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8.1 Bon Secour National Wildlife Refuge Trail Enhancement: Project Description

8.1.1 Project Summary

This project involves repairing and enhancing an existing trail (Jeff Friend Trail) located on the Bon Secour National Wildlife Refuge (NWR). This aged boardwalk and gravel trail will be repaired and improved to American with Disabilities Act (ADA) standards to ensure safe public access and to enhance the quality of visitor experience. An observation platform will also be constructed along the trail, and two handicapped parking spaces will be widened to better accommodate visitors. The project is not expected to significantly increase visitation, but to provide a safe and enhanced experience for visitors to the refuge.

8.1.2 Background and Project Description

Established in 1980, Bon Secour NWR is located on the Gulf Coast, 8 miles west of the city of Gulf Shores, Alabama, in Baldwin and Mobile counties. Management efforts since 1980 have emphasized acquiring land, securing staff to operate the refuge, and initiating conservation programs that benefit migratory birds and endangered wildlife species. Wildlife habitat consists of beach/dune, maritime forests, and estuarine habitats. A Comprehensive Conservation Plan for Bon Secour NWR was prepared in 2005 to guide management actions and to provide direction for the refuge. Fish and wildlife conservation receives first priority in refuge management; wildlife-dependent recreation is allowed and encouraged as long as it is compatible with, and does not detract from, the mission of the refuge or the purposes for which it was established.

The Jeff Friend Trail was constructed ten years ago to allow handicap access to the Little Lagoon viewshed and to the natural resources of Bon Secour NWR. Over time the trail has surpassed its serviceable life and has become less accessible to the handicapped and elderly. The project will replace the existing and aged gravel trail and wooden boardwalk with a safer, and easier to traverse, new trail made up of compressed rubber material or other suitable material (materials are still being researched) and composite material boardwalk. The project will also widen two handicap parking places in the existing parking lot. The parking spaces are currently too small and require up to 10 feet total added to the width to enable access to two vehicles. And lastly, an approximately 10 foot tall observation platform (made from the same material as the boardwalk) will be placed in a still-to-be-selected area along the trail. The location chosen will depend on the most suitable area that will cause the least impact to habitats and soils. There is an existing platform that is not raised but is the same height as the boardwalk. That existing platform is being considered as a location for the raised platform. There are also sandy, clear areas along the boardwalk that are being considered. The footprint of the platform will be approximately 20 feet by 20 feet.

Since this trail is not new, and is merely a renovation of an existing trail, the use of the area is not anticipated to significantly increase. The purpose of the project is to replace the 10-year old Trail's infrastructure before it is rendered unusable.

Figure 8-1. Bon Secour National Wildlife Refuge area in southern Alabama

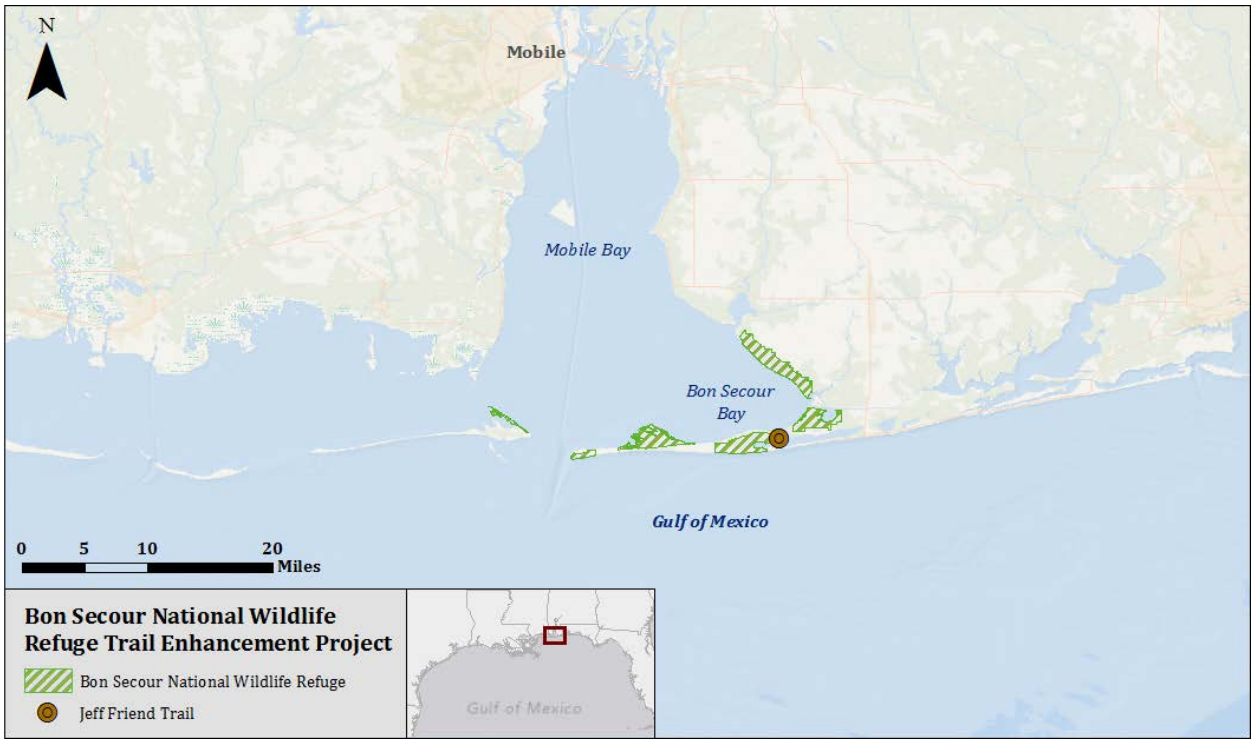

Figure 8-2. Bon Secour National Wildlife Refuge area in southern Alabama

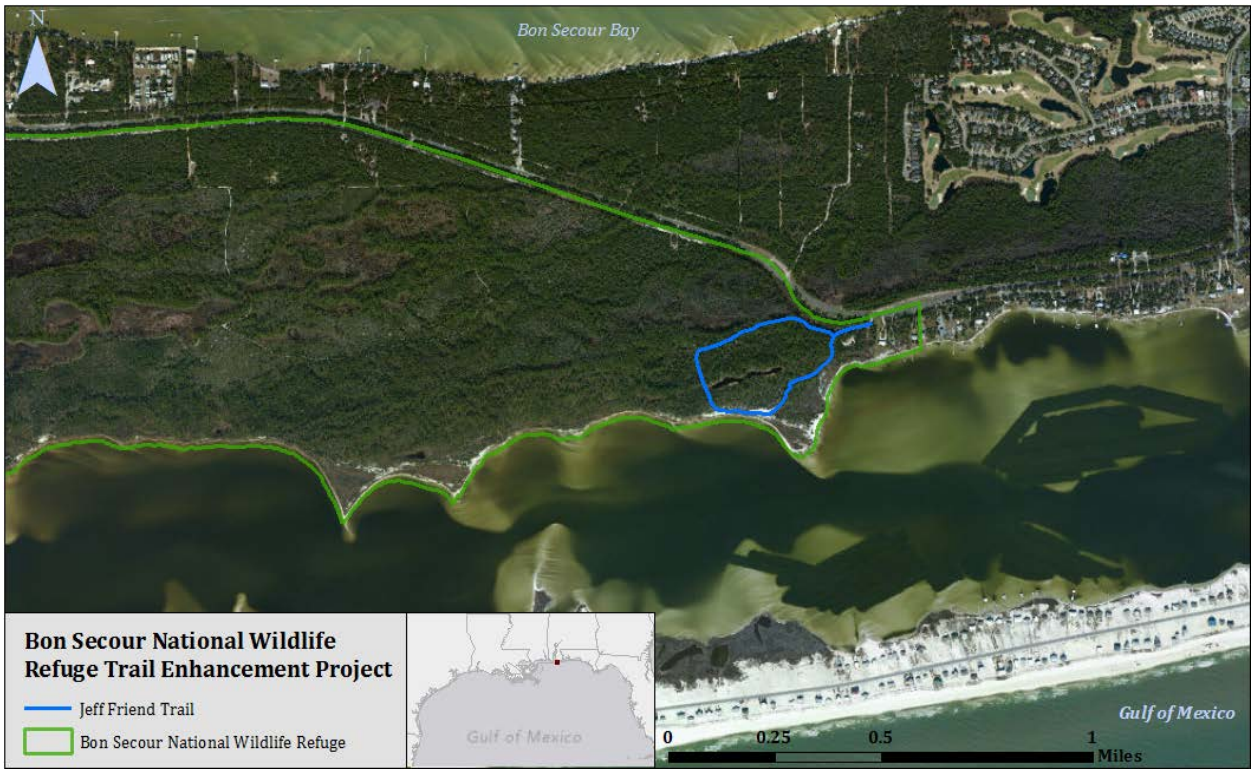

Figure 8-3. Existing handicap parking area (yellow arrow) that is to be widened

Figure 8-4. A portion of the existing Jeff Friend Trail boardwalk

8.1.3 Evaluation Criteria

This project meets the evaluation criteria established for OPA and the Framework Agreement. The project will enhance the public's access to natural resources at the Bon Secour NWR, helping to offset adverse impacts to recreational uses on Department of the Interior (DOI)-managed lands in the five Gulf States caused by the Spill. Thus, the nexus to resources injured by the Spill is clear (see C.F.R. § 990.54(a) (2) and Sections 6a-6c of the Early Restoration Framework Agreement).

The project is technically feasible and utilizes commonly used boardwalk and trail materials and can be implemented with minimal delay. The trails at Bon Secour NWR are commonly used by the public for hiking and wildlife viewing. For these reasons, the project has a high likelihood of success (see C.F.R. § 990.54(a)(3) and Section 6e of the Early Restoration Framework Agreement).

A thorough environmental assessment, including review under applicable environmental statutes and regulations, is described in Section 8.2 and indicates that adverse effects from the project would largely be minor, localized, and of short duration. In addition, the best management practices and measures to avoid or minimize adverse effects described in Section 8.2 would be implemented. As a result, collateral injury will be avoided and minimized during project implementation (15 C.F.R. § 990.54(a)(4)).

