



Construct Multi-use Pathway in Hatteras Island District

Environmental Assessment

February 2023



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CHAPTER 1: PURPOSE AND NEED

INTRODUCTION

Cape Hatteras National Seashore (often abbreviated the “seashore” or “park” in this document), a unit of the National Park Service (NPS), is in the Outer Banks in Dare County, North Carolina and is the nation’s first national seashore. Congress authorized the establishment of Cape Hatteras National Seashore in 1937 and reauthorized as Cape Hatteras National Seashore Recreational Area in 1940 to allow waterfowl hunting. Consisting of more than 30,000 acres distributed along approximately 67 miles of ocean-facing shoreline, the seashore is part of a dynamic barrier island system (Figure 1).

The seashore was established to preserve the wild and primitive character of the ever-changing barrier islands, protect the diverse plant and animal communities sustained by the coastal island processes, and provide for recreational use and enjoyment that is compatible with preserving the distinctive natural and cultural resources of the seashore. Nine villages, including Nags Head, Rodanthe, Waves, Salvo, Avon, Buxton, Frisco, Hatteras, and Ocracoke, are located adjacent to or within the seashore (Figure 1). The seashore property encompasses a mix of land uses with villages, residences, commercial uses, tourist attractions, and nationally important resources existing within and adjacent to NPS managed areas.

The seashore and villages are accessible by North Carolina Highway 12 (NC 12); private boat; the Hatteras-Ocracoke, Swan Quarter, and Cedar Island ferries; and by air to the two small airstrips on Hatteras and Ocracoke Islands. Given its local and regional popularity, the seashore draws approximately 3 million visitors a year with opportunities to experience the ocean and sound beaches and historic structures.

PURPOSE AND NEED FOR ACTION

The NPS is considering construction of a new multiple use (otherwise known as multi-use) pathway along Lighthouse Road, in the Hatteras Island District of the seashore. This action was identified in the Park’s 1984 General Management Plan (GMP) which presented the need for a “bikeway” within the seashore and included Lighthouse Road as the location for this path. The GMP identified a 4-foot-wide bicycle path on both sides of the road from NC 12 to the Cape Point Campground. It has been over 38 years and the seashore consistently receive requests from the public to construct a pathway along the road shoulder. A multi-use path master plan was recently developed to identify existing conditions and to create a concept for a new pathway to be constructed in three segments along Lighthouse Road from NC 12 to Cape Point Campground (NPS 2022). Segments I and II are presented and analyzed in this document. Segment III would be designed and analyzed as a component of a future design project to elevate Lighthouse Road from the Buxton Ranger Station to Ramp 43.



Figure 1: Project Location Map

A new pathway would finally provide users originating in the village of Buxton with a resilient, safe, and accessible route to many of the seashore's key visitor use areas including the Cape Hatteras Lighthouse, Visitor Center and Museum of the Sea, Old Lighthouse parking and beach area and new Buxton Beach Access area at the former US Navy/Coast Guard area. This pathway should meet the needs of today's park visitors and would include educational opportunities via interpretive messaging along the route, wayfinding information, and benches for resting and viewing the area.

Project Objectives

Objectives are more specific statements of purpose that provide additional basis for comparing the effectiveness of alternatives in achieving the desired outcomes of the action (NPS 2015). All alternatives carried forward for detailed analysis must meet all objectives to a large degree and must resolve the purpose of and need for action.

The following objectives were identified by the planning team for this project:

- Develop a multi-use pathway solution approved in the park's 1984 General Management Plan that enhances today's park visitor experience and safety while protecting natural and cultural resources.
- Provide visitors with a resilient, safe, and accessible route based on the American Association of State Highway and Transportation Officials (ASSHTO) guidelines to many of the seashores' key visitor use areas in the Cape Hatteras Lighthouse District of Hatteras Island.
- Provide a connection into the seashore from paved pathways originating in the village of Buxton.
- Accommodate different types of uses including biking and reduce maintenance by using sustainable construction techniques and minimizing facility operations.

The seashore is preparing an environmental analysis to identify a range of appropriate designs that meet project objectives and preserves park natural and cultural resources. The EA analyzes the potential environmental consequences of implementing the alternatives to the natural, historic and human environment in the project area. The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and implementing regulations, 40 CFR Parts 1500-1508; the Department of the Interior NEPA regulations (43 CFR Part 46); National Park Service Director's Order #12 and Handbook, *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2015); and Section 106 of the National Historic Preservation Act of 1966 as amended, and implementing regulations, 36 CFR Part 800.

IMPACT TOPICS RETAINED FOR FURTHER ANALYSIS

During internal and public scoping, NPS identified potential issues and impacts associated with constructing a new multi-use pathway. The issues and concerns identified during scoping were used to identify impact topics listed below to be presented and analyzed in "Chapter 3: Affected Environment and Environmental Consequences". 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.

The following topics are carried forward for further analysis in this EA:

- Cultural Landscapes
- Vegetation
- Visitor Use and Experience
- Wetlands and Water Resources

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 but was 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.

Air Quality & Green House Gas Emissions

Cape Hatteras National Seashore is located in an area classified by the US Environmental Protection Agency (EPA) as being in attainment for all six criteria air pollutants under the Clean Air Act (CAA), meaning, this area is projected under several provisions of the CAA including the National Ambient Air Quality Standards (NAAQS) and the Prevention of Significant Deterioration (PSD) of Air Quality Program.

The project would result in a limited increase of greenhouse gas emissions (GHGs) from the use of construction equipment. Construction related activities would result in a localized increase of vehicle exhaust, emissions, and fugitive dust throughout the twelve-month construction period. Periodic use (i.e., hourly) of various types of equipment (excavators, backhoes, pavers, and material delivery trucks) over the twelve-month period would produce emissions that would be very small relative to those produced from visitor and local transportation within the park and would make an inconsequential contribution to the park's overall emissions profile. Any increase in GHGs would cease once construction is complete; therefore, no long-term contribution of GHGs would occur under either alternative discussed in this EA and this topic was dismissed from further analysis.

Archeological Resources

The proposed actions would require ground disturbance, which has the potential to impact archeological resources if any exist within the project area. In accordance with Sections 110 and 106 of the National Historic Preservation Act, the park conducted Segment I archeological testing in 1997 as part of the relocation project of the Lighthouse. This testing occurred along the route constructed for the movement of the lighthouse, otherwise known as the "move path", and at the Cape Hatteras Light Station. The Cape Hatteras Light Station includes the lighthouse, double keepers' quarters, principal keepers' quarters, and oil house. Approximately fifteen and a half acres were surveyed using auger/shovel testing. Two hundred fifty-eight auger/shovel tests were excavated, and of these, 150 were "positive," containing cultural material. All the tests that

contained cultural material were in the lighthouse complex area. Of the two-hundred fifty-eight auger/shovel tests, eighty-seven were excavated in the relocation area and along the move path and tests were "negative," containing no cultural materials. No additional archeological testing is recommended in these areas. Additionally, in February 23-26, 2022, an NPS archeologist with the Southeast Archeological Center (SEAC) monitored the geotechnical soil boring tests for the design of the multi-use pathway (NPS 2022a). These soil tests were conducted along either side of Lighthouse Road and extended southwest to the Cape Hatteras Lighthouse parking lot, then northeast through another parking lot near the lighthouse's original location and ended near former US Navy/Coast Guard area at the far northeast of the proposed paved multi-use pathway route. Additionally, pedestrian surveys were conducted. A total of 36 auger tests were excavated with none exhibiting any cultural materials in the back dirt or from the soil cores. The NPS has found that the proposed undertaking would have *No Adverse Effect* on archeological resources and the North Carolina State Historic Preservation Office has concurred with this determination (Appendix B).

Based on the results of this testing, the NPS has concluded that there are no archeological resources within the project area (NPS 2022a). If, in the unlikely event archeological resources are discovered during construction or the implementation of the project, 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 SEAC, the State Historic Preservation Officer, and as appropriate, federally affiliated tribes (43 CFR Section §10.4). Because previous testing of the project area has determined there are no archeological resources within the project area, and because an unanticipated discovery plan would be in place during construction, the impact topic of archeological resources was considered but dismissed from further analysis.

Climate Change and Sea Level Rise

The seashore is vulnerable to multiple coastal hazards including coastal erosion, storm surge, and sea level rise. The project area is not located on the oceanfront, but Segment II of the project would be the closest segment to the Atlantic Ocean where the shoreline has been eroding at a rate of 4.5 to 5 feet of erosion a year according to NC Division of Coastal Management 2020 erosion rates data (DCM 2022). The Old Lighthouse parking area has been inundated with surge associated with storms and tidal flooding during exceptionally high tides. While climate change refers to any significant changes in average climatic conditions (such as mean temperature, precipitation, or wind) or variability (such as seasonality and storm frequency) lasting for an extended period (decades or longer) it is a global phenomenon. It manifests differently depending on regional and local factors. General changes that are expected to occur in the future because of climate change include hotter, drier summers; warmer winters; warmer water; higher ocean levels; more severe wildfires; degraded air quality, more heavy downpours and flooding, and increased drought. Climate change and resulting sea level rise are likely to increase the frequency and magnitude of flooding events in the future. Vulnerability to flooding within the project area is projected to increase with local estimates of 10-14 inches of sea level rise over the next 30 years for the east coast (Sweet et al. 2022). As the sea level rises, the site's vulnerability to coastal storms and the associated surges also increases, putting the pathway in some areas at an elevated level of risk during severe weather events. The location of Segment I would not be impacted from shoreline erosion nor flooding events. With projected sea level rise of 10-14 inches by 2050, this segment

would remain unaffected by sea level rise. The location of the Segment II of the pathway would be as far from the shore as possible and would not be an action that could influence future sea level rise. According to a 2021 study by Flynn and Hallac on forecasting vulnerability of recreational infrastructure, with a 10-and 20-year shoreline horizon, Segment I of the pathway would not be impacted from shoreline erosion. However, a 390-foot section of Segment II pathway, would be within the uncertainty band or margin of error and potentially may be affected by future shoreline erosion. The consideration of potential storm events and future sea level rise would be incorporated into the design of vulnerable sections of the pathway to ensure the design would be resilient to any flooding events.

As described in the above air quality sections, construction activities associated with implementation of the proposed action would contribute to increased GHG emission, but such emissions would be short-term, ending with the cessation of construction. The use of a bicycle or an electric bicycle, in lieu of travelling in one's car, along Lighthouse Road, has the potential to reduce carbon dioxide, a GHG emission, but this would need to be at a level to have any measurable effects and it is not possible to meaningfully link the GHG emissions of such individual project actions to quantitative effects on regional or global climatic patterns. Any effects on climate change would not be discernible at a regional scale. Therefore, the proposed action's contribution to climate change and sea level rise was dismissed from further analysis.

Environmental Justice Populations

In accordance with the National Office of Environmental Policy and Compliance (OEPC) Environmental Compliance Memorandum 95-3, Buxton, NC was assessed to contain low-income populations and is medically underserved according to critical service gaps (EPA 2022). Data on transportation service gaps is not available, the pathway would supplement existing transportation infrastructure and remain available for use by all people regardless of race or income, and any construction workforces would not be hired based on race or income. This EA demonstrates that the impacts that could result from implementation of the alternatives would be negligible and would not be disproportionately high regarding human health or environmental impacts on Buxton, NC. Furthermore, the park staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors. In summary, environmental justice would not be impacted because of implementing either alternative discussed in this EA, therefore this impact topic was dismissed from further analysis.

Floodplains

Executive Order 11988 *Floodplain Management* requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The NPS under 2006 *Management Policies* and Director's Order 77-2 *Floodplain Management* would strive to preserve floodplain values and minimize hazardous floodplain conditions. Although the construction of a pathway would be located within a 100-year floodplain "picnic facilities, scenic overlooks, foot trails and small associated daytime parking facilities in non-high hazard areas" are exempted from the requirements specified in the *Procedural Manual Order #77-2 Floodplain Management* (NPS 2002). Project activities would not adversely impact life/health, capital investment and natural/beneficial values of floodplains, therefore, floodplains was dismissed from further analysis.

Gateway Communities

Visitation to the seashore contributes to the local economy in several ways. First, it provides jobs to park employees, including seasonal, term, and permanent full- or part-time positions. Seashore employees spend their income and wages in local communities, which support additional jobs and income in these communities. The seashore may also support the local economy if local vendors are utilized, through contracted construction services or purchases of supplies and materials, for example. Seashore visitors also spend their money in local gateway communities, which supports jobs, income, sales and tax revenues in those communities. Although, project activities would enhance connection to and from Buxton by way of the multi-use pathway, the project would not change visitation or use patterns nor how visitors are spending their money. Residents of Buxton still would have to travel down Lighthouse Road or Old Lighthouse Road to access the seashore. Both these access routes are where the multi-use pathway is proposed to be constructed and therefore use patterns would not change measurably under the alternatives. For these reasons, gateway communities were dismissed from further analysis.

Historic Properties

The project is adjacent to the National Register-listed Cape Hatteras Light Station Historic District. Section 106 of the NHPA of 1966, as amended (54 USC 306108, et seq.) and its implementing regulations under 36 CFR 800 require all federal agencies to consider the effects of federal undertakings on historic properties for or listed in the National Register of Historic Places. For a structure to be listed in the National Register, it must be associated with an important historic event, person(s), or embody distinctive characteristics or qualities of workmanship or yield information important in prehistory or history. The construction of a paved pathway would have no adverse effect to the adjacent historic district but would channel visitors into the National Historic Landmark (NHL) district since the project would be constructed and terminated outside the historic district boundaries. However, as described in the cultural landscape section in Chapter 3 there would be an impact to the viewshed. Thus, the NPS has determined proposed undertaking would have *No Adverse Effect* on historic properties and has requested concurrence from the North Carolina State Historic Preservation Office, and the impact topic of historic properties was considered but dismissed from further analysis.

Lightscapes

In accordance with 2006 *Management Policies*, NPS endeavors to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human caused light (NPS 2006). The seashore strives to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements. The seashore also strives to ensure that all outdoor lighting is shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky. No outdoor lighting is proposed as part of this project and no night work would occur that would affect the night sky. In summary, no lightscapes would be impacted because of implementing the proposed action, therefore this topic was dismissed from further analysis.

Soundscape

Natural sounds (e.g., flowing water, wind blowing through trees, birds calling) predominate the seashore, where visitors have opportunities throughout most of the park to experience natural sounds in an unimpaired condition. The sounds of civilization (mechanical and other human-created sounds) are generally confined to developed areas of the seashore. Within the project areas, which are highly developed sites, visitors and residents regularly experience the sounds of vehicles, motorized equipment, and other people that at times interfere with the natural sounds of the seashore. Construction projects, often geared toward visitor use improvements and infrastructure and developments for island residents, occur both periodically and sporadically throughout each project area. Periodic use (i.e., hourly) of various types of equipment (pavers, tampers, rollers, bobcats, power drills, etc.) over the twelve-month period would produce sounds that are comparatively isolated to those produced from visitor highway transportation within the park and would make an inconsequential contribution to the park's overall soundscape profile. Mitigations are included on page 21 to reduce non-natural sounds from project activities (see Best Management Practices). Any increase in construction noise would cease once construction is complete; therefore, no long-term impact to the soundscape would occur under either alternative discussed in this EA and therefor, this topic was dismissed from further analysis.

Soils

The project site contains four different soil properties and most locations for the proposed improvements area within developed and previously disturbed areas. According to the Natural Resources Conservation Service web soil survey, predominate soils within the project site are eolian sands, 26% Corolla fine sand, 20% Duckston fine sand, 13% Corolla-Duckston complex and 12% Fripp fine sand (NRCS 2021). A geotechnical survey for subsurface exploration was conducted on March 10, and October 25-26, 2022. A total of 36 soil test borings were performed (GeoHydro Engineers 2022 and Terracon Consultants, Inc 2022). Most of the soils in the project area have been previously disturbed and compacted from the creation of the move path for the Cape Hatteras Lighthouse and fill placed to construct the roads and parking areas. Based on the results of geologic test borings, the native soils and fill soils at the site should be suitable for reuse as structural fill if they are properly dry to facilitate appropriate compaction. Any soil excavated during the project could be used or backfilled in the same location or removed out of the seashore. The construction of an impermeable pathway would reduce the soil permeability within specific areas and create surface runoff from rain events and would impact 2.05 acres. Vegetative buffers are part of the design to allow runoff to percolate through the adjacent soils into the ground water system and would be noted in a sediment control erosion plan submitted to the state as a requirement of the Sedimentation Control Act of 1973. Ground clearing and grading activities for improvements would have a direct impact to soils within the project area but due to the fact most soils are non-native fill material from road and parking construction and the creation of the move corridor, project actions would not measurably alter soil properties within the project area. In addition, the scale of the project area, vegetative buffers and the preparation of a sediment control plan would ensure that the project would include actions to help offset or mitigate adverse impacts to soils. Any measurable impacts comparative to the adjacent road and parking areas to the project would not be expected, therefore this topic was dismissed from further analysis.

Wildlife and Special Status Species

The seashore provides nesting, resting, foraging, and feeding habitat for a diverse assemblage of wildlife species, including many that are not federally or state-listed species. Several common bird species, reptiles, and mammals (such as seagulls, ducks, geese, rabbit, and squirrels) inhabit or are transient to the proposed project areas. The seashore is also home to migratory bird species, protected by the Migratory Bird Treaty Act of 1918, that use habitat at the seashore during the winter or migration. In 1999, the American Bird Conservancy designated the seashore as a Globally Important Bird Area in recognition of its value in bird migration, breeding, and wintering (Ralph and Rich, ed. 2005).

The Buxton Woods white-footed mouse (*Peromyscus leucopus buxtoni*), listed by the State of North Carolina as rare has been known to occur within the Buxton Woods State Natural Heritage Area near the project area. The State has also listed this species as a Federal Species of Concern (FSC). Although this term is not defined in the federal Endangered Species Act, in North Carolina, the Asheville and Raleigh Field Offices of the US Fish and Wildlife Service (Service) define FSC as those species that appear to be in decline or otherwise in need of conservation and are under consideration for listing or for which there is insufficient information to support listing at this time. Subsumed under the term "FSC" are all species petitioned by outside parties and other selected focal species identified in Service strategic plans, State Wildlife Action Plans, or Natural Heritage Program Lists. In consultation with State Natural Heritage Program, it was determined that this project would not have impacts to this species or its habitat during construction related activities.

Construction related activities and noise may cause wildlife to completely avoid the project area for up to twelve months; however, species utilizing the area are acclimated to high volumes of vehicle and visitor use because of the nearby developments in the area. There would be 4.85 acres of mowed turf grasses along the road corridor and relatively small sections of scrub shrub habitat permanently impacted from the construction of the proposed actions. These areas had been previously modified for the construction of roads, parking areas, creation of dredge ponds, creation of the move corridor, installation of culverts to drain wetlands and all these areas are frequently disturbed by human caused activities such as trampling. The habitats within the project area, including wetlands, are considered to be of low quality for many of the seashore wildlife species due all the human disturbances.

An official federal species list was obtained from the U.S. Fish and Wildlife (USFWS) Information for Planning and Conservation (IPaC) website (<https://ecos.fws.gov/ipac/>). As of January 4, 2023, the U.S. Fish and Wildlife Service lists twenty-one federally protected species for Dare County (Table 1). Species with the federal classification of Endangered, Threatened, Candidate or Proposed for such listing are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.).

Table 1: Federally Listed Species

Common Name	Scientific name	Federal Status	Dare	Suitable Habitat Present	Effect Determination
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	X	No	N/A

Bald eagle	<i>Haliaeetus leucocephalus</i>	BGPA	X	No	No Take
Eastern Black Rail	<i>Laterallus jamaicensis</i> <i>spp. jamaicensis</i>	T	X	No	No Effect
Green sea turtle	<i>Chelonia mydas</i>	T	X	No	No Effect
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E	X	No	No Effect
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E	X	No	No Effect
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	X	No	No Effect
Loggerhead sea turtle	<i>Caretta caretta</i>	T	X	No	No Effect
Northern long-eared bat	<i>Myotis septentrionalis</i>	E	X	No	No effect
Tricolored Bat	<i>Perimyotis subflavus</i>	PE	X	No	No effect
Monarch Butterfly	<i>Danaus plexippus</i>	C	X	Yes	Not Likely to Adversely Affect
Piping plover	<i>Charadrius melodus</i>	T	X	No	No Effect
Red knot	<i>Calidris canutus rufa</i>	T	X	No	No Effect
Red wolf	<i>Canis rufus</i>	EXP	X	No	No Effect
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	X	No	No Effect
Roseate tern	<i>Sterna dougallii</i> <i>dougallii</i>	T	X	No	No Effect
West Indian manatee	<i>Trichechus manatus</i>	E	X	No	No Effect
Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	E	X	No	No Effect

Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	E	X	No	No Effect
Sensitive joint-vetch	<i>Aeschynomene virginica</i>	T	-	No	No Effect
Seabeach amaranth	<i>Amaranthus pumilus</i>	T	X	No	No Effect

Habitat for eastern black rail, piping plover, red knot, red wolf, red-cockaded woodpecker, roseate tern, seabeach amaranth, and sensitive joint-vetch, northern long-eared bat and tri-colored bat does not occur within the project area according to the seashore's wildlife surveys. As a part of the action, the NPS would only carry out tree/limb removal outside of avian nesting season (April 1 through August 31).

Habitat for the candidate species, Monarch butterfly, does occur within the project area in open areas, roadside areas and wet areas where milkweed and flowering plants could occur. It is important to note that the Monarch can only lay eggs on milkweed plants therefore, the project area would be resurveyed for milkweed prior to construction and if found, milkweed plants would be salvaged and transplanted by NPS staff to outside the project area.

Habitat for marine species, including Green sea turtle, Hawksbill sea turtle, Kemp's Ridley sea turtle, Leatherback sea turtle, Loggerhead sea turtle, Atlantic sturgeon, and short-nose sturgeon are not expected to occur since project activities would take place adjacent to an existing park road and on land where historically, according to park annual reports, these species are not found. As previously described, much of the project area occurs within the existing footprint of developed areas. The project area occurring outside of the parking lot consists of compacted dirt and non-native vegetation. Neither Segment I nor Segment II project areas provides the appropriate habitat for any of the species indicated above and therefore the proposed project would have no effect on the Green sea turtle, Hawksbill sea turtle, Kemp's Ridley sea turtle, Leatherback sea turtle, Loggerhead sea turtle, Atlantic sturgeon, and short-nose sturgeon.

CHAPTER 2: ALTERNATIVES

ALTERNATIVES CARRIED FORWARD

Two alternatives, the action and no action, are carried forward for evaluation in this EA. Other options and alternate designs were considered and dismissed from further analysis as they would not meet overall the purpose and need of the project.

Alternative A – No Action – Current management

The no-action alternative is the continuation of current management actions and direction into the future; that is, continuing with the present course of action until that action is changed. The no-action alternative, as required by NEPA, also serves as a baseline with which to compare the effects of action alternatives with those of the status quo.

Under the no action alternative, a multi-use pathway would not be constructed along Lighthouse Road. Pedestrians and bicyclists would continue to use the existing road or road shoulder to access the park's popular use areas from NC Highway 12. Extensive mowing along the road shoulder would continue. There would be no additional connectivity to additional park facilities and attractions that may be served by the pathway either directly or via spur trails, to the Cape Hatteras Lighthouse, Hatteras Island Visitor Center and museum, Cape Hatteras Lighthouse historic original location, and the new Buxton Beach Access Area at the end of Old Lighthouse Road (formerly a US Navy/Coast Guard station base).

Under the no action alternative, there would be no holistic public interpretation or immersive access along the move path of the lighthouse or no general park information, safety messaging, and resource information for current visitors to experience outside of the Lighthouse District.

Alternative B – Construct a multi-use pathway (Proposed Action/NPS Preferred)

Under this alternative, the NPS would construct a 1.6 mile long, 10-12-foot-wide paved multi-use pathway in two Segments (Figure 6). The project would include wayfinding signage, benches, bollards, and the reconfiguration of the seashore entrance including intersection improvements and connections to local sidewalks. The pathway would be constructed of a paved surface either concrete or asphalt. A typical trail design can be seen in Figure 2.

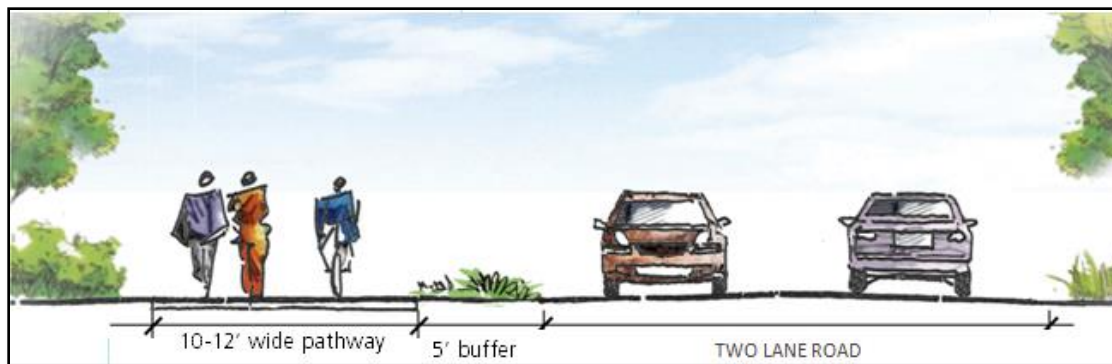


Figure 2: Conceptual multiple use pathway design

Segment 1. Approximately 1.4 miles (7,333 linear feet) of an approximately a 10-foot-wide pathway would be constructed to the Cape Hatteras Lighthouse. The multi-use pathway would begin on the west side of Lighthouse Road at the intersection of NC Highway 12. A trailhead plaza would be constructed at the beginning of the pathway with wayfinding signage, including safety information, and benches (Figure 3).

The pathway would continue southward along the west side of Lighthouse Road until it crosses the roadway approximately 3,700 feet south of NC Highway 12. This crossing location was identified because it provides over 500 feet of visibility to motorists approaching in each direction. The speed limit along this stretch of Lighthouse Road may be reduced to 25 mph and speed tables, along with flashing signal beacons, may be added to further increase drivers' awareness of the crossing.

