest in order to minimize the impact on the visitor experience. These impacts related to construction would be temporary and would cease once construction activities are completed.

Cumulative Impacts

Other past, present, or reasonably foreseeable actions that have or would contribute to the cumulative impacts on visitor use and experience include the Colington Road improvement project. Extending the bicycle lane would create new bicycle connection to residents and visitors along Colington Road to portions within the park boundaries, where a bicycle lane already exists. This would contribute a small beneficial increment to the cumulative impact on visitor use and experience. This beneficial increment is discussed under alternative 1 above.

Temporarily, the Colington Road project has the potential to result in visual and noise disturbance to the visitor experience due to construction equipment and activity within the vicinity of the park. These impacts would be most intense on the south side of the park from where Colington Road is visible, particularly the December 17, 1903 Sculpture and the south side of Kill Devil Hill. There may be partial road closures during the construction period, which may affect visitor access to the First Flight Airstrip parking area, which connects to Colington Road. This action has the potential to contribute a temporary, small, adverse increment to the overall cumulative impact on visitor use and experience; however, this adverse increment would cease once construction activities are completed.

Under alternative 2, the improvements proposed throughout the park would result in an overall improvement to the visitor experience of the park as a whole, which would contribute a beneficial increment to the overall cumulative impact on visitor use and experience. When considered with the Colington Road bicycle lane extension, the proposed multiuse paved pathway throughout the park would provide additional bicycle connection and experiences throughout the park and the town of Kill Devil Hills. Combined, the Colington Road project and alternative 2 would result in an overall cumulative beneficial impact on visitor use and experience.

Alternative 2 would also result in temporary construction impacts on visitor use and experience. These activities would contribute a temporary adverse increment to the overall cumulative impact on visitor use and experience. When considered together, the temporary construction impacts of the Colington Road improvements project combined with the temporary construction impacts of the alternative 2 would result in an overall adverse cumulative impact on visitor use and experience. The intensity of this cumulative impact would depend on the timing of construction projects. For example, if the projects were implemented concurrently, the impacts may be more intense but last a shorter duration. If the projects are implemented sequentially (or only partially concurrently), the impacts may be less intense but last a longer duration. However, the adverse cumulative impact would cease when construction activities for all projects are completed.

Conclusion

Alternative 2 would result in improvements to the visitor experience as well as some temporary adverse impacts due to construction. Beneficial impacts would result from improved circulation routes, both vehicular and pedestrian. Improvements to the entrance and parking lots would create more intuitive wayfinding and reduce potential queueing and traffic congestion to enter the park. The proposed multiuse pathway would provide a new pedestrian and bicycle route through the park and provide access to new areas, particularly the vicinity of the airstrip. New interpretive opportunities would be available through creation of the interpretive/educational facility for large groups as well as through the viewing platforms and informational waysides in the wooded area next to the airstrip. Overall visitor comfort would be improved under alternative 2 through the addition of benches, shade structures, and the multiuse pathway through the wooded area near the airstrip, particularly during the hot summer months. These features provide areas for rest and shade that are not available under the current conditions in the open park.

Under alternative 2, the overall visitor experience would remain focused on the Wright brothers' story and the history of flight. Visitors would continue to be able to experience the commemorative landscape that was established in the 1920s and 1930s. The park would continue to provide a variety of experiences for visitors, including museum exhibits, reconstructed buildings, commemorative markers, viewing of the modern airstrip, and visiting the top of Kill Devil Hill. Although construction activities under alternative 2 would result in closures of specific areas and would add visual and noise intrusions into the commemorative atmosphere, these impacts would be temporary and would cease at the completion of construction activities. The park would consider the impact on visitor use and experience when planning and designing construction activities, particularly if closures and other impacts would overlap.

NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 ASSESSMENT OF EFFECT ON HISTORIC PROPERTIES

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. The implementing regulations for Section 106 (36 CFR part 800) permit federal agencies to use the NEPA process for environmental assessments in lieu of a separate Section 106 process to meet those requirements (36 CFR part 800.8[c]). In compliance with Section 106, the park, through this EA, has provided the North Carolina State Historic Preservation Officer and associated Native American Tribes with an assessment of effect.

The assessment of effect on historic properties presented in this section responds to the requirements of Section 106 of the NHPA, in accordance with the regulations implementing Section 106. The assessment of effect on historic properties was based on a review of previous studies, consideration of the proposed design concepts, and other information provided by the park. The effects of the proposed action (referred to here as the proposed undertaking) are discussed below. The no-action alternative would not be considered an undertaking per 36 CFR part 800.16; therefore, an assessment of the no-action alternative is not required.