Cost estimates are based on similar past projects, and based on these estimates the project can be conducted at a reasonable cost (see C.F.R. § 990.54(a)(1)). As a result, the project is considered feasible and cost effective. The project is not inconsistent with long-term restoration needs (see C.F.R. § 990.54(a)(1),(3), and Sections 6d-6e of the Early Restoration Framework Agreement).

8.1.4 Performance Criteria, Monitoring and Maintenance

The restoration objective of this project is to restore a portion of the lost visitor use on lands managed by DOI in the five Gulf States caused by the Spill by improving the future visitor experience at Bon Secour NWR. This will be accomplished by improving the public's accessibility and enjoyment while using the refuge. The project will be deemed successful when the trail is once again open with safer and longer-lasting infrastructure. As such, performance criteria for this project are the satisfactory construction of the desired trail, boardwalk and parking spaces. No long-term maintenance activities beyond the duration of this project were budgeted. The minor amount of trail maintenance that is anticipated will be part of regular refuge maintenance activities. The monitoring plan for the Bon Secour Trail Enhancement Project can be found in Appendix B.

8.1.5 Offsets

The Trustees and BP negotiated a BCR of 2.0 for this recreational use project. NRD Offsets are $1,090,220 expressed in present value 2014 dollars to be applied against the monetized value of lost recreational use provided by natural resources injured on lands managed by DOI, which will be determined by the Trustees' assessment of lost recreational use for the Spill. Please see Chapter 4 of this document (Section 4.4) for a description of the methodology used to develop monetized Offsets.[1]

8.1.6 Estimated Cost

The estimated cost for this project is $545,110. This cost reflects current cost estimates developed from the most current information available to the Trustees at the time of the project negotiation. The cost includes provisions for planning, design, implementation, monitoring, and contingencies.

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[1] For the purposes of applying the NRD Offsets to the calculation of injury after the Trustees' assessment of lost recreational use for the Spill, the Trustees and BP agree as follows:

- The Trustees agree to restate the NRD Offsets in the present value year used in the Trustees' assessment of lost recreational use for the Spill.
- The discount rate and method used to restate the present value of the NRD Offsets will be the same as that used to express the present value of the damages.

8.2 Bon Secour NWR Trail Enhancement Project: Environmental Assessment

The proposed recreation enhancement project involves repairing and improving to ADA standards an existing trail (Jeff Friend trail) located on the Bon Secour NWR. This trail (composed of gravel and boardwalk sections) is currently considered potentially hazardous for some visitors and will be repaired and improved to allow safe public access once again, and to improve the quality of visitor experience.

8.2.1 Introduction and Background, Purpose and Need

CEQ encourages federal agencies to "tier" their NEPA analyses from other applicable NEPA documents to create efficiency and reduce redundancy, and has issued guidance on the use of programmatic NEPA documents for tiering (CEQ 2014).

Tiering has the advantage of not repeating information that has already been considered at the programmatic level so as to focus and expedite the preparation of the tiered NEPA review(s). When a PEA or PEIS has been prepared and an action is one anticipated in, consistent with, and sufficiently explored within the programmatic NEPA review, the agency need only summarize the issues discussed in the broader statement and incorporate discussion from the broader statement by reference and concentrate on the issues specific to the subsequent tiered proposal (CEQ 2014). The 2014 Final Programmatic and Final Phase III Early Restoration Plan and Programmatic Environmental Impact Statement (Final Phase III ERP/PEIS) was prepared for use in tiering subsequent early restoration plans and projects, such as Phase IV (see Section 1.3). The Final Phase III ERP/PEIS programmatic analysis describes impacts from implementation of project types, not necessarily specific projects. The Bon Secour Trail Enhancement project falls within the project type "Enhance Public Access to Natural Resources for Recreational Use" as described in that document.

This project is proposed as part of Phase IV of the Early Restoration program. This EA tiers from the Final Phase III ERP/PEIS. This EA qualifies for tiering from the Final Phase III ERP/PEIS in accordance with Department of the Interior regulations (43 CFR 46.140, Using Tiered Documents, b and c). See Section 1.3 for more information on tiering.

This project is consistent with the Final Phase III ERP/PEIS' Preferred Alternative as described in the 2014 Record of Decision (79 *FR* 64831-64832 (October 31, 2014)) and the Trustees find that the conditions and environmental effects described in the broader NEPA document are valid. This EA incorporates by reference the analysis found in the Final Phase III ERP/PEIS relevant to the Bon Secour NWR Trail Enhancement project. This EA also incorporates by reference all Early Restoration introductory, process, background, and Affected Environment information and discussion provided in the Final Phase III ERP/PEIS (Chapters 1 through 6).

8.2.1.1 Background

A Comprehensive Conservation Plan (CCP) for Bon Secour NWR was prepared in 2005 to guide management actions and to provide direction for the refuge. Fish and wildlife conservation receives first priority in refuge management; wildlife-dependent recreation is allowed and encouraged as long as it is

compatible with, and does not detract from, the mission of the refuge or the purposes for which it was established (USFWS 2005[2]). The Jeff Friend trail was proposed at that time to help ensure that disabled visitors could have access to enjoy wildlife-dependent recreation at Bon Secour NWR. This proposed project is consistent with the goals of the 2005 CCP.

The Bon Secour NWR contains 7,000 acres of wildlife habitat for migratory birds, nesting sea turtles and the endangered Alabama beach mouse. The refuge was established by Congress in 1980 to preserve the coastal dune ecosystem, to protect threatened and endangered species, to provide compatible recreational opportunities, and to serve as a living laboratory for students and scientists.

The name Bon Secour comes from the French meaning "safe harbor," very appropriate considering the sanctuary for native flora and fauna that the refuge provides. The refuge serves the additional benefit of comprising one of the largest undeveloped parcels of land on the Alabama coast. Its dunes are a reminder of the Gulf Coast, as it once existed. As a consequence, the refuge has been named as one of the 10 natural wonders of Alabama.

The refuge is small, compared to most national wildlife refuges, and is comprised of five separate units in Baldwin and Mobile counties, Alabama. The full-time staff consists of five people, but the refuge has numerous committed volunteers throughout the year. The refuge hosts more than 100,000 visitors annually.

The Refuge is home to the endangered Alabama beach mouse, which is associated with the sand dunes and sea oats. The beaches serve as nesting sites for loggerhead, green, and Kemp's ridley sea turtles. Habitats include beaches and sand dunes, scrub forest, fresh and saltwater marshes, fresh water swamps, and uplands.

More than 370 species of birds have been identified on the refuge during migratory seasons. The largest are usually ospreys and several species of herons. At the other extreme, seven species of hummingbirds have been identified. Mammals such as red fox, coyotes, and armadillos are also present www.fws.gov/bonsecour

The Jeff Friend Trail is accessed at a gravel parking lot off of Fort Morgan Road just west of the Peninsula Golf Course. The trail is a one mile loop consisting of gravel paths and wooden walkways that pass by lagoon beaches at Childress Point and then loop north past inland marshes and through the maritime forest similar to the north side of Pine Beach Trail. The forest has thick growths of pine trees, live oak, palmetto bushes, hardy wildflowers, and scrub brush. Benches and informational signs are scattered along the trail. The trail was intended to be ADA accessible and provide access to Little Lagoon via boardwalk and gravel path. This trail was constructed more than 10 years ago and has surpassed its serviceable life. The boardwalk is warped and cracked in places. The gravel portion of the trail is not

[2] Unless otherwise noted, information used for the Affected Environment sections in this EA is taken from the 2005 CCP.

easily traversed by wheelchairs (in spite of its purpose) and is frequently the source of visitors' complaints.

The sandy beaches of Bon Secour NWR saw significant oiling during the summer of 2010; the area was subsequently subjected to intense spill response measures. These events resulted in a loss of recreational opportunities and a decrease of quality of visitor experience at this coastal refuge. To help restore this injury, the Trustees propose to repair and enhance the Jeff Friend Trail.

8.2.1.2 Purpose and Need

The proposed action falls within the scope of the programmatic purpose and need for early restoration as described in the Final Phase III ERP/PEIS because it will accelerate meaningful restoration of injured natural resources and their services resulting from the Spill. The proposed action's purpose is to partially restore lost recreation on lands managed by DOI in the five Gulf States as a result of the *Deepwater Horizon* incident. The proposed project is needed to provide a safe and enhanced experience for visitors at Bon Secour NWR. With the rapid development of Alabama's coastline continuing into the foreseeable future, Bon Secour NWR is a rare opportunity for people to experience the natural resources of coastal Alabama in their native condition. The existing infrastructure is well used, but it is also rapidly deteriorating with no funding available for replacement. This recreational experience would soon be lost if not for the proposed project.

8.2.2 Scope of the EA

This project is proposed as part of Phase IV of the Early Restoration program. This EA tiers from the Final Phase III ERP/PEIS. The broader environmental analyses of these types of actions as a whole are discussed in the Final Phase III ERP/PEIS from which this EA is tiered. The information and analyses in this document supplements the programmatic analyses with site-specific information. This EA provides NEPA analysis for potential impacts for site specific issues and concerns anticipated from implementation of the no action alternative and the proposed action, described as follows:

No Action

The No Action alternative, inclusion of which is a NEPA requirement, is a viable alternative, and also provides a benchmark, enabling decision-makers to compare the magnitude of environmental effects of the action alternatives (CEQ 1502.14(d)). In this case, the No Action Alternative is to leave the existing Jeff Friend Trail in its current condition, and to not build the proposed observation platform. The trail would continue to deteriorate and could ultimately be closed in the future if it became unsuitable for any visitor use.

Proposed Action

The Proposed Action is the repair and enhancement of an aged, existing trail (Jeff Friend Trail) at Bon Secour NWR, as described above in Sections 8.1.1 and 8.1.2.

8.2.3 Project Location

The proposed project is located on the eastern boundary of Bon Secour NWR, in Baldwin County on Highway 180. The project proposes improvements to the entire Jeff Friend Trail (Figure 8-1). The trail is located in the Perdue Unit of the Bon Secour NWR. The Jeff Friend Trail (Figure 8-2) begins from the parking area on the east side of the refuge on Ft. Morgan Road, and loops back around to the parking area. The Jeff Friend Trail connects to the Centennial trail, the latter of which would remain open during the construction period and can be accessed via Pine Beach Trail.