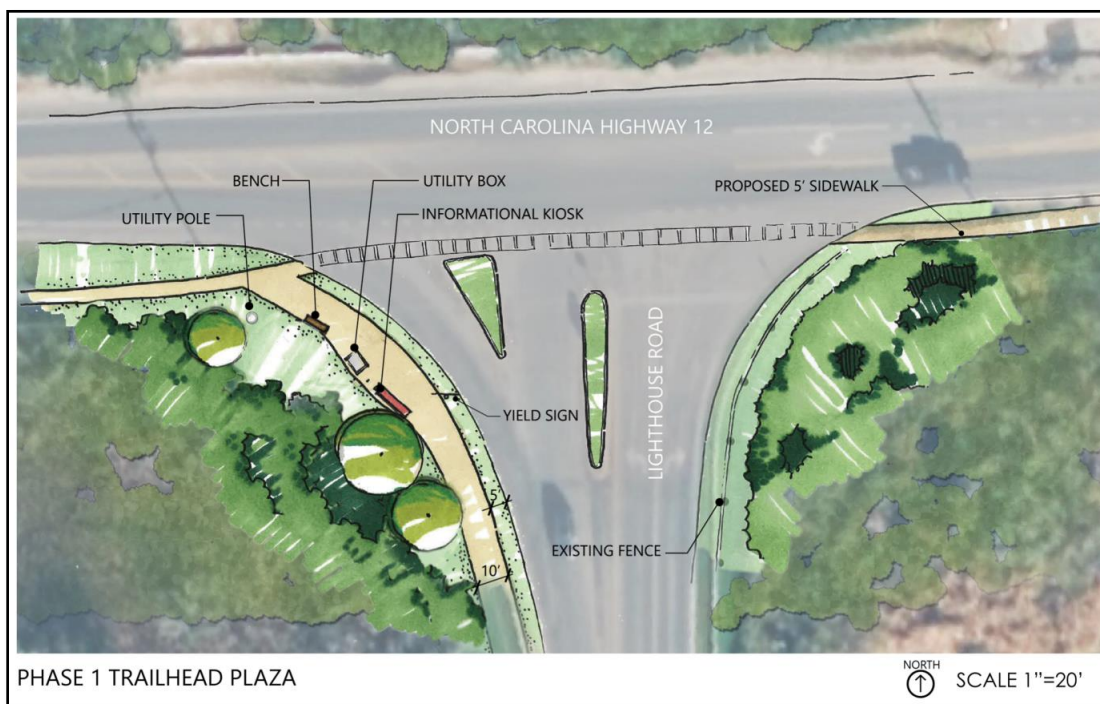


Figure 3: Conceptual Trailhead

An interpretive plaza would be constructed, with trailhead signs, bike racks, pedestrian seating, and a picnic pavilion at the corner of the intersection of the pathway and the Old Lighthouse Beach parking areas (Figure 4). Providing one of the first and most accessible areas for the park to highlight the active recreation and its history at the seashore. A comfort station with bathroom facilities and plumbed for water for drinking fountains and/or spraying off sand, would be constructed within the interpretive plaza to accommodate visitors who are using the pathway and the two beach access areas. The septic field and septic system sized for the comfort station use would be constructed within an upland area adjacent to the interpretive plaza.

From the interpretive plaza, the pathway would cross the road and continue along the Lighthouse move path towards Lighthouse and the Visitor Center. Branching off the pathway, an exhibit detailing the logistics and engineering accomplishment of moving the lighthouse 2,900 feet would be presented at an interpretive location. The pathway would be constructed within the move path and enter the woods around the septic field, outside of the developed area, and continue along the existing sidewalk south of the Lighthouse parking lot. Where the pathway exits the woods adjacent to the parking lot sidewalk, an additional interpretive exhibit would be constructed, detailing the lighthouse move within the move path viewshed. The pathway would be constructed parallel to the existing sidewalk and separated with bollards and rope, a standard delineation around seashore parking areas. A pedestrian connection from the pathway to the sidewalk would be provided that allows pedestrians to access the Visitor Center, Lighthouse, Keepers Quarters and Museum.



Figure 4: Conceptual Interpretive Plaza

A cul-de-sac would be constructed at the end of Segment I south of the Keepers of the Light Amphitheater that is sized to allow bicyclists to turnaround safely without conflicting with the pedestrians exiting the pathway.

The width of the pathway throughout Segment I would vary from 10 to 12 feet, reducing to 10 feet in order to minimize impacts to the adjacent wetlands. The American Association of State Highway and Transportation Officials (AASHTO) provides guidelines for two-directional shared use paths for both bicycles and pedestrians and state they should be a minimum of 10 feet. The width

of the pathway from the interpretive plaza to the end of Segment I at Lighthouse parking lot would be 12 feet to accommodate more users along this stretch of the pathway. A standard width of a 5-foot landscape buffer strip would be maintained between the edge of the paved roadway and the pathway in all locations as recommended by AASHTO.

Segment II. Segment II of the pathway would be about 0.2 miles long (992 linear feet) and begins at the Old Lighthouse Parking area. After the interpretive plaza, the pathway would continue along the western side of the parking lot adjacent to the parking lot and pond. The alignment would follow the existing paved access drive east of the pond and through an existing clearing in the brush. An exhibit detailing sea level rise and natural coastal processes as the reasoning for moving the Lighthouse and Keepers Quarters would be located at the former Keepers Quarters site.

From the pond, the pathway would continue northward along the water bodies to keep the alignment as far away from the coastline as possible. Segment II would end at the former US Navy/Coast Guard area where a trailhead with signage, benches, and bike racks would be provided. This area is currently used as a parking lot that is accessed from Old Lighthouse Road. Throughout Segment II the pathway would be 10 feet wide.

Drainage culverts cross under Lighthouse Road approximately 400 feet south of the seashore entrance. Additional culverts are also present parallel to both side of the road approximately 30 feet from the edge of pavement. Project actions would require minor repairs to three culverts within the project area; one culvert would require the installation of a headwall, one culvert to no where would be removed and one metal culvert would need to be repaired where corrosion has created sinkholes.

No equestrian use would be allowed on the paved multi-use path, but equestrian use could continue on the opposite side of the road on the wide grassy shoulder. Some electric assisted modes of transportation may be permitted along the pathways, such as motorized wheelchairs. Electric bicycles or otherwise known as e-bikes, would be allowed. NPS regulations defines an electric bicycle as a two to three wheeled cycle with an electric motor of not more than 750-watts and fully operable pedals that meets the requirements of one of three defined classes. The three known classes of electric bikes are presented in Table 2. Bicycles with electric motors of more than 750 watts (1 hp) of power, do not meet the definition of an electric bicycle and therefore would be managed as motor vehicles under 36 CFR 4.10, i.e., motor vehicles are allowed on park roads and on routes and areas designated for off-road motor vehicle use in special regulations.

Table 2: Electric Bicycle Classifications (36 CFR 1.4)

<i>Class 1</i>	Electric bicycle equipped with a motor that provides assistance only when the rider is pedaling and ceases assistance when the bicycle reaches the speed of 20 miles per hour.
<i>Class 2</i>	Electric bicycle equipped with a motor that may be used exclusively (throttle) to propel the bicycle and ceases assistance when the bicycle reaches the speed of 20 miles per hour.
<i>Class 3</i>	Electrical bicycle equipped with a motor that provides assistance only when the rider is pedaling and ceases assistance when the bicycle reaches the speed of 28 miles per hour.



Figure 5: Alternative B: Proposed Action

NPS BICYCLE RULE CONSIDERATIONS

The action alternative must comply with 36 CFR § 4.30 (the Bicycle Rule), which contains regulations that manage bicycle use within national park system units. The Bicycle Rule requires a special regulation to authorize bicycle use on new trails (or pathways) outside of developed areas. Prior to doing so, a planning document must evaluate the suitability of existing pathway surfaces and soil conditions for accommodating bicycle use, including any maintenance, minor rehabilitation, or armoring that would be necessary to upgrade the pathway to sustainable condition. Lifecycle maintenance costs, safety considerations, strategies to prevent or minimize user conflict, and methods to protect natural and cultural resources and mitigate impacts also must be analyzed. An EA or environmental impact statement must be completed evaluating the effects of bicycle use in the park and on the specific pathway. This EA is being prepared to meet the requirements of the Bike Rule. Once the finding of no significant impact statement is approved by the Regional Director, the Superintendent must then provide a written determination that the addition of bicycle use on this new pathway would be consistent with the protection of the park area's natural, scenic and aesthetic values, safety considerations, and management objectives and would not disturb wildlife or park resources. The written determination must receive approval from the Regional Director prior to implementation of bike use on pathway. Bicycle use on new trails outside of developed areas may not occur until the NPS promulgates special regulations allowing such use.

New pathways requiring construction activities would be developed and constructed in accordance with sustainable pathway design principles and guidelines. The Bicycle Rule also addresses bicycle use on administrative roads that are closed to motor vehicle use by the public, but open to motor vehicle use for administrative purposes. The Bicycle Rule requires that bicycle use may be authorized on administrative roads upon a written determination that such bicycle use is consistent with protection of the park area's natural, scenic and aesthetic values, safety considerations and management objectives, and would not disturb wildlife or park resources. The Bicycle Rule allows the use of bicycles on park roads that are open for motor vehicle use by the general public.

Bicycle Use. Alternative B (the NPS-preferred alternative) would allow bicycle and electric bicycle use on the proposed Segment I and II multi-use pathway. No additional roads or trails in the park would be designated for bicycle use under alternative B, and alternative B does not include other modifications to any existing park trails or pathways. The multi-use pathway would be considered a new trail under the Bicycle Rule. Where the proposed multi-use pathway crosses or intersects other park pathways closed to bicycle use, signage would clearly indicate allowed uses and restrictions at those intersections. The NPS considered the proposed multi-use pathway's consistency with the parameters of the Bicycle Rule in this EA. The Superintendent has determined that construction of the multi-use pathway is consistent with the Bicycle Rule and would have important benefits for recreation and visitor experience, and localized, minor impacts on natural resources in the park.

According to the Bicycle Rule, the NPS must evaluate the suitability of the pathway surface and soil conditions for accommodating bicycle use. This EA incorporates a sustainable trail design for the proposed multi-use pathway under alternative B. It minimizes "bike-optimized" features in lieu of shallower grades and wider turns to support user safety, reduce water pooling and erosion, and reduce the overall maintenance costs associated with more complex features. Soil conditions of the project area are well-suited to pathway development due to the fill material brought in for the construction of the existing Lighthouse Road.

Park planning documents must consider the cost of initial construction as well as ongoing maintenance in the park. As such, a lifecycle cost estimate by pathway segment and type for alternative B was developed and includes general annual maintenance costs and planning level cost estimates. The cost estimate included assumptions to account for uncertainties at this stage in the planning process, including a 50% contingency cost. Funding for construction of the proposed multi-use pathway segment included in alternative B would be provided by the seashore and Outer Banks Forever donations. Funding for maintenance of the pathway would be the responsibility of the NPS. Table 2 provides a summary of the cost estimate conducted for the proposed multi-use pathway that would be constructed under alternative B.

Table 3: Summary of Cost Estimates of Proposed Action

One time construction costs- Segment I	1.4	\$1,523,500	\$457,100	\$2.0 M
One time construction costs- Segment II	0.2	\$368,100	\$110,400	\$478,500
Total Annual Operating & Maintenance				\$25,000

As a requirement to the Bike Rule, the NPS must provide an assessment of impacts from bicycle use to park resources. In Chapter 3: Affected Environment and Environmental Consequences, the NPS describes the impacts to Cultural Landscapes, Wetlands, and Visitor Use and Experience impacts associated with the proposed pathway allowing for bicycle use are described. The multi-use pathway segment that would be constructed under alternative B was evaluated based on suitability of the pathway surface and soil conditions; lifecycle maintenance costs; safety considerations; strategies to prevent or minimize user conflicts; and methods of protecting natural and cultural resources.

MONITORING GUIDELINES AND MITIGATION MEASURES FOR THE PROPOSED ACTION

Congress has charged the NPS with managing the lands under its stewardship “in such manner and by such means as would leave them unimpaired for the enjoyment of future generations” (NPS Organic Act, 54 U.S.C. § 100101(b) et seq.). As a result, the NPS routinely evaluates resources and implements mitigation measures whenever conditions are present that could adversely affect the sustainability of national park system resources.

Under its Organic Act, the NPS has the authority to develop and direct mitigation for impacts to resources under its jurisdiction. This is in addition to the requirements that may be created through the need to comply with laws and regulations managing resource impacts that are overseen by other agencies. To meet these obligations, the NPS has developed Management Policies and

Director's Orders that identify the authorities (laws, regulations, and executive orders) directing how impacts and mitigation to resources shall be managed, as well as identify the policies and procedures by which the NPS shall comply with these authorities. A full listing of the NPS policies is available from the NPS Office of Policy website at: <https://npspolicy.nps.gov/index.cfm>.

Table 3 details project design criteria (PDC) and best management practices (BMPs) incorporated into alternative B to minimize potential adverse impacts from construction and implementation of the NPS-preferred alternative. The bulk of the PDC and BMPs provided are considered common practices for pathway construction projects to prevent or decrease potential resource impacts. They are highly effective methods that can be planned and adapted to site conditions as needed. The potential effects of implementing the proposed action (disclosed in Chapter 3) are disclosed under the assumption that these PDC and BMPs are applied.

Table 4: Project Design Criteria and Best Management Practices for Proposed Action

Project Phase	Project Design Criteria (PDC) and Best Management Practices (BMP)
General (applies to all Segments of project)	<ul style="list-style-type: none"> • The pathway shall be designed and constructed using natural topography to create grade reversals or rolling dips to provide adequate drainage. • All equipment and vehicle washing operations would be performed off-site. • Erosion control structures (silt fencing, coir logs, etc.) must be maintained throughout project activities and removed upon project completion when appropriate. • All utilities (power, fiber, water, sewer, etc.) would be properly marked prior to construction activities by local utility companies. If any utility shutdowns are expected, due to project activities, then notification to park management and district staff is required. • Parking of personal vehicles would be within designated areas only. • The project shall include a pre-construction meeting and a final inspection meeting, in addition to regularly scheduled project meetings and site visits. • To minimize the amount of ground disturbance, staging and stockpiling areas shall be in previously disturbed sites, away from visitor use areas to the greatest extent possible. • A public information program to warn of temporary closures, delays, and road hazards during construction shall be implemented. This program would help convey appropriate messages to the public and aid in mitigating potential impacts on visitors' expectations and experiences. • A project schedule would be provided to the public as soon as it is known. • To the extent practical, work shall be scheduled to avoid construction activity and construction related delays during peak visitation times. No holiday or nighttime work shall be allowed. Weekend work (Friday through Sunday) shall not be allowed unless authorized in writing by the park's Superintendent. • No amplified artificial music (stereos, smartphones, etc.) would be allowed while conducting construction activities within visitor use areas such as the Cape Hatteras Lighthouse.

	<ul style="list-style-type: none"> To reduce noise and pollution emissions, construction equipment would not idle any longer than is necessary for safety and/or mechanical reasons.
Pre-Construction	<ul style="list-style-type: none"> Army Corps Engineers may issue 404/401 permit for project actions. NPS to submit a pre-construction notification to USACE district engineer prior to commencing for use of the Nationwide 14. NPS to identify wetland compensatory projects for wetland restoration efforts to comply with DO-77: Wetland Protection. NPS to pay for wetland mitigation credits for impacts to jurisdictional wetlands as requirement of 404 permit. NPS is required to seek a Sediment Control Erosion Permit, a Construction Stormwater Permit and a Post-Construction Stormwater Permit from the North Carolina Division of Erosion, Mineral and Lands Resources. The park's Public Affairs Team shall be notified at least two weeks in advance of scheduled work and/or when start date has been established by contract, so that a news release may be prepared and sent to the public. Contractor to verify groundwater conditions and evaluate dewatering requirements prior to construction. Survey points and monuments (water, boundary) shall be surveyed prior to the start of construction to verify their accuracy and to ensure the monuments are protected from damage during construction activities. The project administrator shall inspect all off-road equipment prior to entering NPS lands to ensure that they are free of soil, seeds, vegetative matter, or other debris that could contain or hold noxious weed seeds. "Off-road equipment" includes all construction machinery, except for trucks, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. Measures must be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterway or wetland. Clearing limits and wetland limits shall be adequately buffered and marked in the design and marked with silt fencing within the project area. Prior to commencement of any earthwork, project area must be flagged/staked or fenced to ensure that machine-operated activity is focused within the limits of disturbance. Tree Preservation Plan should be developed and should identify "Leave/Save trees" along pathway design. Critical Root Zone, (1 foot radius protect for every 1" dbh) of marked trees must be fenced for protection and avoided. Trees adjacent to the pathway design, should have a no cut zone (6'-10' of a mature (24" dbh) identified, if possible. Cutting within this radius can destabilize the tree and cause the tree to become a hazard after the pathway has been constructed. If root zones surfaces would be impacted by project activities, mats or fill must be placed on top of root zones to reduce compaction impacts, and hand excavation must occur. NPS would only carry out tree/limb removal outside of avian nesting season (April 1 through August 31).
During Construction	<ul style="list-style-type: none"> Project areas would be re-surveyed by NPS resource staff to ensure any undocumented threatened, endangered, proposed, or candidate species or

	<p>nesting species or milkweed plants are noted and avoided within the project area prior to or during project implementation.</p> <ul style="list-style-type: none"> • If undocumented historic or archeologic resources are located during ground-disturbing activities or planning activities associated with approved construction activities, all construction in the immediate vicinity shall cease and properties shall be treated as specified in 36 CFR Part 800, Protection of Historic Properties. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed. • Stumps in the pathway tread and pathway clearance corridor shall be ground down or cut as low as possible to the ground to avoid safety hazards. • All construction activities shall be confined to daylight hours, excluding emergencies. • Construction materials staging areas would be restricted to previously disturbed sites in upland areas. • Equipment must be free of any fluid leaks (fuel, oil, hydraulic fluid, etc.) upon arrival to the work site and would be inspected at the beginning of each shift for leaks. Leaking equipment would be removed off site for necessary repairs before the commencement of work. • Runoff from stockpiled material must be controlled with silt fencing, filter cloth, coir wattles or other appropriate means to prevent reentry into waterways or wetlands. • Sediment filter bags must be used for dewatering operations. Unfiltered discharge must not flow directly into wetlands. • Wooden construction pallets are required to protect wetlands from vehicle impacts. • Contractor must be required to maintain silt fence lines once they have been installed and/or repaired. • Construction activities would be halted while the ground is saturated following large rain events to avoid damage to soils and vegetation. • Care must be taken to avoid any rutting caused by vehicles or equipment during construction activities. • Heavy equipment use in wetlands must be avoided if possible. Heavy equipment used in wetlands must be placed on mats, or other measures must be taken to minimize soil and plant root disturbance and to preserve preconstruction elevations. • All hazardous waste materials such as oil filters, petroleum products, and equipment maintenance fluids would be stored in structurally sound and sealed containers in the hazardous materials storage area and segregated from the other non-waste materials. Additionally, all hazardous materials would be disposed of in accordance with federal, tribal, and state regulations. • Any waste generated would be properly disposed of in a contract provided trash bin located in approved site and hauled off promptly at project completion.
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	<ul style="list-style-type: none"> • Construction equipment and maintenance materials would be stored at approved staging areas. • All major equipment and vehicle fueling, and maintenance would be performed offsite or on non-pervious surfaces such as concrete or asphalt or deploy a spill containment pad. Absorbent, spill cleanup materials and spill kits would be located at the staging area. All equipment receiving maintenance and vehicles and equipment parked overnight would have drip pans placed beneath them. • No work would occur outside of the limits of disturbance without NPS approval.
Post-Construction	<ul style="list-style-type: none"> • Ground surface treatment would include grading to natural contours, topsoil and topsoil mantle replacement, seeding, and planting. Pathway edges would be promptly revegetated with NPS approved seed mixes upon completion of pathway construction. All mulch used in re-vegetation efforts shall be certified to be free of weed species. This work would occur as soon after the completion of construction as possible. Soil and fill material must be weed-free and from a source approved by the National Park Service. • Remove all flagging and fencing and soil erosion structures (after vegetation established). • All staging and stockpiling areas shall be returned to pre-construction conditions following construction. • All pathway segments shall have appropriate signage to prevent user conflicts. A sign plan shall be reviewed and approved prior to installation of signage. • Some of the slash generated from tree-removal operations may be mulched, and the mulch applied to the surface of disturbed areas for both temporary and permanent stabilization. Invasive vegetation shall not be mulched and spread when it is in seed. • Downed woody debris resulting from construction activities should not be left in place in a pile due to concerns about fuel loading and potential for wildfire impacts. Woody debris should be cut up and scattered or mulched and applied on site. • Annual pathway maintenance shall include monitoring and maintenance of drainage features, as necessary. Monitoring of these features shall also occur during construction to ensure that impacts are minimized, and drainage management is implemented. • Pathway shall have appropriate signage to inform users of permitted activities and reduce user conflicts. • Monitor and treat invasive and exotic plant species. Herbicides must be approved through the Pesticide Use Proposal System (PUPS). Application of herbicides shall be by licensed applicators and certificates must be issued to the park IPM coordinator. At completion of annual work, a pesticide use log must be submitted to the park and entered into PUPS prior to next year's herbicide treatments. • Restoration of wetland mitigation areas would be carried out biannually with alternating herbicide and prescribed fire treatments as is practicable.

- Annual summaries of restoration treatment efforts, lessons learned and plans for the subsequent year will be prepared near the end of the calendar year to document restoration success and inform adaptive management decision making.

ALTERNATIVES CONSIDERED BUT DISMISSED

As described in Table 4, the following options and alternative locations for the project were considered but dismissed from further consideration. These include suggestions from public scoping, which was conducted in June 2022, as well as the project planning team.

Table 4: Alternatives dismissed from further consideration

Alternatives	Reason for Dismissal
Create 4 feet wide sidewalks on each side of Lighthouse Road.	<p>This alternative was dismissed because it does not fully meet the purpose and need of providing a safe pathway for various users along Lighthouse Road. Although NPS approved this alternative in the 1984 General Management Plan for Cape Hatteras National Seashore and this alternative is still supported by the public as documented during the public scoping period in June 2022, this width does not allow for safe two-directional use by both bicycles and pedestrians.</p> <p>Although the 4' wide pathways are still recommended as acceptable for bicycle lane dimensions according to <i>AASHTO Guide for the Development of Bicycle Facilities</i>, this design would result in conflicts when bicyclists and pedestrians meet on the pathway, and each user group would have to move off the narrow pathway unto uneven surfaces to continue along intended directions. Lighthouse Road has significant pedestrian use which warrants a wider than 4 feet of pathway width.</p> <p>In addition, this alternative would impact both sides of Lighthouse Road, which would be more environmentally damaging than the proposed action by creating impervious surfaces on both sides of the road instead of just one side. Since equestrian use would not be permitted on the new pathway, one side of the road must remain available to those user groups as well.</p>
Widen Lighthouse Road.	<p>This alternative was dismissed because it does not fully meet the purpose and need of creating a safe accessible pathway for all users and is not supported by the public, as documented during the public scoping period in June 2022. By widening the shoulder of the road only, the project would not create a safe pathway for pedestrian users.</p> <p>In addition, this alternative would not connect a safe, resilient pathway to all the key visitor areas, since this alternative would only expand the existing road, therefore, this alternative would not connect the Old Lighthouse beach area to the new Buxton Beach Access area. This alternative would provide only two trailheads and no pull-off areas for additional interpretive signs. This alternative, would not provide structured visitor access to the move path.</p>

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 (40 CEQ 1502.15), 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 potential 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, impacts of the alternatives are described under each impact topic (40 CFR 1502.16). 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

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, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). To determine the cumulative impacts, it was necessary to examine past, present, and reasonably foreseeable future actions at Cape Hatteras National Seashore. Cumulative impacts are considered for the no action and the preferred alternative. The following projects were identified for the purpose of conducting the cumulative effects analysis:

Past Actions

- 1870 – Cape Hatteras Lighthouse was constructed
- 1940’s – US Navy constructed a base with multiple facilities (16 buildings, including a tennis court, softball field, swimming pool, sewage treatment plant, two steam boilers, two diesel generators and a TV tower) in what is now within seashore boundaries.
- 1960’s, 70’s and 80’s – Shoreline protection measures: creation of freshwater ponds from dredging and beach nourishment actions, installations of groins, riprap and sheet piles in front of Cape Hatteras Lighthouse.
- 1970’s – Dare County, NC Department of Transportation and the NPS developed a wetland drainage system to divert water through ditches and culverts. To facilitate northward flow, culverts were installed on each side of Lighthouse Road and under dunes to interlink all wetlands, sedges and ponds, including Jennette Sedge and the former US Navy Station borrow pit (i.e., Turtle Pond).
- 1981 – US Navy turned over the base with the understanding that upon vacating the premises, the US Coast Guard would remove all improvements and restore the site to NPS land.

- 1998 – The Cape Hatteras Light Station, which includes the Lighthouse as well as its associated support buildings and grounds, was designated as a National Historic Landmark on August 5.
- 1999 – The Cape Hatteras Lighthouse and Double Keepers' Quarters, Principal Keepers' Quarters and Oil House were moved 2,900 feet southwest of its original location to where they stand today. A temporary visitor contact station was constructed at the intersection of the old lighthouse parking area and former Lighthouse Road.
- 2000 – Boundary revision to the National Historic Landmark on December 20.
- 2014 – US Coast Guard base facilities were removed from the park with the exception of hazardous materials (semi volatile organic compounds (SVOCs), Pesticides, polychlorinated biphenyls (PCBs)) found within the soils and polyvinyl (PVC) piping from former septic system fields.
- 2019/2020 – Federal Highways Administration resurfaced the asphalt with a chip-seal coating and striped Lighthouse Road and adjacent parking areas.

Present Actions

- Various special events along Lighthouse Road and seashore beaches are held annually including fishing tournaments, Easter Sunrise service, running races, surfing tournaments.
- Commercial use operators conduct tours and surfing instruction within and around the project area.
- Wedding permits for the Buxton area are issued throughout the year.
- Army Corps of Engineers are conducting ground water monitoring and well installations within the former US Coast Guard base to test for hazardous materials in the ground water.
- Continued mowing operations and vegetation trimming along Lighthouse Road.
- Use of stockpiled sand material located within the project area near Buxton Beach access parking.

Foreseeable Future Actions

- Maintenance of park roads and parking areas via resurfacing and restriping.
- Continued mowing operations and vegetation trimming along Lighthouse Road.
- Exotic plant management treatments and monitoring within wetland areas and road corridor.
- Construction of the Frisco-Buxton pathway from the village of Frisco to the boundaries of the seashore along NC Highway 12.
- Replacement of damaged culverts along Lighthouse Road.
- Installation of signs as needed.
- Elevation of Lighthouse Road from the Hatteras Island Ranger Station to Ramp 43. This project would include Segment III of the multi-use path project. These actions would need a new environmental assessment and special rulemaking process for the allowance of bicycles.
- Construction of a new Ramp 43 parking area and the removal of the existing parking area.
- US Coast Guard to finish remediation of the Old Navy/Coast Guard site.
- Development of the former Buxton US Coast Guard site into a NPS campground with electric/sewer/water and restrooms and a new comfort station for beach users.
- Repairs to the Cape Hatteras Lighthouse and grounds

CULTURAL LANDSCAPE

Affected Environment

The National Historic Preservation Act (NHPA) of 1966 states that each Federal agency shall establish a preservation program for the identification, evaluation, and nomination to the National Register of Historic Places of historic properties. Executive Order 13287 states each agency with real property management responsibilities shall prepare an assessment of the current status of its inventory of historic properties required by section 110(a)(2) of the NHPA. NPS *Management Policies 2006* requires the NPS will maintain and expand inventories regarding cultural resources in units of the national park system. According to the NPS Director's Order-28: *Cultural Resource Management Guideline*, a cultural landscape is a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built.