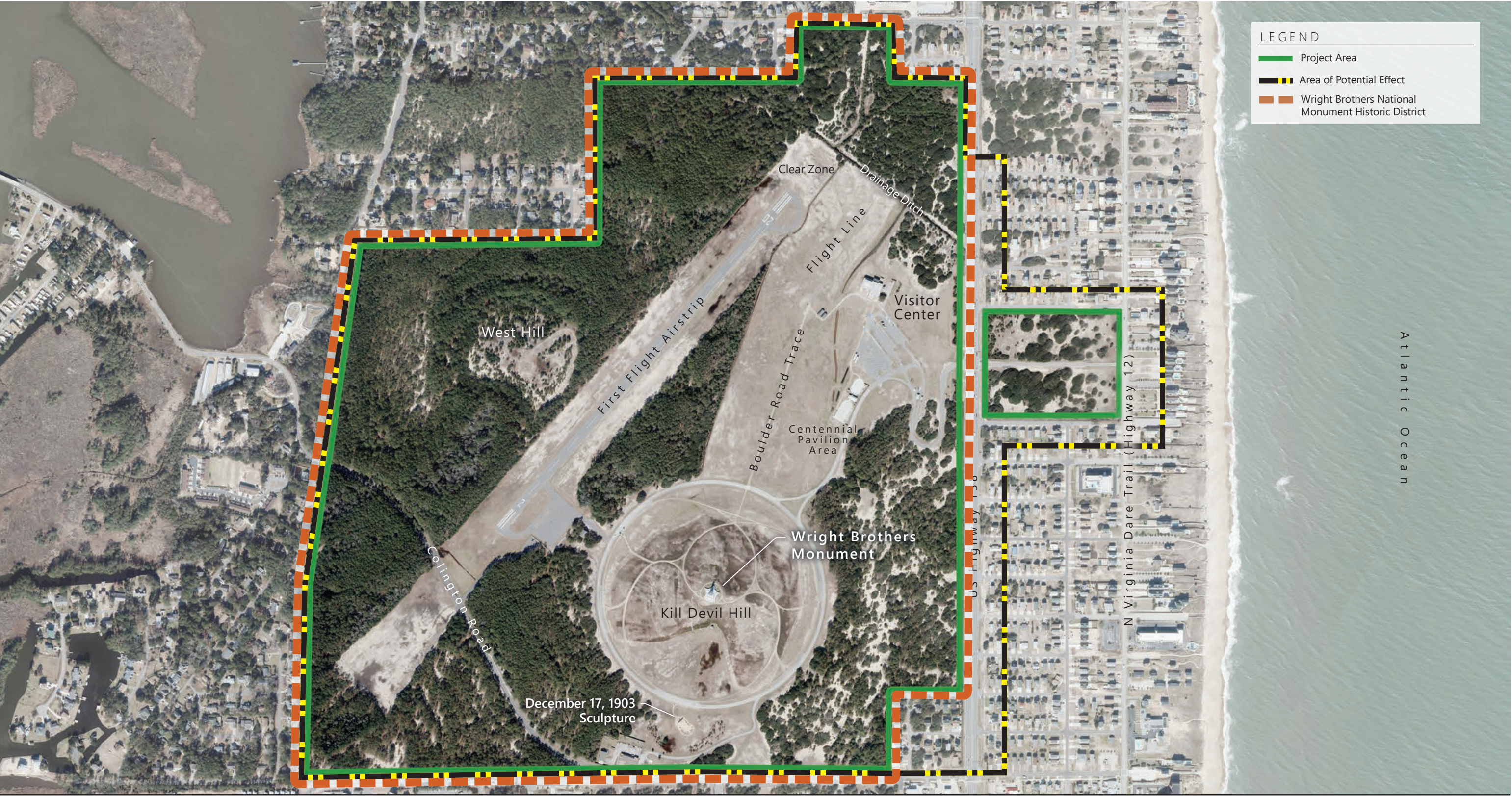
Area of Potential Effect

In compliance with Section 106 regulations, an area of potential effect is defined for this project. The area of potential effect is defined as the geographic area in which an undertaking may directly or indirectly cause alterations in the character or use of historic properties if such properties exist. The area of potential effect for this project includes the project area and all areas from which changes to the landscape would be visible, as shown on Figure 7. The area of potential effect is larger than the project area to include properties along Highway 158 from where proposed changes to the park may be visible as a result of tree thinning as well as to include properties adjacent to the 15-acre parcel across Highway 158 from where the potential beach parking area would be visible.

Identification of Historic Properties

Historic properties within the area of potential effect include the Wright Brothers National Memorial Historic District, the Wright Brothers National Memorial Cultural Landscape, and the Wright Brothers National Memorial Visitor Center. The Wright Brothers National Memorial was administratively listed in the National Register as a historic district in 1966 with the passage of the NHPA; documentation for the historic district was submitted in 1978 and additional documentation for the listing was submitted in 1996. The historic district boundary excludes the 15-acre property across Highway 158 because the land is outside of the historic scene and was acquired only as a buffer zone (NPS 1996). Contributing resources to the historic district include the Wright Brothers Monument and associated powerhouse, the First Flight Marker, the curvilinear trails leading up Kill Devil Hill to the monument, the spatial relationship between the monument and the First Flight Marker, Kill Devil Hill, and West Hill (NPS 1996).

Several features within the area of potential effect are considered contributing resources to the cultural landscape. These include the following: spatial patterns, including the open grassy mall framed by wooded areas extending north from the monument pylon as well as the spatial relationship between Kill Devil Hill and the First Flight Marker; circulation patterns, including the historic vehicular and pedestrian routes around Kill Devil Hill and Boulder Road; vegetation, including the grassy mall framed by vegetation on the east and west; views, including the unobstructed view from Kill Devil Hill to the first flight line; structures, including the visitor center and the monument pylon; and small-scale features, including the First Flight Marker (NPS 2002). Finally, the Wright Brothers National Memorial Visitor Center was designated as a National Historic Landmark in 2001 (NPS 2001). Additional detail about these historic properties within the area of potential effect is available in the “Affected Environment” section above under the impact topic of “Cultural Landscape and Historic Resources.”



General Management Plan Amendment

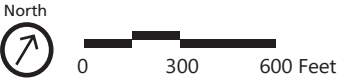


FIGURE 7
Area of Potential Effect

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A substantial percentage of the park has a low probability of yielding archeological resources due to its historic nature as shifting sand dunes. Prior to stabilization and development of the area in the early 20th century, the migration of dunes and sand in what is now the area of potential effect would have made the area unstable and unlikely to present in that form during the pre-Contact or early Historic periods. Known archeological sites identified to date are directly linked to the Wright Brothers' buildings and experiments on the site and to the subsequent commemoration of their achievements (NPS 2016). However, only a very small portion of the park has been fully surveyed to current NPS standards. In order to fully identify whether any additional archeological resources are present within the area of potential effect, the park may need to conduct additional archeological surveys once the project moves into design phases and more details such as specific areas of disturbance are identified. The park would coordinate with the North Carolina State Historic Preservation Officer and associated Tribes, as appropriate, to determine if additional archeological survey is warranted prior to ground disturbance.

Assessment of Effect for the Proposed Undertaking

Under the proposed undertaking, there would be *no adverse effect* on historic properties within the area of potential effect under the criteria of adverse effects (36 CFR part 800.5). The rationale for this determination is discussed below.

The removal of non-historic structures in the Centennial Pavilion area from the cultural landscape and the historic district would restore the open, commemorative landscape of the grassy mall and improve the viewshed between the monument and the mall. Overall, the historic setting would be improved and some historic character restored. Because the area was previously disturbed, there would be no disturbance to intact archeological resources as a result of removal of these structures.

Reconfiguration of the visitor center parking lot has the potential to result in alterations to historic circulation patterns and historic design of the Mission 66 visitor center and historic district. However, the park would follow design criteria (described in "Chapter 2: Alternatives") during design of the final layout to ensure the new parking lot is compatible with the Mission 66 historic character. Therefore, the modifications to the parking lot would not alter the circulation patterns or appearance in a way that would diminish the overall historic integrity of design of the visitor center or the historic district.

Proposed features such as the interpretive/educational facility, shade structures, benches, and pathways would result in the introduction of new structures and circulation patterns into the cultural landscape and the setting of the historic district. However, these features would be designed to be compatible with the historic and commemorative character of the park in terms of color, material, scale, and design. The new interpretive/educational facility would be located in a wooded area and would be screened from the historic viewshed. Shade structures, benches, and interpretive media would be designed and sited along the edges of the commemorative mall, screened by vegetation where possible. The specific location for each feature would be carefully considered to minimize intrusion on the landscape and to avoid adverse effects on the historic property.