8.2.4 Project Scope

The proposed project would be accomplished by a contractor and would replace and enhance the 4,950 foot-long trail.

- Boardwalk section - The 1,250 foot portion of the trail that is currently wooden boardwalk would be removed and replaced with a composite material boardwalk to extend the life of the boardwalk and reduce maintenance time and costs. The new boardwalk would be widened by approximately one foot. Post holes up to 36" deep would be dug by auger, not necessarily in the same places as the existing post holes.

- Gravel sections - The gravel portions of the trail (3,700 feet) would be replaced with either asphalt or a compressed pervious rubber material. If compressed rubber or other material is used to replace the gravel, the existing gravel would be removed (scraped and loaded into dumpsters) and the compressed rubber material would be laid over the existing gravel footprint. The gravel portions of the trail would not be widened. If asphalt is used, the existing gravel would be used as a base material, and after preparation (smoothing, filling), the asphalt would be laid over the gravel.

- Observation platform - An observation platform would be constructed along the boardwalk. The platform would be approximately 10 feet tall, with a footprint of approximately 20 feet by 20 feet and is planned to have ramps that could accommodate wheelchairs. The exact location of the viewing platform has not been determined at this time, but would be located somewhere along the boardwalk portion of the trail where visitors could view Little Lagoon. There is an existing platform along the boardwalk that overlooks Little Lagoon, but it is not raised and is the same height as the boardwalk. The raised observation platform may be located over that existing platform, or it may be sited on a level sandy area on the opposite side of the boardwalk, similar to the area in Figure 8-4.

- Parking spaces - The two ADA-compliant parking spaces in the gravel parking lot would be widened to improve vehicular access. The two existing handicap parking spaces would be widened by a total of approximately 10 feet (Figure 8-3). The existing material would be excavated, the area would be prepared and gravel or asphalt would be installed.

Staging of equipment and materials for the project would take place in the existing parking area which is large enough to accommodate staging and parking without impacting visitor parking. The trail may be repaired and reconstructed in phases so the equipment needed for each phase is not staged and idle for any period longer than necessary. Much of the work would be done by hand or with hand held tools. However, it is anticipated that small construction equipment such as a Bobcat, backhoe, pickup truck, smooth drum vibratory roller, asphalt machine and if needed, a 12 cubic yard dump truck would be used. Construction may require about 300 loose cubic yards of trail material using 26 ton capacity dump trucks. If needed, the dump truck would be expected to make approximately 50 trips, about 10 per day over a period of about 5 days. Post holes along the boardwalk section would be dug by skid steer with auger attachment and hand tools where an auger will not gain access. Some of this equipment would be required to scrape and recover gravel from the existing trail if not used as a base for its replacement. The existing trail is wide enough to accommodate any of these vehicles that would need access on the trail. The trail is a loop so vehicles should not have to backtrack or turn around. However, there are two small areas along the trail (about 20 feet by 30 feet) that are clear and could be used for turnarounds if that would be necessary.

A 6-inch drain pipe would be installed at intervals along the trail in areas most conducive to draining water away from the trail during rainfall. The demolished wooden boardwalk would be loaded into dumpsters provided by the contractor. The contractor would dispose of construction debris at a permitted facility of his/her choice.

The proposed project could require up to three months for construction. No particular season is ideal to minimize inconveniences to people or natural resources: most visitor use is in the winter, birds migrate through in spring and fall, and birds nest during the summer. The goal is to narrow the construction window as much as possible.

8.2.5 Operations and Maintenance

Maintenance activities would be conducted by Bon Secour NWR. This project would require no changes to be made to the existing, normal operation of the Refuge. Refuge beaches and trails are open 7 days a week during daylight hours only. There are no pets allowed on the refuge. For a complete list of rules and regulations at Bon Secour NWR, see http://www.fws.gov/bonsecour/regulations.html.

8.2.6 Affected Environment and Environmental Consequences

Under the NEPA, federal agencies must consider environmental effects of their actions that include, among others, impacts on social, cultural, and economic resources, as well as natural resources. The following sections describe the affected resources and environmental consequences of the project.

In order to determine whether an action has the potential to result in significant impacts, the context and intensity of the action must be considered. Context refers to area of impacts (local, state-wide, etc.) and their duration (e.g., whether they are short- or long-term impacts). Intensity refers to the severity of impact and could include the timing of the action (e.g., more intense impacts would occur during critical

periods like high visitation or wildlife breeding/rearing, etc.). Intensity is also described in terms of whether the impact would be beneficial or adverse.

For purposes of this document, impacts are characterized as minor, moderate or major, and temporary or long-term. The analysis of beneficial impacts focuses on the duration (short- or long-term), without attempting to specify the intensity of the benefit. The definition of these characterizations is consistent with that used in the Final Phase III ERP/PEIS, and can be found in Appendix D.

According to the CEQ Regulations for Implementing NEPA (Section 1502.1 and 1502.2) agencies should "focus on significant environmental issues" and for other than significant issues there should be "only enough discussion to show why more study is not warranted." After preliminary investigation, some resource areas were determined to be either unaffected or minimally affected by the proposed action. These resources are not discussed in further detail below. Only those resource areas with potential, adverse impacts are discussed in detail below.

The programmatic analysis looked at a series of resources as part of the biological, physical, and socioeconomic environment. As appropriate in a tiered analysis, the evaluation of each project focuses on the specific resources with a potential to be affected by the proposed project. To avoid redundant or unnecessary information, resources that are not expected to be affected are simply not evaluated further under a given project. Resource areas not analyzed in detail here along with a brief rationale for non-inclusion are:

- Socioeconomics - Project spending could benefit the local economy, but would be temporary, and the contribution to the local economy, overall, would be very minimal.

- Environmental Justice - The intent of an environmental justice evaluation under Executive Order 12898,"Federal Actions to Address Environmental Justice in Minority and Low Income Populations" (1994), is to identify communities and groups that meet environmental justice criteria, and suggest strategies to reduce potential adverse impacts of projects on affected groups. The purpose of Executive Order 12898 is to identify and address the disproportionate placement of adverse environmental, economic, social, or health impacts from Federal actions and policies on minority and/or low-income communities. This order requires lead agencies to evaluate impacts on minority or low-income populations during preparation of environmental and socioeconomic analyses of projects or programs that are proposed, funded, or licensed by Federal agencies. This project would have no effects as defined by the Executive Order.

- Hydrology and water quality - The project occurs completely on land and is merely a repair and enhancement of an existing trail. No wetlands would be impacted and no change to hydrology or water quality is anticipated.

8.2.6.1 Physical Environment

The climate of the refuge is characterized by warm, humid summers and relatively mild winters. Average maximum summer temperatures vary from the high 80s to low 90s Fahrenheit. During winter months, freezing is not uncommon, and temperatures less than 19 degrees Fahrenheit can occur.

Annual precipitation ranges from 52 to 64 inches along the coast. The central Gulf Coast also has one of the highest frequencies of hurricane landfalls in the nation. The bay is additionally influenced by tidal changes that average a little less than 12 feet throughout the year. All of these factors, combined with highly variable river flows, contribute to a hydrology that is dynamic, complex, and necessary to support the variety of plants and animals existing in the Mobile Bay Estuary.

8.2.6.1.1 Geology and Substrates

Affected Environment

Bon Secour NWR lands are a fragile combination of barrier islands, low-lying marshes, and highly erodible mainland shores. Frequent and large storms rejuvenate the barrier ecosystem. The refuge is part of an unstable land mass, constantly shifting and moving due to the frequent hurricanes that pummel the coastal area of the Fort Morgan Peninsula. The project location is made up of flat, well-drained sandy soils with areas covered with lichen and leaf litter.

Environmental Consequences

No Action

Under the No Action alternative, there would be no impacts to substrates or geology. No construction activities would take place that would displace substrates or impact geological features or processes.

Proposed Action

Sections 6.5.1 and 6.7.1.1 of the Final Phase III ERP/PEIS describe the impacts to geology and substrates from early restoration projects intended to enhance public access to natural resources for recreational use. Section 6.5.1.1 states that these types of projects could require work with heavy equipment in construction or staging areas that would temporarily disturb soils and sediments in upland, shallow water areas or nearshore habitats. These construction activities could result in the local removal, compaction, and erosion of upland, shallow-water, and nearshore substrates in construction/development areas. These would be minor to moderate short- to long-term adverse effects because they would be localized and could have readily apparent effects on local soils, substrates and/or geologic features, with some effects lasting only during the construction period (heavy equipment use) and others extending beyond the construction period (compaction and displacement resulting from infrastructure).

For this project type, impacts to geology and substrates were analyzed adequately within the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III

ERP/PEIS analysis. The proposed project would have a temporary, minor impact on substrates and no impact on geology. Substrates within the footprint of the project (approximately one mile long and 4 feet wide), and a 20 feet by 20 feet area for the observation platform would be affected through excavation of the existing sandy soils in the platform area, addition of asphalt over the existing gravel trail or removal of the gravel and replacing with a compressed rubber material, and placement of post holes in the boardwalk areas. These activities are not expected to cause more than minor erosion in the area due to the flat location with sandy, well drained soils. Adverse impacts would be minor, local and temporary.

Mitigation measures for impacts to geology and substrates are found on page 13 of Appendix 6A of the Final Phase III ERP/PEIS. Measures that would apply to and be implemented for the proposed Bon Secour Trail Enhancement project include:

- Employment of standard BMPs for construction to reduce erosion.
- Soil disturbance would be to the minimum area and the minimum length of time necessary to complete the action.
- Seasonal rainfall would be factored into the construction timeline to reduce ground disturbance during raining or flood seasons.
- Selection and operation of heavy equipment to minimize adverse effects to the environment (e.g., minimally-sized, low-pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils).

8.2.6.1.2 Air Quality and Greenhouse Gas Emissions

Affected Environment

The project area is located within Baldwin County, Alabama, which is currently in attainment with the NAAQS for all criteria pollutants (EPA 2015).