A Cultural Landscape Inventory (CLI) for the Cape Hatteras Light Station was completed in 1998 and updated in 2022. A Cultural Landscape Report for the Cape Hatteras Light Station was completed in 2003. The cultural landscape inventory evaluates the inventory of all significant landscapes in units of a national park system. Landscapes documented through the CLI are those that individually meet criteria set forth in the National Register of Historic Places such as historic sites, historic designed landscapes, and historic vernacular landscapes or those that are contributing elements of properties that meet the criteria. The CLI documents and analyzes the existing landscape identifying character-defining characteristics and features and evaluates the landscape's overall integrity and provides an assessment of the landscape's overall condition along with an illustrative site plan such as presented in Figure 6 below, and stabilization needs.

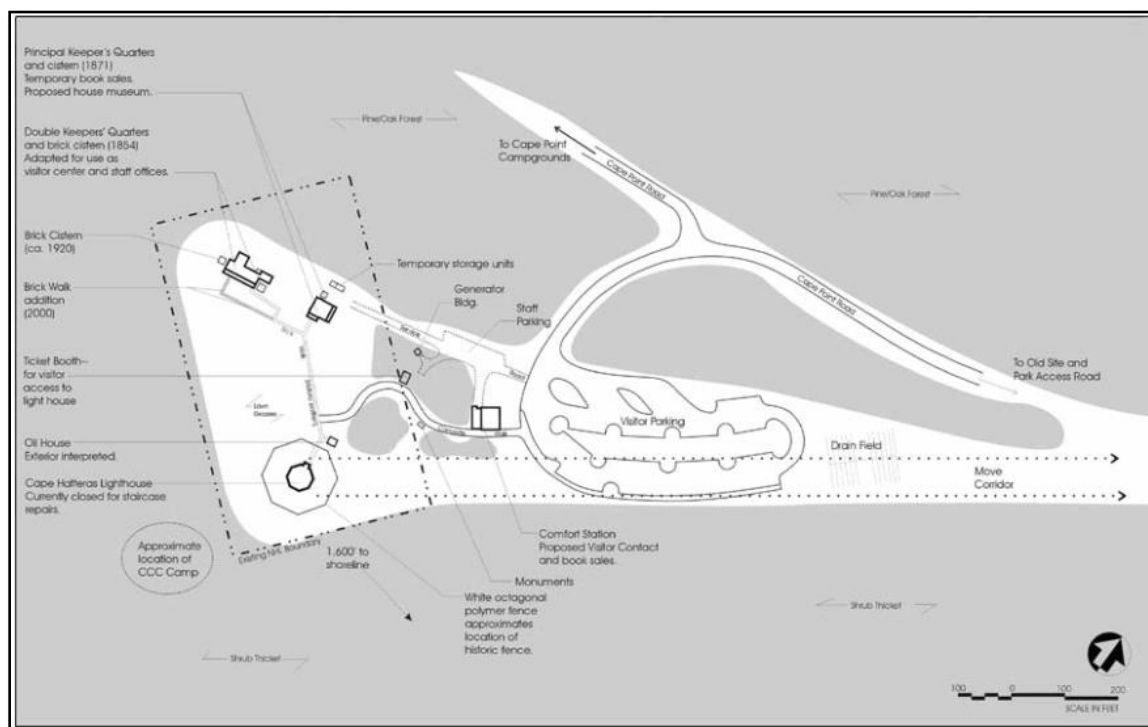


Figure 6: Cultural Landscape Illustrative Site Plan and Cultural Landscape Boundary

The Cape Hatteras light station original cultural landscape boundary was based on the National Register nomination amended in 1998 (Figure 6). It was “L-shaped” area, bounded by the US Coast Guard facility to the north, Buxton Woods to the west, dunes and open beach to the south, and barrier dunes and the Atlantic Ocean to the east, form the approximately ten-acre historic district. After the lighthouse move, a smaller, 5.9 acres, National Historic Landmark (NHL) boundary was re-designated within this area in 1999. The historic structures and landscape features retain their original orientation and spatial relationship but were transported west 2,900 feet. Despite the relocation, the light station landscape maintains good integrity. Although the historic views from the lighthouse were compromised with the CCC dune restoration, private development in the village of Buxton, and the relocation of the lighthouse, the light station complex is intact. The move corridor currently dominates the northeast viewshed from the lighthouse and no impact from adjacent lands threatens the cultural landscape.

The move qualified the light station for Criteria Consideration B of the National Register. The integrity of the landscape is good and conveys the period of significance with both historic architecture and landscape features. The location of the lighthouse (in relation to the shoreline) was replicated in 1999 and the setting is similar to the original site. The integrity of design (spatial relationships) and feeling are also apparent at the relocated light station. Integrity of association in the existing landscape is related to the latter portion of the period of significance, with vegetation contributing to the 1930s CCC restoration. The move corridor dominates the northeast vista from atop the tower yet disrupts the historic view of the beach and ocean. The view from the lighthouse is a primary component of the cultural landscape but does not contribute to the period of significance. Considering forecasted climate change and sea level rise, the move corridor and the original location site may be lost or modified from shoreline changes caused by erosion. Evidence of social trailing from foot traffic and bicycle and cart tire tracks can be found throughout the move corridor between parking areas.

According to the Cultural Landscape assessment the biggest impact to setting is the 1999 move corridor. It dominates the complex's setting and frames a view from the lighthouse to the old site. Setting refers to the character of a landscape and how it played a role in the historical event. It is the physical environment and its relationship to the period of history. The light station's setting is probably the most important aspect of the site's significance. Although the move corridor is not part of the 1870-1936 landscape, it illustrates the continuing theme of protecting the Cape Hatteras Light by utilizing the most advanced technology available. The move corridor has strong integrity of association with the 1999 relocation and represents a possible new period of significance for the light station complex. The Cultural Landscape Report identifies that the old site could be marked in a way that could be viewed from the new site but also states the open view through the move corridor towards the old site would be protected.

In 1990, the NPS noted in the Cape Hatteras Lighthouse Protection Plan EA/FONSI, and the project Memorandum of Agreement with the State Historic Preservation Office and Advisory Council on Historic Preservation noted that the NPS will be maintaining and interpreting the old site through appropriate signing (NPS 1990).



Figure 7: View of the Move Corridor (2001)

On several occasions the cultural landscape and portions of the move corridor have been affected by flooding from increasing levels of severe storm events which can bring significant rain which would pond in low lying areas. Shoreline erosion trends adjacent to the move corridor and original lighthouse site show the shoreline has eroded 4.5-12' annually.

Impacts of Alternative A—No Action

Under no action alternative, an 10-12' paved multi-use pathway with trailheads and interpretive plaza would not be constructed. No additional changes would be made to the cultural landscape and the move corridor within the project area and there would be no loss of integrity from the addition of new non-conforming facilities. Currently parking lots, sidewalks, a septic drainfield, piles of sand and social trails are located within the move corridor. Although the move corridor is not considered a National Registered cultural landscape it has strong association to the formal cultural landscape and the no action alternative would have no effect to these cultural resources and would continue to preserve this resource if a new period of significance is determined.

It is unknown the number of park visitors who would continue to walk down the cleared move corridor along an undefined dirt social trail from the Buxton parking area to the lighthouse and vice versa and additional impacts to the move corridor would be continued trampling from visitors, and potential rutting from bicycles and other wheeled equipment going off the road along this corridor. Under this alternative, there would be no bicycle access within the move corridor so bicyclists would continue to access the Lighthouse from the Lighthouse Road and bicycle tire rutting would continue and potentially become more noticeable as visitation increases.

Without the installation of new interpretive messages describing the lighthouse move, only visitors who were to enter the Museum of the Sea in the Cape Hatteras Light Station's Double Keepers'

Quarters, would see this information out of context and would not have a direct connection to the awesome feat of the lighthouse move on site and what the move corridor means to the story.

Cumulative Impacts

Past actions to the cultural landscape of the project area include the creation of the move corridor, construction and relocation of the Cape Hatteras Light Station itself and construction and maintenance of park roads and parking areas all affected the project area. Past and present visitor use activities such as special events and commercial use activities and bicycle use have and continue to occur within the project area as visitor numbers increase. Present and future maintenance activities of mowing and stockpiling of ramp materials would continue to occur within the move corridor. Severe storm events and resulting sea level rise are likely to increase the frequency and magnitude of flooding events in the future. Vulnerability to flooding within the project area is projected to increase with local estimates of 10-14" of sea level rise along the east coast over the next 50 years (Sweet et al. 2022). As the sea level rises, the site's vulnerability to coastal storms and the associated surges also increases. Under this alternative, taking no action would not contribute the cumulative impacts on the cultural landscape inventory.

Conclusion

Under the no action alternative, the construction of a new multi-use pathway would not occur and therefore there would be no new impacts to the cultural landscape inventory. This alternative would have a long-term negative impact by not enhancing the story of why and how the move corridor was created and why its preserved. This alternative would be a lost opportunity to tell the story of the lighthouse move while park visitors move through the corridor.

Impacts of Alternative B — (Proposed Action and NPS Preferred)

Under the proposed action, a 10-12' wide paved multi-use pathway and two wayside interpretive panels with pull-off areas would be constructed within the move corridor. The concrete or asphalt pathway and pull-off areas with interpretive panels would create an intrusion on the relatively open grassy landscape. Bollards with rope would also be installed to separate the multi-use pathway from adjacent sidewalks within the parking areas. Although it is not exactly known how many visitors travel through the move corridor, it is a large volume as indicated by the social trailing and the observations by seashore staff, therefore sections of the pathway may be as wide as 12 feet to account for this higher volume of pedestrian and bicycle two-way traffic to reduce user conflicts. With the allowance of e-bike use within the move corridor along the pathway there would be manmade sound impacts which may adversely affect a visitor's experience along this section of the move corridor as visitors connect with the story of the Lighthouse move. The move corridor outside of the NHL boundary is considered a 'noncontributing-but compatible' resource and views from the lighthouse are also listed as 'noncontributing-but compatible' in the updated CLI.

The pathway and pull-offs would be visible when viewed from the top of the Lighthouse, though they would not obstruct any important views, nor would they significantly affect the viewshed from ground level along the move corridor since they are at ground level or 4 feet off the ground for the signs. The design of the pathway would be within the entire move path. A section of the lifeguarded parking area asphalt would be removed. Subsequently this area is excess and is not required for parking and this action would allow for 0.59 acres of additional vegetation to be planted to offset impacts of impervious surfaces from the construction of the pathway. The interpretive panels would also be designed and placed as not to obstruct any important views throughout the move corridor. The views between the old location of the Lighthouse and the

current location would remain open and accessible for visitor access. The installation of the signs was initially an action first introduced as a mitigation measure to acknowledge the adverse effects of the move of the Light Station facilities and was a recommendation from the North Carolina State Historic Preservation Office during consultation. Under the proposed action, no trailheads, or interpretive plaza, would be constructed within the cultural landscape.

Cumulative Impacts

Past actions, present and reasonably foreseeable actions and environmental trends would be the same as under alternative A. However, under alternative B, construction of a new paved multi-use pathway and the installation of two wayside panels and pull-off areas would be introduced and slightly modify the cultural landscape. In addition, the large piles of sand would be removed from the cultural landscape and would open up the view to allow for the pathway to be constructed adjacent to the Buxton beach access parking area. Ultimately, these new facilities would have a beneficial long-term effect in interpreting the old site which was a mitigation measure identified during consultation for the Lighthouse move. This alternative would also interpret the move corridor as described in the Cultural Landscape Report. The proposed action would not contribute adverse effects to the cumulative impacts as impacts would be beneficial due to interpreting the cultural landscape and old lighthouse site.

Conclusion

Under the proposed action alternative, the construction of a new multi-use pathway and signage would occur within the cultural landscape and would result in noticeable changes to the landscape both beneficial and adverse. Beneficial impacts would result from providing interpretive messaging on the move corridor and would enhance the story of why and how the move corridor was created and why its preserved. The construction of a new non-historic pathway would have long-term direct adverse impacts to the view of the move corridor. Visually from the lighthouse one would see this new pathway but on the ground this very low to ground path and signs would not detract nor change the openness of the corridor which is a non-contributing but compatible feature to the Lighthouse move. An assessment of effect document was prepared for Section 106 and the seashore determined that project actions would have No Adverse Effect on cultural landscapes.

VEGETATION

Affected Environment

Generally, the present vegetation and ecology on Hatteras Island are a result of both natural processes and human activity. Most of the project area occurs within existing footprints of developed areas. The vegetative areas within these developed areas and specifically the road corridors include grasses consisting of tall fescue, Bermudagrass, and centipede grass. The road corridor has been highly manipulated from the construction of the road, installation of culverts, and frequent mowing. A temporary visitor contact station with a ramp and two sheds was constructed in 1999 at the intersection of the old lighthouse parking area and the former Lighthouse Road (NPS 1999). This visitor contact station was open during the lighthouse move project.

This former and continued disturbance has allowed invasive plants to become established within the project area. *Phragmites* (*Phragmites australis*), Rattlebox (*Sesbania punicea*), Japanese

honeysuckle (*Lonicera japonica*), Thorny olive (*Elaeagnus pungens*) and Pampus grass (*Cortaderia selloana*) were found within the project area.

Outside of the developed areas along the road and surrounding park facilities, vegetation at the project location appears generally undisturbed and is typical of coastal barrier island dune systems in this region. Two primary native vegetation communities occur within the survey area: mature upland dune forest and emergent marsh/scrub-shrub wetland. Low sandy uplands are also present in some areas of the project.

The upland dune forest habitat occurs along the higher elevation dune ridges and is characterized by dry sandy soils conditions, with moderately dense hardwood canopy and a mixed herbaceous and shrub understory. Dominant species include Live oak (*Quercus virginiana*), Wax myrtle (*Morella cerifera*), Eastern red cedar (*Juniperus virginiana*), Yaupon holly (*Ilex vomitoria*), Cabbage palmetto (*Sabal palmetto*).

The emergent marsh/scrub-shrub wetland habitat occurs in the lower elevation swales between the dune ridges and covers larger open expanses of marsh land where the dune ridges are less prominent. This wetland habitat is characterized by a heterogeneous patchwork of shrub- and small tree-dominant vegetation (scrub-shrub wetland) interspersed with stands of saltmarsh grasses and other wetland herbaceous species (emergent saltmarsh). Dominant species include Black willow (*Salix nigra*), Swamp bay (*Persea palustris*), Stiff dogwood (*Cornus foemina*), and wax myrtle in the canopy, and Sturdy bulrush (*Bolboschoenus robustus*), Eastern marsh fern (*Thelypteris palustris*), Three-square bulrush (*Schoenoplectus pungens*), and Jamaica swamp sawgrass (*Cladium mariscus*) in the understory.

The low sandy uplands within and around the project area support a varying mix of coastal plant species. Parts are dominated by Large saltmeadow cordgrass (*Spartina patens*), Bitter panic grass (*Panicum amarum*), American beach grass (*Ammophila brevigulata*), Witchgrass (*Dichanthelium* sp), *Andropogon glomeratus* (bushy bluestem), *Uniola paniculata* (sea oats), *Croton punctatus* (Beach tea), Large-headed rush (*Juncus megacephalus*), Spanish bayonet (*Yucca aloifolia*), Beach morning glory (*Iponmoea imperati*) and Virginia buttonweed (*Diodia virginica*). Patches of shrubs, *Morella cerifera* and *Ilex vomitoria*, are intermixed with *Smilax* spp in the dune uplands. Typically state listed Mound lily (*Yucca gloriosa*) and Dune blue curls (*Trichostema nesophilum*) can be found within back dune habitat, which is present within the project area, but both of these species were not found when surveyed.

Environmental trends of increasing storms, sea level rise and warmer temperatures continue to slowly change the wetland environments. Vulnerability to flooding within the project area is projected to increase and would have negative impacts to wetland vegetation by increasing ground water levels. More rain and higher sea levels are modifying the ground water levels and allowing saltwater inundation which continue to transform vegetation types by removing trees entirely and creating wetlands over time. As the sea level rises, the site's vulnerability to coastal storms and the associated surges causes salt spray and sand to shift which can measurably stress wetland vegetation by causing plants to suffocate, leaves to brown, reduce the plants' ability to photosynthesize and use water efficiently.

Approximately 15,408.5 acres of the seashore are vegetated according to seashore geospatial information from inventory and monitoring data collected since 2014. July 2022, during vegetation surveys by NPS staff, there was no presence of any state sensitive or rare plants, or federally threatened or endangered plant species found within the project area.

Impacts of Alternative A—No Action

Under no action alternative, an 10-12' paved multi-use pathway would not be constructed. Only small changes would be made to the vegetation within the project area from removing vegetation that is only within sight lines for the safety of oncoming vehicles within the intersections of side roads onto Lighthouse Road. These actions are considered routine maintenance within the road corridor and have insignificant impacts to the vegetation. The existing topography and vegetation along Lighthouse Road, move corridor and area between Old Lighthouse Parking area to the former US Navy/Coast Guard site would continue to be mowed and remain clear of any new installations or hazardous trees, also as part of routine grounds maintenance.

Park visitors would continue to trample and create social trails from foot, horse or bike traffic along these areas causing these undefined trails to potentially expand and therefore, continue to remove small amounts of grassy vegetation over time. A well-worn pathway on both sides of the road and within the move corridor can be seen.

The park has an active invasive plant management program and NPS staff would continue to treat any exotic or invasive species within project area as current management and funding allows.

Cumulative Impacts

Past actions to the vegetation within the project area includes the construction and relocation of the Cape Hatteras Light Station itself and construction and routine maintenance of park roads and parking areas. Past and present visitor use activities, such as special events and commercial use activities, have and continue to occur within the project area as visitor numbers increase. More and more pedestrians/bicyclists would continue to use the road and/ shoulder and trample the roadside grasses along Lighthouse Road to key destinations. Present and future maintenance activities of mowing and road and parking area repairs would continue to occur within the project area. By not constructing the pathway trampling would occur and visually have an adverse effect to a portion of vegetation within the project area. Vulnerability to flooding within the project area is projected to increase and would have direct negative impacts to vegetation by increasing ground water levels and changing vegetation types due to the changing water levels and amount of salinity in the ground water. Overall, the no action alternative would not significantly contribute to the impacts of other park actions.

Conclusion

Under the no action alternative, vegetation along the roadsides would continue to be directly impacted from typical routine vegetation and road maintenance operations, and pedestrians and horses traveling within the project area. Social trailing and rutting would continue to increase and have a direct adverse impact to grassy vegetation as more and more visitors recreate within the project area.

Impacts of Alternative B— (Proposed Action and NPS Preferred)

Under the proposed action, approximately 5.6 acres of ground disturbance would occur and approximately 1.84 acres of vegetation would be removed for the development of the multi-use pathway and in some locations, a wider area for trailhead areas and for visitor safety. The total acreage accounts for the width of the pathways and the necessary horizontal clearance of

vegetation thinning and trimming needed to construct the pathway. Most vegetation impacts would occur within the upland scrub forest habitat during the construction of the pathway when specific trees, shrubs and grasses are removed to clear the site for construction activities. Healthy live trees, particularly *Quercus virginiana* (live oak), and other larger shrubs such as *Morella cerifera* (wax myrtle), *Juniperus virginiana* (eastern red cedar), would be preserved whenever possible and fencing placed around them to further protect them and their root zones. However, but both live and dead trees may be removed during construction for the footprint of the pathway, required slopes and temporary work zones. Wetland vegetation impacts are described in the *Wetland and Water Resources* environmental consequences section beginning on page 41.

The construction of a new interpretive plaza with comfort station and septic field would require the removal of low growing woody shrubs like wax myrtle and juniper and grasses within 0.34 acres of a previously disturbed area adjacent to two roads. This area had been previously cleared and used as a temporary visitor center during construction activities for the relocation of the lighthouse. Although the majority of this area has been continually mowed, some junipers, wax myrtle, yaupon holly shrubs and herbaceous grasses have grown up and would need to be cleared.

Hazard tree removal (e.g., dead or dying trees that have fallen across the pathway) would occur during future maintenance of the pathway to provide a safe, obstacle free pathway for human use after the pathway has been constructed. Branches extending over the pathway corridor would be pruned no higher than 10 feet above the pathway surface and maintained through the life of the pathway. Frequent pruning of trees creates opportunities for pathogens or insects to enter through the wound and allows them to bypass a tree's defense layers and could adversely affect a tree's vitality for the remainder of the tree's life. Selective pruning of trees would be done with appropriate tools and during appropriate times of year for the tree's species.

The impact to vegetation is expected to be localized to the pathway construction corridor and pathway clearance corridor and would only constitute a relatively small number of trees compared to the number of trees within and adjacent to the project area. When the acres of impact of the action alternative are compared to the total acreage of that vegetation type in the park, there is a 0.01% impact to park vegetation from the proposed action (NPS 2022d). Additionally, a small section of asphalt adjacent to the Buxton Beach access parking area would be removed and restored as a vegetative surface to help offset previous effects of new facilities.

Proposed construction activities that disturb vegetation could lead to increasing populations of nonnative invasive plants by removing established native plants that compete with noxious weeds, exposing mineral soil as a substrate for weed germination and dispersing existing or new weed seeds or plants carried by construction equipment and pathway users. To prevent the spread of invasive and nonnative vegetation, the seashore would manage weed infestations in accordance with the park's invasive vegetation management (NPS 1997) by spraying with approved herbicide and other mitigation measures discussed in chapter 2. An additional 1.11 acres of invasive plant species, phragmites, would be treated via chemical treatments and burning to help offset wetland vegetation impact from the proposed action and is further described in the Wetlands Statement of Findings in Appendix A.

Under the action alternative, bikes, including e-bikes, would be allowed on the new pathway after the NPS promulgates regulations designing the pathway as open to bicycle use. Allowing bicycle use on this multi-use pathway is not anticipated to measurably impact vegetation more than the impact of constructing the new pathway alone. There may be localized rutting from bike tires or trampling from pedestrians stepping off the path when passing others recreating on the pathway,

but due to the standardized width and potential striping of lanes, these impacts to the vegetation would be greatly reduced. While the weight and speed of e-bikes is not anticipated to impact vegetation more than traditional bikes, there have been rare reports of wildfires caused by e-bike batteries igniting (Dawson 2019). The risk of wildfire associated with the use of e-bikes at the park is low due to the humidity of the region, resulting in a low-probability of adverse impacts to vegetation.

Cumulative Impacts

Past actions, present and reasonably foreseeable actions and environmental trends would be the same as under alternative A. Other past, present, and reasonably foreseeable future actions that may affect vegetation within the project area would be minimal. Additional exotic and invasive plant management treatments may be needed after the construction of the pathway if localized spread of invasives occurs from construction activities, trampling from passing around visitors on the path, or future maintenance activities along the pathway. The seashore has an active IPM staff who would absorb the additional work. Areas where vegetation is thickest along the pathway would require annual pruning to ensure the pathway is clear of obstructions. Additional measures and BMPs; using silt fencing, restoring disturbed areas with approved seed mix and developing a tree protection plan and conducting invasive plant treatments would aid in reducing adverse impacts to vegetation. Although, more frequent storm events and rising sea levels are predicted which could cause salt inundation and changes to vegetation types within the project area, project actions would not significantly contribute a measurable effect on vegetation resources.

Conclusion

Under alternative B, project activities would have a moderate degree of permanent adverse impacts from the removal of vegetation within the project area. Impacts would be approximately 1.84 acres of vegetation, which is only a 0.01% of the seashore's total vegetative areas. Pedestrians and bicyclists would shift their impact the new paved path which could absorb this visitor impact. Mowing operations would be reduced on one side of the road and in areas where the additional facilities would be constructed. Upland areas would have vegetation such as trees and shrubs removed for and around the pathway and associated facilities. Areas for the new septic drainfield would be cleared and maintained to ensure vegetation would not encroach into the drainlines. Best management practices to reduce and protect vegetation directly would be performed during construction activities. Routine maintenance to keep vegetation cut back from new facilities would occur on an annual basis or after storm events. Additionally, restoration efforts would be implemented upon the completion of the pathway and associated facilities to help stabilize disturbed areas and to reestablish native plant species within the project area.

VISITOR USE AND EXPERIENCE

Affected Environment

The seashore is managed according to NPS *Management Policies 2006*, which state that park resources and values are to be enjoyed presently and in the future by the people, and the NPS is committed to providing appropriate high-quality opportunities for all visitors (NPS 2006). Accordingly, there are a number of visitor use opportunities at the seashore and in Hatteras Island District. Recreational activities include swimming, shelling, surfing, kayaking, canoeing,

kiteboarding, windsurfing, camping, fishing, hunting, auto touring, lighthouse climbing, biking, hiking, horseback riding, stargazing, and wildlife viewing.

Several key destinations can be found along Lighthouse Road. The site of where the Cape Hatteras Lighthouse once stood on the shoreline is now one of the premier surfing locations within the seashore. Visitors come from all over the world to experience the surf break here due to the groins installed for the protection of the lighthouse. Also, in this area is one of the seashore's five lifeguarded beaches during the summer months from Memorial Day through Labor Day. The seashore continually stresses to visitors that the best way for them to stay safe when swimming is to swim at a lifeguarded beach. North of this area is another beach access area that was once a US Navy/Coast Guard base. In 2014 all the facilities were removed, and the site has slowly been remediated by the US Coast Guard and Army Corps of Engineers for the seashore to use once again. As of 2019, parking has been available for visitors to access the beach in this newer area which is accessible from Old Lighthouse Road in Buxton.

Cape Hatteras Light Station is located off Lighthouse Road. The Cape Hatteras Light Station, which includes the Lighthouse as well as its associated support buildings and grounds, was designated as a National Historic Landmark in 1998. The iconic lighthouse, with the black and white swirled daymark, was constructed in 1870, replacing a smaller 1803 lighthouse, to guide mariners around the shallow, shifting sands of the Diamond Shoals located just off the coast. When the seashore was officially opened in 1953, the light station was included as part of the nation's first National seashore (NPS 2011). As a result of eroding shorelines, in 1999, the NPS moved the light station 2,900 feet southwest of its original location to a new site approximately 1,500 feet from the shoreline, where it stands today. When the light station was moved to its new site, the configuration of the buildings associated with the Lighthouse was maintained, as well as their orientation to the shoreline (NPS 2022c). Visitors to the light station have the opportunity to learn about the Lighthouse and its historic operations through the commemorative landscape and interpretive features. The Hatteras Island Visitor Center and Museum of the Sea are located on the light station grounds. The visitor center offers orientation information and a park store; just beyond the visitor center, there are restroom facilities and a pavilion for ranger programs. The two-floor Museum of the Sea is housed in the Double Keepers' Quarters and contains exhibits on Outer Banks cultural and natural history. In 2024 the lighthouse will undergo a major restoration project and will include redesign of the landscape to accommodate heavy visitation the site receives.