The final locations and design of individual features would be informed by the overall importance and sensitivity of the area. All new features would be fully reversible and the park would apply the *Secretary of the Interior Standards for Treatment of Historic Properties* to the extent practicable for all proposed new features on the landscape. Known archeological resources would be avoided by all ground-disturbing

activities. Should any previously unknown archeological resources be encountered during implementation, the park would take appropriate steps to avoid, minimize, or mitigate any adverse impacts on the resources, as described in the “Mitigation Measures” section above. The park would coordinate with the North Carolina State Historic Preservation Officer and associated Tribes, as appropriate, during the design phase of the project and to determine if additional archeological survey is warranted prior to ground disturbance.

Under the proposed undertaking, the park as a whole would remain listed in the National Register as a historic district, including its contributing historic structures and other features. The visitor center would remain a National Historic Landmark and would have no alterations. Overall, historic character and commemorative feeling of the cultural landscape and historic district would remain intact. No changes would be made to the character-defining features of the cultural landscape or historic district (such as patterns of spatial organization, circulation, boundaries, vegetation, buildings and structures, and small-scale elements) in a manner that would diminish its overall historic integrity. There would be no alterations to the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. The historic property would continue to represent its association with the Wright brothers, early flight, and the commemorative period in which the park was established. The park would coordinate with the North Carolina State Historic Preservation Officer and associated Tribes, as necessary during the design phase of the project. Therefore, the park has determined that there would be no adverse effect on historic properties.

CHAPTER 4: CONSULTATION AND COORDINATION

NPS Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* requires the park to make "diligent" efforts to involve the interested and affected public in the NEPA process. This process helps to achieve the following: determine the important issues and eliminate those that are not; allocate assignments among the interdisciplinary team members and/or other participating agencies; identify related projects and associated documents; identify other permits, surveys, consultations, etc. required by other agencies; and create a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. This chapter documents the agencies and Tribes consulted during the NEPA process and summarizes the public review process for this EA.

AGENCY AND TRIBAL CONSULTATION

During the NEPA process, the park contacted the following agencies and Tribes for consultation:

- | Advisory Council on Historic Preservation
- | North Carolina State Historic Preservation Officer
- | Eastern Band of Cherokee Indians
- | United Keetoowah Band of Cherokee Indians in Oklahoma
- | Tuscarora Nation
- | Cherokee Nation
- | US Fish and Wildlife Service
- | North Carolina Division of Coastal Management
- | North Carolina National Heritage Program

National Historic Preservation Act, Section 106

As required by Section 106 of the NHPA, the park consulted with the North Carolina State Historic Preservation Office and associated Tribes to assess the effect of the project on historic properties. The NEPA process was used to satisfy the requirements of Section 106; therefore, an assessment of effect on historic properties was included in this EA. Consultation under Section 106 is ongoing, and the park will continue consultation as appropriate during project implementation, as discussed in the assessment of effect in chapter 3 above.

Endangered Species Act, Section 7

As required by Section 7 of the Endangered Species Act, the park made the following effect determinations and discussed with the US Fish and Wildlife Service the potential effects of the proposed action on these federally listed species:

- | red-cockaded woodpecker: *no effect*
- | northern long-eared bat: *no effect*

Coastal Zone Management Act

As required by the Coastal Zone Management Act and the North Carolina Coastal Area Management Act, the park completed a Federal Consistency Determination to assess the project's consistency with these acts. The park consulted with the North Carolina Division of Coastal Management through this process. A copy of the Federal Consistency Determination is available in appendix C.

PUBLIC REVIEW

The EA will be on formal public and agency review for 30 days and has been distributed to a variety of interested individuals, agencies, and organizations. It also is available on the internet at <https://parkplanning.nps.gov/wrbr>, and hard copies are available by request.

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**APPENDIX A:
1997 GENERAL MANAGEMENT PLAN
MATRIX OF ACTIONS**

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Actions Proposed in 1997 GMP/EA

| Action | Completed/ Ongoing | Considering as an Element of this GMPA | Not Considering as an Element of this GMPA | Comments |
|--|-----------------------|---|--|--|
| Entrance and Parking | | | | |
| Redesign intersection with US 158 | X | | | Different than planned in GMP, but meets the need |
| Add deceleration lane along southbound US 158 | X | | | |
| Create jug handle turn to enter park from northbound US 158 | | | X | Reconfigured intersection meets need |
| Permit beach parking on 16-acre tract | | X | | |
| Create 225-spot parking lot with 20 bus spaces associated with the new visitor center | | X | | Re-design of existing lot is estimated to accommodate: 7 bus drop-off spaces, 8-10 RV parking spaces, and 173 car parking spots. Overflow parking would be improved. |
| Add designated drop-off area | | X | | |
| Plant vegetative barrier to screen parking area from US 158 | X | | | |
| Add dedicated right turn lane to exit park | X | | | |
| Remove portion of memorial's road system linking entrance to road around Hill | X | | | |
| Fee Collection | | | | |
| Add signs with fee information | | X | | Specific signage TBD |
| Create a fee collection plaza with 3 booths | X | | | 2 booths meet the need |
| Explore use of automated fee collections | | X | | |
| Visitor Use | | | | |
| Construct new 20,000 sf visitor center/administrative facility with 5,000 sf for admin use | | | X | smaller sized buildings can meet the need |
| Remove existing visitor center and parking lot | | | X | Visitor center recently renovated |
| Create new interpretive exhibits using new technology | X | | | |
| Enhance relationship with Dayton Aviation NHP | X | | | |
| Consider a reservation system when excessively crowded | | | X | Not currently needed; the purpose and need of the GMPA are better met through other alternative elements. |

Actions Proposed in 1997 GMP/EA

| Action | Completed/ Ongoing | Considering as an Element of this GMPA | Not Considering as an Element of this GMPA | Comments |
|--|-----------------------|---|--|--|
| Use of Volunteers-in-the-Park | X | | | |
| Visitor Circulation | | | | |
| Stabilize trails | X | | | |
| Add culverts to drainage ditch and construct connector trails | X | | | |
| Create wayside exhibit plan | X | | | |
| Construct a trail following the road to the base of the hill | | X | | |
| Restrict vehicle access to the northern portion of the circular road around the hill | | | X | This can be done if needed during special events |
| Wright Brothers Monument (Pylon) | | | | |
| Reilluminate the beacon at the top of the pylon | X | | | |
| Complete a Historic Structures Assessment Report | X | | | |
| Open pylon interior for special events or tours | X | | | |
| Vegetation Management | | | | |
| Selectively thin vegetation between First Flight area and airstrip | | X | | |
| Selectively trim vegetation so Pylon beacon is visible from US 158 | | X | | |
| Add vegetation near entrance and visitor center to screen US 158 | X | | | |
| Other Facilities | | | | |
| Expand parking for cars and planes at airstrip | | | X | Not currently needed |
| Replace and relocate First Flight Airstrip concession structure | X | | | Concession facility was removed as it was no longer needed; replaced with First Flight Airstrip Pilot's Facility |
| Remove superintendent's house | X | | | |
| Remove staff housing trailers | X | | | The road is extant |
| Relocate maintenance facility | | | X | |