Environmental Consequences

No Action

Under the No Action alternative, there would be no increased use of fossil fuel burning equipment in the area, and no dust causing activities from soil disturbance. No impacts to air quality or GHG levels would occur. No mitigation measures would be necessary.

Proposed Action

Sections 6.5.1.3 and 6.7.3.2 of the Final Phase III ERP/PEIS describe the impacts to air quality and greenhouse gas emissions from early restoration projects intended to enhance public access to natural resources for recreational use. Section 6.5.1.3 of the PEIS states, “During construction activities, short-term impacts to air quality and GHGs would occur from the use of gasoline and diesel powered

construction vehicles and equipment, including barges, and exhaust produced by the use of this equipment. Examples of project-specific projected emissions are located in Chapters 8 through 12. The severity of impacts would be highly dependent on the length and type of construction required and the location of the project. There is a slight potential for fugitive dust creation from construction activities, resulting in minor to moderate adverse impacts. Long-term minor adverse effects from these enhancements due to increased recreational use and associated vehicle traffic may occur."

For this project type, air quality impacts were analyzed adequately within the Phase IIIERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. Materials and equipment would be moved via truck to the project site on commercial roads. Project implementation would require the use of equipment which would temporarily affect air quality in the project vicinity due to construction vehicle emissions (See Table 8-1). Excavation associated with construction of portions of the improvements may produce fine particulate matter. However, this impact would be short-term, only occurring during active construction activities. Consistent with the programmatic analysis, any air quality impacts that would occur would be localized and short in duration. Therefore, any adverse impacts to air quality would be short-term and minor.

CEQ guidance states that Federal agencies, to remain consistent with NEPA, should consider the extent to which a proposed action and its reasonable alternatives contribute to climate change through GHG emissions and take into account the ways in which a changing climate over the life of the proposed project may alter the overall environmental implications of such actions. CEQ recommends that agencies use a reference point to determine when GHG emissions warrant a quantitative analysis taking into account available GHG quantification tools and data that are appropriate for proposed agency actions. In addressing GHG emissions, agencies should be guided by the principle that the extent of the analysis should be commensurate with the quantity of projected GHG emissions. When assessing the potential significance of the climate change impacts of their proposed actions, agencies should consider both context and intensity, as they do for all other impacts (CEQ Draft GHG guidance, 2014).

In its recent guidance, CEQ provides a reference point of 25,000 metric tons of CO_2 emissions on an annual basis below which a GHG emissions quantitative analysis is not warranted unless quantification below that reference point is easily accomplished. CEQ states that this is an appropriate reference point that would allow agencies to focus their attention on proposed projects with potentially large GHG emissions. In its guidance, the CEQ "Recommends that an agency select the appropriate level of action for NEPA review at which to assess the effects of GHG emissions and climate change, either at a broad programmatic or landscape-scale level or at a project- or site-specific level and that the agency set forth a reasoned explanation for its approach". The Trustees have reasoned that due to the small-scale and short duration of the construction portion of the project, predicted GHG emissions would be short-term and minor and would not exceed 25,000 metric tons per year, and thereby does not warrant a quantitative analysis of GHG emissions.

The use of gasoline and diesel-powered construction vehicles and equipment, including trucks, dozers etc., would contribute to an increase in GHG emissions. Although it is difficult to develop an accurate estimation of total fuel consumption associated with construction vehicle and equipment operation, the

assumptions presented in Final Phase III ERP/PEIS project chapters 8 through 12 for air emissions from construction activities serve as useful guidelines for estimating the levels of GHG emissions for the Bon Secour Trail Enhancement project. The same types of equipment and length of use for similar analyses in the Final Phase III ERP/PEIS did not come close to the reference point of 25,000 metric tons of CO_2 emissions requiring a quantitative analysis.

Table 8-1. Equipment that would most likely be used to implement the proposed Bon Secour NWR Trail Enhancement Project

Smooth drum vibratory roller
Dump truck, 25 ton
Bituminous paver, 8 ft. wide
Backhoe or Front-end loader
Bobcat with auger

Available impact minimization measures would be employed to reduce the release of GHG during project implementation. The following minimization measures have been identified in the Final Phase III ERP/PEIS to reduce or eliminate GHG emissions from the construction phase of the proposed project:

- Shut down idling construction equipment, if feasible;
- Locate staging areas as close to construction site as practicable to minimize driving distances between staging areas and construction site;
- Encourage the use of the proper size of equipment for the job to maximize energy efficiency; and

8.2.6.1.2 Noise

Affected Environment

Section 3.2.4 of the Final Phase III ERP/PEIS states the primary sources of terrestrial noise in the coastal environment are transportation and construction-related activities. The primary sources of ambient (background) noise in the project area are humans and natural sounds such as wind and wildlife. The levels of noise in the project area varies, depending on the season, and/or the time of day, the number and types of sources of noise, and distance from the sources of noise. Noise-sensitive land users in the project area include visitors to the Refuge.

Environmental Consequences

No Action

Under the No Action alternative, there would be no increase in noise levels in the area. No construction equipment would be used on site. Workers would not be present adding to the ambient noise levels. No mitigation measures would be necessary.

Proposed Action

Section 6.5.1.4 of the Final Phase III ERP/PEIS states that during the construction period, adverse impacts to ambient noise levels could occur, particularly along shorelines where construction activities would take place. The severity of impacts would depend to a large degree on the location of the project and the amount of noise that these activities would generate and the distance to sensitive receptors such as recreational users or wildlife. Installation activities, equipment operation, and vehicle traffic associated with the construction activities could result in short-term minor to major adverse impacts to noise, especially if they occurred in natural areas. For example, during the use of motorized heavy equipment such as cranes and barges, noise would be created which would be readily apparent and attract attention. Although such changes would not dominate the soundscape and some sounds could be dampened or masked by ambient wave or ship noise, these actions could detract from the current user activities or experiences and create audible contrast for visitors in the project area.

For this project type, noise impacts were analyzed adequately within the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. Implementation of the proposed project would include transportation of construction materials to the project area, which may include trucks or other types of transportation. The equipment used for transportation and construction would produce noise. Construction equipment is known to disturb nesting birds. The timing of noise producing activities would be planned to minimize disturbance to nesting birds.

Construction noise can also be a nuisance to visitors visiting the Refuge. Recreational users in the vicinity of the proposed project would have the opportunity to use other nearby trails (e.g. Centennial Trail) during construction activities. Consistent with the programmatic analysis, because construction noise is temporary and unlikely to result in users changing their activities, any negative impacts to the human environment during construction activities would be short-term and minor. Once facilities are constructed, noise patterns would return to pre-project levels.

8.2.6.1.3 Summary of Impacts to the Physical Environment

Under the No Action Alternative, there would be no impacts to geology and substrates, air quality and GHGs, or noise levels in the area. Under the Proposed Action, short-term minor adverse impacts to substrates, air quality and GHGs and noise levels would occur from construction activities and use of vehicles and equipment. Due to the small scale and scope of the project and the use of BMPs discussed in the sections above, no significant adverse impacts to the physical environment would occur.

8.2.6.2 Biological Environment

The Jeff Friend Trail is a loop that passes through maritime forest dominated by common native scrub species such as Ilex, pine and oak. The area is primarily rural, but single family beach homes are nearby the project, most notably just east of the parking area. The soil is primarily sandy, and it is covered with lichen and leaf litter. The occasional interdunal moist swale is found in the area, though not under the Trail. There is one large ephemeral wetland near the Trail. The Trail also runs near the northern shores

of Little Lagoon, which is a brackish dune lake; Little Lagoon has a marine connection maintained by a cut in the lagoon's southern shoreline. A list of species recorded at Bon Secour NWR can be found at http://www.fws.gov/bonsecour/species.html.

8.2.6.2.1 Living Coastal and Marine Resources

Affected Environment

Habitats

Coastal habitats of Bon Secour Refuge include uplands such as beach/dune, grassland, strand, and maritime hammocks, as well as wetlands such as tidal marshes. Each habitat is shaped by strong and consistent winds, saltwater spray, and sun. Typical beach/dune vegetation includes sea oats, cordgrass, sand spur, dune panic grass, and morning glory. Coastal grasslands include muhly grass, bluestem grasses, and sea oats, as well as occasional shrubs such as wax myrtle and groundsel. Coastal strands and maritime hammocks include shrub and tree species that are tolerant of wind and salt spray, such as saw palmetto, sand live oak, cabbage palm, yaupon, sea grape, and prickly pear. Tidal marsh habitats include grasses, rushes, and sedges along low wave-energy wetlands and river mouths. Typical species include black needle rush, smooth cordgrass, and saw grass. The project area is primarily a mature maritime forest dominated by common native scrub species such as Ilex, pine and oak (Figure 8-5). There are some swales containing sedges, and one large ephemeral wetland. The occasional moist swale containing sedges is found in the area, though not in the proposed project footprint. There is one large ephemeral wetland near the Trail. The Trail also runs near the northern shores of Little Lagoon (Figure 8-6), which is a brackish dune lake; Little Lagoon has a marine connection maintained by a cut in the lagoon's southern shoreline. Invasive species that occur on Bon Secour near the project area are cordon grass and Chinese tallow.

Figure 8-5. Mature maritime forest along Jeff Friend Trail

Photo by Robin Renn, USFWS

Figure 8-6. Closest section of the Jeff Friend Trail to Little Lagoon

Photo by Robin Renn, USFWS

Migratory Birds

Bon Secour Refuge represents some of the best remaining stopover and staging habitat for Neotropical migratory songbirds during the fall and spring migration along the Alabama coastline. Migratory birds utilize this area for resting and building fat reserves critical to successful migration (Moore and Woodrey 1993, and Moore and Woodrey 1997 as cited in USFWS 2005). The refuge also provides crucial habitat for beach nesting birds, such as snowy and Wilson's plovers, American oystercatchers, least terns and black skimmers; secretive marsh birds, such as rails; and migratory and wintering shorebirds on beaches, especially the federally threatened piping plover and red knot. Shorebirds use beaches and washover sites, which support high quality food sources during migration and winter.