Cape Point Campground is located at the end of Lighthouse Road and is a 202-site campground open from April through the end of November each year. It is within walking distance of the Atlantic Ocean and Cape Hatteras (also known as Cape Point) itself where it is renowned that this location is the surf fishing mecca of the world. Campsites reserved at the seashore's four campgrounds saw a 58% increase over reservations in 2020 and Cape Point Campground had 4,640 sites occupied in 2021 according to the seashore's monthly public use reports. Along Lighthouse Road past the lighthouse are other popular destinations such as access to the Buxton Woods Trail and Open Ponds Trail, the British Cemetery, Loran Road Trail, and Ramps 43 and 44.

Annual visitation to the seashore over the last 10 years has ranged from 1.9 million to 3 million visits, with the lowest count occurring in 2011 and the highest in 2021 (NPS 2022e). The seashore hosted 3,206,056 visits in 2021, which was more than 20% higher than 2020 and over 35% higher than the ten-year visitation average (2011-2020). Visits to the seashore are highest in June, July, and August with more than 400,000 visits in each of those months in 2021 (NPS 2022e). With regard to Cape Hatteras Lighthouse visits, over the last two years the lighthouse was closed to

climbing due to lighthouse repairs, but in 2019 the last year it was open for the climbing season from late April to early October, the lighthouse received 29,600 visitors which was described by NPS staff as typical for the climbing season (NPS 2022f). According to park visitor use statistics from the last season the lighthouse was open for climbing, 10% of seashore visitors come to visit the Cape Hatteras Lighthouse.

Traffic counts at Ramp 43/44 demonstrate that more than 81,000 park visitors travel down Lighthouse Road to access these popular beach access ramps annually over the last 10 years (NPS 2022e). Traffic within the project area can be as low as a few vehicles per day in the winter to over 200 vehicles per day in the summer according to park visitor statistics.

While no recent counts have been made of bicycle use of Lighthouse Road, 2002 visitor survey results indicate 17% of visitors report bicycling during their visit (NPS 2003). According to the survey, bicycle traffic on NC-12 was approximately 70% experienced riders and 30% inexperienced.

Hatteras Island has multi-use pathways running parallel to NC Highway 12 in five of its seven villages and there are current plans for the Outer Banks National Scenic Byway Committee for Dare County to seek grants to construct a 7.6-mile multi-use pathway from Frisco to Buxton to an existing sidewalk at the entrance of Lighthouse Road.

Providing for visitor safety is especially important at the seashore due to the proximity to the village of Buxton, increased visitation, and various access points along Lighthouse Road to key destinations that have created a very busy road to both vehicle and pedestrian traffic. Fortunately, only one minor single vehicle accident has been reported within the project area (Henry 2022e) in the last few years.

Impacts of Alternative A—No Action

Under the no action alternative, impacts on visitor use and experience would remain the same, as described in the affected environment section. The continued increases in visitation would likely result in direct long-term negative impacts to visitor use and experience as increased visitor conflict between users would cause the quality of the visitor experience to decline along this road corridor and could compromise the safety of park visitors because more pedestrians and bicyclists may use the roadway to travel down Lighthouse Road. A multi-use pathway would not be constructed, and visitors would not have a safe, accessible multi-use path to access key destination areas along Lighthouse Road. Under the no action alternative, the impact would directly involve those visitors who enter the Lighthouse district as a pedestrian or bicyclist travelling along the road or on the grassy shoulder. Additionally, the interpretive plaza and trailheads would not be constructed. Visitors would not have wayfinding nor interpretive messaging available within the project area. Visitors would be expected to get their information about this area from the park visitor center and Museum of the Sea. Not constructing these facilities may affect less than 20% of visitors to the seashore according to 2003 visitor use survey data, however, pedestrians and bicyclists are traveling along this road on a daily basis, and the public has frequently expressed an opinion about the need for a safe multi-use pathway along Lighthouse Road and did so again during the public scoping of this project.

Cumulative Impacts

Past actions such as the construction of the roads and parking areas, the development of beach access areas and other key destinations along Lighthouse Road, continued routine mowing of Lighthouse Road corridor and routine maintenance to the road and pullout area would have had measurable effects to this project area. Future projects, such as the maintaining the roads and parking areas, installing wayside signs, repairing the Lighthouse, and improving the landscape would have a beneficial effect on visitor use and experience overall because they are long-term enhancements to the functionality of the seashore, visitor experience, interpretive opportunities, and ease of visitor use. Under this alternative, visitor functions in the project area are not expected to change, however not constructing the improvements within the project area would have readily measurable adverse effects to visitors traveling along Lighthouse Road from a safety and experience perspective when included with other past, present, and reasonably foreseeable future actions within the project area.

Conclusion

Under alternative A, impacts to visitor use and experience within would be directly and indirectly adverse for the long-term (i.e., 10-20 years or more) due conflicts between travelers along the roads. The seashore frequently receives comments from the public asking for a sidewalk or pathway along Lighthouse Road for travel and the seashore did approve a pathway in the 1984 general management plan. Visitor numbers are increasing, and it is expected each year more visitors would be traveling along this road from the village of Buxton. The installation of two waysides along the move corridor would be a minor benefit to a very small number of visitors walking along the move path.

Impacts of Alternative B— (Proposed Action and NPS Preferred)

Under the proposed action, approximately 1.6 miles of a multi-use pathway would be added. This would be the seashore's first multi-use pathway and would mean a new visitor use opportunity to access key destinations within the project area in a safe way.

The move of the Cape Hatteras Lighthouse, often described as "the move of the century," and later recognized by the American Society of Engineers as an Outstanding Engineering Achievement is one of the most popular topics requested by visitors. Under this proposed action, visitor would be able to tangibly experience this powerful story by exploring a section of the move path and better understand this important part of the lighthouse's history. The pathway would connect visitors to the original site of the Lighthouse, a very important part of the move story that is currently challenging to visit due to a lack of pathway connectivity.

The proposed action includes measures that would improve the quality of the experience for visitors travelling along Lighthouse Road. Creating a separated pathway along the road, allows pedestrians and bicyclists to safely travel along a busy section of Lighthouse Road and reduces conflicts with motorized vehicles also traveling along the road.

The proposed action makes a notable change to a user type that is allowed on certain trails or pathways. Namely, bikers would gain access to the first pathway within the seashore. Any impact to horseback riders would likely be minimal, as this user group would still have one side of the road corridor to use to travel down Lighthouse Road. Hatteras District staff estimates only a few riders per year use this road corridor and no comments regarding equestrian use were received during public scoping (NPS 2022g). Meanwhile, the direct beneficial impact to bicyclists using traditional

bicycles or electric bicycles would be quite substantial as this is a popular activity, and the addition of an off-road pathway would be welcome. The direct effect of the changes in allowed use type under the action alternative would be beneficial, as it would benefit many more users than it would adversely affect by creating a safe, resilient, informative trail.

Visitor wayfinding and circulation would be greatly improved under the proposed action. Consistent standard amenities, including signage at trailheads and primary trail access points, would help ensure that visitors have a better sense of how the pathway is laid out and can better prepare for their activity. These amenities would provide an inviting gateway into the park from the village of Buxton, ensuring that visitors are aware they are entering a national park unit, have appropriate expectations about their upcoming experience, and are aware of any pertinent rules and regulations. The secondary access point near the Buxton Beach access area would also help ensure that the pathway system is better connected with other areas of Buxton and would help facilitate access from this community, possibly even reduces the need for visitors to drive to a trailhead to gain access to the park.

The path would connect one of the most highly and densely visited seashore locations (the lighthouse) with the beach. Currently it is challenging for visitors at the lighthouse to get to the beach, and this pathway would connect two fundamental resources of the park together in a seamless and safe visitor experience.

The interpretive plaza would be constructed in the location where a former temporary visitor contact station was constructed. This area was and still is an ideal location for connecting with visitors who recreate within the area. This plaza would host more comprehensive information of the park and its resources, provide new restroom facilities and would be an area for rest in the shade with picnic tables and benches.

The multi-use pathway could lead to more visitor conflicts between pedestrians and traditional bikes, between pedestrians and e-bikes, and between traditional bikes and e-bikes. However, the wide nature of the pathway (between 10 and 12 feet), would likely provide enough space between users to avoid excessive conflicts. If conflicts occur, several management strategies could be implemented to reduce conflicts and improve the quality of visitors' experience. These strategies include educating the public, as well as piloting and potentially permanently establishing a separate bicycle and pedestrian lanes where visitor conflicts are a recurring issue. What's more, several studies have shown that a majority of non-e-bike users do not notice when they are sharing the pathway with e-bikes (Nielson 2019). Additionally, while there is a widely held perception that e-bikes can be unsafe due to the speed they travel; a study of speed data showed that people using e-bikes generally travel at similar speeds as traditional bicycles on roadways, off-street paths, and natural surface trails (Nielsen 2019). The availability of the pathway to e-bikes may also make the project area more accessible to older adults and others with mobility challenges who may not access the park using a traditional bicycle or on foot.

The use of ABA standards to improve the accessibility of the pathway and the installations of interpretive messaging would benefit visitors of differing abilities and thereby improving the overall quality of their experience within the project area.

Cumulative Impacts

Past actions such as construction of buildings, park roads, parking lots and other facilities have had adverse effects on visitors experience because of the inconvenience of possible off-limit areas, and from construction noise and dust. Ultimately, however, these actions would have a beneficial effect

on visitor use and experience because of long-term improvements to the human health and safety aspects of the visitor; the visual and natural environment of the resources; and functionality of the park. The foreseeable future actions related to rehabilitation of the Cape Hatteras Lighthouse and landscape could have a beneficial effect on visitor use. As previously described in this EA, the direct and indirect impacts of alternative B on visitor use and experience would introduce temporary construction noise, delays, and area closures but would also provide increased visitor accessibility as well as a safe and convenient facilities to recreate within the Lighthouse District. Just like climate trends present an increase in temperatures and more active storm seasons, visitor trends are also trending upwards and showing an annual increase of visitation each year. More and more visitors are expected to recreate within the Hatteras District and when the impacts of the proposed actions are combined with other past, present, and reasonably foreseeable future impacts, the total cumulative impact on visitor use and experience would be directly impacted during the construction of the project, but the project would result in direct long-term benefits on visitor use and experience and safety of park visitors. The incremental impacts of alternative B would noticeably contribute to the impacts that are already occurring but overall, cumulatively, would not be a significant effect.

Conclusion

Actions proposed under the action alternative would result in both beneficial and adverse impacts to visitor use and experience. Most of the adverse impacts, however, would be temporary given the construction of the pathway which may cause one lane closures temporarily, lasting for only a short time (i.e., hours or days) and only affect a small minority of visitors, within a small geographic portion of the park. These impacts would generally be outweighed by the direct long-term (i.e., 10-20 years or more) beneficial effect of having a multi-use pathway in the seashore. Overall, the action alternative would greatly improve visitor use and experience and create a safe pathway the seashore identified in its 1984 the general management plan actions.

WETLAND AND WATER RESOURCES

Affected Environment

Wetlands within the project area are subject to oversight by multiple federal agencies, including the NPS and US Army Corps of Engineers (USACE). Executive Order (EO) 11990 *Protection of Wetlands* requires federal agencies to avoid, where possible, adversely impacting wetlands and all NPS activities that have the potential to have adverse impacts on wetlands be conducted in a manner consistent with the goal of “no net loss of wetlands”. NPS policies for wetlands, as stated in 2006 Management Policies and Director’s Order (DO) 77-1 *Wetlands Protection*, strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1 *Wetlands Protection*, proposed actions that have the potential to adversely affect wetlands must be addressed in a Statement of Findings for wetlands. A Wetlands Statement of Findings was prepared and is presented in Appendix A

Under Section 404 of the Clean Water Act, USACE issues permits for activities that result in the discharge of dredged or fill material into waters of the United States, including wetlands. Although portions of USACE 404 permit procedures (33 CFR 320-330) are similar to some of the requirements found in Director’s Order #77-1 and NPS implementing procedures, there are significant differences in scope that warrant a separate NPS wetland procedure process. First, the

404-permit program regulates only the discharge of dredged or fill material, while EO 11990 covers a much broader range of actions that can have adverse impacts on wetlands, including nutrient enrichment and shading impacts. Second, the wetland definition used for the 404-permit program (33 CFR 328.3) is narrower than the Cowardin wetland definition (Cowardin et al. 1979) used for NPS compliance with EO 11990. Therefore, a broader range of aquatic habitat types fall under EO 11990 than under the wetland procedures of the 404-permit program.

On June 22-24, 2021, the NPS conducted a wetland delineation site visit to Lighthouse Road and areas surrounding the Cape Hatteras Lighthouse in Buxton, NC. This work was conducted in support of project planning efforts for a proposed multi-use pathway to be constructed along the road to provide non-vehicle access and recreational opportunities to the lighthouse and nearby attractions.

Fifteen jurisdictional wetland resources were identified within the survey limits of Segment I and II project areas, including 13 wetlands and two open water ponds (see Appendix A). As stated previously, USACE and NPS standards for delineation of wetlands are slightly different, however, it is occasionally possible for USACE and NPS jurisdictional boundaries to diverge within the same wetland. Within this survey area this is not the case, and the wetland boundaries as delineated here are applicable to both regulatory authorities. This is primarily due to the tight association between hydrophytic vegetation and hydric soils, as driven by the surface elevation and hydrology of this site.

The wetlands present are an emergent marsh/scrub-shrub habitat which occurs in the lower elevation swales between the dune ridges and covers larger open expanses of marsh land where the dune ridges are less prominent. This wetland habitat is characterized by a heterogeneous patchwork of shrub- and small tree-dominant vegetation (scrub-shrub wetland) interspersed with stands of saltmarsh grasses and other wetland herbaceous species (emergent saltmarsh). Dominant species include *Salix nigra* (black willow), *Persea palustris* (swamp bay), *Cornus foemina* (stiff dogwood), and wax myrtle in the canopy, and *Bolboschoenus robustus* (sturdy bulrush), *Thelypteris palustris* (eastern marsh fern), *Schoenoplectus pungens* (three-square bulrush), and *Cladium mariscus* (Jamaica swamp sawgrass) in the understory.

The project area is adjacent to the area known as Jennette Sedge which is a large open-water wetland complex bordering Buxton village homes along their southern boundary. Water within the wetlands is connected through a series of culverts along the Lighthouse Road which flows north into Pamlico Sound (Figure 8). There is no headgate or other method to control the amount of water that can flow into the culverts previously mentioned and flow is dependent on the elevation of the water surface in Jennette Sedge (NPS 2003). There are also four ditches located along the northwest side of Hatteras Island and these ditches help convey water from sedges on the north side of the island through the culverts to Pamlico Sound. These ditches generally drain sedges that are only on private lands and are not connected to Jennette Sedge (NPS 1993). These wetlands serve as freshwater storage and recharge reservoirs that receive subsurface lateral discharge from adjacent uplands during and shortly after rain events (Gregory and Morgan 1996). These drainage ditches lessen the period of inundation and can be considered an unnatural influence of the natural hydrologic system and therefore these wetlands may be of low quality.

Two open freshwater pond areas are within or adjacent to the project area and are a registered Natural Heritage Area with the state of North Carolina for the presence of state rare plant species. One pond is located next to the parking area for the old lighthouse site. This pond, known as Lighthouse Pond, was created in the 1960's or 70's by dredging sand for the placement of

sediment in front of the Cape Hatteras Lighthouse as a shoreline protection measure. Lighthouse Pond is bordered to the east by a parking lot and a flat surface with weedy vegetation, which looks like it was graded in the past. According to a trip report by Larry Martin, an NPS hydrologist, the drawdown zone of the pond is dominated by wetland species such as creeping frogfruit (*Phyla nodiflora*) or spikerush (*Eleocharis sp.*) Marshy areas containing Olney's threesquare (*Schoenoplectus americanus*), Monnier's water-hyssop (*Bacopa monnieri*), dune water-pennywort (*Hydrocotyle bonariense*), large saltmeadow cordgrass (*Spartina patens*), and exotic Bermuda grass (*Cynodon dactylon*) occur in patches along the edge.

The other pond, called Turtle Pond, is north of Lighthouse Pond and runs east towards Lighthouse Road. Turtle Pond is large, has an irregular shape, and follows the trend of the primary dune swales to the west. It is deeper at the two ends and shallow in the middle. There is not obvious evidence of excavation however, its north shore on the east end adjoins the area where the US Navy/Coast Guard base was, and this edge is clearly modified. This pond was constructed by the US Navy in the 1940's as a borrow site for sediment to place along the shoreline. A large population of the Significantly Rare Illinois pondweed (*Potamogeton illinoensis*) was identified as present in floating mats and in the drawdown zone along the southern side of Turtle Pond in 2014. The remaining open water contains patches of Wigeon-grass (*Ruppia maritima*). These ponds, though mainly Turtle Pond, are suitable habitat for many freshwater animals, such as fishes, reptiles, and amphibians. Small numbers of waterfowl occur on the ponds in winter, especially when very cold weather prevails for several days.

Environmental trends of increasing storms, sea level rise and warmer temperatures continue to slowly change the wetland environments. More rain and higher sea levels are modifying the ground water levels and allowing saltwater inundation which continue to transform vegetation types by removing trees entirely and creating wetlands over time. As the sea level rises, the site's vulnerability to coastal storms and the associated surges causes salt spray and sand to shift which can measurably stress wetland vegetation by causing plants to suffocate, leaves to brown, reduce the plants' ability to photosynthesize and use water efficiently. Vulnerability to flooding within the project area is projected to increase and would have negative impacts to wetland vegetation by increasing ground water levels and changing vegetation types.

Impacts of Alternative A—No Action

Under alternative A, there would be no action and therefore no change to wetlands or water resources within the project area. The wetland function within the project area would continue to exist in its present state with no new impacts. This alternative would avoid the long-term and short-term environmental effects associated with adjacent modification of wetlands; and would avoid the direct fill of wetlands that could continue to adversely affect the natural resources and hydrologic functions of wetlands. Turtle Pond and Lighthouse Pond would not be impacted under alternative A.

Cumulative Impacts

Past actions such as construction of Lighthouse roads, parking lots, construction of wetland drainage ditches and culverts, and creation of dredging borrow pits have had the most substantial adverse effects on the wetland ecosystem and water resources adjacent to and within the project area. These developments have altered the natural hydrologic function along water quality degradation from nonpoint sources associated with residential septic systems, and stormwater runoff. These modifications have reduced or eliminated flooding effects within the developed areas

of the project. Nevertheless, under this alternative there would be no additional effect to wetlands or water resources.

The foreseeable future actions such as repairing and replacing the culverts along Lighthouse Road would benefit the functionality of the ditch and culvert system to continue to mitigate flooding from rain events. Under this alternative, taking no action would not contribute the cumulative impacts on the wetlands and water resources.

Conclusion

The no action would have no additional direct adverse or beneficial impacts to wetlands and water resources.

Impacts of Alternative B— (Proposed Action and NPS Preferred)

Under the action alternative, construction of new 1.6-mile-long multi-use pathway and trailhead and plaza facilities would primarily occur on well-drained soils or modified soils within developed areas. This alternative was designed to minimize impacts to wetlands as best as possible. The construction of a 10' wide pathway would involve filling of some areas where wetlands are present.

Total land disturbance for both Segment I and II would be approximately total 5.6 acres. The construction of the new pathway would adversely impact approximately 0.286 acres of the fringe edge of palustrine wetlands (Appendix A). These impacts include both temporary impacts (0.118 acres) from construction limits of disturbance and permanent impacts from fill (0.168 acres) to create a 2-foot buffer with 3:1 slope on one side of the pathway along Lighthouse Road. Culvert repairs would have minor negative impacts under the Alternative B. Specifically installing the headwall and removing the culvert that goes to nowhere would have temporary minor impacts to fringe wetlands from turbidity effects while working within the wetland edge. The other culvert location would not have wetland impacts. Mitigation measures and best management practices would be implemented during pathway construction to reduce the adverse impacts of impacting wetlands, including using silt fencing, use of wooden construction pallets, sediment bags for any dewatering needs, salvaged topsoil, and native vegetation, in all restoration efforts, phragmites treatments, and monitoring the success of restoration efforts.

Following construction of the pathway, trailheads, interpretive plaza, disturbed areas would be revegetated with NPS approved native plant species. Overall functions of the wetlands are not likely to be noticeably altered because of the generally small area of fill and vegetation and ground disturbance in relation to the total acres of wetlands present in the project area; approximately 7.03 acres of wetlands within the project area, accounting for 96% of total wetlands, would remain undisturbed. Some pockets of wetland vegetation would be removed along some sections of the road to place fill to extend the standard 2-foot vegetative buffer next to the paved pathway. Remaining adjacent wetlands would continue to filter and convey precipitation and provide an important wetland habitat for vegetation and wildlife.

Under the action alternative, the design of the pathway for storm management would be to allow any accumulated rain to sheet flow across the pathway. No storm pipes or low areas are identified in the design. The actions proposed under the proposed action would not be expected to impact the long-term viability of wetlands or water resources in the project area.

The proposed pathway project may require a Section 404-permit for discharge of fill into regulated wetlands. Based on the intended public recreational use of the proposed pathway, this project would qualify for authorization under the 2021 USACE Nationwide Permit 14. Linear

Figure 8: Wetlands and Culvert Locations in Project Area



Transportation Projects. This permit would authorize discharges into non-tidal waters for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, driveways, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge of dredged or fill material cannot cause the loss of greater than 1/2-acre of waters of the United States. Any stream channel modification, including bank stabilization, would be limited to the minimum necessary to construct or protect the pathway; such modifications must be in the immediate vicinity of the project.

Cumulative Impacts

Cumulative effects are like those under alternative A. However, implementation of alternative B would contribute a perceptible, adverse increment to the cumulative long-term and adverse impacts to wetlands from the placement of fill and posts into the wetlands. Effects on wetland plant and animal populations, soils, or hydrology would be measurable or perceptible. Mortality of individual plants and animals might occur, but the viability of wetland populations and habitats is anticipated to not be affected and the community, if left alone, would recover. The wetlands within the project area have been modified from the construction of roads, development of houses, creation of dredge ponds, installations of culverts to accommodate inundation from rainfall events from adjacent developed areas. The changing climate with more frequent storms and increases of ground water levels continue to impact wetland environments and modify vegetation. The function of the wetlands within and adjacent to the project area has been compromised from these past and present events and project actions would have direct measurable adverse permanent impacts to wetlands.

Conclusion

The proposed action would have direct, long-term (years), adverse impacts on the palustrine wetlands from fill within the project area; however, the permanent loss of wetlands would be approximately 0.168 acres, which is 2% of the 7.03- acre project site. To compensate for a no net loss of wetlands, a total of 1.11 acres of wetlands (4:1) would be eradicated within adjacent wetlands. The design of the proposed action would allow natural surface water flows to sheet over the pathway and vegetative buffers would slow runoff into the adjacent wetlands. It is anticipated that natural and beneficial wetland values of the modified wetlands would continue in the long-term. Indirect impacts from maintenance of the pathway from mowing or pavement repair would likely be limited and not expected to affect or influence the wetland system.

CHAPTER 4: CONSULTATION AND COORDINATION

This “Consultation and Coordination” chapter describes the public involvement and agency consultation used during the preparation of the EA. NPS Director’s Order #12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* requires the seashore 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; and identify other permits, surveys, consultations, etc. required by other agencies.

PUBLIC INVOLVEMENT

As required by NPS NEPA regulations, public involvement occurred through the EA process. A press release and notice of public scoping period was published on May 24, 2022 and was open through June 26, 2022. During this comment period, the NPS released information about the project background, objectives, key issues, and preliminary alternatives. On June 2, 2022, a public scoping meeting was held at the Fessenden Center Annex in Buxton, North Carolina to obtain public feedback on the initial purpose, need, objectives, issues and concerns, and preliminary alternative concepts and elements for a multi-use pathway. Twenty-eight correspondences were received during the 30-day comment period. The majority of comments received were in support of the project and in the preliminary alternatives presented.

The EA will be available for public and agency comment 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/caha_multiuse_pathway, and hard copies are available upon request.

AGENCY AND TRIBAL CONSULTATION

National Historic Preservation Act, Section 106

As required by Section 106 of the NHPA, the seashore consulted with the North Carolina State Historic Preservation Office to assess the effect of the project on cultural resources (Appendix B). The NPS determined that project actions would have No Adverse Effect on adjacent Historic Properties or on Cultural Landscapes. The Section 106 consultation process is being conducted separately from but concurrently to the NEPA process. Consultation under Section 106 is ongoing but will be completed prior to the selection of an alternative and the release of a NEPA decision document.

During the planning process for the EA, the seashore contacted the following Tribes to initiate consultation (Appendix B). Only the Catawba Indian Nation responded and would like to be notified if Native American artifacts and/or human remains area located during the ground disturbance phase of the project. The NPS would inform the Tribes of the availability of the EA for review.

- Absentee Shawnee Tribe
- Catawba Indian Nation
- Cherokee Nation
- Eastern Band of Cherokee
- Shawnee Tribe

Endangered Species Act, Section 7

Based on a review of the project area and the federally listed species known to occur in the vicinity of the project area, seashore staff determined that project activities would have no effect or may affect but not likely to adversely affect special status species. There are no critical habitats for special status species within the vicinity of the project area and the Monarch butterfly is only listed as a Candidate species. Therefore, no formal consultation with the US Fish and Wildlife Service is required under Section 7 of the Endangered Species Act.

Coastal Zone Management Act

North Carolina's coastal zone management program consists of, but is not limited to, the Coastal Area Management Act, the State's Dredge and Fill Law, Chapter 7 of Title 15A of North Carolina's Administrative Code, and the land use plan of the County and/or local municipality in which the proposed project is located. It is the objective of the Division of Coastal Management (DCM) to manage the State's coastal resources to ensure that proposed federal actions would be compatible with safeguarding and perpetuating the biological, social, economic, and aesthetic values of the State's coastal waters. The seashore submitted a Federal Consistency Determination to North Carolina Division of Coastal Management to assess the project's consistency with the State's coastal management program for a consistency review (Appendix C).

Clean Water Act, Section 404

Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. The Army of Corps of Engineers (USACE) establishes permit regulations that specifies the procedures and criteria for the issuance of Section 404 permits. The proposed action requires a 404 permit for the filling of jurisdictional wetlands and will require compensatory mitigation. The seashore will be required to submit a pre-construction notification to USACE prior to commencing.