**APPENDIX B:
EXAMPLE DESIGNS OF
BENCHES AND SHADE STRUCTURES**

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EXAMPLE DESIGNS OF BENCHES

Example 1: Fort Raleigh Visitor Center plaza benches



Example 2: Wright Brothers National Memorial long bench



Example 3



Example 4



Example 5



EXAMPLE DESIGNS OF SHADE STRUCTURES

Example 1



Example 2



Example 3



Example 4



Example 5



**APPENDIX C:
COASTAL ZONE MANAGEMENT ACT
FEDERAL CONSISTENCY DETERMINATION**

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Coastal Zone Management Act Federal Consistency Determination

for

General Management Plan Amendment

Wright Brothers National Memorial

August 2020

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1

Federal Agency Purpose and Action

Wright Brothers National Memorial commemorates the first successful power-driven airplane flight, which was made by Wilbur and Orville Wright at Kitty Hawk, North Carolina, on December 17, 1903. The 428-acre park, listed in the National Register of Historic Places in 1966, protects historic resources including the site where the Wright brothers conducted their experiments, the Wright Brothers Monument, and several commemorative markers. Wright Brothers National Memorial is in Kill Devil Hills, North Carolina, in the region of barrier islands known today as the Outer Banks (figure 1). As shown in figure 2, the 428-acre park includes the takeoff point of the four powered flights made by the Wrights on December 17, 1903, marked by a boulder (First Flight Marker) that was dedicated in 1928. Four smaller granite markers were installed in November 1992 to identify each of the landing sites. The Wright Brothers Monument, erected in 1932 on Kill Devil Hill, is a 60-foot, triangular-shaped structure constructed of concrete and Mount Airy, North Carolina granite.

The National Park Service (NPS) is preparing a General Management Plan Amendment (GMPA) for the park that will review existing strategies in the park's existing General Management Plan (GMP) (issued in 1997) and develop long-term strategies to provide new visitor and administrative facilities, improve the visitor experience, share the story of the Wright brothers, and maintain the important commemorative landscape. Under this GMPA, the park would improve the visitor experience and provide adequate administrative space for the park and its partners.

Management actions would include:

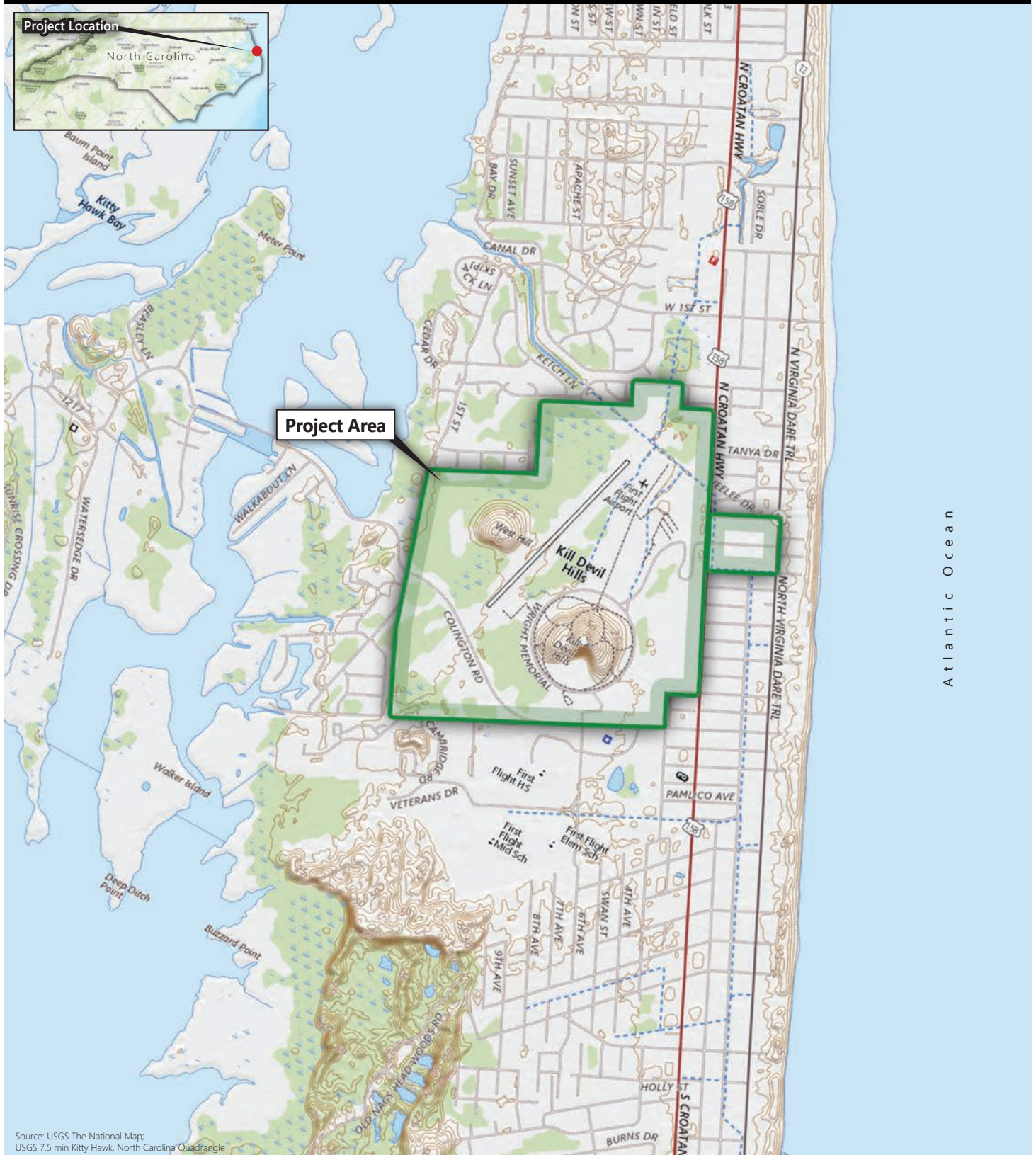
- › removing remaining Centennial Pavilion area structures;
- › repurposing the administrative building near the maintenance facilities and relocating an existing administrative trailer;
- › constructing a new open-air interpretive/educational pavilion with enclosed restrooms;
- › installing RV sites for park housing and administrative use;
- › coordinating with the Town of Kill Devil Hills to potentially develop the 15-acre parcel across from the park to include beach parking and picnic areas;
- › adding vegetation screening and selectively thinning vegetation to improve views throughout the park;
- › redesigning the visitor center parking lot within the existing footprint for improved circulation and drop-off;
- › adding a multiuse path to improve access to park resources; and
- › adding new benches, shade structures, and waysides for visitor comfort and interpretation.