Environmental Consequences

No Action

Under the No Action alternative, there would be no construction; therefore, no increase in construction-related impacts from noise and human presence that would cause birds to leave the area would occur. No mitigation measures would be necessary.

Proposed Action

Habitats

The Final Phase III ERP/PEIS states that some recreational enhancement projects may have long-term beneficial effects on wetlands, barrier islands, beaches, coastal transition zones, SAV and shallow water habitats. For example, enhancement projects could reduce degradation and recreation use in habitats in settings where recreation usage that is currently diffuse is redirected to a site that is more appropriate and conducive to recreational activities. Impacts discussed in the Final Phase III ERP/PEIS that are relevant to the Bon Secour NWR Trail Enhancement Project include: soil erosion, vegetation trampling, vegetation removal, or other human activity from project staging or construction, or implementation of recreational enhancements and localized plant species displacement or loss, introduction of invasive species, and degradation of habitats including potential habitat fragmentation as a result of an increased recreational activity and human encroachment in habitats, such as beaches or wetlands. It also states that these effects would depend on the size and scale as well as the location of facilities. Effects would also vary depending on presence of sensitive habitats and availability of other similar sensitive habitats in the project vicinity.

For this project type, impacts to habitats were analyzed adequately within the PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. Habitats near the Jeff Friend Trail would not be adversely impacted by the proposed action. No removal of shrubs, grass or trees is planned. Except for widening the boardwalk portion by one foot, the footprint of the trail would not change. The raised observation platform would be sited in an area (flat, sandy) that would minimize impacts to habitats, or would be sited over an existing non-raised platform. The potential for introduction or spread of invasive species would be minimized by requiring the contractor to clean all equipment before entering and when leaving the refuge. Consistent with the programmatic analysis, minor, long-term beneficial impacts to habitats could occur from improving the Trail and repairing the boardwalk. Visitors would stay on the Trail and not walk through habitat next to the trail to avoid areas of the trail in disrepair. Guided nature walks that educate the public on the importance of the habitats and other natural resources found on the Bon Secour NWR are conducted on the Jeff Friend Trail.

Migratory Birds

One of the most important management priorities at Bon Secour NWR is protection of migratory birds. The area used by migrating birds resting and foraging in proximity to the trail that could potentially be impacted is very small in comparison to the available habitat within the entire refuge. Migrating birds would utilize other areas of the refuge (up to 7,000 acres of wildlife habitat) while construction activities were taking place. Impacts to resident, nesting birds would be minimized using applicable mitigation measures listed in the Final Phase III ERP/PEIS Chapter 6, Appendix 6-A, page 3. Measures that would be implemented for this project include:

- Using care to avoid birds when operating machinery or vehicles near birds.
- Surveys for nests prior to construction activities thereby avoiding nests during construction.

8.2.6.2.2 Protected Species

Information for the presence of protected species and analyses in this section is from the Biological Evaluation Form completed for ESA Section 7 reviews and consultations required for early restoration projects and activities. Only those species considered to have the potential to occur in the project area are analyzed below.

Affected Environment

Alabama beach mouse

This federally listed species inhabits the beach dune and scrub/shrub habitats found along the Fort Morgan Peninsula. Beach mice have experienced a two-thirds reduction in available habitat, primarily due to coastal development. Bon Secour NWR protects the last remaining undisturbed beach mouse habitat found in Alabama, consisting of several key plant communities that form a mosaic of micro-habitats. Critical habitat for beach mice is currently listed as 500 feet landward to the mean high tide line, which includes the beach dunes; however, the mice also occur in scrub/shrub habitats north of these dunes. The Perdue Unit of the refuge represents the largest and best remaining example of beach mouse habitat protecting approximately four miles of beach with well-developed dune and scrub/shrub/swale habitat. Neither beach mice nor their critical habitat are found within the Jeff Friend Trail project area.

Sea turtles

Loggerhead (threatened), green (threatened), and Kemp's ridley (endangered) sea turtles have been documented to nest on the refuge. Green and loggerhead sea turtles have long been a focus of management concern as Kemp's are rare visitors. Conservation strategies to protect these turtles under the ESA include on-site nest monitoring and protection, as well as fostering a public ethic through educational programs. Refuge personnel patrol the beach for sea turtle nests on areas between refuge management units, some of which include private lands.

There are no records of sea turtles ever nesting on the beaches of Little Lagoon. Critical habitat for nesting loggerhead sea turtles is present on Bon Secour NWR Gulf-facing beaches but it is not present within the action area.

Gopher tortoise

Gopher tortoise is a candidate species on the refuge. No gopher tortoises or their burrows have been observed within two miles of the trail site.

Eastern indigo snake

The project area theoretically contains suitable habitat for the threatened eastern indigo snake, which is a commensal species with gopher tortoise. However, the eastern indigo snake has not been observed in the state of Alabama since 1954 and is considered functionally extirpated from Alabama (USFWS 2008).

Bon Secour refuge staff annually traps for snakes in the project area and have never collected an eastern indigo snake. Moreover, no gopher tortoise burrows have ever been observed within two miles of the trail site. Eastern indigo snake does not have designated critical habitat.

Piping plover and Red knot

A portion of the refuge's Fort Morgan unit and all of Little Dauphin Island are designated as critical habitat for the piping plover. There is no critical habitat designated in the Perdue unit, where the Jeff Friend Trail is located. Wintering red knot (threatened) and piping plover (threatened) are not expected to occur on the northern shores of Little Lagoon, and neither species is present during the summer.

Environmental Consequences

Potential impacts to the following protected species were analyzed: Alabama beach mouse, sea turtles, gopher tortoise, eastern indigo snake, piping plover and red knot.

Alabama beach mouse

Neither the beach mouse nor its critical habitat exists within the project area. The project area contains only maritime forest, swales, and ephemeral wetlands; no Aeolian sand formations or food sources common to beach mouse habitat. Accordingly, the Trustees have determined that the proposed project would have no effect on Alabama beach mouse. In March 2015, the Trustees requested concurrence from the USFWS regarding this determination (DOI 2015). The U.S. Fish and Wildlife Service provided concurrence with this determination on April 10, 2015 (USFWS 2015).

Sea turtles

The proposed action would have no effect on sea turtles as no species of sea turtle nests on the shores of Little Lagoon. Accordingly, the Trustees have determined that the proposed project would have no effect on sea turtles. In March 2015, the Trustees requested concurrence from the USFWS regarding this determination (DOI 2015). The U.S. Fish and Wildlife Service provided concurrence with this determination on April 10, 2015 (USFWS 2015).

Gopher tortoise

The proposed action would have no effect on gopher tortoise as their burrows have not been observed within two miles of the trail site. In the event a burrow with a tortoise would be discovered during construction, the tortoise would be relocated to a suitable site on the refuge. Accordingly, the Trustees have determined that the proposed project would have no effect on Gopher tortoise. In March 2015, the Trustees requested concurrence from the USFWS regarding this determination (DOI 2015). The U.S. Fish and Wildlife Service provided concurrence with this determination on April 10, 2015 (USFWS 2015).

Eastern indigo snake

The proposed action would have no effect on the eastern indigo snake. Eastern indigo snake has not been seen in the state of Alabama since 1954, and the Bon Secour refuge staff traps annually for snakes. Accordingly, the Trustees have determined that the proposed project would have no effect on Eastern indigo snake. In March 2015, the Trustees requested concurrence from the USFWS regarding this determination (DOI 2015). The U.S. Fish and Wildlife Service provided concurrence with this determination on April 10, 2015 (USFWS 2015).

Piping plover and Red knot

Construction timing may be proposed between May and August when piping plover and red knots are on their breeding grounds (i.e., northern US and Canada). These wintering birds would not be present during the May to August construction window. However, if necessary (e.g., weather conditions, balancing multiple resource needs) construction could occur outside that timeframe when either species may be present. If the project is constructed during the winter, the northern shoreline of Little Lagoon, which is near the project, could be used by either species though it is not the type of habitat preferred by these wintering birds. The conservation measures (BMPs) below are designed to minimize exposure of piping plover and red knot to noise and human disturbance, should they be present.

- Provide all individuals working on the project with information in support of general awareness of piping plover or red knot presence and means to avoid birds and their habitats.
- If piping plover or red knots are present within 150 feet of the project area, construction and the operation of any equipment will be halted until the birds leave the area of their own volition.

When these measures are properly implemented, these species generally move away from the action and fly to nearby suitable habitat and resume normal activities. Additional suitable habitat is within a half mile of the action area which is within the normal range of daily foraging movements.

Because of nearby suitable habitat and the ability to properly implement these conservation measures, the Trustees have determined the proposed project may affect, but will not likely adversely affect the piping plover or red knot. Accordingly, the Trustees have made a “Not Likely to Adversely Affect” determination under the ESA for piping plover and red knot. In March 2015, the Trustees requested concurrence from the USFWS regarding these determinations (DOI 2015). The U.S. Fish and Wildlife Service provided concurrence with this determination on April 10, 2015 (USFWS 2015).

8.2.6.2.3 Summary of Impacts to the Biological Environment

Under the No Action alternative, there would be no adverse impacts to living coastal and marine resources, including habitats, migratory birds, and other protected species. Although not anticipated, if piping plover and red knot would use the beaches of Little Lagoon near the trail for foraging, no construction activities would be present to cause them to move away. No mitigation measures would be necessary.

Under the proposed action, habitats near the Jeff Friend Trail would not be adversely impacted. No removal of shrubs, grass or trees is planned. Except for widening the boardwalk portion by one foot, the footprint of the existing trail would not change. The raised observation platform would be sited in an area (flat, sandy) that would minimize impacts to habitats, or would be sited over a non-raised platform that is already a part of the existing trail. Any impacts to habitats would be minimized using mitigation measures. Mitigation measures would avoid or minimize potential impacts to migratory birds. For threatened, endangered, and candidate species with potential to occur in the project area, no effect is anticipated to Alabama beach mouse (endangered), sea turtles (loggerhead and green are threatened, Kemp's ridley is endangered), gopher tortoise (candidate), and eastern indigo snake (threatened). The proposed project is not likely to adversely affect piping plover (threatened) and red knot (threatened). There is no designated or proposed critical habitat within the project area, therefore none would be adversely modified or destroyed. The USFWS provided concurrence on the Trustees' determinations for effects from the proposed project to endangered, threatened and candidate species.