List of Agencies Contacted

- North Carolina Environmental Review Coordinator
- North Carolina State Historic Preservation Office
- North Carolina Department of Environmental Quality Division- Division of Coastal Management
- US Fish and Wildlife Service

- Army Corps of Engineers
- North Carolina Mitigation Services

List of Preparers and Reviewers (National Park Service)

Name	Title, Agency
Sabrina Henry	Environmental Protection Specialist, Outer Banks Group Parks
Dave Hallac	Superintendent, National Parks of Eastern North Carolina
Robin Snyder	Deputy Superintendent, Outer Banks Group Parks
Jami Lanier	Deputy Chief of Cultural Resources, Outer Banks Group Parks
Meaghan Johnson	Chief of Resource Stewardship and Science, National Parks of Eastern North Carolina
Michelle Tongue	Deputy Chief Resource Stewardship and Science, Outer Banks Group Parks
Scott Babinowich	Chief of Interpretation, Outer Banks Group Parks
Steve Torgerson	Landscape Architect, Project Manager, Denver Service Center,
Jami Hammond	Regional Environmental Coordinator, South Atlantic Gulf Region 2
Stephen Rodgers	Regional Section 106 Coordinator, South Atlantic Gulf Region 2
Byron Tsang	Former Wetland Ecologist, South Atlantic Gulf Region 2
Mark Ford	Wetland Ecologist, South Atlantic Gulf Region 2
Kevin Noon	Wetlands Program Lead, Water Resources Division, Natural Resource Stewardship and Science Directorate
Megan Apgar	Regulations Program Specialist, Jurisdiction and Special Park Uses Directorate
Jay Calhoun	Chief of Regulations, Jurisdiction and Special Park Uses Directorate

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APPENDIX A: WETLAND STATEMENT OF FINDINGS

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**STATEMENT OF FINDINGS
FOR
EXECUTIVE ORDER 11990 WETLAND PROTECTION**

**Construct Cape Hatteras Lighthouse
Multi-Use Path**

Cape Hatteras National Seashore
Buxton, North Carolina

Recommended:

Superintendent, Cape Hatteras National Seashore Date

Certification of technical adequacy and servicewide consistency:

Chief, Water Resources Division Date

Approved:

Director, Interior Region 2 Date

INTRODUCTION

The National Park Service (NPS) has prepared this Statement of Findings for Wetlands (SOF) in compliance with Executive Orders (EO) 11990, *Protection of Wetlands*. NPS would undertake the construction of a multiple use pathway within the legislated boundary of Cape Hatteras National Seashore (often abbreviated the “Seashore” or “park” in this document), in Buxton North Carolina (Figures 1 and 2).

The purpose of the proposed project is considering construction of a new multiple use (otherwise known as multi-use) pathway along Lighthouse Road, in the Hatteras District of the seashore. This action was identified in the Park’s 1984 General Management Plan (GMP) which presented the need for a “bikeway” within the seashore and included Lighthouse Road as the location for this path. The GMP identified a 4-foot-wide bicycle path on both sides of the road from NC Highway 12 (NC 12) to the Cape Point Campground. It has been over 38 years and the seashore consistently receive requests from the public to construct a pathway along the road shoulder. A multi-use path master plan was recently developed to identify existing conditions and to create a concept for a new pathway to be constructed in three segments along Lighthouse Road from NC 12 to Cape Point Campground (NPS 2022). Segments I and II are presented and analyzed in this document. Segment III would be designed and analyzed as a component of a future design project to elevate Lighthouse Road from the Buxton Ranger Station to Ramp 43.

A new pathway would finally provide users originating in the village of Buxton with a resilient, safe, and accessible non-motorized route to many of the seashore’s key visitor use areas including the Cape Hatteras Lighthouse, Visitor Center and Museum of the Sea, Old Lighthouse parking and beach area and new Buxton Beach Access area at the former US Navy/Coast Guard area. This pathway should meet the needs of today’s park visitors and would include educational opportunities via interpretive messaging along the route, wayfinding information, and benches for resting and viewing the area. This paved pathway would accommodate different types of non-motorized uses including biking and reduce maintenance by using sustainable construction techniques and minimizing facility operations.

The NPS prepared an Environmental Assessment (EA) to evaluate one action alternative to meet the purpose and need of this project, as well as a No Action Alternative. Among impact topics evaluated in the EA are wetlands. As noted above, EO 11990 requires the NPS and other federal agencies to evaluate the potential impacts of actions in wetlands, respectively. The objective of EO 11990 is to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetland, and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. This Statement of Findings was written in accordance with Director’s Order #77-1: *Wetland Protection* and associated Reference Manuals, which provide NPS policies and procedures for complying with the executive orders.

PROPOSED ACTION

The preferred action alternative, Alternative B, would consist of the construction of a 1.6 mile long 10-12-foot-wide paved multi-use pathway in two segments. The project would include wayfinding signage, safety messages, benches, bollards, and the reconfiguration of the Seashore entrance including intersection improvements and connections to local sidewalks. It would feature three trailheads and one plaza, all complete with interpretive installations.

Segment I of the multi-use pathway would be 1.4 mile (7,333 linear feet) and begin on the west side of Lighthouse Road at the intersection of NC 12. A trailhead plaza would be constructed at the beginning of the pathway with wayfinding signage and benches.

The pathway would continue southward along the west side of Lighthouse Road until it crosses the roadway approximately 3,700 feet south of NC 12 at a mid-block crossing. This crossing location

Figure 1: Project Location



Figure 2: Proposed Action



was identified because it provides over 500 feet of visibility to motorists approaching in each direction. The speed limit along this stretch of Lighthouse Road may be reduced to 25 mph and speed tables may be added along with flashing signal lights to increase drivers' awareness of the crossing.

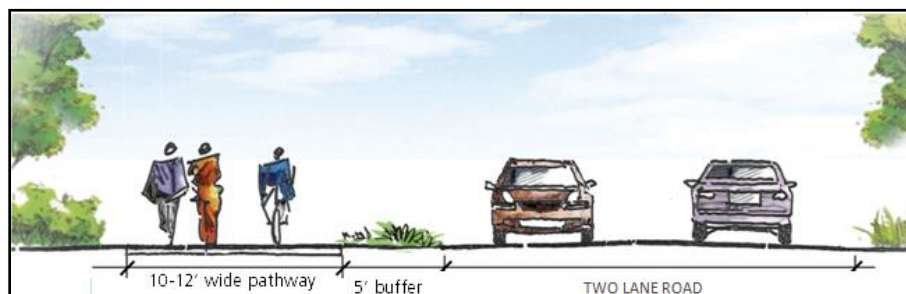
The pathway would continue southward along the eastern side of Lighthouse Road for approximately 400 feet before it veers eastward in the direction of the new Buxton Beach Access area. Along this stretch of the alignment, the pathway would meander along the tree line to towards the beach parking lots.

An interpretive plaza with trailhead signs, bike racks, pedestrian seating, a picnic pavilion, and comfort station would be located at the intersection of the pathway and the Old Lighthouse Beach parking areas. An interpretive exhibit that provides an overview of the Seashore, with a focus on beach recreation activities, would provide context for the activities available at the beach recreation area. From the interpretive plaza, the pathway would cross the Old Lighthouse Beach Road and continue along the Lighthouse move path towards Lighthouse and the Visitor Center. Branching off the pathway, an exhibit detailing the logistics and engineering accomplishment of moving the lighthouse 2,900 feet would be presented at an interpretive location. The pathway would be constructed within the move path and enter the woods around the septic field and continue along the existing sidewalk south of the Lighthouse parking lot. Where the pathway exits the woods adjacent to the parking lot sidewalk, an interpretive exhibit would be constructed, detailing the lighthouse move within the move path viewshed. The pathway would be constructed parallel to the existing sidewalk and separated with a bollards and rope, a standard delineation around Seashore parking areas. A pedestrian connection from the pathway to the sidewalk would be provided that allows pedestrians to access the Visitor Center, Lighthouse, Keepers Quarters and Museum.

A cul-de-sac would be constructed at the end of Segment I south of the Keepers of the Light Amphitheater that is sized to allow bicyclists to turnaround safely without conflicting with the pedestrians exiting the pathway.

The width of the pathway throughout Segment I would vary from 10 to 12 feet, reducing to 10 feet in order to minimize impacts to the adjacent wetlands. The American Association of State Highway and Transportation Officials (AASHTO) provides guidelines for two-directional shared use paths for both bicycles and pedestrians and state they should be a minimum of 10 feet. Approximately 4,700 linear feet of 10-foot-wide pathway would be located along the west side of Lighthouse Road and approximately 1701 linear feet would be located along the eastern stretch of the alignment. The width of the pathway from the interpretive plaza to the end of Segment I at Lighthouse parking lot would be 12 feet to accommodate more users along this stretch of the pathway and would be 1929 linear feet. A standard width of a 5-foot landscape buffer strip would be maintained between the edge of the paved roadway and the pathway in all locations as recommended by AASHTO (Figure 3).

Figure 3: Conceptual multiuse pathway design



Segment II of the pathway would be about 0.2 miles (992 linear feet) and begin at the Old Lighthouse Parking area. After the interpretive plaza, the pathway would continue along the western side of the parking lot adjacent to the parking lot and pond. The alignment would follow the existing paved access drive east of the pond and through an existing clearing in the brush. An overlook platform with seating would be constructed at the edge of the pond with easy access to the pathway. An exhibit detailing sea level rise and natural coastal processes as the reasoning for moving the Lighthouse and Keepers Quarters would be located at the former Keepers Quarters site.

From the pond, the pathway would continue northward along the water bodies to keep the alignment as far away from the coastline as possible. Segment II would end at the former US Navy/Coast Guard area where a trailhead with signage, benches, and bike racks would be provided. This area is currently used as a parking lot that is accessed from Old Lighthouse Road. Throughout Segment II the pathway would be 10 feet wide.

No equestrian use would be allowed on the paved multi-use path, but equestrian use could continue on the opposite side of the road on the wide grassy shoulder. Some electric assisted modes of transportation may be permitted along the pathways, such as motorized wheelchairs. Electric bicycles or otherwise known as e-bikes, would be allowed on the pathway.

INVESTIGATION OF ALTERNATIVES

Two alternatives in addition to the preferred alternative and No Action alternative were considered but dismissed from further analysis and are summarized below and include: Alternative A (No Action Alternative), Create a 4 feet wide sidewalk on each side of Lighthouse Road, Widen Lighthouse Road).

Alternative A: No Action Alternative

Alternative A would result in a continuation of existing management. Under the no action alternative, a multi-use pathway would not be constructed along Lighthouse Road. Pedestrians and bicyclists would continue to use the existing road or road shoulder to access the park's popular use areas from NC Highway 12. Extensive mowing along the road shoulder would continue. There would be no additional non-motorized connectivity to additional park facilities and attractions that may be served by the pathway either directly or via spur trails, to the Cape Hatteras Lighthouse, Hatteras Island Visitor Center and museum, Cape Hatteras Lighthouse historic original location, and the new Buxton Beach Access Area at the end of Old Lighthouse Road (formerly a US Navy/Coast Guard station base).

Create 4 feet wide sidewalks on each side of Lighthouse Road.

This alternative was dismissed because it does not fully meet the purpose and need of providing a safe pathway for various non-motorized users along Lighthouse Road. Although NPS approved this alternative in the 1984 General Management Plan for Cape Hatteras National Seashore and this alternative is still supported by the public as documented during the public scoping period in June 2022, this width does not allow for safe two-directional use by both bicycles and pedestrians. Although the 4' wide pathways are still recommended as acceptable for bicycle lane dimensions according to AASHTO Guide for the Development of Bicycle Facilities, this design would result in conflicts when bicyclists and pedestrians meet on the pathway, and each user group would have to move off the narrow pathway onto uneven surfaces to continue along intended directions. Lighthouse Road has significant pedestrian use which warrants a wider than 4 feet of pathway width.

In addition, this alternative would impact both sides of Lighthouse Road, which would be more environmentally damaging than the proposed action by creating impervious surfaces on both sides

of the road instead of just one side. Since equestrian use would not be permitted on the new pathway, one side of the road must remain available to those user groups as well.

Widen Lighthouse Road.

This alternative was dismissed because it does not fully meet the purpose and need of creating a safe accessible pathway for all users and is not supported by the public, as documented during the public scoping period in June 2022. By widening the shoulder of the road only, the project and would not create a safe pathway for pedestrian users.

In addition, this alternative would not connect a safe, resilient pathway to all the key visitor areas, since this alternative would only expand the existing road, therefore, this alternative would not connect the Old Lighthouse beach area to the new Buxton Beach Access area. This alternative would provide only two trailheads and no pull-off areas for additional interpretive signs.

SITE DESCRIPTION – WETLANDS

Relationship of Compliance Procedures

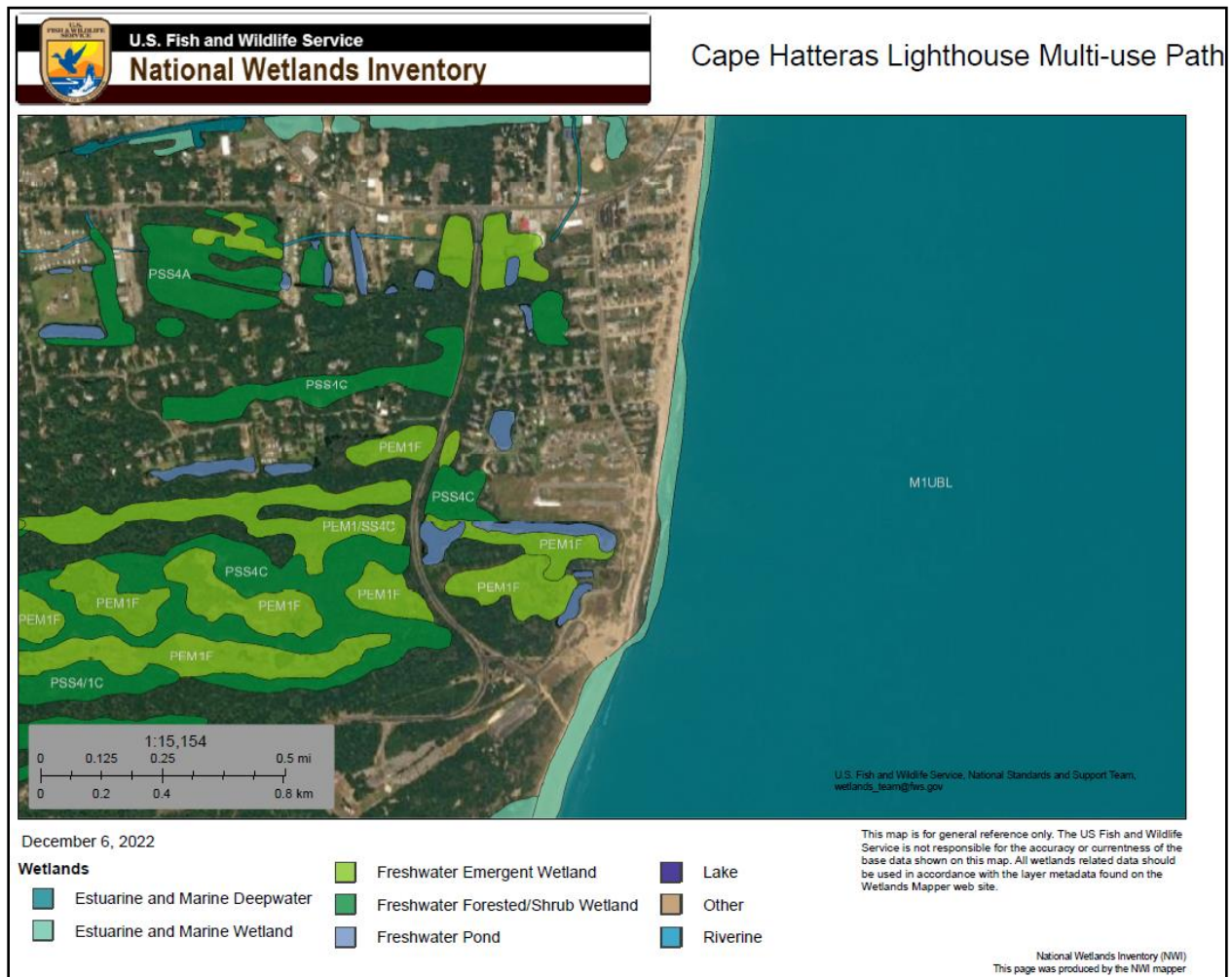
Wetlands within the project area are subject to oversight by multiple federal agencies, including the NPS and US Army Corps of Engineers (USACE). Executive Order (EO) 11990 *Protection of Wetlands* requires federal agencies to avoid, where possible, adversely impacting wetlands and all NPS activities that have the potential to have adverse impacts on wetlands be conducted in a manner consistent with the goal of “no net loss of wetlands”. NPS policies for wetlands, as stated in 2006 Management Policies and Director’s Order (DO) 77-1 *Wetlands Protection*, strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1 *Wetlands Protection*, proposed actions that have the potential to adversely affect wetlands must be addressed in this Statement of Findings for wetlands. The study area was established as 100 feet on either side of the centerline of Lighthouse Road, parking areas and unpaved roads. On June 22-24, 2021, wetland ecologist Byron Tsang (NPS Interior Region 2 Science and Natural Resources Management Division) and environmental protection specialist Sabrina Henry (Cape Hatteras National Seashore) conducted a wetland delineation site visit to Lighthouse Road and areas surrounding the Cape Hatteras Lighthouse in Buxton, NC.

Fifteen jurisdictional wetland resources were identified within the survey limits of Segment I and II project areas, including 13 wetlands and two open water ponds (Attachment 1).

The NPS uses the Cowardin classification system (Cowardin *et al.* 1979) as the standard for defining, classifying, and inventorying wetlands subject to NPS oversight. This definition relies on the presence of one of three criteria – wetland hydrology and hydrophytic vegetation or hydric soils – to classify areas as wetlands. The Cowardin classification system is also the basis for the National Wetland Inventory (NWI) maps of wetlands and waters prepared by the U.S. Fish and Wildlife Service (USFWS) for the entire United States. The NWI mapped wetlands within the project area are shown on Figure 4. The pathway the following four wetland classifications:

- Palustrine, Fresh Water, Emergent Wetland (PEM1/SS4Cd)
- Palustrine, Fresh Water, Forested/Shrub Wetland (PSS4C)
- Palustrine, Fresh Water, Emergent Wetland (PEM1F)
- Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated (PUBH)

Figure 4: NWI Wetlands Map of Project Area



After reviewing information collected during the delineation, the Cowardin mapped wetland areas found in Attachment 1 closely matched those mapped on the NWI map in Figure 4. The project area crossed multiple wetland habitats including:

- Palustrine, Emergent, Persistent, Forested, Seasonal Flooding (PEM1/SS4C)
- Palustrine, Emergent, Persistent, Forested, Seasonal Flooding (PEM1/FO1C)
- Palustrine, Forested/Scrub-Shrub, Seasonally Flooding (PSS4C)
- Palustrine, Emergent, Persistent/Forested, Semipermanently Flooded (PEM1/FO1F)
- Palustrine, Forested, Broad-Leaved Deciduous/Scrub-Shrub, Broad-Leaved Deciduous Semipermanently Flooded (PFO1/SS1F)
- Palustrine, Emergent, Persistent, Semipermanently Flooded (PEM1F)
- Palustrine, Emergent, Persistent, Seasonally Flooded (PEM1E)
- Palustrine, Unconsolidated Bottom, Permanently Flooded, Excavated (PUBHx)

Hatteras Island is a naturally occurring barrier island with typical coastal landforms consisting generally of long beaches backed by sandy dunes and a large complex of dune-and-swale wetlands.

Along the project corridor, these long, linear dune ridges have an east-west orientation, which is parallel to the shoreline along Hatteras Bight on the south edge of the island (see Attachment 1). This complex topography is typical for undeveloped coastal wetlands and is indicative of the gradual advancement of the barrier island southward as older dunes subside into the marsh. Soils at this site are comprised of freely draining sand on the dune ridges and permanently saturated sandy soils with a strong organic muck component in the lower wetland swales. Lighthouse Road is a two-lane asphalt paved road with mowed turf grass shoulders. The road runs generally north-south, crossing the dune-and-swale wetland complex roughly perpendicularly to the dune ridges. The roadbed is constructed atop a graded fill berm to elevate the pavement above the surrounding wetland. Park staff report that this road rarely floods. Where the road shoulder abuts wetland swales, the upland-wetland transition typically coincides with the edge of the maintained turf grass shoulder, where the graded elevation meets the water table.

Outside of the developed areas along the road and surrounding park facilities, vegetation at the project location appears generally undisturbed and is typical of coastal barrier island dune systems in this region. Two primary vegetation communities occur within the survey area: mature upland dune forest and emergent marsh/scrub-shrub wetland. The upland dune forest habitat occurs along the higher elevation dune ridges and is characterized by dry sandy soils conditions, with moderately dense hardwood canopy and a mixed herbaceous and shrub understory. Dominant species include live oak (*Quercus virginiana*) wax myrtle (*Morella cerifera*) *Juniperus virginiana* (eastern red cedar), yaupon holly (*Ilex vomitoria*), cabbage palmetto (*Sabal palmetto*). The wetlands present are an emergent marsh/scrub-shrub habitat which occurs in the lower elevation swales between the dune ridges and covers larger open expanses of marsh land where the dune ridges are less prominent. This wetland habitat is characterized by a heterogeneous patchwork of shrub- and small tree-dominant vegetation (scrub-shrub wetland) interspersed with stands of saltmarsh grasses and other wetland herbaceous species (emergent saltmarsh). Dominant species include black willow (*Salix nigra*) swamp bay (*Persea palustris*), stiff dogwood (*Cornus foemina*), and wax myrtle (*Myrica cerifera*) in the canopy, and sturdy bulrush (*Bolboschoenus robustus*), eastern marsh fern (*Thelypteris palustris*), three-square bulrush (*Schoenoplectus pungens*), and Jamaica swamp sawgrass (*Cladium mariscus*) in the understory.

The project area is adjacent to the area known as Jennette Sedge which is a large open-water wetland complex bordering Buxton village homes along their southern boundary. Water within the wetlands is connected through a series of culverts along the Lighthouse Road which flows north into Pamlico Sound (Attachment 2). There is no headgate or other method to control the amount of water that can flow into the culverts and flow is dependent on the elevation of the water surface in Jennette Sedge (NPS 2003). There are also four ditches located along the northwest side of Buxton and these ditches help convey water from sedges on the north side of the island through the culverts to Pamlico Sound. These ditches generally drain sedges that are only on private lands and are not connected to Jennette Sedge (NPS 1993). These wetlands serve as freshwater storage and recharge reservoirs that receive subsurface lateral discharge from adjacent uplands during and shortly after rain events (Gregory and Morgan 1996). These drainage ditches lessen the period of inundation and can be considered an unnatural influence of the natural hydrologic system and the therefore these wetlands may be considered to be of low quality.

Two open freshwater pond areas are within or adjacent to the project area and are a registered Natural Heritage Area with the state of North Carolina for the presence of state rare plant species. One pond is located next to the parking area for the old lighthouse site. This pond, known as Lighthouse Pond, was created in the 1960's or 70's by dredging sand for the placement of sediment in front of the Cape Hatteras Lighthouse as a shoreline protection measure. Lighthouse Pond is bordered to the east by a parking lot and a flat surface with weedy vegetation, which looks like it

was graded in the past. According to a trip report in 1993 by Larry Martin, an NPS hydrologist, the drawdown zone of the pond is dominated by wetland species such as creeping frogfruit (*Phyla nodiflora*) or spikerush (*Eleocharis sp.*) Marshy areas containing Olney's threesquare (*Schoenoplectus americanus*), Monnier's water-hyssop (*Bacopa monnieri*), dune water-pennywort (*Hydrocotyle bonariense*), large saltmeadow cordgrass (*Spartina patens*), and exotic Bermuda grass (*Cynodon dactylon*) occur in patches along the edge.

The other pond, called Turtle Pond, is north of Lighthouse Pond and runs east towards Lighthouse Road. Turtle Pond is large, has an irregular shape, and follows the trend of the primary dune swales to the west. It is deeper at the two ends and shallow in the middle. There is not obvious evidence of excavation however, its north shore on the east end adjoins the area where the US Navy/Coast Guard base was, and this edge is clearly modified. This pond was constructed by the US Navy in the 1940's as a borrow site for sediment to place along the shoreline. A large population of the Significantly Rare Illinois pondweed (*Potamogeton illinoensis*) was identified as present in floating mats and in the drawdown zone along the southern side of Turtle Pond in 2014. The remaining open water contains patches of Wigeon-grass (*Ruppia maritima*). These ponds, though mainly Turtle Pond, are suitable habitat for many freshwater animals, such as fishes, reptiles, and amphibians. Small numbers of waterfowl occur on the ponds in winter, especially when very cold weather prevails for several days.

PROPOSED IMPACTS TO WETLAND FUNCTION AND VALUES

Under the preferred alternative, total land disturbance for both Segment I and II would be approximately 5.6 acres. The construction of the new pathway would adversely impact approximately 0.286 acres of the fringe edge of palustrine wetlands (Figures 5-9 below). These impacts include both 0.118 acres of temporary impacts from construction limits of disturbance and 0.168 acres of permanent impacts from fill required to create a 2-foot buffer with 3:1 slope on one side of the pathway along Lighthouse Road. Mitigation measures and best management practices would be implemented during pathway construction to reduce the adverse impacts of impacting wetlands, including using silt fencing, use of wooden construction pallets, sediment bags for any dewatering needs, salvaged topsoil and native vegetation, in all restoration efforts, phragmites treatments, and monitoring the success of restoration efforts.

WETLANDS CALCULATIONS							
	DISTURBANCE	PERMANENT WETLANDS IMPACTS	TEMPORARY WETLAND IMPACTS	TOTAL WETLAND IMPACTS	IMPERVIOUS AREA ADDED	IMPERVIOUS AREA REMOVED	VEGETATION REMOVED
PHASE I	4.85 AC	0.16 AC	0.11 AC	0.27 AC	1.83 AC	0.59 AC	1.77 AC
PHASE II	0.62 AC	0.008 AC	0.005 AC	0.013 AC	0.22 AC	0 AC	0.07 AC
TOTAL	5.47 AC	0.168 AC	0.115 AC	0.283	2.05 AC	0.59 AC	1.84 AC





The construction of new multi-use pathway and trailhead and plaza facilities would primarily occur on well-drained soils or modified soils within developed areas. This alternative was designed to minimize impacts to wetlands as best as possible. The construction of a 10-foot-wide pathway would involve filling of some areas where wetlands are present. Culvert repairs would have minor negative impacts under the proposed action. Specifically installing the headwall and removing the culvert that goes to nowhere would have temporary minor impacts to fringe wetlands from turbidity effects while working within the wetland edge. The other culvert location would not have wetland impacts.

Following construction of the pathway, trailheads, interpretive plaza, disturbed areas would be revegetated with NPS approved native plant species. Overall functions of the wetlands are not likely to be noticeably altered because of the generally small area of fill and vegetation and ground disturbance in relation to the total acres of wetlands present in the project area; approximately 7.03 acres of wetlands within the project area, accounting for 96% of total wetlands, would remain undisturbed. Some pockets of wetland vegetation would be removed along some sections of the road to place fill to extend the standard 2-foot vegetative buffer next to the paved pathway (Figures 5-9). Remaining adjacent wetlands would continue to filter and convey precipitation and provide an important wetland habitat for vegetation and wildlife.

Under the action alternative, the design of the pathway for storm management would be to allow any accumulated rain to sheet flow across the pathway. No new storm pipes or low areas are identified in the design. The actions proposed under the proposed action would not be expected to impact the long-term viability of wetlands or water resources in the project area.

BIOTIC FUNCTIONS

The preferred alternative would result in minor, localized, direct, long-term impacts on aquatic species and habitats. Under the action alternative, the design of the pathway for storm management would be to allow any accumulated rain to sheet flow across the pathway. No storm pipes or low areas are identified in the design. The concrete pathway would result in minor recurring impacts from runoff that enters the adjacent wetlands during significant rain events.