These improvements are needed because the existing GMP is over 20 years old and conditions at the park have changed. Additionally, the current arrangement of park facilities providing interpretation, administration, and partner services has resulted in some issues, including the following:

- › The remaining Centennial Pavilion structures were intended to be temporary, are located directly in the historic viewshed, and detract from the memorial landscape and setting.
- › There is no sheltered programming or educational space for large groups.
- › There is limited office and storage space for NPS and partners.

There are also opportunities to improve visitor comfort and circulation throughout the site. For example, there are opportunities to provide shaded seating for visitors to rest, particularly during the heat of the summer. There are also opportunities for additional pedestrian walkways and paths to discourage pedestrian use of the roadways throughout the site.

For these reasons, there is a need to improve wayfinding, circulation, interpretation, NPS staff and partner facilities, and vegetation within the project area, while at the same time maintaining the memorial character of the park.



General Management Plan Amendment



FIGURE 1
Project Vicinity



Aerial photograph showing spatial relationship of park features



Temporary Centennial Pavilion and structures to be removed



LEGEND

- A** Visitor Center
- B** Visitor Center Parking Lot
- C** Overflow Parking Area
- D** Fee Booth and Entrance Road
- E** Centennial Pavilion Area
- F** Mall
- G** First Flight Marker
- H** Flight Line
- I** Wooded Areas
- J** Wright Brothers Monument
- K** Pilot's Facility
- L** Maintenance Complex
- M** Administrative Offices
- N** December 17, 1903 Sculpture
- O** Former Park Housing Area
- P** Undeveloped Parcel
- Project Boundary

General Management Plan Amendment

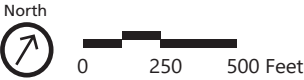
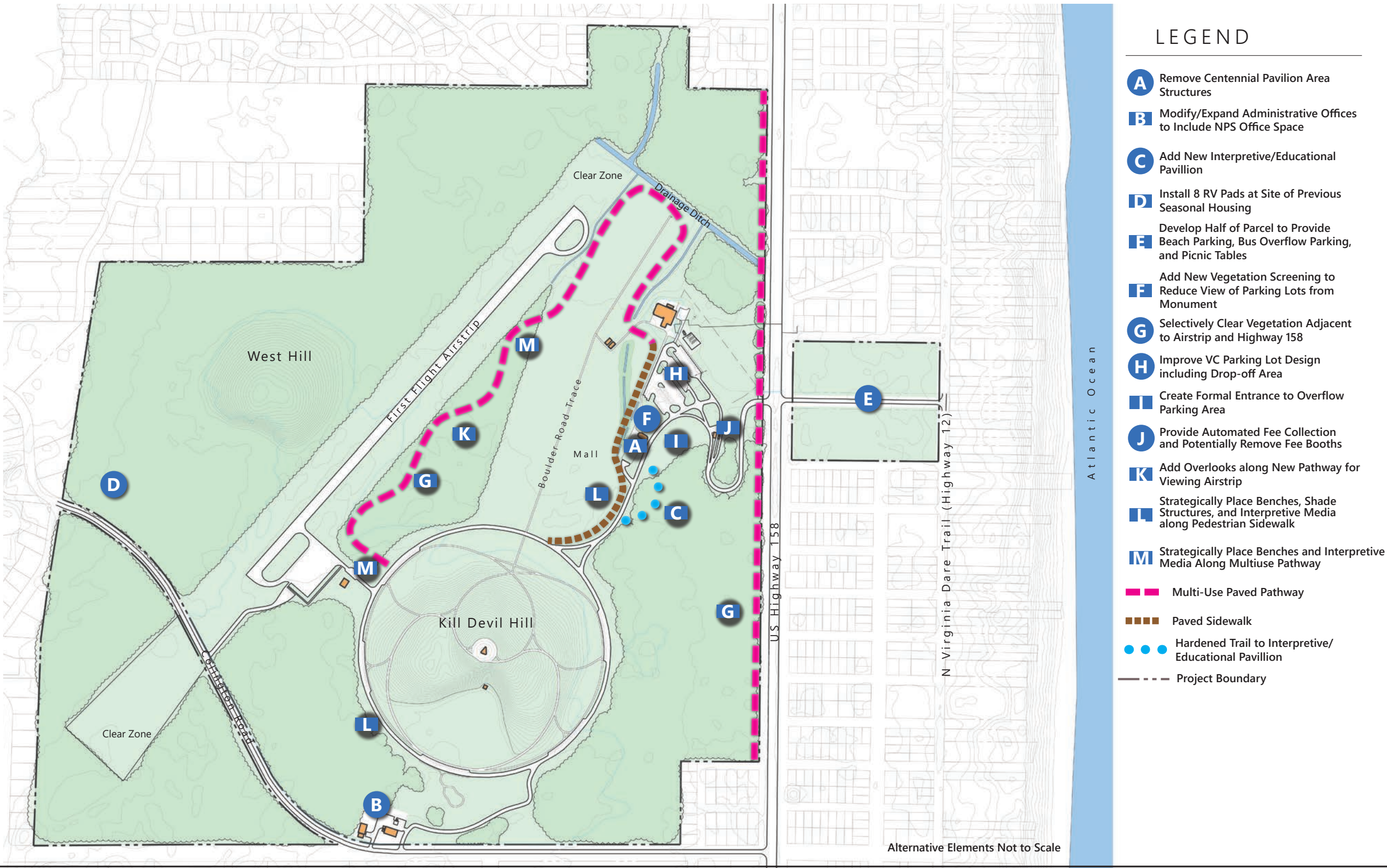


FIGURE 2
Existing Conditions



General Management Plan Amendment

2

North Carolina Coastal Area Management Act

In 1972, Congress passed the Coastal Zone Management Act (CZMA), which encouraged states to keep the coasts healthy by establishing programs to manage, protect, and promote the country's fragile coastal resources. Two years later, the North Carolina General Assembly passed the landmark Coastal Area Management Act (CAMA). CAMA required local land use planning in 20 coastal counties and provided for a program for regulating development. The North Carolina Coastal Management Program was federally approved in 1978 by the National Oceanic and Atmospheric Administration (NOAA).

2.1 Areas of Environmental Concern

North Carolina's coastal zone includes the 20 counties that are adjacent to, adjoining, intersected by, or bounded by the Atlantic Ocean or any coastal sound, including Dare County where the Proposed Action would occur. There are two tiers of regulatory review for projects within the coastal zone. The first tier includes Areas of Environmental Concern (AECs) as designated by the state. AECs have more thorough regulatory controls in place than other areas and include coastal wetlands, coastal estuarine waters, public trust areas, coastal estuarine shorelines, ocean beaches, frontal dunes, ocean erosion areas, inlet lands, small surface water supply watersheds, public water supply well fields, and fragile natural resource areas. The second tier includes areas with land uses that have the potential to affect coastal waters, even though they are not defined as AECs. The coastal zone extends seaward to the three-nautical-mile territorial sea.