8.2.6.3 Human Uses

8.2.6.3.1 Cultural Resources

Affected Environment

The National Historic Preservation Act of 1966 (NHPA) charges the federal government with considering the potential effects of its actions on the nation's cultural and historic resources. Archaeological sites have been reported to exist near the project area. This project is currently being reviewed under Section 106 of the NHPA to identify any historic properties located within the project area and to evaluate whether the project would affect any historic properties.

Environmental Consequences

No Action

Under the No Action alternative, no construction would take place. No scraping, auguring or digging would take place. Cultural resources would not be impacted as ground disturbing activities would not occur. No mitigation measures would be necessary.

Proposed Action

The Final Phase III PEIS concludes that if not properly conducted, activities conducted under this project type have the potential to compromise a site's integrity and cause a loss of cultural information. BMPs and other mitigation measures that may be employed, depending on site-specific considerations, to further minimize or contain adverse impacts to cultural resources are detailed in Appendix 6-A.

Chapter 6, Section 6.6.2, Tables 6-3, 6-4 and Tables 6A-1, 6A-2, found in Chapter 6, Appendix A of the Final Phase III ERP/PEIS describe potential impacts and mitigation measures for cultural resources. Those that apply to the Bon Secour Trail Enhancement project include conducting preconstruction surveys for the presence of sensitive natural and cultural resources.

A complete review of the proposed project under Section 106 of the NHPA would be completed prior to implementation. Tribal Consultations would be initiated with all interested federally recognized tribes. This proposed project would be implemented in accordance with all applicable laws and regulations concerning the protection of cultural and historic resources.

8.2.6.3.2 Aesthetics and Visual Resources

Affected Environment

Chapter 3, Section 3.4.9 of the Final Phase III ERP/PEIS discusses aesthetics and visual resources. "Aesthetics and visual resources define the visual character of an area. These resources can be natural features, vistas, or viewsheds and can include urban or community features such as architecture, skylines, or other man made characteristics. The current Gulf of Mexico coastal region is characterized by thousands of miles of shoreline, which is bordered by a variety of landscapes, including natural and maintained beaches, mangroves and other wetlands…These routes pass through coastal and upland portions of Louisiana, Alabama, Mississippi and Florida. There are many other ways to experience the visual and aesthetic resources of the Gulf Coast as well (e.g. boating and hiking)".

The shores of Little Lagoon and the maritime forest habitat that the Jeff Friend Trail passes through offer a beautiful viewshed for the visitor wanting to experience what the gulf vistas were like before increased development along the Alabama coast. Walking the refuge trails provides visitors the opportunity to experience different habitats of the refuge such as dunes, swales, wetlands, maritime forests and scrub habitats http://www.fws.gov/bonsecour/trails.html. The photo below (Figure 8-7) was taken from the Jeff Friend Trail looking out over the shores of Little Lagoon.

Figure 8-7. View of Little Lagoon from the Jeff Friend Trail

Photo by Ben Frater, USFWS

Environmental Consequences

No Action

Under the No Action alternative, there would be no impacts to aesthetics and visual resources in the area from the observation platform. The observation platform would not be constructed. A minor, long-term adverse impact to aesthetics would occur from the no action alternative if the Jeff Friend Trail is not repaired. The boardwalk is unsightly in some areas and the gravel portion where the trail has settled shows some of the erosion control material that at one time was covered with gravel. The gravel portion of the trail may be replaced with aesthetically pleasing, natural looking compressed rubber material that would enhance the natural look of the immediate area, or may be replaced with asphalt which would have a net effect of minimal impact.

Proposed Action

The Final Phase III ERP/PEIS states that this project type "would have minor to moderate short-term adverse impacts from the temporary landscape during the construction period from the presence of bulldozers, front-loaders and other large earth moving equipment required for upgrades or new facilities. These impacts would constitute a change in the viewshed that is readily apparent and which would attract attention in the short-term. Although such changes would not dominate the viewscape, they could detract from the current user activities or experiences. Over the long-term, the addition of infrastructure and facilities into the existing setting would present some degree of visual contrast. Long-term adverse effects of these enhancements would range from minor to moderate, depending on the existing aesthetic character of the surrounding landscape. Where the addition of these facility enhancements into the existing setting would present a large degree of visual contrast, impacts would be moderate because they would detract from the current user activities or experiences."

For this project type, impacts to aesthetics and visual resources were analyzed adequately within the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. The construction of the proposed viewing platform could create a potential minor, adverse impact to visual resources from the trail. If the platform were to be constructed between the trail and Little Lagoon it could block a small area of visitors' view of certain vistas. One potential site for the viewing platform would be where a platform is currently located adjacent to the boardwalk area (see Figure 8-6). This existing platform is not raised and is the same height as the boardwalk. This would be replaced with the proposed 10 foot tall platform. This adverse impact could be offset by a beneficial impact for those who use the platform to view the beaches and Little Lagoon. Other potential sites for the proposed viewing platform are located in the sandy area on the side of the trail not facing Little Lagoon (see Figure 8-4). Locating the platform in that area would have minimal impact on visual and aesthetic resources, but the platform would be farther from the shoreline, impacting the viewer's vista of Little Lagoon. The boardwalk and observation platform would be constructed from composite materials made to look like wood. The gravel portion of the trail may be replaced with compressed rubber material made to mimic natural materials, lending a more natural look to the trail and would create a beneficial impact to aesthetics and visual resources. Replacing the gravel portion with asphalt would not create a visual/aesthetic impact over that of the existing gravel.

8.2.6.3.3 Infrastructure

Affected Environment

Most of the infrastructure at Bon Secour NWR is located in the Perdue Unit. Four trails, a refuge office, kiosks and other educational signage are located there. Parking areas are located at the Jeff Friend Trailhead and the Pine Beach Trailhead. State highway 180 runs through the refuge. Mobile Street runs through the Perdue Unit.

Environmental Consequences

No Action

Under the No Action alternative, moderate, adverse long-term impacts to infrastructure at Bon Secour NWR would occur. The Jeff Friend Trail would not be repaired and enhanced. The trail would continue to deteriorate and possibly become unusable in the future. Closure of the trail could occur.

Proposed Action

The Final Phase III ERP/PEIS, Section 6.6.3, states that this project type would likely involve the transport of materials and use of construction vehicles and equipment. These project types, which include techniques such as construction of boardwalks and trails, could lead to short and long-term minor to major impacts on infrastructure. The impacts associated with these projects would result from increases in construction traffic; temporary or permanent closure of roads, parking lots, or facilities; or damage to roadways or other infrastructure that provides access to the shoreline. The impacts to existing infrastructure, such as roadways, could also occur from increased vehicle use as a result of increased visitor use over time. These impacts would range in intensity based on the duration of road, parking lot or public access closure, the importance of individual roadways as regional transportation arterials; and the extent and duration of damage to roadways, facilities or access points. Future infrastructure improvements or increased maintenance could be necessary to address impacts to infrastructure. Projects that upgrade existing infrastructure or add new infrastructure, such as trails, boardwalks, and similar types of public access; and many of the other project types discussed above, would have long-term beneficial impacts to infrastructure.

For this project type, the impacts to infrastructure are adequately analyzed in the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. No utilities or conveyance structures would be impacted. Repairing and upgrading the aging Jeff Friend Trail would have long-term beneficial impacts to infrastructure at the refuge. The addition of the proposed viewing platform would require maintenance and would be added to the existing maintenance done for the Trail by existing refuge staff as part of the ongoing operation of the refuge. No additional use of existing infrastructure is expected except for short-term use of the roads and parking lot during construction. These impacts would be short-term, local and minor.

8.2.6.3.4 Tourism and Recreational Use

Affected Environment

The refuge hosts more than 100,000 visitors annually www.fws.gov/bonsecour Visitor services include a visitor contact station with a small educational display area. Four developed trails are available in the Perdue Unit, highlighting dune, swale, wetland, maritime forest, and scrub habitats. Bon Secour Refuge provides a variety of wildlife-dependent recreational uses, including fishing, wildlife observation, wildlife photography, and environmental education and interpretation. To facilitate these uses, a system of

parking lots, trails, and interpretive structures has been developed. Guided nature walks are held throughout the year along the Jeff Friend trail.

Wildlife observation and photography are two of the top five preferred activities on the refuge. Hiking and backpacking can be considered as a supporting use of wildlife observation and photography. Opportunities to engage in these activities exist at Gulf State Park (10 miles from the refuge), however, in Alabama, the intact dune ecosystem is particularly unique to Bon Secour National Wildlife Refuge.

An estimated 100,000 people visit the refuge each year, and many of these visitors engage in hiking (including walks on the beach). The Jeff Friend Trail is one of the primary areas for this use, and is also a section of the Greater Alabama Trail. The refuge is open seven days per week during daylight hours and these uses could occur anytime during these hours. Most users park at the trailheads or the parking lot on Mobile Street. In addition, many visitors stop by the refuge office to obtain information and use the restroom facilities (www.fws.gov/bonsecour)

Environmental Consequences

No Action

Under the No Action alternative, there would be a minor to moderate, long-term adverse impact to tourism and recreational use of the Jeff Friend Trail at Bon Secour NWR. As the trail continues to deteriorate, visitors would be discouraged from using the area, and the only trail available to disabled visitors would not be accessible. The wildlife viewing platform would not be constructed and visitors would not be afforded an additional opportunity for enhanced wildlife observation, one of the top five preferred activities on the refuge.

Proposed Action

Section 6.6.5 of the Final Phase III ERP/PEIS states, “Recreational enhancement project types that include techniques such as beach re-nourishment, placing materials to create reef structures, and enhancing recreational infrastructure could provide long-term benefits to tourist and recreational uses by improving wildlife habitat, and increasing recreational amenities (such as beach facilities). As a result, these types of projects would enhance wildlife viewing, hunting, beach and waterfront visitors, fishing and tourist experiences and provide additional areas in which to experience these opportunities”.