The most significant impacts to wetland biotic function would be the permanent loss of 0.168 acres due to fill in the wetlands. Loss of habitat or foraging area provided by the wetlands would be minimal due to the proximity of the wetlands to the existing road and associated baseline anthropogenic impacts. These impacts are unavoidable due to the requirements for the placement of the pathway. Additional indirect impacts (0.118 acre) to wetland vegetation could occur due to site access, use of heavy equipment, and construction vehicles. The proposed project location was selected based on the availability of constructable upland area and highest available elevation. This site is wider than the other side and represents the best possible location for wetland avoidance. The proposed impacts represent the minimum possible impact while satisfying the park's facility requirements. Five percent of wetlands would be impacted from the preferred alternative. Other alternatives would have resulted in significantly greater wetland impacts.

No adverse effects to protected or special-status species are expected to occur. Several federal or state protected plant and animal species occur on Hatteras Island, primarily sea turtles and shorebirds but the habitat for these species area outside of the project area. No occurrence of protected species has been documented within the project limit area. The NPS determined that the proposed project would have no effect to protected species.

HYDROLOGIC FUNCTIONS

No significant changes to wetland hydrology are proposed. Grading for pathway installation may have permanent long-term impacts to surface water drainage patterns. Proposed new pathways would be concrete and would directly restrict surface water drainage or infiltration within this impermeable surface. However, all surface water would sheet flow across the pathway and would drain directly into adjacent land areas. Because the hydrology of the modified wetlands almost exclusively driven by tidal processes and rainfall inundation, these minor changes to surface water drainage would have a negligible effect on the hydrologic function of the adjacent unimpacted wetlands.

CULTURAL VALUES

There are no known archeological resources considered eligible for the National Register identified within the proposed project area. However, a portion of the project would traverse through the move corridor boundary which has been identified as a non-contributing but compatible feature to the relocation of Cape Hatteras Lighthouse. The move qualified the light station for Criteria Consideration B of the National Register. The integrity of the landscape is good and conveys the period of significance with both historic architecture and landscape features. The construction of a new multi-use pathway and signage would occur adjacent to the cultural landscape and would result in noticeable changes to the “move corridor” associated with the Cape Hatteras Lighthouse move, would be both beneficial and adverse. Beneficial impacts would result from providing interpretive messaging on the move corridor would enhance the story of why and how the move corridor was created and why its preserved. The construction of the pathway would have long-term direct adverse impacts to the view of the move corridor. Visually from the lighthouse one would see this new pathway but on the ground this very low-profile path would not detract nor change the openness of the corridor.

RESEARCH/SCIENTIFIC VALUES

Although there are numerous scientific and research projects associated with the barrier island habitat of Hatteras Island, there are no known studies that specifically occur within the project area. Most scientific studies in the vicinity focus on protected species and their habitat along the beach shoreline. The proposed project would have no significant effect to such large-scale studies. The construction of the proposed new multiuse pathway and associated loss of wetland and upland vegetation would not significantly affect the developed and impacted environment in the immediate vicinity. This disturbance is relatively small in comparison to Hatteras Island as a whole.

ECONOMIC VALUES AND RECREATION AND VISITOR EXPERIENCE

Visitation to the Seashore contributes to the local economy in several ways. First, it provides jobs to park employees, including seasonal, term, and permanent full- or part-time positions. Seashore employees spend their income and wages in local communities, which support additional jobs and income in these communities. The Seashore may also support the local economy if local vendors are utilized, through contracted construction services or purchases of supplies and materials, for example. Seashore visitors also spend their money in local gateway communities, which supports jobs, income, sales and tax revenues in those communities. Although, project activities would enhance connection to and from Buxton by way of the multi-use pathway, the project would not change visitation or use

patterns nor how visitors are spending their money. Residents of Buxton still would have to travel down Lighthouse Road or Old Lighthouse Road to access the Seashore. Both these access routes are where the multi-use pathway is proposed to be constructed and therefore use patterns would not change measurably under the preferred alternative.

ITERATIVE PROCESS FOR WETLAND PROTECTION

Avoidance

While the majority of the pathway would not impact wetlands, some portions of the project require filling of wetlands. The location of the expansion was located primarily on the west side of the road in order to minimize wetland impacts. Other avoidance measures will be taken during construction to limit the project's construction footprint and extent of fill impacts and can be found in the best management practices section (appended). Furthermore, no equipment would be driven, or located, in any wetlands at any time. Staging of equipment would occur on upland areas only.

Minimization

The location and design of the pathway helped to minimize impacts to wetlands. In addition, impacts would be minimized by the construction techniques utilized. The proposed pathway would be constructed immediately adjacent to the Lighthouse Road as a concrete path and mostly in areas where no wetlands occur, and only minimal vegetation removal would be required. In areas where wetland and vegetation impacts would occur for the construction of the pathway in certain impacts would be as minimal as possible.

Protection Measures

Effects on other natural resources and water quality would be minimized to the maximum extent practicable by implementation of best management practices (BMPs), such as the implementation of silt fencing during construction and the use of wooden construction pallets to protect wetlands from vehicle impacts. The full list of BPM's and Project design criteria (PDC) can be found in Attachment 3.

COMPENSATORY MITIGATION

A total 1.11 acres of *Phragmites australis* will be eradicated (at a 4:1 ratio) to compensate for the total impacts to 0.286 acres of wetland. The proposed on-site mitigation, defined as wetland restoration, serves to rehabilitate the native vegetative cover and habitat diversity within the Turtle Pond Natural Heritage Area by reducing or eliminating exotic invasive *Phragmites* cover. Post-rehabilitation (herbicide application) monitoring will be conducted biannually for a minimum of three years following biannual restoration efforts with an initial target of decreased *Phragmites* cover documented from year to year with a more aggressive target of <10% total *Phragmites* cover after 3 years of treatment efforts. Monitoring of the vegetation within the treatment areas will be implemented towards the end of the summer season (August through September) following herbicide application, but prior to fall changes in vegetative cover which would confuse documentation of treatment response.

Qualitative evaluations will be carried out, consisting of photographic documentation of the progress of the treatments from predetermined photopoint locations and a walk-through evaluation documenting total cover of *Phragmites australis* within the mitigation area. For consistent future

photographic documentation, photopoints will be field located with a GPS unit at edges or boundaries of treatment areas with multiple locations throughout the mitigation area.

Control of exotic plant infestations within the Seashore is an NPS priority, to encourage native plant cover, and to combat the reduced vegetative diversity and subsequent reduced favorable wildlife habitat documented in areas with significant exotic cover. In 2022, NPS mapped 1.11 acres of *Phragmites australis* infestation adjacent to the multi-use pathway project area and along Lighthouse Road. The NPS treatment plan for restoration of this area will follow procedures established in *A Guide to the Control and Management of Invasive Phragmites, 2nd Edition* published by the Michigan Department of Natural Resources which recommends herbicide treatment in mid-late summer, followed by prescribed fire prior to spring or during the summer before subsequent herbicide spot-treatments. The NPS is currently updating Cape Hatteras National Seashore's Fire Management Plan (FMP) which is expected to be complete before the first prescribed fire treatment would be implemented for this project's adaptive mitigation efforts. Restoration of wetland mitigation areas would be carried out biannually with alternating herbicide and prescribed fire treatments as is practicable. Any potential impacts of utilizing prescribed fire shall be evaluated separately in the aforementioned FMP and would only be utilized as is practicable and ecologically beneficial such that impacts to concurrent flora and fauna are minimized and impacts to visitor use and experience are minimized.

Annual summaries of treatment efforts, lessons learned and plans for the subsequent year will be prepared near the end of the calendar year to document restoration success and inform adaptive management decision making.

NPS Procedural Manual 77-1 states that wetland compensation is required if a project's adverse impacts on wetlands total 0.1 acres or more (NPS 2016). For this project, mitigation is required as temporary and permanent impacts on the wetlands associated with the action alternative result in 0.286 acres of impact. Total mitigation implemented will meet regulatory requirements associated with obtaining the NPS standard 4:1 mitigation ratio for use of out-of-kind, non-native, invasives removal as compensation for the loss of low-quality wetlands.

The Seashore would commit to the eradication of invasive, non-native-plant species to offset the potential adverse impacts to wetlands resulting from the proposed multiuse pathway. In accordance with the NPS goal of "no net loss of wetlands" and with established wetland protection policies, permanent loss of wetlands from project actions would be offset by active restoration and management of wetland habitat. This proposed mitigation sites area along and adjacent to the project area along Lighthouse Road within the Hatteras District at approximately 35.255650°N, - 75.523255°W.

The NPS has identified the rehabilitation of approximately 1.11 acres of wetland within the 'Turtle Pond' registered State Natural Heritage Area (SNHA) as the priority site for the proposed on-site mitigation of wetland impacts (NCDENR 2013). This SNHA lies on the east side of the Buxton Woods-Cape Hatteras complex and includes Turtle Pond running eastward from Lighthouse Road, Lighthouse Pond adjacent to the old lighthouse site, and an additional unnamed small pond between the two. A low sand ridge and wet swales make up the rest of the site. In 2022, the NPS mapped *Phragmites* cover within the Turtle Pond SNHA and along Lighthouse Road. (Attachment 4). Seashore staff and/or the Southeast Coast Network Integrated Pest Management Team will chemically treat exotic invasive common reed (*Phragmites australis*) within the mitigation sites to restore 1.11 acres (5.5:1 ratio) of wetlands.

Phragmites sp. is a tall perennial grass which can attain heights of up to 4.5 m (USACE 2005), significantly greater than that of native marsh species, such as *Spartina alterniflora*, *Spartina patens*, *Juncus roemarianus*, and *Typha latifolia*. Although it is a prolific seed producer, *Phragmites* most often spreads locally through vigorous growth of rhizomes and stolons, which can grow up to 2 m per year (Batterson and Hall 1984). The European genotype of *Phragmites* is an exotic species and occurs in large pockets in the pond and smaller pockets along the edge of the project area, in habitats once occupied by the genotype native to the United States. Population decline and local extinctions of the native genotypes may be a result of competitive displacement by the exotic genotype and/or anthropogenic disturbance. Approximately 900 acres of marsh are infested by the exotic *P. australis* throughout the entire Seashore (NPS 2022).

While the observed effect on populations of native fish, benthic infauna, aquatic invertebrates, and decapod crustaceans has been variable (Posey et al. 2003, Hanson et al. 2002, Able and Hagan 2000, Fell et al. 1998), the shift in habitat from native low marsh vegetation to monotypic stands of *Phragmites* has demonstrated a more consistent effect on bird populations.

The NPS will use chemical application and burning for the removal of *Phragmites*. Chemical controls include herbicide application, typically in combination with some form of physical control for well-established infestations in large areas. Chemical control of *Phragmites* has been achieved most frequently with a foliar application of imazapyr or glyphosate, a non-selective herbicide, (Mozdzer et al, 2008). Herbicide application followed by burning has shown to be relatively effective and may stimulate the native plant community recovery (Boone et al, 1987).

JUSTIFICATION FOR USE OF THE WETLANDS

The purpose of the proposed project is expansion of public access and recreational opportunities within the jurisdiction of the Cape Hatteras National Seashore. A new pathway would provide users originating in the village of Buxton with a resilient, safe, and accessible route to many of the Seashore's key visitor use areas including the Cape Hatteras Lighthouse, Visitor Center and Museum of the Sea, Old Lighthouse parking and beach area and new Buxton Beach Access area at the former US Navy/Coast Guard area. This pathway would also be enhanced with wayfinding, interpretive messaging, and benches.

The National Park Service has determined that implementing the proposed project in conjunction with the proposed mitigations would not result in significant loss of wetlands or wetland function and values. While the preferred alternative does not avoid the maximum amount of wetland impact possible when considering all viable alternatives, the amount of wetland affected is small (0.286 acres) and to offset the permanent loss of wetlands (with low quality overall functional value) associated with the construction of the proposed action a wetland mitigation site of approximately acres has been identified, yielding a net increase of wetland area and a 4:1 mitigation ratio. Best management practices described in this document would be implemented to minimize impacts. Planned mitigations would further enhance the ecological value of the wetlands in this area through removal of invasive species and restoration of native habitat.

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Attachments

Attachment 1. Wetland Delineation

Attachment 2. Lighthouse Road Culvert Locations

Attachment 3. Best Management Practices

Attachment 4. Compensatory Mitigation Treatment Areas

Attachment 1



Attachment 2



Attachment 3

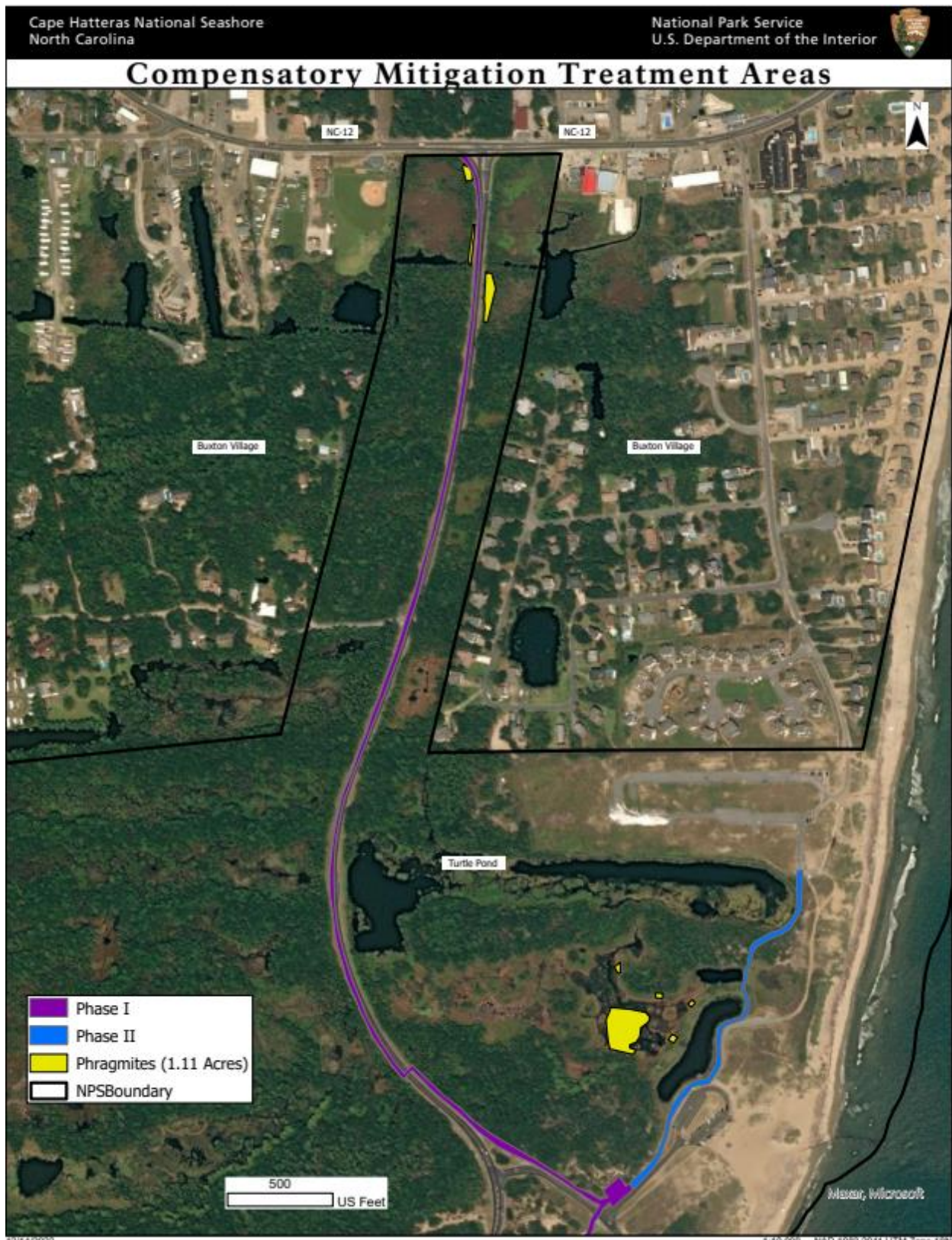
Project	
General (applies to all phases of project)	<ul style="list-style-type: none"> • The pathway shall be designed and constructed using natural topography to create grade reversals or rolling dips to provide adequate drainage. • All equipment and vehicle washing operations would be performed off-site. • Erosion control structures (silt fencing, coir logs, etc.) must be maintained throughout project activities and removed upon project completion when appropriate. • All utilities (power, fiber, water, sewer, etc.) would be properly marked prior to construction activities by local utility companies. If any utility shutdowns are expected, due to project activities, then notification to park management and district staff is required. • Parking of personal vehicles would be within designated areas only. • The project shall include a pre-construction meeting and a final inspection meeting, in addition to regularly scheduled project meetings and site visits. • To minimize the amount of ground disturbance, staging and stockpiling areas shall be in previously disturbed sites, away from visitor use areas to the greatest extent possible. • A public information program to warn of temporary closures, delays, and road hazards during construction shall be implemented. This program would help convey appropriate messages to the public and aid in mitigating potential impacts on visitors' expectations and experiences. • A project schedule would be provided to the public as soon as it is known. • To the extent practical, work shall be scheduled to avoid construction activity and construction related delays during peak visitation times. No holiday or nighttime work shall be allowed. Weekend work (Friday through Sunday) shall not be allowed unless authorized in writing by the park's Superintendent. • No amplified artificial music (stereos, smartphones, etc.) would be allowed while conducting construction activities within visitor use areas such as the Cape Hatteras Lighthouse. • To reduce noise and pollution emissions, construction equipment would not idle any longer than is necessary for safety and/or mechanical reasons.
Pre-Construction	<ul style="list-style-type: none"> • Army Corps Engineers may issue 404/401 permit for project actions. NPS to submit a pre-construction notification to USACE district engineer prior to commencing for use of the Nationwide 14. • NPS to identify wetland compensatory projects for wetland restoration efforts to comply with DO-77: Wetland Protection. NPS to pay for wetland mitigation credits for impacts to jurisdictional wetlands as requirement of 404 permit.

	<ul style="list-style-type: none"> • NPS is required to seek a Sediment Control Erosion Permit, a Construction Stormwater Permit and a Post-Construction Stormwater Permit from the North Carolina Division of Erosion, Mineral and Lands Resources. Sedimentation Control Act of 1973 requires that anyone who has a project which has more than one acre of land disturbed must submit a Sediment Control Erosion Plan to the North Carolina Department of Environmental Quality. • The park's Public Affairs Team shall be notified at least two weeks in advance of scheduled work and/or when start date has been established by contract, so that a news release may be prepared and sent to the public. • Contractor to verify groundwater conditions and evaluate dewatering requirements prior to construction. • Survey points and monuments (water, boundary) shall be surveyed prior to the start of construction to verify their accuracy and to ensure the monuments are protected from damage during construction activities. • The project administrator shall inspect all off-road equipment prior to entering NPS lands to ensure that they are free of soil, seeds, vegetative matter, or other debris that could contain or hold noxious weed seeds. "Off-road equipment" includes all construction machinery, except for trucks, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. • Measures must be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterway or wetland. • Clearing limits and wetland limits shall be adequately buffered and marked in the design and marked with silt fencing within the project area. • Prior to commencement of any earthwork, project area must be flagged/staked or fenced to ensure that machine-operated activity is focused within the limits of disturbance. • Tree Preservation Plan should be developed and should identify "Leave/Save trees" along pathway design. Critical Root Zone, (1 foot radius protect for every 1" dbh) of marked trees must be fenced for protection and avoided. Trees adjacent to the pathway design, should have a no cut zone (6'-10' of a mature (24" dbh) identified, if possible. Cutting within this radius can destabilize the tree and cause the tree to become a hazard after the pathway has been constructed. If root zones surfaces would be impacted by project activities, mats or fill must be placed on top of root zones to reduce compaction impacts, and hand excavation must occur. • NPS would only carry out tree/limb removal outside of avian nesting season (April 1 through August 31).
During Construction	<ul style="list-style-type: none"> • Project areas would be re-surveyed by NPS resource staff to ensure any undocumented threatened, endangered, proposed, or candidate species or nesting species or milkweed plants are noted and avoided within the project area prior to or during project implementation. • If undocumented historic or archeologic resources are located during ground-disturbing activities or planning activities associated with approved construction activities, all construction in the immediate vicinity shall cease

	<p>and properties shall be treated as specified in 36 CFR Part 800, Protection of Historic Properties. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed.</p> <ul style="list-style-type: none"> • Stumps in the pathway tread and pathway clearance corridor shall be ground down or cut as low as possible to the ground to avoid safety hazards. • All construction activities shall be confined to daylight hours, excluding emergencies. • Construction materials staging areas would be restricted to previously disturbed sites in upland areas. • Equipment must be free of any fluid leaks (fuel, oil, hydraulic fluid, etc.) upon arrival to the work site and would be inspected at the beginning of each shift for leaks. Leaking equipment would be removed off site for necessary repairs before the commencement of work. • Runoff from stockpiled material must be controlled with silt fencing, filter cloth, coir wattles or other appropriate means to prevent reentry into waterways or wetlands. • Sediment filter bags would be used for dewatering operations. • Contractor must be required to maintain silt fence lines once they have been installed and/or repaired. • Construction activities would be halted while the ground is saturated following large rain events to avoid damage to soils and vegetation. • Care must be taken to avoid any rutting caused by vehicles or equipment during construction activities. • No equipment will be driven outside the established limits of disturbance. Wooden construction mats will be used when equipment must be driven in wetlands to minimize soil and plant root disturbance and to preserve preconstruction elevations. • All hazardous waste materials such as oil filters, petroleum products, and equipment maintenance fluids would be stored in structurally sound and sealed containers in the hazardous materials storage area and segregated from the other non-waste materials. Additionally, all hazardous materials would be disposed of in accordance with federal, tribal, and state regulations. • Any waste generated would be properly disposed of in a contract provided trash bin located in approved site and hauled off promptly at project completion. • Construction equipment and maintenance materials would be stored at approved staging areas. • All major equipment and vehicle fueling, and maintenance would be performed offsite or on non-pervious surfaces such as concrete or asphalt or deploy a spill containment pad. Absorbent, spill cleanup materials and spill kits would be located at the staging area. All equipment receiving maintenance and vehicles and equipment parked overnight would have drip pans placed beneath them.
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	<ul style="list-style-type: none"> No work would occur outside of the limits of disturbance without NPS approval.
Post-Construction	<ul style="list-style-type: none"> Ground surface treatment would include grading to natural contours, topsoil and topsoil mantle replacement, seeding, and planting. Pathway edges would be promptly revegetated with NPS approved seed mixes upon completion of pathway construction. All mulch used in re-vegetation efforts shall be certified to be free of weed species. This work would occur as soon after the completion of construction as possible. Soil and fill material must be weed-free and from a source approved by the National Park Service. Remove all flagging and fencing and soil erosion structures (after vegetation established). All staging and stockpiling areas shall be returned to pre-construction conditions following construction. All pathway segments shall have appropriate signage to prevent user conflicts. A sign plan shall be reviewed and approved prior to installation of signage. Some of the slash generated from tree-removal operations may be mulched, and the mulch applied to the surface of disturbed areas for both temporary and permanent stabilization. Invasive vegetation shall not be mulched and spread when it is in seed. Downed woody debris resulting from construction activities should not be left in place in a pile due to concerns about fuel loading and potential for wildfire impacts. Woody debris should be cut up and scattered or mulched and applied on site. Annual pathway maintenance shall include monitoring and maintenance of drainage features, as necessary. Monitoring of these features shall also occur during construction to ensure that impacts are minimized, and drainage management is implemented. Pathway shall have appropriate signage to inform users of permitted activities and reduce user conflicts. Monitor and treat invasive and exotic plant species. Herbicides must be approved through the Pesticide Use Proposal System (PUPS). Application of herbicides shall be by licensed applicators and certificates must be issued to the park IPM coordinator. At completion of annual work, a pesticide use log must be submitted to the park and entered into PUPS prior to next year's herbicide treatments. Restoration of wetland mitigation areas would be carried out biannually with alternating herbicide and prescribed fire treatments as is practicable. Annual summaries of restoration treatment efforts, lessons learned and plans for the subsequent year will be prepared near the end of the calendar year to document restoration success and inform adaptive management decision making.

Attachment 4



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APPENDIX B: CONSULTATION LETTERS

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United States Department of the Interior
NATIONAL PARK SERVICE



OUTER BANKS GROUP

Fort Raleigh National Historic Site

Wright Brothers National Memorial

Cape Hatteras National Seashore

1401 National Park Drive

Manteo, North Carolina 27954

IN REPLY REFER TO:

1.A.2.(CAHA-RM)

MAY 20 2022

Ms. Devon Frazier
Tribal Historic Preservation Officer
Absentee Shawnee Tribe
2025 S. Gordon Cooper Drive
Shawnee, OK 74801

Dear Ms. Frazier:

Federal regulations for the implementation of Section 106 of the National Historic Preservation Act of 1966, as amended, require consultation with federally recognized American Indian tribes (36 CFR 800.2) on a government-to-government basis, as specified in Executive Order 13175. Cape Hatteras National Seashore (NS), a unit of the National Park Service (NPS), is committed to honoring the obligations and responsibilities toward the sovereign, federally recognized Indian tribes under all United States laws, regulations, and policies.

The NPS is preparing an Environmental Assessment (EA) for the Cape Hatteras Lighthouse Repair and Landscape Improvements project. The NPS proposes to rehabilitate the interior and restore the exterior of the Cape Hatteras Lighthouse and adjacent Oil House. The project will restore character-defining features and reverse unsympathetic treatments added to these historic structures after 1920. Additionally, the project will implement landscape improvements at Cape Hatteras Light Station that will define pedestrian circulation patterns and provide a more immersive experience for the visitor.

The NPS is also proposing to construct a multi-use path along Lighthouse Road in the Cape Hatteras Light Station Historic District and is seeking public comment. Providing users with a resilient, safe, and accessible non-motorized route to key visitor use areas will fulfill the Park's purpose to provide access and opportunities for the benefit and enjoyment of the public.

Two newsletters summarizing the above-mentioned projects are attached for your reference. The newsletters can also be accessed using the following links:

https://parkplanning.nps.gov/CAHA_caha_lighthouse

https://parkplanning.nps.gov/CAHA_multiuse_pathway

Cape Hatteras NS is responsible for making a reasonable and good faith effort to identify federally recognized American Indian tribes that might attach religious and cultural significance to properties that may be affected by an undertaking. We are not aware of any historic properties that may be of religious and cultural significance to the Absentee Shawnee Tribe that would potentially be affected by the actions described in the proposed projects. Please let us know if you have any information regarding historic properties that may be located in the potentially affected area.

If you have questions, please contact Jami Lanier, Cultural Resource Manager, at 252-475-9021 or by email at jami_p_lanier@nps.gov.

We look forward to hearing from you. Thank you for your assistance.