An AEC is an area of natural importance and its classification protects the area from uncontrolled development. AECs include almost all coastal waters and about three percent of the land in the 20 coastal counties. The four AECs are as follows:

1. The Estuarine and Ocean System, which includes public trust areas, estuarine coastal waters, coastal shorelines, and coastal wetlands.
2. The Ocean Hazard System, which includes components of barrier island systems.
3. Public Water Supplies, which include certain small surface water supply watersheds and public water supply well fields.
4. Natural and Cultural Resource Areas, which include coastal complex natural areas; areas providing habitat for federal or state designated rare, threatened, or endangered species; unique coastal geologic formations; or significant coastal archaeological or historic resources.

The following is an analysis of the applicability of policies designed to protect AECs to the proposed plan and the NPS determination of no impact to North Carolina's coastal zone.

2.1.1 15A NCAC 07H .0200 (Estuarine and Ocean System)

15A NCAC 07H .0205 defines and establishes management objectives for coastal wetlands in order "to conserve and manage coastal wetlands so as to safeguard and perpetuate their biological, social, economic and aesthetic values, and to coordinate and establish a management system capable of conserving and utilizing coastal wetlands as a natural resource necessary to the functioning of the entire estuarine system." The proposed project would be located entirely within uplands and would not impact coastal wetlands; therefore, the project is consistent within these management objectives and policies.

15A NCAC 07H .0206 defines and establishes management objectives for estuarine waters in order "to conserve and manage the important features of estuarine waters so as to safeguard and perpetuate their biological, social, aesthetic, and economic values; to coordinate and establish a management system capable of conserving and utilizing estuarine waters so as to maximize their benefits to man and the estuarine and ocean system." The proposed project would not impact estuarine or ocean systems; therefore, implementation of the Wright Brothers National Memorial GMPA project would be consistent with these management objectives and policies.

15A NCAC 07H .0207 defines and establishes management objectives for public trust areas in order "to protect public rights for navigation and recreation, and to conserve and manage the public trust areas so as to safeguard and perpetuate their biological, economic and aesthetic values." The proposed development would be located entirely within upland areas and will not extend into a navigable waterway or public trust area; therefore, the project is consistent with these management objectives and policies.

15A NCAC 07H .0209 defines and establishes management objectives for estuarine shorelines and public trust shorelines in order to ensure that shoreline development is "compatible with the dynamic nature of coastal shorelines as well as the values and the

management objectives of the estuarine and ocean system." The following key development standards were reviewed and considered during project development, as relevant:

- › preserving natural erosion barriers (peat marshland, resistant clay shorelines, and cypress-gum fringe areas)
- › minimizing the construction of impervious surfaces
- › observing mandatory standards of the NC Sedimentation Pollution Control Act of 1973
- › minimizing impacts to estuarine resources, including coastal wetlands, submerged aquatic vegetation (SAV), and shellfish beds

Canal and ditch systems drain water from the memorial landscape to a canal system that flows to the Albemarle Sound. Construction activities within the park have the potential to affect the quality and quantity of water draining to the sound via these ditches. The proposed action would require a total of approximately 5.3 acres of land disturbance. This includes land disturbance for removal of the Centennial Pavilion structures, construction of the new interpretive/educational facility, reconfiguration of the visitor center parking lot within the existing footprint, addition of a formal entrance to the overflow parking lot, construction of RV sites and associated road widening, construction of a paved multiuse path, and installation of wayside exhibits, shade structures, and overlooks.

Some new features would increase the impervious surfaces throughout the park, including the new multiuse pathways (approx. 2.7 acres), wayside exhibits (approx. 0.01 acre), new interpretive/educational facility with access pathway (approx. 0.09 acre), and new RV sites and associated facilities (approx. 0.4 acre); other actions would reduce the impervious surfaces, including removal of the Centennial Pavilion structures (approx. 0.7 acre). Overall, this project would increase the impervious surfaces throughout the park by approximately 2.5 acres. The net increase in impervious surfaces throughout the park under the proposed action may increase stormwater runoff; however, site improvements would be designed to take stormwater runoff into account and would include appropriate drainage facilities, to be determined during future design phases of the project. Site design would also consider the park's existing ditch system and measures that would be in place for erosion and sediment control; therefore, impacts to water quality and water quantity would be minimized. The Wright Brothers National Memorial GMPA would be consistent with these management objectives and policies.

2.1.2 15A NCAC 07H .0300 (Ocean Hazard Areas)

15A NCAC 07H .0303 defines and establishes management objectives for ocean hazard areas in order "to eliminate unreasonable danger to life and property and achieve a balance between the financial, safety, and social factors that are involved in hazard area development." The proposed Wright Brothers National Memorial GMPA would not impact any Ocean Hazard Areas. It is consistent with these management objectives and policies.

2.1.3 15A NCAC 07H .0400 (Public Water Supplies)

15A NCAC 07H .0403 defines and establishes management objectives for public water supplies. The objective in regulating development within critical water supply areas is the "protection and preservation of public water supply well fields and A-II streams and to coordinate and establish a management system capable of maintaining public water supplies so as to perpetuate their values to the public health, safety, and welfare." The proposed GMPA would not have any impact on public water supplies; therefore, these management objectives and policies are not applicable.

2.1.4 15A NCAC 07H .0500 (Natural and Cultural Resource Areas)

15A NCAC 07H .0501 defines fragile coastal natural and cultural resource areas as "areas containing environmental, natural or cultural resources of more than local significance in which uncontrolled or incompatible development could result in major or irreversible damage to natural systems or cultural resources, scientific, educational, or associative values, or aesthetic qualities." The AECs within this category are coastal complex natural areas, coastal areas that sustain remnant species, unique coastal geologic formations, significant coastal archaeological resources, and significant coastal historic architectural resources.

Wright Brothers National Memorial is considered a cultural landscape for its important commemoration of the Wright Brothers and the site of the first ever powered, controlled, heavier-than-air flights made on December 17, 1903. The landscape is commemorative in nature and character-defining features include the spatial organization of the monument and markers, circulation patterns for both vehicles and pedestrians, vegetation, views, structures, and small-scale features. The proposed action has the potential to result in changes to these resources, including the addition of new circulation patterns, structures, and small-scale features into the cultural landscape. Proposed improvements have the potential to enhance the way visitors experience the park by improving viewsheds and providing an improved interpretive/education area. The improvements would not result in major or irreversible damage to natural systems or cultural resources; therefore, the project is consistent with these management objectives and policies.