For this project type, the impacts to tourism and recreation are adequately analyzed in the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. This proposed project would have a minor, short-term adverse impact to recreational activities during construction of the trail and viewing platform. During the 1 to 3 month construction period, visitors would need to use one of the other trails for hiking. However, Jeff Friend Trail connects to the Centennial trail, the latter of which will remain open during the construction period and can be accessed via Pine Beach Trail. Enhancement of an existing trail, and construction of a viewing platform are not expected to significantly increase the number of visitors to the refuge, but is expected to create better

access and an enhanced recreational opportunity for the visitors who would normally come to the refuge.

8.2.6.3.5 Land and Marine Management

Affected Environment

National Wildlife Refuge System Authorities

The USFWS manages the National Wildlife Refuge System. This system is the only nationwide system of federal land managed and protected for wildlife and their habitats. The Bon Secour National Wildlife Refuge is managed as part of this system in accordance with the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, the Refuge Recreation Act of 1962, Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), and other relevant legislation, Executive Orders, regulations, and policies. Bon Secour NWR was established for the protection of Neotropical migratory songbird habitat and threatened and endangered species. These species are given priority when implementing management activities. The Bon Secour NWR is divided into five separate management units along the Fort Morgan Peninsula and Little Dauphin Island. The proposed project area is located entirely within the refuge on the eastern boundary of Bon Secour NWR in the Perdue Unit.

Coastal Zone Management

Pursuant to the Coastal Zone Management Act of 1972, federal actions must be consistent with the federally approved coastal management programs for states where the activities would affect a coastal use or resource of the state. The Federal Trustees' consistency determination for this project was submitted to the Alabama Department of Environmental Management (ADEM) on May 21, 2015. Via letter dated June 24, 2015, ADEM concurred with that determination of consistency with the enforceable policies of the Alabama Coastal Area Management Program for these proposed activities. Additional consistency review may be required pursuant to federal regulations (see 15 C.F.R. Part 930) prior to project implementation.

Environmental Consequences

No Action

Under the No Action alternative, benefits to land management from implementing the project would not be realized. A long-term minor adverse impact would be expected from the possibility of future closure of the Jeff Friend Trail due to repairs not being implemented. Regular maintenance activities would continue, but would probably not be sufficient to stop deterioration of the Jeff Friend Trail.

Proposed Action

The Final Phase III ERP/PEIS states that this project type would have varying impacts on land and marine management depending on the type of management or land ownership applicable to the project site.

Projects would generally be consistent with the prevailing management plans and direction governing the use of the land and marine areas where the projects would take place; therefore are generally expected to have no adverse impacts to land and marine management.

Projects implemented at national, state and local parks, wildlife refuges, and wildlife management areas could have short-term minor to moderate adverse impacts to land and marine management. These impacts would be temporary, and would occur as a result of construction activities related to projects such as the construction of new roads, trails, boardwalks, and other public access improvements; or the construction of boat ramps, piers, lodging facilities, public restroom, campgrounds, and similar facilities. Impacts would be related to temporary, full or partial closures of parks and refuges. In the long-term, projects would have beneficial impacts on land and marine management at parks and wildlife refuges, and wildlife management areas because these activities would improve public access and amenities, helping park management and staff fulfill their obligations to manage these properties for the benefit of the environment and human enjoyment.

For this project type, the impacts to land and marine management are adequately analyzed in the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. This proposed project would necessitate closure of the Jeff Friend Trail during construction. This impact would be minor, adverse and temporary, and would occur as a result of construction activities related to project. Visitors are expected to use the other trails during construction. The Centennial Trail connects with the Jeff Friend Trail and can be accessed via the Pine Beach Trail. Long-term beneficial impacts to land management are expected due to improvement to the trail and fulfillment of refuge management goals of providing quality educational natural resource oriented experiences for visitors.

8.2.6.3.6 Public Health and Safety and Shoreline Protection

Affected Environment

The Jeff Friend Trail is ten years old. Along the boardwalk area some of the wood has rotted and become unsafe (see Figure 8-4). The gravel area has developed areas where the gravel has settled or washed away in storm events producing an uneven surface. The stabilizing/erosion control material under the gravel has been left exposed in some areas. This makes walking for some individuals or navigating a wheel chair problematic. The proposed project would not affect shoreline protection as the trail already exists and the viewing platform would be located in an area that would have no impacts to the shoreline of Little Lagoon.

Environmental Consequences

No Action

Under the No Action alternative, the boardwalk would continue to deteriorate and could become unnavigable for most visitors. This could result in closure of the trail, or in visitors avoiding the boardwalk area and walking through some of the habitat surrounding the trail.

Proposed Action

Section 6.6.9 of the Final Phase III ERP/PEIS states that this project type "involving construction and construction activities would result in short-term minor adverse impacts to public health and safety as a result of the operation of heavy equipment and construction materials as well as the potential of hazardous waste and materials contaminating soils, groundwater, and surface waters. Projects would be designed using similar safety-related BMPs to reduce hazards".

For this project type, the impacts to public health and safety and shoreline protection are adequately analyzed in the Final Phase III ERP/PEIS. For the proposed project, the impacts would be consistent with the Final Phase III ERP/PEIS analysis. The proposed project would enhance public health and safety by providing a wider, more sturdy and safe boardwalk, and would provide a smoother, more navigable surface of asphalt or compressed rubber material in the existing gravel portion of the trail. Materials are being researched that would provide the best surface for this type of use and that would be less prone to washing away in storm events.

8.2.6.3.7 Summary of Impacts to Human Uses

Under the No Action alternative, the Jeff Friend Trail would not be repaired and enhanced and no construction activities would take place. The raised observation platform would not be built. Regular maintenance on the existing trail would continue, but the trail would continue to deteriorate over time without major repairs. No Action would result in minor to moderate short and long-term impacts to aesthetic and visual resources, infrastructure, tourism and recreation, land and marine management and public safety. The No Action alternative would not impact cultural resources as ground disturbing construction activities would not occur.

Under the Proposed Action, construction activities would create minor to moderate, adverse impacts to aesthetics and visual resources and tourism and recreation due to temporary trail closure. Public safety would not be impacted due to trail closure during construction. Long-term beneficial impacts are anticipated to aesthetics and visual resources due to the improved appearance of the trail and opportunities for viewing the vistas of Little Lagoon from the raised observation platform; however, a minor long-term adverse impact could occur depending on the placement of the raised platform. On balance the visual impacts are expected to be beneficial. No adverse impacts are expected to cultural resources. Surveys would be completed and NHPA Section 106 and Tribal consultations would further identify potential cultural resources in the project area and any mitigation measures necessary to protect those resources.

8.2.7 Cumulative Impacts

As discussed in Chapter 4, the CEQ NEPA regulations require the assessment of cumulative impacts in the decision-making process for federal projects, plans, and programs. 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 C.F.R. §1508.7).

The Bon Secour Trail Enhancement Project cumulative impacts analysis tiers from the Final Phase III ERP/PEIS. The Final Phase III ERP/PEIS analysis of cumulative impacts relevant to the proposed Bon Secour NWR Trail Enhancement project are incorporated by reference into the following cumulative impacts analysis for the Bon Secour NWR Trail Enhancement project. The Final Phase III ERP/PEIS programmatic analysis describes impacts from implementation of project types, not necessarily specific projects. The Bon Secour Trail Enhancement project falls within the project type "Enhance Public Access to Natural Resources for Recreational Use "as described in that document. The following analysis focuses on the potential contribution of adverse impacts of the proposed Bon Secour NWR Trail Enhancement Project to the impacts of some past, present, and reasonably foreseeable future actions not analyzed in the Final Phase III ERP/PEIS.

8.2.7.1 Site Specific Review and Analysis of Cumulative Impacts

This section describes past, present, and reasonably foreseeable future actions that were not discussed in the Final Phase III ERP/PEIS, but which are relevant to identifying any cumulative impacts that the proposed Bon Secour NWR Trail Enhancement Project could contribute to on a local scale. Context and intensity, defined in Section 6.2.4, are used to determine whether a potential significant cumulative impact from the Bon Secour project exists.

For the Bon Secour NWR Trail Enhancement project, specifically, the relevant affected resources analyzed in this EA are:

- Geology and Substrates
- Air Quality
- Noise
- Habitats
- Living Coastal and Marine Resources
- Cultural Resources
- Tourism and Recreation Use
- Aesthetics and Visual Resources
- Public Health and Safety
- Infrastructure

Local and site-specific past, present and reasonably foreseeable future actions not analyzed in the Final Phase III ERP/PEIS were identified through conversations with Refuge staff and searching websites relevant to the Bon Secour NWR Trail Enhancement Project. Actions that would be relevant to the Bon Secour Trail Enhancement project cumulative impacts analysis are defined here as those with similar scope, timing, impacts or location. The local action area is defined as Bon Secour NWR and its immediate surroundings. Because of the small scale (context) of the proposed project and potential for temporary, localized (intensity) impacts described in the analyses above, only projects that could be implemented at roughly the same time as the proposed Jeff Friend trail enhancement project are analyzed here. Websites searched include:

- http://www.nfwf.org/whoweare/mediacenter/pr/Pages/gulf-main-pr-14-1117.aspx
- http://eli-ocean.org/gulf/restoration-projects-database/

A past project, the Early Restoration Phase I Alabama Dune Restoration project located partially on Bon Secour NWR, has been completed and is not considered relevant to this cumulative impacts analysis. The project is located on the opposite side of Little Lagoon and involved planting dune vegetation.

This search provided the following additional information on two actions that are relevant to the Bon Secour Trail Enhancement Project cumulative impacts analysis.

- Replacement of buried electrical wire with new wire in conduit along the Pine Beach Trail. The work should last approximately 30 to 45 days and is planned to start in the spring of 2015, stopping in June. It is planned to begin again in the fall of 2015 for completion.

- Replacement of the bridge on Pine Beach Trail. The work is planned to be done in the spring or summer 2015.

The Bon Secour Trail Enhancement project and both of these actions would require closure of trails during project work. Resource areas where Bon Secour Trail Enhancement Project could have potential to contribute to cumulative impacts are analyzed below.