Sincerely,



David E. Hallac
Superintendent

Enclosures



United States Department of the Interior
NATIONAL PARK SERVICE



OUTER BANKS GROUP

Fort Raleigh National Historic Site

Wright Brothers National Memorial

Cape Hatteras National Seashore

1401 National Park Drive

Manteo, North Carolina 27954

IN REPLY REFER TO:

1.A.2.(CAHA-RM)

MAY 20 2022

Wenonah Haire
Tribal Historic Preservation Officer
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, SC 29730

Dear Ms. Haire:

Federal regulations for the implementation of Section 106 of the National Historic Preservation Act of 1966, as amended, require consultation with federally recognized American Indian tribes (36 CFR 800.2) on a government-to-government basis, as specified in Executive Order 13175. Cape Hatteras National Seashore (NS), a unit of the National Park Service (NPS), is committed to honoring the obligations and responsibilities toward the sovereign, federally recognized Indian tribes under all United States laws, regulations, and policies.

The NPS is preparing an Environmental Assessment (EA) for the Cape Hatteras Lighthouse Repair and Landscape Improvements project. The NPS proposes to rehabilitate the interior and restore the exterior of the Cape Hatteras Lighthouse and adjacent Oil House. The project will restore character-defining features and reverse unsympathetic treatments added to these historic structures after 1920. Additionally, the project will implement landscape improvements at Cape Hatteras Light Station that will define pedestrian circulation patterns and provide a more immersive experience for the visitor.

The NPS is also proposing to construct a multi-use path along Lighthouse Road in the Cape Hatteras Light Station Historic District and is seeking public comment. Providing users with a resilient, safe, and accessible non-motorized route to key visitor use areas will fulfill the Park's purpose to provide access and opportunities for the benefit and enjoyment of the public.

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https://parkplanning.nps.gov/CAHA_multiuse_pathway

Cape Hatteras NS is responsible for making a reasonable and good faith effort to identify federally recognized American Indian tribes that might attach religious and cultural significance to properties that may be affected by an undertaking. We are not aware of any historic properties that may be of religious and cultural significance to the Catawba Indian Nation that would potentially be affected by the actions described in the proposed projects. Please let us know if you have any information regarding historic properties that may be located in the potentially affected area.

If you have questions, please contact Jami Lanier, Cultural Resource Manager, at 252-475-9021 or by email at jami_p_lanier@nps.gov.

We look forward to hearing from you. Thank you for your assistance.

Sincerely,

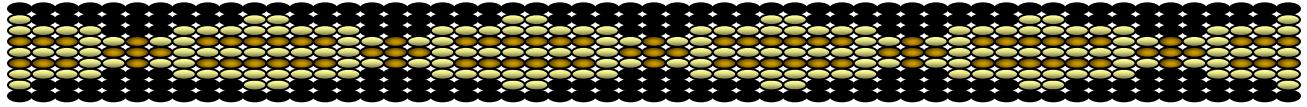
A handwritten signature in blue ink, appearing to read "D. Hallac", with a stylized flourish at the end.

David E. Hallac
Superintendent

Enclosures

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427



July 7, 2022

Attention: Jami Lanier
USDI NPS
Cape Hatteras National Seashore
1401 National Park Drive
Manteo, NC 27954

Re. THPO #	TCNS #	Project Description
2022-384-56		Cape Hatteras Lighthouse Repair and Landscape Improvements project

Dear Mr. Lanier,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Wenonah G. Haire
Tribal Historic Preservation Officer

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United States Department of the Interior
NATIONAL PARK SERVICE



OUTER BANKS GROUP

Fort Raleigh National Historic Site

Wright Brothers National Memorial

Cape Hatteras National Seashore

1401 National Park Drive

Manteo, North Carolina 27954

IN REPLY REFER TO:

1.A.2.(CAHA-RM)

MAY 20 2022

Mr. Paul Barton
Tribal Historic Preservation Officer
Eastern Shawnee Tribe of Oklahoma
70500 East 128 Road
Wyandotte, OK 74370

Dear Mr. Barton:

Federal regulations for the implementation of Section 106 of the National Historic Preservation Act of 1966, as amended, require consultation with federally recognized American Indian tribes (36 CFR 800.2) on a government-to-government basis, as specified in Executive Order 13175. Cape Hatteras National Seashore (NS), a unit of the National Park Service (NPS), is committed to honoring the obligations and responsibilities toward the sovereign, federally recognized Indian tribes under all United States laws, regulations, and policies.

The NPS is preparing an Environmental Assessment (EA) for the Cape Hatteras Lighthouse Repair and Landscape Improvements project. The NPS proposes to rehabilitate the interior and restore the exterior of the Cape Hatteras Lighthouse and adjacent Oil House. The project will restore character-defining features and reverse unsympathetic treatments added to these historic structures after 1920. Additionally, the project will implement landscape improvements at Cape Hatteras Light Station that will define pedestrian circulation patterns and provide a more immersive experience for the visitor.

The NPS is also proposing to construct a multi-use path along Lighthouse Road in the Cape Hatteras Light Station Historic District and is seeking public comment. Providing users with a resilient, safe, and accessible non-motorized route to key visitor use areas will fulfill the Park's purpose to provide access and opportunities for the benefit and enjoyment of the public.

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https://parkplanning.nps.gov/CAHA_caha_lighthouse

https://parkplanning.nps.gov/CAHA_multiuse_pathway

Cape Hatteras NS is responsible for making a reasonable and good faith effort to identify federally recognized American Indian tribes that might attach religious and cultural significance to properties that may be affected by an undertaking. We are not aware of any historic properties that may be of religious and cultural significance to the Eastern Shawnee Tribe of Oklahoma that would potentially be affected by the actions described in the proposed projects. Please let us know if you have any information regarding historic properties that may be located in the potentially affected area.

If you have questions, please contact Jami Lanier, Cultural Resource Manager, at 252-475-9021 or by email at jami_p_lanier@nps.gov.

We look forward to hearing from you. Thank you for your assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. Hallac", written in a cursive style.

David E. Hallac
Superintendent

Enclosures



United States Department of the Interior
NATIONAL PARK SERVICE



OUTER BANKS GROUP

Fort Raleigh National Historic Site

Wright Brothers National Memorial

Cape Hatteras National Seashore

1401 National Park Drive

Manteo, North Carolina 27954

IN REPLY REFER TO:

1.A.2.(CAHA-RM)

MAY 20 2022

Ms. Tonya Tipton
Tribal Historic Preservation Officer
Shawnee Tribe
29 South Highway 69 A
Miami, OK 74354

Dear Ms. Tipton:

Federal regulations for the implementation of Section 106 of the National Historic Preservation Act of 1966, as amended, require consultation with federally recognized American Indian tribes (36 CFR 800.2) on a government-to-government basis, as specified in Executive Order 13175. Cape Hatteras National Seashore (NS), a unit of the National Park Service (NPS), is committed to honoring the obligations and responsibilities toward the sovereign, federally recognized Indian tribes under all United States laws, regulations, and policies.

The NPS is preparing an Environmental Assessment (EA) for the Cape Hatteras Lighthouse Repair and Landscape Improvements project. The NPS proposes to rehabilitate the interior and restore the exterior of the Cape Hatteras Lighthouse and adjacent Oil House. The project will restore character-defining features and reverse unsympathetic treatments added to these historic structures after 1920. Additionally, the project will implement landscape improvements at Cape Hatteras Light Station that will define pedestrian circulation patterns and provide a more immersive experience for the visitor.

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https://parkplanning.nps.gov/CAHA_multiuse_pathway

Cape Hatteras NS is responsible for making a reasonable and good faith effort to identify federally recognized American Indian tribes that might attach religious and cultural significance to properties that may be affected by an undertaking. We are not aware of any historic properties that may be of religious and cultural significance to the Shawnee Tribe that would potentially be affected by the actions described in the proposed projects. Please let us know if you have any information regarding historic properties that may be located in the potentially affected area.

If you have questions, please contact Jami Lanier, Cultural Resource Manager, at 252-475-9021 or by email at jami_p_lanier@nps.gov

We look forward to hearing from you. Thank you for your assistance.

Sincerely,



David E. Hallac
Superintendent

Enclosures



United States Department of the Interior
NATIONAL PARK SERVICE



OUTER BANKS GROUP

Fort Raleigh National Historic Site

Wright Brothers National Memorial

Cape Hatteras National Seashore

1401 National Park Drive

Manteo, North Carolina 27954

IN REPLY REFER TO:

1.A.2.(CAHA-RM)

MAY 20 2022

Mr. Acee Watt
Section 106 Coordinator
United Keetoowah Band of Cherokee Indians in Oklahoma
P.O. Box 746
Tahlequah, OK 74465

Dear Mr. Watt:

Federal regulations for the implementation of Section 106 of the National Historic Preservation Act of 1966, as amended, require consultation with federally recognized American Indian tribes (36 CFR 800.2) on a government-to-government basis, as specified in Executive Order 13175. Cape Hatteras National Seashore (NS), a unit of the National Park Service (NPS), is committed to honoring the obligations and responsibilities toward the sovereign, federally recognized Indian tribes under all United States laws, regulations, and policies.

The NPS is preparing an Environmental Assessment (EA) for the Cape Hatteras Lighthouse Repair and Landscape Improvements project. The NPS proposes to rehabilitate the interior and restore the exterior of the Cape Hatteras Lighthouse and adjacent Oil House. The project will restore character-defining features and reverse unsympathetic treatments added to these historic structures after 1920. Additionally, the project will implement landscape improvements at Cape Hatteras Light Station that will define pedestrian circulation patterns and provide a more immersive experience for the visitor.

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https://parkplanning.nps.gov/CAHA_caha_lighthouse

https://parkplanning.nps.gov/CAHA_multiuse_pathway

Cape Hatteras NS is responsible for making a reasonable and good faith effort to identify federally recognized American Indian tribes that might attach religious and cultural significance to properties that may be affected by an undertaking. We are not aware of any historic properties that may be of religious and cultural significance to the United Keetoowah Band of Cherokee Indians in Oklahoma that would potentially be affected by the actions described in the proposed projects. Please let us know if you have any information regarding historic properties that may be located in the potentially affected area.

If you have questions, please contact Jami Lanier, Cultural Resource Manager, at 252-475-9021 or by email at jami_p_lanier@nps.gov.

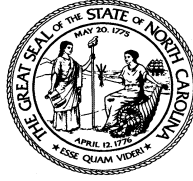
We look forward to hearing from you. Thank you for your assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D. Hallac', with a stylized, cursive script.

David E. Hallac
Superintendent

Enclosures



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary D. Reid Wilson

Office of Archives and History
Deputy Secretary, Darin J. Waters, Ph.D.

October 20, 2022

Jami Lanier
National Park Service
Cape Hatteras NS-Fort Raleigh NHS-Wright Brothers NM
1401 National Park Drive
Manteo, NC 27954

jami_p_lanier@nps.gov

Re: Construct multi-use paths, Lighthouse Road, Cape Hatteras National Seashore, Buxton, Dare County, ER 22-2303

Dear Ms. Lanier:

Thank you for your email of September 14, 2022, regarding the above-referenced undertaking. We have reviewed your submission and offer the following comments.

We thank you for providing the preliminary information regarding the proposed multi-use paths at Cape Hatteras National Seashore (CAHA). We do not anticipate adverse effects to the Cape Hatteras Light Station and based on our knowledge of the area, it is unlikely that any archaeological resources that may be eligible for inclusion in the National Register of Historic Places will be affected by the project. We look forward to our continued consultation with CAHA staff as the project moves forward.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

for Ramona Bartos, Deputy
State Historic Preservation Officer



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary D. Reid Wilson

Office of Archives and History
Deputy Secretary, Darin J. Waters, Ph.D.

June 16, 2022

Jami P. Lanier
Cultural Resource Manager/Historian
National Park Service Outer Banks Group
1401 National Park Drive
Manteo, NC 27954

Jami_P_Lanier@nps.gov

Subject: Archaeological Monitoring in conjunction with Geotechnical Augering Tests at the Cape Hatteras Lighthouse Complex for the proposed Buxton Multi-Use Pathway, Cape Hatteras National Seashore, Dare County. ER 22-1441

Dear Ms. Lanier:

Thank you for submitting the above referenced archaeological assessment for our review. The project involved monitoring of sediment samples recovered in conjunction with geotechnical investigations.

As a result of the assessment of 29 auger tests where no cultural material was present, Park Service Archaeologists have determined that the proposed construction of the Buxton Multi-Use Pathway will have no adverse effect on archaeological resources. We consider the methodology an innovative and effective method for archaeological testing at the proposed construction site. We concur with the finding of no adverse effect.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

A handwritten signature in blue ink that reads "Renee Gledhill-Earley".

for Ramona Bartos, Deputy
State Historic Preservation Officer

Re: [External] Cape Hatteras NS - Construction of Multi-Use Path

Lanier, Jami P <Jami_P_Lanier@nps.gov>

Wed 1/25/2023 9:22 AM

To: DCR - Environmental_Review <Environmental.Review@ncdcr.gov>

Cc: Hallac, Dave <david_hallac@nps.gov>; Snyder, Robin F <Robin_Snyder@nps.gov>; Johnson, Meaghan E <Meaghan_Johnson@nps.gov>; Henry, Sabrina S <Sabrina_Henry@nps.gov>; Pendleton, William <William_Pendleton@nps.gov>; Barber, Michael C <Michael_Barber@nps.gov>; reid.thomas@ncdcr.gov <reid.thomas@ncdcr.gov>

 3 attachments (2 MB)

PEPC_36761_NHPA_2023_01_18_signed.pdf; ER-22-2303.pdf; PEPC 36761 APE.jpg;

Good Morning,

The National Park Service is pleased to submit for your review an Assessment of Effect (AOE) form, Area of Potential Effect (APE), and 65% Design Development Drawings to Construct a Multi-Use Path in the Hatteras District of Cape Hatteras National Seashore.

The Design Development Drawings exceed your limit of 25 mb and were uploaded to your ShareFile site today.

We look forward to your reply. Please contact me if you have any questions.

Kind Regards,
Jami Lanier

Jami P. Lanier
Deputy Chief of Cultural Resources
Cape Hatteras NS-Fort Raleigh NHS-Wright Brothers NM
1401 National Park Drive
Manteo, NC 27954
Tel: 252-475-9021

From: DCR - Environmental_Review <Environmental.Review@ncdcr.gov>

Sent: Thursday, October 20, 2022 9:06 AM

To: Lanier, Jami P <Jami_P_Lanier@nps.gov>

Cc: Hallac, Dave <david_hallac@nps.gov>; Snyder, Robin F <Robin_Snyder@nps.gov>; Johnson, Meaghan E <Meaghan_Johnson@nps.gov>; Henry, Sabrina S <Sabrina_Henry@nps.gov>; Pendleton, William <William_Pendleton@nps.gov>; Barber, Michael C <Michael_Barber@nps.gov>

Subject: Re: [External] Cape Hatteras NS - Construction of Multi-Use Path

Our response is attached. Thank you.

Best,

Devon L. Borgardt

Environmental Review Assistant
State Historic Preservation Office
109 E. Jones Street MSC 4603 Raleigh, NC 27699



NC DEPARTMENT OF
NATURAL AND CULTURAL RESOURCES

Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

Please Note: Requests for project review or responses to our review comments should be sent to the Environmental Review mailbox at environmental.review@ncdcr.gov. Otherwise, your request will be returned and you will be asked to send it to the proper mailbox. This will cause delays in your project. Information on email project submittal is at: [NCHPO ER Project Review Checklist](#)

[Facebook](#) [Twitter](#) [Instagram](#) [YouTube](#)

From: Lanier, Jami P <Jami_P_Lanier@nps.gov>
Sent: Wednesday, September 14, 2022 11:10 AM
To: DCR - Environmental_Review <Environmental.Review@ncdcr.gov>
Cc: david_hallac <david_hallac@nps.gov>; Snyder, Robin F <Robin_Snyder@nps.gov>; Johnson, Meaghan E <Meaghan_Johnson@nps.gov>; Henry, Sabrina S <Sabrina_Henry@nps.gov>; Pendleton, William <William_Pendleton@nps.gov>; Barber, Michael C <Michael_Barber@nps.gov>
Subject: [External] Cape Hatteras NS - Construction of Multi-Use Path

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [Report Spam](#).

Good Morning,

Please find attached a letter and enclosures from Superintendent David Hallac to officially initiate Section 106 consultation on the construction of a Multi-Use Path at Cape Hatteras National Seashore.

Thank you,
Jami Lanier

Jami P. Lanier
Deputy Chief of Cultural Resources
Cape Hatteras NS-Fort Raleigh NHS-Wright Brothers NM
1401 National Park Drive
Manteo, NC 27954
Tel: 252-475-9021

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APPENDIX C: COASTAL ZONE MANAGEMENT ACT FEDERAL CONSISTENCY
DETERMINATION

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Coastal Zone Management Act
Federal Consistency Determination
for
Cape Hatteras Lighthouse Multi-Use Path
Cape Hatteras National Seashore
January 2023

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1

Federal Agency Purpose and Action

The National Park Service (NPS) Cape Hatteras National Seashore (hereinafter referred to as the “park,” the “seashore,” or the “Cape Hatteras National Seashore”) seeks a consistency concurrence from the North Carolina Division of Coastal Management for the construction of a 10 to-12-foot-wide paved multi-use pathway on Hatteras Island in Dare County, North Carolina, one of a string of barrier islands known as the Outer Banks. See Figure 1 for a map of the location.

The project area includes the road corridor along Lighthouse Road, the road corridor to the Old Lighthouse Parking Area, the move corridor for the relocation of the Cape Hatteras Lighthouse and along existing parking areas, paved and unpaved roads to the former US Navy/Coast Guard area which is now a new Buxton Beach Access site (Figure 2).

This project is needed because connectivity in and near the Seashore is an important component of the park’s purpose to provide access and opportunities for the benefit and enjoyment of visitors. Lighthouse Road provides access from North Carolina Highway 12 and the village of Buxton to popular visitor use areas within this park district on Hatteras Island (Figures 1 and 2). The Lighthouse Road corridor is utilized by multiple modes of transportation other than passenger, recreational and camping vehicles and includes pedestrians, bicyclists, and other non-motorized traffic who use the road shoulders as a pathway to access the park. With so many different modes of transportation all utilizing the same two-way road, the grass shoulders immediately adjacent to the pavement end up being the surface absorbing the non-motorized traffic. The shoulders are sufficiently wide to allow for passage along Lighthouse Road

for most of the distance of the road; however, there is no designated accessible and safe pathway for of non-motorized travel.

Figure 1 Project Vicinity

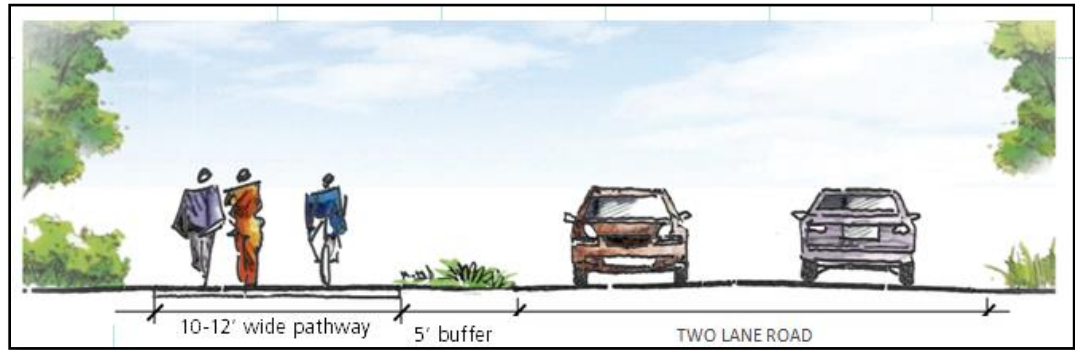


Figure 2 Current Conditions of Project Area



The NPS would construct an 10 to-12-foot-wide paved multi-use pathway in two phases (Figure 6). The project would include educational opportunities via interpretive messaging along the route and wayfinding information, and would include benches, bollards, and the reconfiguration of the seashore entrance including intersection improvements and connections to local sidewalks. The pathway would be constructed of a paved surface either concrete or asphalt (Figure 3).

Figure 3 Conceptual design of multi-use pathway



Phase 1

Phase I of the multi-use pathway would begin on the west side of Lighthouse Road at the intersection of NC Highway 12. A trailhead plaza would be constructed at the beginning of the pathway with wayfinding signage, safety messages and benches (Figure 3).

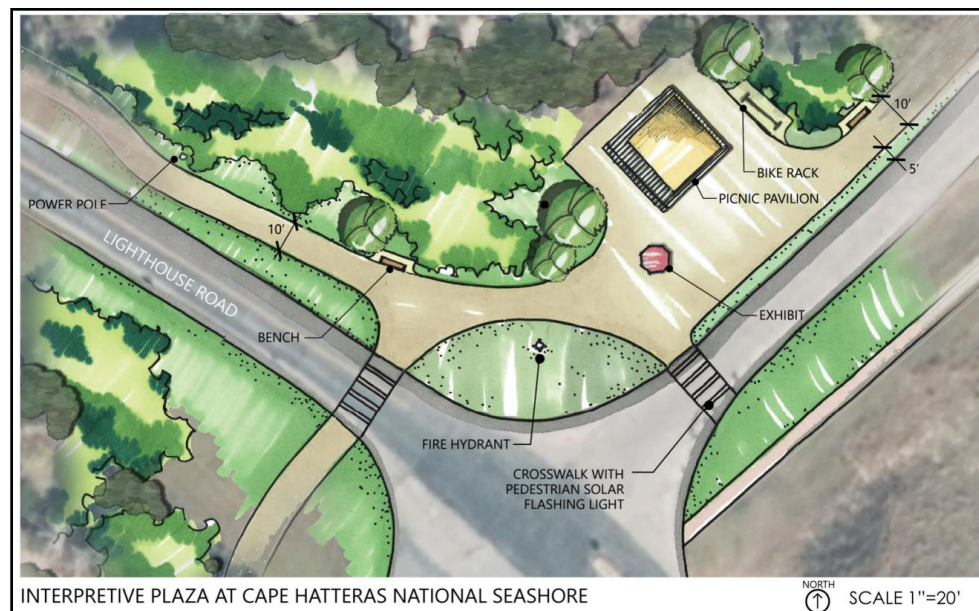
The pathway would continue southward along the west side of Lighthouse Road until it crosses the roadway approximately 3,700 feet south of NC Highway 12. This crossing location was identified because it provides over 500 feet of visibility to motorists approaching in each direction. The speed limit along this stretch of Lighthouse Road would be reduced to 25 mph and speed tables would be added to increase drivers' awareness of the crossing.

Figure 4 Conceptual design of trailhead plaza



An interpretive plaza, with trailhead signs, bike racks, pedestrian seating, and a picnic pavilion would be constructed at the corner of the intersection of the pathway and the Old Lighthouse Beach parking areas (Figure 5). An interpretive exhibit that provides an overview of the seashore, with a focus on beach recreation activities including surfing, would provide context for the activities available at the beach recreation area. A shelter and comfort station with bathroom facilities and water for drinking and washing off sand, would be constructed within the interpretive plaza to accommodate visitors who are using the pathway and the two beach access areas. The septic field and septic system would be constructed within an upland area adjacent to the interpretive plaza.

Figure 5 Conceptual design of interpretive plaza



From the interpretive plaza, the pathway would cross the Old Lighthouse Beach Road and continue along the Lighthouse move path towards Lighthouse and the Visitor Center. Branching off the pathway, an exhibit detailing the logistics and engineering accomplishment of moving the lighthouse 2,900 feet would be presented at an interpretive location. The pathway would be constructed within the move path and enter the woods around the septic field and continue along the existing sidewalk south of the Lighthouse parking lot. Where the pathway exits the woods adjacent to the parking lot sidewalk, an interpretive exhibit would be constructed, detailing the lighthouse move within the move path viewshed. The pathway would be constructed parallel to the existing sidewalk and separated with a bollards and rope, a standard delineation around seashore parking areas. A pedestrian connection from the pathway to the sidewalk would be provided that allows pedestrians to access the Visitor Center, Lighthouse, Keepers Quarters and Museum.

A cul-de-sac would be constructed at the end of Phase I south of the Keepers of the Light Amphitheater that is sized to allow bicyclists to turnaround safely without conflicting with the pedestrians exiting the pathway.

The width of the pathway throughout Phase I would vary from 10 to 12 feet, reducing to 10 feet in order to minimize impacts to the adjacent wetlands. The American Association of State Highway and Transportation Officials (AASHTO) provides guidelines for two-directional shared use paths for both bicycles and pedestrians and state they should be a minimum of 10 feet. Approximately 6,700 linear feet pathway would be constructed to the Cape Hatteras Lighthouse. The width of the pathway from the interpretive plaza to the end of Phase I at Lighthouse parking lot would be 12 feet to accommodate more users along this stretch of the pathway. A standard width of a 5-foot landscape buffer strip would be maintained between the edge of the paved roadway and the pathway in all locations as recommended by the American Association of State and Highway Transportation Officials (AASHTO) for two-way bicycle use.

Phase II

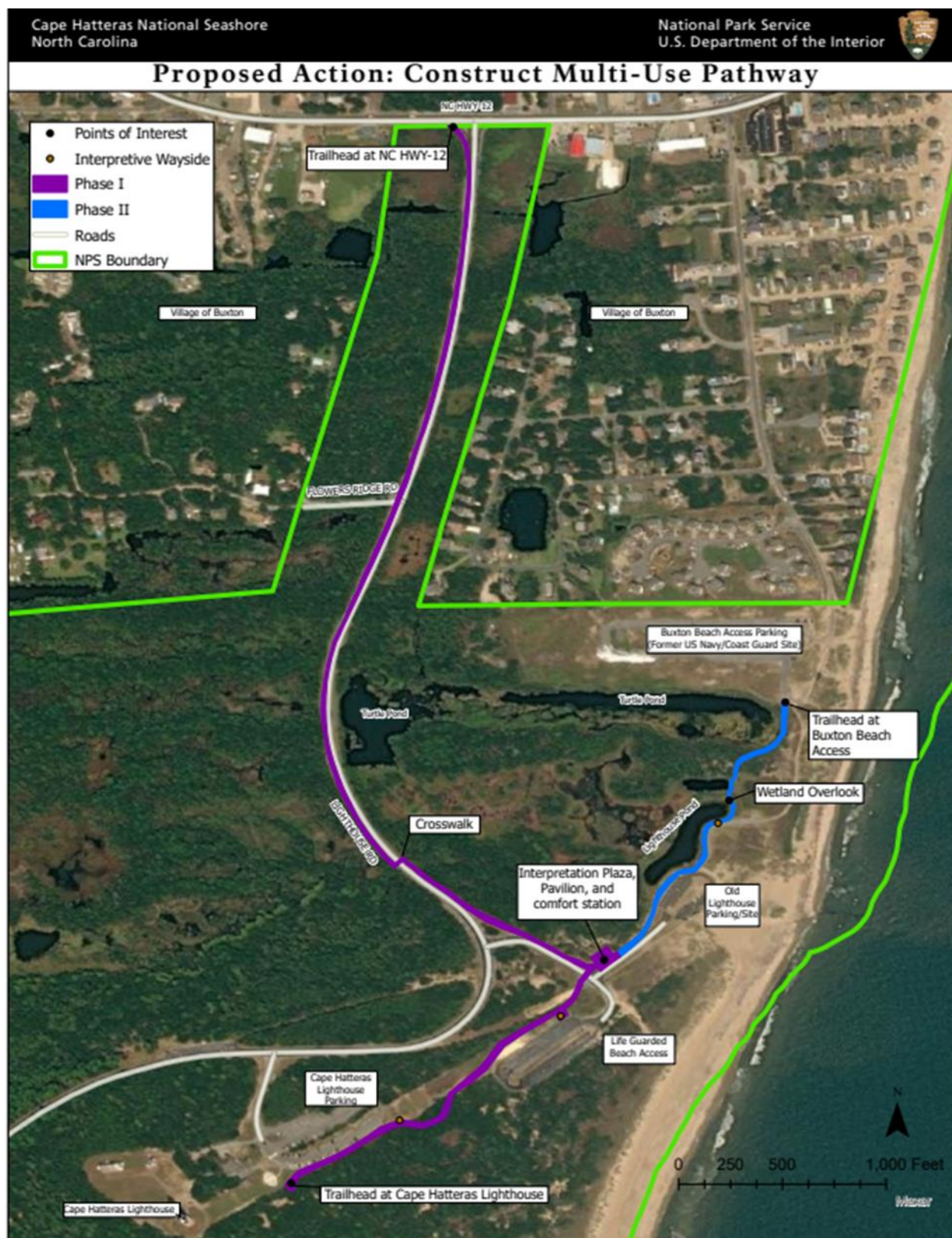
Phase II of the pathway would begin at the interpretive plaza adjacent the Old Lighthouse beach parking area. After the interpretive plaza, the pathway would continue along the western side of the parking lot adjacent to the parking lot and pond. The alignment would follow the existing paved access drive east of the pond and through and existing clearing in the brush. overviewAn exhibit detailing sea level rise and natural coastal processes as the reasoning for moving the Lighthouse and Keepers Quarters would be located at the former Keepers Quarters site.