15A NCAC 07H .0505 defines and establishes management objectives "to protect unique habitat conditions that are necessary to the continued survival of threatened and endangered native plants and animals and to minimize land use impacts that might jeopardize these conditions." The National Park Service has identified state listed plant species, maritime pinweed (*Lechea maritima*) (state-listed endangered) and beach heather (*Hudsonia tomentosa*) (state-listed threatened), in the natural areas within the park boundaries. Prior to design of any element of the proposed action, surveys for threatened or endangered plant species would occur, and new structures would be sited to avoid impacting listed plant species. Vegetation planting and thinning would also occur so as to avoid impacting threatened or endangered plant species. Therefore, the project is consistent with these management objectives and this policy.

15A NCAC 07H .0506 defines and establishes management objectives "to protect the features of a designated coastal complex natural area in order to safeguard its biological

relationships, educational and scientific values, and aesthetic qualities." The project will require the use of existing sand knolls and scrub/forested depressions. The area is not considered to be a part of the fragile frontal dune system or contain coastal cultural resources because of the distance from the ocean. No designated coastal complex natural areas are present within the boundaries of Wright Brothers National Memorial. Installation of vegetation would occur at the southwest boundary. Plantings would consist of native, habitat appropriate species following NPS policies and guidance. Thinning of vegetation, which would occur in wooded areas along Highway 158 and the First Flight Airport runway, would selectively remove vegetation from wooded upland areas without compromising the quality or character of the habitat; therefore, these policies do not apply to the proposed project.

15A NCAC 07H .0507 establishes management objectives to protect unique coastal geologic formations for the purpose of preserving formations' physical components that serve as important scientific and educational sites, or as valuable scenic resources. Currently, the only designated unique coastal geologic formation in North Carolina is Jockey's Ridge [15A NCAC 07H.0507(c)(3)], located in the Town of Nags Head in Dare County. Therefore, the proposed project would have no effect on this unique geologic formation and is consistent with this policy.

15A NCAC 07H .0508 defines and establishes use standards for development in designated fragile coastal natural or cultural areas. The development of the Wright Brothers National Memorial shall be consistent with the aesthetic values and historic character of the designated cultural landscape. Measures are in place to minimize or avoid impacts on the cultural landscape due to introduction of new circulation patterns and small-scale features. All new features would be designed and sited in a manner that is compatible with the historic character in terms of materials, color, and scale. The NPS would continue to consult with the NC State Historic Preservation Officer during design of these features and prior to implementation. Therefore, the proposed project is consistent with this policy.

15A NCAC 07H .0509 establishes management objectives to conserve significant coastal archeological resources for the purpose of preserving their value as scientific, educational, and aesthetic resources. Currently, the only designated significant coastal archeological resource in North Carolina is Permuda Island [15A NCAC 07H .0509(e)], which is a former barrier island located within Stump Sound in Southwestern Onslow County, over 200 miles south of the project area. There are no known significant coastal archeological resources that would be affected by the proposed project. Additionally, archeological survey may be required to fully determine if any archeological resources occur within the project area. The NPS would continue to consult with the NC State Historic Preservation Officer and any associated Native American Tribes to determine if any archeological testing is needed prior to ground disturbance for project implementation. Therefore, the proposed project is consistent with this policy.

15A NCAC 07H .0510 defines and establishes management objectives "to conserve coastal historic architectural resources of more than local significance which are valuable educational, scientific, associative or aesthetic resources." The Wright Brothers National Memorial Visitor Center is a National Historic Landmark and is a contributing resource to the park's National Register historic district as well as a contributing resource to the cultural

landscape. It is significant as an excellent example of NPS Mission 66 architecture as well as an important example of the Philadelphia School of modern architecture. Although the historic setting of the visitor center may be altered slightly through the introduction of non-historic pathways, benches, and shade structures, the building itself will remain unchanged from its current condition. Although the parking lot would be reconfigured, it would remain within the existing footprint and would be compatible with the character of the original Mission 66 parking lot. Measures are in place to minimize or avoid impacts on the historic setting, and all new features would be designed and sited to be compatible with the historic character. Therefore, these management objectives and policies will be met.

2.2 General Policy Guidelines

The North Carolina CAMA sets forth eleven General Policy Guidelines, addressing:

- › Shoreline erosion policies
- › Shorefront access policies
- › Coastal energy policies
- › Post-disaster policies
- › Floating structure policies
- › Mitigation policies
- › Coastal water quality policies
- › Policies on use of coastal airspace
- › Policies on water- and wetland-based target areas for military training areas
- › Policies on beneficial use and availability of materials resulting from the excavation or maintenance of navigational channels
- › Policies on ocean mining

The purpose of these rules is to establish generally applicable objectives and policies to be followed in the public and private use of land and water areas within the coastal area of North Carolina. The following is an analysis of the applicability of these policies to the proposed action.

2.2.1 15A NCAC 7M .0200 (Shoreline Erosion Policies)

The project is not within estuarine waters, coastal wetlands, public trust areas, and estuarine and public trust shorelines and will not significantly affect the estuarine and ocean system. Therefore, these policies are not applicable.

2.2.2 15A NCAC 7M .0300 (Shorefront Access Policies)

The proposed project is located on NPS land. The Wright Brothers National Memorial does not contain shorefront access. Therefore, these policies are not applicable.

2.2.3 15A NCAC 7M .0400 (Coastal Energy Policies)

The proposed project does not involve the development of any major energy facilities. Therefore, these policies are not applicable.

2.2.4 15A NCAC 7M .0500 (Post-Disaster Policies)

These policies require that all state agencies prepare for disasters and to coordinate their activities in the event of a coastal disaster. The NPS Outer Banks Group, under which the park is administered, has a long history of working with state and local agencies for disaster preparation and recovery. Current technology offers plenty of advanced warning of major storms (i.e., tropical storms and nor'easters), and the park has developed a Hurricane Response Plan to minimize risks to human health and safety and to minimize potential property damage during storm events. To help protect life, access to the site is closed when storm systems are approaching. The proposed new features that would be added to the site would be designed in such a way as to withstand flood events resulting from these storms systems. Structures and facilities would be designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60). Mitigation to minimize storm damage would include utilization of sustainable design principles and using best management practices during and after construction. Therefore, the project is consistent with these policies.

2.2.5 15A NCAC 7M .0600 (Floating Structure Policies)

The Wright Brothers National Memorial GMPA does not contain or plan for implementation of any floating structures. Therefore, these policies are not applicable.

2.2.6 15A NCAC 7M .0700 (Mitigation Policy)

North Carolina's mitigation policy states that "Coastal ecosystems shall be protected and maintained as complete and functional systems by mitigating the adverse impacts of development as much as feasible, by enhancing, creating, or restoring areas with the goal of improving or maintaining ecosystem function and areal proportion."