A comfort station with bathroom facilities and water spigots, would be constructed adjacent to the interpretive plaza to accommodate visitors who are using the pathway and the two beach access areas. The septic field and septic system would be constructed within an upland area.

No equestrian use would be allowed on the paved multi-use path, but equestrian use could continue on the opposite side of the road on the wide grassy shoulder. Some electric assisted modes of transportation may be permitted along the pathways, such as motorized wheelchairs, electric scooters, and electric bicycles. Electric bicycles would be allowed but only Class 1 types. Class 2 and 3 types must be operated on the roads

as a motor vehicles. Bicycles with electric motors of 750 watts (1 h.p.) or more of power and not included as Class 1, Class 2 or Class 3 would be managed as motor vehicles under 36 CFR 4.10, i.e., motor vehicles are allowed on park roads and on routes and areas designated for off-road motor vehicle use. Electric standing scooters would be allowed on the multi-use pathway if they don't exceed the speed of 20 mph.

Figure 6 Proposed Action



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 within uplands and adjacent to estuarine wetlands and approximately 0.283 acres of estuarine wetlands would be impacted. An NPS wetland ecologist performed a wetland delineation June 22-23, 2021, of the project area for the presence of any jurisdictional features. Wetland compliance for all NPS undertakings is governed by Executive Order (EO) 11990 and Director's Order (DO) #77-1: Wetland Protection for NPS wetlands, and by Section 404

of the Clean Water Act (33 U.S.C. 1344) for Waters of the U.S. Methods for delineation of NPS wetlands are defined in NPS Procedural Manual #77-1: Wetland Protection. Methods for delineation of Waters of the U.S. are defined in U.S. Army Corps of Engineers (USACE) "Corps of Engineers Wetlands Delineation Manual" (1987), and USACE "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)". The NPS may be required to seek a 404 nationwide permit from the Army Corps of Engineers for impacts to jurisdictional wetlands. The wetlands in the project area were created when the village of Buxton was created and several ditches and culverts within the wetland system allow storm water runoff from developed areas flow to the wetlands through the culverts towards the Pamlico Sound. In addition, the decision to place the pathway on the western side of the road was because the wetlands were further from the road shoulder and would greatly reduce the impacts to the wetlands in the project area. Project actions would not impact the important features of the biological, social, economic and aesthetic values of the coastal wetlands. For these reasons, 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 be designed to minimize the impact to estuarine systems. A total 0.283 acres of wetlands would be adversely impacted from the construction of the pathway and trailheads. Only 0.168 acres of permanent impacts to wetlands would occur. Temporary impacts from the construction of the improvements would be 0.115 acres. Project actions would not impact the important features of the estuarine waters and their biological, social, aesthetic, and economic values. The wetlands would still function as intended to filter storm water runoff and therefore, implementation of the proposed improvements 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 developed areas and would not extend into a navigable waterway. This project would be constructed within a public trust area for the purposes of public access and recreation; 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 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

The proposed action would require a total of approximately 5.5 acres of land disturbance. This includes land disturbance for the construction of the pathway and trailheads/plazas. The project would disturb more than 1 acre of land, the park would submit an erosion and sediment control plan to the Land Quality Section of the North Carolina Department of Environmental Quality.

There would be an increase of approximately 2.03 acres of impervious surfaces throughout the project area for the concrete pathway and trailheads/plazas. The increase in stormwater runoff would be negligible due to the stormwater considerations incorporated into the design plan for the use of a 5-foot vegetative buffer on one side and a 2-foot vegetative buffer on the other along wetlands areas. The topsoil at the site has been compacted by previous disturbance from the construction of roads, parking areas and placement of fill and the clearing of vegetation for the Lighthouse move in 1999.

The project site contains four different soil properties and most locations for the proposed improvements area within developed and previously disturbed areas. According to the Natural Resources Conservation Survey web soil survey, predominate soils within the project site are eolian sands, 26% Corolla fine sand, 20% Duckston fine sand, 13% Corolla-Duckston complex and 12% Fripp fine sand (NRCS 2021). A geotechnical survey for subsurface exploration was conducted on March 10, and October 25-26, 2022. A total of 39 soil test borings were performed. Most of the soils in the project area have been previously disturbed and compacted and fill placed to construct the roads, parking areas, and the creation of the move path for the Cape Hatteras Lighthouse. Based on the results of geologic test borings, the native soils and fill soils at the site should be suitable for reuse as structural fill if they are properly dry to facilitate appropriate compaction. Any soil excavated during the project could be used or backfilled in the same location or removed out of the Seashore. The construction of an impermeable pathway would reduce the soil permeability within specific areas and create surface runoff from rain events and would impact 2.05 acres. Vegetative buffers are part of the design to allow runoff to percolate through the adjacent soils into the ground water system and would be noted in a sediment control erosion plan submitted to the state as a requirement of the Sedimentation Control Act of 1973. This act requires that anyone who has a project which has more than one acre of land disturbed must submit a Soil Erosion Plan to the North Carolina Department of Environmental Quality. Due to the scale of the permanently impacted area, vegetative buffers and the preparation of a sediment control plan would ensure that the project would include actions to mitigate adverse impacts to soils and measurable impacts comparative to the adjacent road and parking areas to the project

would not be expected. Wayside signs, benches and shade structures would be installed on the concrete. Therefore, the project is 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 Seashore is vulnerable to multiple coastal hazards including coastal erosion, storm surge, and sea level rise. The project area is not located on the oceanfront, but Phase II of the project would be the closest segment to the Atlantic Ocean where the shoreline has been eroding at a rate of 4.5 to 5 feet of erosion a year according to NC Division of Coastal Management 2020 erosion rates data. The Old Lighthouse parking area has been inundated with surge associated with storms and tidal flooding during exceptionally high tides. While climate change refers to any significant changes in average climatic conditions (such as mean temperature, precipitation, or wind) or variability (such as seasonality and storm frequency) lasting for an extended period (decades or longer). is a global phenomenon. It manifests differently depending on regional and local factors. General changes that are expected to occur in the future as a result of climate change include hotter, drier summers; warmer winters; warmer water; higher ocean levels; more severe wildfires; degraded air quality, more heavy downpours and flooding, and increased drought. Climate change and resulting sea level rise are likely to increase the frequency and magnitude of flooding events in the future. The location of Phase I would not be impacted from shoreline erosion nor flooding events. With projected sea level rise of 10-14" by 2050, this segment would remain unaffected by sea level rise. The location of the Phase II segment of the pathway would be as far from the shore as possible and would not be an action that could influence future sea level rise. According to a 2021 study by Flynn and Hallac on forecasting vulnerability of recreational infrastructure, with a 10-and 20-year shoreline horizon, Phase I of the pathway would not be impacted from shoreline erosion. However, a 390-foot section of Phase II pathway, would be within the uncertainty band or margin of error and potentially may be affected by future shoreline erosion. The consideration of potential storm events and future sea level rise would be incorporated into the design of vulnerable sections of the pathway to ensure the design would be resilient to any flooding events therefore, 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 multi-use pathway would not have any impact on public water supplies because the project's septic drain field and tanks for the new comfort station

would be located within an upland area and over 100 feet away from any water source; therefore, it is consistent with these management objectives and policies.

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 or architectural resources. The project area was surveyed for the presence of archeological resources on March 10, 2022, and all shovel tests were negative for features and artifacts. However, a section of the project area would be within a cultural landscape. The Cape Hatteras Light Station cultural landscape boundary is based on the National Register nomination amended in 1998. It's an "L-shaped" area, bounded by the Coast Guard facility to the north, Buxton Woods to the west, dunes and open beach to the south, and barrier dunes and the Atlantic Ocean to the east, form the approximately ten-acre historic district. The installation of the signs was initially an action first introduced as a mitigation measure to acknowledge the adverse effects of the move of the Light Station facilities and was a recommendation from the North Carolina State Historic Preservation Office during consultation. Also of note, is that no trailheads or the interpretive plaza would be constructed within the cultural landscape. Ultimately, these new facilities would have a beneficial long-term effect in interpreting the old site which was a mitigation measure identified during consultation for the Lighthouse move. This alternative would also interpretive the move corridor as described in the Cultural Landscape Report.

Although, the project area is within a cultural landscape, it is mostly within a previously developed and disturbed area and the improvements would not result in major or irreversible damage to natural systems nor cultural resources. Therefore, the project is consistent with this management goal. Consistency with specific objectives and policies are included under each code heading that follows.

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." Cape Hatteras National Seashore is known to support nesting habitat for numerous threatened or endangered sea turtle and shorebird species, as well as species protected under the Migratory Bird Treaty Act; however, the project area has been highly disturbed by park operations and construction of facilities. The project area was surveyed on July 1, 2022, by park staff and no threatened or endangered native plants or animals were found during the survey. Construction related activities and noise may cause wildlife to completely avoid the project area for up to twelve months; however, species utilizing the area are acclimated to high volumes of vehicle and visitor use as a result of the nearby

developments in the area. There would be approximately 4.85 acres of mowed turf grasses and sections of maritime forest disturbed from the construction of the proposed actions, but these areas are frequently disturbed by visitor activities and the habitat within the project area is not ideal for many of the Seashore wildlife species.

Due to these conditions, the project area offers no to very poor habitat to threatened and endangered native plants and animals. Based on a review of the project area and the federally listed species known to occur in the vicinity of the project area, NPS staff determined that project activities would have no effect on special status species. There are no critical habitats for special status species within the vicinity of the project area. As such, construction of the proposed multi-use pathway would not affect listed species nor prominently affect other native plants and animals. 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.” Coastal complex natural areas are defined as “lands that support native plant and animal communities and provide habitat qualities which have remained essentially unchanged by human activity.” The project area was altered during the construction of the park roads, parking areas, moving of the lighthouse, and storm over wash events. No designated coastal complex natural areas are present within the proposed project area. Therefore, the proposed project is consistent with these policies.

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, approximately 54 miles from the project area. 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. As described under “15A NCAC 07H .0501,” the project area does not contain coastal historic and architectural resources (no fragile coastal natural areas). As noted earlier, the project area was surveyed for cultural resources and proposed multi-use pathway and adjacent features would be within sections of a cultural landscape the project would have no adverse effect to the values of cultural resources. Therefore, the proposed project is consistent with these use standards.

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. As noted previously, there are no known significant coastal archeological resources that would be affected by the

proposed project. No archeological resources or cultural material were found during testing, and no further archeological investigation was recommended for the area that encompasses the project area. 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 project area does not consist of historic architectural resources. The Cape Hatteras Historic District is located adjacent to the project area, but proposed actions would not have adverse effect to this historic setting, and all new features would be blocked by existing vegetation or be located along existing roads and parking areas. In the area where the multi-use pathway would cross through the move corridor which would be visible from the top of the Lighthouse, this project allows visitors to connect with the old and new lighthouse locations along the move corridor which was a mitigation measure required by the State Historic Preservation Office as part of the move. Therefore, the proposed improvements would be consistent with these objectives.

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 adjacent to an estuarine and public trust area and shorelines. As stated, previously, the project area is not located on the oceanfront, but Phase II of the project would be the closest segment to the Atlantic Ocean where the shoreline has been eroding at a rate of 4.5 to 5 feet of erosion a year according to NC Division of Coastal Management 2020 erosion rates data. The Old Lighthouse parking area has been inundated with surge associated with storms and tidal flooding during exceptionally high tides. However, project actions would not have any effect to the estuarine and ocean system. Therefore, these policies would be consistent with these policies.

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

The proposed project is located on National Park Service land. The multi-use pathway would connect access points from the village of Buxton and key destination sites within the project area beach access areas adjacent to the Atlantic Ocean shoreline. No changes to shorefront access are proposed by the project; therefore, the project would be consistent with these policies.

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 15ANC AC 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 Seashore 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 Severe Storm Response Plan to minimize risks to human health and safety and to minimize potential property damage during storm events. To help protect life, notice would be given to park visitors of upcoming storm events and area closures. The proposed paved pathway, wayside signs, exhibits and benches that would be added to the area from project actions are very minor and would not undergo significant impacts from flood events resulting from these storms systems. Therefore, the project would be consistent with these policies.

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

The multi-use pathway project would not propose for the 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 project area has been developed and is primarily dominated by mowed grasses, parking areas, paved and unpaved roads. The project area is bordered by estuarine wetlands to the west, and project actions would have impacts to portions of these wetlands. Project actions will trigger the need to do 2:1 compensatory mitigation for Sec 404 permitting by the Army Corps of Engineers. In addition, the NPS is required by NPS policies to conduct compensatory mitigation for wetland impacts and proposes to conduct a 3:1 ratio of invasive plant treatments along the wetlands adjacent to the project area. The NPS has also developed a Wetlands Statements of Findings to demonstrate to the public how the NPS proposes to mitigate impacts from project actions. With the above best management practices in place, the proposed action would be consistent with this policy.

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

Project activities would not cause degradation of water quality that would impair traditional uses of coastal waters. The project area would impact 5.47 acres of previously disturbed areas and would be designed to ensure stormwater would runoff toward vegetation buffers and the adjacent wetlands which had been modified with culverts to reduce flooding adjacent to the project area. Hardened pervious surfaces would be limited to 2.05 acres. The project's septic drain field and tanks for the new

comfort station would be located within an upland area and over 100 feet away from any water source and more than 300 feet from coastal waters. The proposed action would be consistent with these policies.

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 use of 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 multi-use pathway project would involve dredge or fill activity within estuarine waters, ocean system, or State-owned lakes. The majority of work would occur within upland areas, but 0.283 acres of estuarine wetlands would be filled from project activities in order to create a standard width of a 5-foot landscape buffer strip to be maintained between the edge of the paved roadway and the 10-foot-wide pathway with a standard width of 2 feet landscape buffer along the wetland area as recommended by the American Association of State and Highway Transportation Officials (AASHTO). The NPS would seek a Section 404 Nationwide Permit from the Army Corps of Engineers and the NPS would compensate for wetland fill impacts to meet Executive Order 11990 *Protection of Wetlands* by performing 4:1 invasive plant treatments and monitoring within an adjacent degraded wetland area within Cape Hatteras National Seashore. As such, it is anticipated 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 multi-use pathway project.

4.1 Public Access Policies

Policy PA #1

Dare County supports the preservation and protection of the public's right to access and use of the public trust areas and waters.

The multi-use pathway would connect access points from the village of Buxton and key destination sites within the project area, including beach access areas adjacent to the Atlantic Ocean shoreline. Designs of the pathway would ensure preservation and protection of public trust areas and waters.

Policy PA #2

Dare County reserves the right to review, comment, advocate, or oppose any proposed Federal or State regulations or programs that affect the public trust waters or public trust areas.

The NPS provided a 30-day public scoping period for the review and comment on three preliminary action alternatives for consideration. Dare County did not provide any comments on the project during the public scoping period.

Policy PA #3

Dare County supports North Carolina's shoreline access policies and grant programs and recognizes the importance of shoreline access to our local residents and our tourist economy. Thus, the County will continue to seek opportunities to expand access, including opportunities for the disabled, and to secure funding for beach nourishment in order to maintain wide sandy beaches.

The proposed multi-use pathway from the village of Buxton to key visitor destinations within the Cape Hatteras Lighthouse area, as well as shoreline access areas, would be designed to ensure accessibility standards are being met for not only the local residents of Buxton but also the tourists to the area. This project would not negatively affect shoreline access.

4.2 Land Use Compatibility

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 project area was surveyed for the presence of archeological resources on March 10, 2022, and all shovel tests were negative for features and artifacts. However, a section of the project area would be within a cultural landscape. The Cape Hatteras Light Station cultural landscape boundary is based on the National Register nomination amended in 1998. Construction of a new paved multi-use pathway and the installation of two wayside panels and pull-off areas within the move corridor would be introduced and slightly modify the cultural landscape but these minor installations would not have an adverse effect on the cultural landscape. Ultimately, these new facilities would have a beneficial long-term effect in interpreting the move corridor and the history of the Lighthouse move which was a mitigation measure identified during consultation for the Lighthouse move.

4.1 Infrastructure Carrying Capacity

Policy ICC #3

Centralized wastewater treatment and collection systems, for both on-site and off-site service, are considered appropriate methods for wastewater treatment in addition to the use of individualized on-site wastewater systems and traditional septic tank/drainfield systems.

The proposed action does not propose any land or water uses that would cause the degradation of water quality. A comfort station with bathroom facilities and water spigots, would be constructed adjacent to the interpretive plaza to accommodate visitors who are using the pathway and the two beach access areas. The septic field and septic system would be constructed within an upland area and meet all state and federal requirements for septic systems. Septic system would be located would be located more than 300 feet from coastal waters and more than 100 feet from other water sources.

Policy ICC #7

Dare County encourages intergovernmental cooperation with the municipalities and its surrounding counties to study the transportation needs of Dare County and our region.

The NPS has developed this multiuse pathway in coordination with Dare County planners and stakeholders.

Policy ICC #8

Dare County supports the development and construction of sidewalks, bike paths, greenways, and other walking/jogging trails to provide a safe setting for these types of outdoor recreation and as alternative transportation routes.

This project was developed as a need for connectivity in and near the Seashore as an important component of the park's purpose to provide access and opportunities for the benefit and enjoyment of visitors. Lighthouse Road provides access from NC HWY 12 and the village of Buxton to popular visitor use areas within this park district on Hatteras Island. The Lighthouse Road corridor is utilized by multiple modes of transportation other than passenger, recreational and camping vehicles and include pedestrians, bicyclists, and other non-motorized traffic which use the road shoulders as a pathway to access the park. With so many different modes of transportation all utilizing the same two-way road, the grass shoulders immediately adjacent to the pavement end up being the surface absorbing the non-motorized traffic as there is no designated and safe pathway for of non-motorized travel.

4.2 Natural Hazards

Policy NH #1

Oceanfront shoreline development should continue to be managed to protect and preserve the natural and recreational resources along the oceanfront. The appropriate tools for this are the existing CAMA permit program and the Areas of Environmental Concerns (AECs) designated under the CAMA program. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of ocean hazards areas of environmental concern.

The proposed action would be constructed adjacent to the oceanfront behind the primary dune system and the design of the pathway and associated facilities would take into consideration the coastal environment and potential for flooding and no significant adverse impacts to natural and recreational resources along the oceanfront would occur.

Policy NH #5

Dare County supports, as minimum standards, the administration and enforcement of all applicable floodplain management regulations and the National Flood Insurance Program. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the National Flood Insurance Program or other flood hazard legislation.

Vulnerability to flooding within the project area is projected to increase with local estimates of 2 to 3 feet of sea level rise over the next 50 years (Sweet et al. 2022). As the sea level rises, the site's vulnerability to coastal storms and the associated surges also increases, putting the pathway in some areas at an elevated level of risk during severe weather events. The location of the Phase II segment of the pathway would be as far from the shore as possible and would not be an action that could influence flooding of the project area. Although the construction of a pathway would be located within a 100-year floodplain "picnic facilities, scenic overlooks, foot trails and small associated daytime parking facilities in non-high hazard areas" are minor structures and would not adversely impact life/health, capital investment and natural/beneficial values of floodplains of the project area.

Policy NH #6

Dare County shall use construction standards, such as the elevation of buildings and the wind zone requirements for mobile homes and zoning regulations, such as the setbacks from water bodies and erosion-prone areas to mitigate the effects of high winds, storm surge, flooding, wave action, and erosion.

Consideration of potential storm events and flooding potential would be incorporated into the design of the pathway and comfort station along with the septic field and system.

4.3 Water Quality

Policy WQ #2

Development projects shall be designed and constructed to minimize detrimental impacts on surface water quality, groundwater quality, and air quality. Structures would be designed to fit the natural topographic conditions and vegetation versus modifications to natural conditions to accommodate structures.

The proposed action would be designed and constructed to take into consideration water quality impacts to adjacent wetlands and ground water. Groundwater was encountered in all geotechnical soil borings at depths ranging from 2 to 8 feet.

Policy WQ#4

Efforts to preserve, protect and improve water quality should be managed at the local level. Local level management allows for a regulatory approach designed to specifically address unique local needs and conditions. Existing State stormwater rules should serve as the basis for local programs with adjustments made to address local needs, conditions, and community support.

It is most likely that the wetlands adjacent to the project are considered "stormwater wetlands and are considered a stormwater control measure as identified in North

Carolina's Department of Environmental Quality. In the 1970's, Dare County, NC Department of Transportation and the NPS developed a wetland drainage system to divert water through ditches and culverts. To facilitate northward flow, culverts were installed on each side of Lighthouse Road and under dunes to interlink all wetlands, sedges and ponds, including Jennette Sedge and the Naval Station borrow pit (i.e., Turtle Pond). Almost all locations along Lighthouse Road are crowned and any rainfall from storm events would sheet flow across the pathway. No permanent storm water devices or earthworks would be constructed to deal with storm water.

Policy WQ#5

Efforts to manage stormwater runoff should be based on local conditions and natural features. Properties immediately adjacent to SA classified waters should be developed consistent with the dimensional standards and lot coverage limitations of the Dare County Zoning Ordinance. Vegetative buffers and other low-impact development methods identified by the UNC Coastal Studies Institute are appropriate tools to address stormwater runoff adjacent to SA waters.

The project is not within or adjacent to an SA classified water therefore project actions would not have any effect to this resource.

Policy WQ#7

Dare County advocates the use of existing (2009) state and federal regulatory programs for protecting and preserving coastal wetland areas of environmental concern. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the regulation of coastal wetland areas of environmental concern.

The NPS is submitting this federal consistency review to North Carolina Division of Coastal Management to ensure project actions are consistent with state regulatory policies.

Policy WQ#8

Dare County supports the U.S. Army Corps of Engineers nationwide permit program as administered in 2009. This support is based on the current scope of permitting limits of the nationwide program and not any changes that may result in a different policy. Dare County reserves the right to review, comment, advocate, or oppose any proposed regulations or programs that may affect the Army Corps of Engineers nationwide permit program.

Due to the close proximity of jurisdictional wetlands along the shoulder of Lighthouse Road, complete avoidance of wetland impacts is unlikely, and the proposed pathway project is expected to require a Section 404 permit for discharge of fill into regulated wetlands. Based on the intended public recreational use of the proposed pathway, this project would qualify for authorization under the 2021 USACE Nationwide Permit 14. Linear Transportation.

4.4 Local Areas of Concern

Policy LAC #7

The quality of life of Dare County residents should be carefully balanced with the tourist-based economy of the Outer Banks. Maintaining a good quality of life for our permanent population and ensuring a safe and enjoyable vacation experience should be a goal of all local, state, and federal agencies responsible for the promotion of tourism in Dare County and North Carolina.

The multi-use pathway would provide locals and visitors with a resilient, safe, and accessible route to many of the Seashores' key visitor use areas. The pathway would provide a non-motorized connection into the Seashore from paved pathways originating in the village of Buxton and would accommodate different types of non-motorized uses including biking and reduce maintenance by using sustainable construction techniques and minimizing facility operations.

The pathway would be constructed at least 10 feet wide to safely accommodate two-way travel of pedestrians and bicycles. A standard width of a 5-foot landscape buffer strip would be maintained between the edge of the paved roadway and the pathway in all locations as recommended by the American Association of State and Highway Transportation Officials (AASHTO).

5

Other Anticipated Permits

An environmental assessment is being prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4332[2] [C]); the implementing regulations of the Council on Environmental Quality (40 CFR 1500-1508); 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* and the accompanying NEPA Handbook. A separate assessment of effect has been prepared 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 obtain a 404 nationwide permit from the Army Corps of Engineers and associated 401 Water Quality Permit. The project actions also require the issuance of a sediment control erosion permit, a construction stormwater permit and a post construction stormwater permit from North Carolina Division of Erosion, Mineral and Lands Resources.

6

Conclusion

In conclusion, after careful consideration of the aforementioned elements, 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 land use plan policies.

REQUEST: Federal Consistency Concurrence for Cape Hatteras National Seashore Multi-use Path on Hatteras Island in Dare County

Henry, Sabrina S <Sabrina_Henry@nps.gov>

Fri 1/27/2023 8:17 AM

To: Govoni, Daniel <daniel.govoni@ncdenr.gov>

Hi Daniel,

The National Park Service (NPS) is proposing to construct a new paved multi-use path at Cape Hatteras National Seashore (the Seashore) on Hatteras Island in Dare County. Pursuant to Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 as amended, the NPS, as the federal agency providing the financial support for the project work at the Seashore, has determined that the proposed project is consistent to the maximum extent practicable with the enforceable policies of North Carolina's federally approved coastal management program.

This determination is based on review of the proposed project's conformance with North Carolina's coastal program policies, which are primarily found in Chapter 7 of Title 15A of North Carolina's Administrative Code and the Care County CAMA Land Use Plan. Details of the determination are provided through submission of the attached federal consistency determination document.

NPS is requesting acknowledgement of the Division of Coastal Management's concurrence with the consistency determination. If you have any questions or require additional information, please let me know.

Thank you.

Sabrina S. Henry

Environmental Protection Specialist | National Park Service | Cape Hatteras NS | Fort Raleigh NHS | Wright Brothers NMem
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