The Wright Brothers National Memorial GMPA would avoid impacts to coastal ecosystems. To minimize environmental impacts related to the proposed project, the NPS would implement mitigation measures wherever feasible. All installations of project elements would occur within uplands outside of AECs. Best management practices would be used to avoid and minimize the release of sediments into stormwater.

Vegetation would be added along the southwest boundary of the visitor center parking lot to provide visual screening. Installed vegetation would consist of native species and species selection would follow NPS policies and guidance. No non-native, invasive vegetation would be used in any temporary or permanent seeding. Vegetation thinning would also occur in wooded areas along US 158 and the First Flight Air Strip to improve views of the memorial. Thinning would selectively remove vegetation without substantially changing the character or quality of the natural habitats.

With the above best management practices in place, the proposed action would be consistent with these policies.

2.2.7 15A NCAC 7M .0800 (Coastal Water Quality Policies)

The proposed construction activities would not result in permanent adverse impacts to coastal water quality. There would be an increase of up to 2.5 acres of impervious surfaces throughout the site under the proposed project. The increase in stormwater runoff would be negligible due to the construction of drainage facilities, design plan, and consideration of the existing ditch system. The NPS would acquire any required stormwater permits prior to implementation. Therefore, impacts to water quality and quantity would be minimized.

Best management practices would be used to avoid contamination of stormwater and mitigate for short-term (construction phase) impacts. Therefore, the project is considered consistent with policies protecting coastal water quality.

2.2.8 15A NCAC 7M .0900 (Policies on use of Coastal Airspace)

No use of coastal airspace would be part of the proposed action; therefore, these policies are not applicable.

2.2.9 15A NCAC 7M .1000 (Policies on Water- and Wetland-Based Target Areas for Military Training Areas)

No water-based or wetland-based target areas or military training areas would be part of the proposed action; therefore, these policies are not applicable.

2.2.10 15A NCAC 7M .1100 (Policies on Beneficial and Availability of Materials Resulting from the Excavation or Maintenance of Navigational Channels)

No channel excavation or maintenance of navigational channels would occur as part of this project; therefore, these policies are not applicable.

2.2.11 15A NCAC 7M .1200 (Policies on Ocean Mining)

No ocean mining would be part of the proposed action; therefore, these policies are not applicable.

3

North Carolina Dredge and Fill Law

The North Carolina Dredge and Fill Law (§ 113-229. Permits to dredge or fill in or about estuarine waters or State-owned lakes) states that, "...before any excavation or filling project is begun in any estuarine waters, tidelands, marshlands, or State-owned lakes, the party or parties desiring to do such shall first obtain a permit from the Department." The proposed Wright Brothers National Memorial GMPA would not involve any dredge or fill activity within estuarine waters, ocean system, or State-owned lakes. Work would occur exclusively within upland areas. As such, this action would be considered a permissible activity by the North Carolina Department of Environmental Quality.

4

Dare County Coastal Management Policies

CAMA required local governments in each of the 20 coastal counties in North Carolina to prepare and implement a land use plan and ordinances for its enforcement consistent with established federal and state policies. Specifically, policy statements are required for resource protection, resource production and management, economic and community development, continuing public participation, storm hazard mitigation, post-disaster recovery, and evacuation plans. Upon approval by the North Carolina Coastal Resources Commission, the plan becomes part of the North Carolina Coastal Management Plan.

The Dare County Land Use Plan (LUP) was certified by the North Carolina Coastal Resources Commission in 2011 and addresses land use planning in relation to CAMA. Of these policies, the following are applicable to the proposed Wright Brothers National Memorial GMPA.

4.1 Re-development – Policy LUC#8

According to the LUC #8, “the redevelopment of under-utilized land or outdated structures will be become more of an issue of the next few years. Redevelopment of older structures shall be accomplished in a manner that is compatible with current NC building codes and federal flood insurance regulations and conforms with the Dare County Zoning Regulations. Energy efficient construction standards are encouraged.”

Under the proposed action, the NPS would repurpose the existing administrative building near the maintenance facilities to expand NPS office and storage space. To accommodate these changes within the footprint of the existing administrative building, the NPS may

remodel the existing conference room, convert the existing garage bay into workstations, and/or convert the covered tractor area into a storage space. Design and construction would follow all federal, state, and local codes and regulations.

4.2 Archaeological/Historic Resources – Policy LUC #15

“The Dare County Board of Commissioners supports the protection of structures, lands, and artifacts that have been identified by the NC Department of Cultural Resources, Division of Archives and History, as archaeologically or historically significant. On a case-by-case basis individual protection/management strategies should be implemented to ensure archaeological and/or historical resources are not destroyed.”

The development of the Wright Brothers National Memorial shall be consistent with the aesthetic values and historic character of the designated cultural landscape. Measures are in place to minimize or avoid impacts on the cultural landscape due to introduction of new features. All new features would be designed and sited in a manner that is compatible with the historic character in terms of materials, color, and scale. The Wright Brothers National Memorial Visitor Center is designated as a National Historic Landmark. Although non-historic pathways, benches, and shade structures would be introduced into the historic setting, the building itself will remain unchanged from its current condition. Although the parking lot would be reconfigured, it would remain within the existing footprint and would be compatible with the character of the original Mission 66 parking lot. Measures are in place to minimize or avoid impacts on the historic setting and all new features would be designed and sited to be compatible with the historic character. Additionally, the NPS would continue to consult with the NC State Historic Preservation Officer and any associated Native American Tribes to provide a process for potential archeological testing and design review of features prior to any ground disturbance for project implementation.

5

Other Anticipated Permits

An environmental assessment (EA) has been prepared in accordance with the National Environmental Policy Act of 1969, as amended; regulations of the Council on Environmental Quality (40 CFR 1508.9); and NPS Director's Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-making*. An assessment of effect is included within this EA to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.

Prior to the implementation of the proposed action, the NPS would need to obtain appropriate local, state, and federal approval for some of the proposed activities. Specific permits, approvals, and regulatory requirements would be determined during future design phases of the project. The NPS would coordinate with relevant federal, state, and local agencies as required as design for the project continues.

6

Conclusion

In conclusion, after careful consideration of the aforementioned, the NPS has determined that implementation of the proposed action would be fully consistent with the relevant enforceable policies of protecting North Carolina's coastal zone. This was based on the review of the proposed project against the relevant National Oceanographic Atmospheric Administration-approved enforceable policies of North Carolina's Coastal Management Program and Dare County's comprehensive plan policies.

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As the nation's principal conservation agency, the Department of the Interior has responsibilities for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for American Indian reservation communities and for people who live in island territories under US administration.