8.2.7.1.1 Geology and Substrates

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.1.1 Geology and Substrates. The Final Phase III ERP/PEIS found that when this project type was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to geology and substrates would likely occur. However, Alternative 3 carried out in conjunction with other environmental stewardship and restoration efforts had the potential to result in some long-term beneficial cumulative impacts to geology and substrates in localized areas. Alternative 3 was not expected to contribute significantly to adverse cumulative impacts. The Bon Secour project is anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impacts analysis.

The analysis in Section 8.2.6.2.1 determined the Bon Secour Trail Enhancement project would have a temporary, minor impact on substrates and no impact on geology. The two Pine Beach Trail infrastructure enhancement projects, replacement of a walking bridge and buried wire replacement are upgrades of existing infrastructure and similar to those analyzed in the Final Phase III ERP/PEIS.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to geology and substrates.

8.2.7.1.2 Air Quality and Greenhouse Gases

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.1.3, Air Quality and Greenhouse Gases. The Final Phase III ERP/PEIS found that when this project type was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to air quality and greenhouse gas emissions would likely occur. However, project type would not contribute substantially to cumulative adverse impacts. The analysis found that it was unlikely that there would be any beneficial cumulative impacts to air quality associated with Alternative 3. The Bon Secour project is anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impacts analysis.

As described in Section 8.2.6.2.2, the Bon Secour Trail Enhancement project would have a temporary, minor adverse impact on air quality and GHGs. When taken into consideration with the two Pine Beach Trail infrastructure enhancement projects which are also temporary projects with local impacts, the expected cumulative impacts are consistent with those analyzed in the Final Phase III ERP/PEIS.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to air quality and GHG levels.

8.2.7.1.3 Noise

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.1.4. The Final Phase III ERP/PEIS found that when Alternative 3 is analyzed in combination with other past, present, and reasonably foreseeable future actions, Alternative 3 would not contribute substantially to short-term or long-term cumulative adverse impacts to noise. Because it had little effect on noise over the long-term, Alternative 3 was not expected to substantially contribute to beneficial cumulative impacts to noise in the Gulf Coast region. The Bon Secour project is anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impacts analysis.

As described in Section 8.2.6.2.3, the Bon Secour Trail Enhancement project is anticipated to have a minor, short-term impact on noise levels. Because of the local nature of the two Pine Beach Trail infrastructure enhancement projects, if construction and human activity were occurring at the same time, work on the Jeff Friend Trail would contribute to noise levels on the Bon Secour NWR. This could potentially cause short-term moderate levels of noise in the area. Scheduling the projects so that the noisiest activities are not done at the same time could mitigate the noise; however, the Pine Beach Trail work is located approximately a half mile from the proposed Jeff Friend Trail work, also minimizing noise levels.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts on noise levels.

8.2.7.1.4 Living Coastal and Marine Resources

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.2.2, Living Coastal and Marine Resources. The Final Phase III ERP/PEIS found that when this project type was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to living coastal and marine resources would likely occur. However, this project type would not contribute substantially to cumulative adverse impacts. This project type carried out in conjunction with other environmental stewardship and restoration efforts was found to have the potential to result in some long-term beneficial cumulative impacts to living coastal and marine resources, primarily as a result of increased education and awareness of resources. The Bon Secour project is anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impacts analysis.

As described in Section 8.2.6.3.1, the Bon Secour Trail Enhancement project is not likely to adversely affect piping plover and red knot, and would not affect other protected species. The proposed project would not contribute to adverse impacts to habitats as there would be no removal of shrubs, grass or trees. Mitigation measures would be implemented to protect habitats during construction. Visitors walking on a safe, easily accessible trail would be less likely to walk through adjacent sandy habitat and vegetated areas. This proposed project is expected to have minor long-term beneficial impacts on living coastal and marine resources. Therefore, adverse impacts would not be contributed to impacts from the two Pine Beach Trail infrastructure enhancement projects.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to living coastal and marine resources.

8.2.7.1.5 Cultural Resources

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.3.2 Cultural Resources. The Final Phase III ERP/PEIS found that when Alternative 3 was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to cultural resources would likely occur. However, Alternative 3 was not expected to contribute substantially to short-term or long-term adverse or beneficial cumulative impacts to cultural resources.

As described in Section 8.2.6.4.1, the Bon Secour Trail Enhancement project is not anticipated to impact cultural resources. Therefore, adverse impacts from the Jeff Friend Trail enhancement would not be contributed to impacts from the two Pine Beach Trail infrastructure enhancement projects.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to living coastal and marine resources.

8.2.7.1.6 Land and Marine Management

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.3.4, Land and Marine Management. The Final Phase III ERP/PEIS found that when Alternative 3 was analyzed in combination with other past, present, and reasonably foreseeable future actions, Alternative 3 would not contribute substantially to short-term or long-term cumulative adverse impacts to land and marine management. Alternative 3 carried out in conjunction with other environmental stewardship and restoration efforts may result in long-term beneficial cumulative impacts to land and marine management in the Gulf Coast region because of the potential for synergistic effects of Alternative 3 project types with these other environmental stewardship and restoration activities leading to the alignment of management goals and assistance provided to management and staff to best manage properties from restoration, conservation and recovery efforts. The Bon Secour project is anticipated to fall within the expected range of the Final Phase III ERP/PEIS cumulative impacts analysis.

As described in Section 8.2.6.4.5, the Bon Secour Trail Enhancement project is anticipated to have a minor, short-term adverse impact on land and marine management, lasting during construction activities. Long-term beneficial impacts to land management are expected due to improvement to the

trail and fulfillment of refuge management goals of providing quality educational natural resource oriented experiences for visitors.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to land and marine management.

8.2.7.1.7 Infrastructure

As described in Section 8.2.6.4.3, upgrading the aging Jeff Friend Trail would have long-term beneficial impacts to infrastructure at the refuge. Use of the roads and parking lots during construction would cause a short-term, minor adverse effect. The two Pine Beach Trail infrastructure enhancement projects, replacement of a walking bridge and buried wire replacement are upgrades of existing infrastructure. Therefore the Bon Secour NWR Jeff Friend Trail Enhancement Project would contribute to long-term beneficial impacts to the infrastructure of the refuge.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute to adverse cumulative impacts to refuge infrastructure.

8.2.7.1.8 Tourism and Recreational Use

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.3.5.The Final Phase III ERP/PEIS found that when this project type was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to tourism and recreational use would likely occur. However, this project type would not contribute substantially to cumulative adverse impacts. This project type carried out in conjunction with other environmental stewardship and restoration efforts was found to have the potential to result in some long-term beneficial cumulative impacts to tourism and recreational use in localized areas.

As described in Section 8.2.6.4.4, the Bon Secour Trail Enhancement project is anticipated to have a minor, short-term adverse impact and long-term beneficial impacts on tourism and recreational use. The work on the Jeff Friend Trail and the two Pine Beach Trail infrastructure enhancement projects would necessitate closure of the trails during work. There are four trails at Bon Secour NWR. If the Pine Beach Trail was closed at the same time, work on the Jeff Friend Trail could cause a moderate short-term adverse impact to recreational use at Bon Secour NWR. Long-term beneficial cumulative impacts are anticipated to recreational use at Bon Secour NWR after the proposed project is completed.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to tourism and recreational use.

8.2.7.1.9 Aesthetics and Visual Resources

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.3.8, Aesthetics and Visual Resources, Table 6-17. The Final Phase III ERP/PEIS found that when Alternative 3 was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to aesthetics and visual resources would likely occur. However, Alternative 3 would not

contribute substantially to cumulative adverse impacts. Alternative 3 carried out in conjunction with other environmental stewardship and restoration efforts was found to have the potential to result in some long-term beneficial cumulative impacts to aesthetics and visual resources in localized areas.

As described in Section 8.2.6.4.2, the Bon Secour Trail Enhancement project could a minor, long-term impact on aesthetic and visual resources, depending on the placement of the observation platform. Work on the trail itself would have long-term beneficial impacts from enhancements to the trail's appearance. When taken into consideration with the two Pine Beach Trail infrastructure enhancement projects, the minor, long-term adverse visual impact is balanced by the beneficial impacts of project.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to aesthetics and visual resources.

8.2.7.1.10 Public Health and Safety

This analysis tiers from the Final Phase III ERP/PEIS, Section 6.8.4.3.9, Public Health and Safety. The Final Phase III ERP/PEIS found that when Alternative 3 was analyzed in combination with other past, present, and reasonably foreseeable future actions, short and long-term cumulative adverse impacts to public health and safety would likely occur. However, Alternative 3 would not contribute substantially to cumulative adverse impacts. Alternative 3 carried out in conjunction with other environmental stewardship and restoration efforts was found to have the potential to result in some long-term beneficial cumulative impacts to public health and safety in localized areas.

As described in Section 8.2.6.4.6, the Bon Secour Trail Enhancement project is anticipated to have no effect during construction, and a long-term (life of the project) beneficial impact to public health and safety. Therefore, adverse impacts would not be contributed to impacts from the two Pine Beach Trail infrastructure enhancement projects.

Based on these findings, the Bon Secour NWR Trail Enhancement project is not expected to contribute significantly to adverse cumulative impacts to aesthetics and visual resources.

8.2.7.2 Phase IV Projects

Due to the small scale, minor, local and temporary impacts from the project, the Bon Secour Trail Enhancement Project is not anticipated to contribute to potential adverse cumulative impacts in combination with other Phase IV projects. In terms of location, the closest Phase IV proposed project to Bon Secour NWR is the Alabama Osprey Nesting Project. That project consists of erecting five osprey nesting platforms along coastal Alabama, with the closest location to Bon Secour being in the Little Lagoon area. Cumulatively, the two Pine Beach Trail infrastructure enhancement projects, with the Phase IV Alabama Osprey Nesting Project, would not produce significant, adverse cumulative impacts.

Accordingly, the Bon Secour NWR Trail Enhancement Project would not contribute adverse cumulative impacts to any of the resources analyzed when added to past, present or reasonably foreseeable future actions.

8.2.8 Summary and Next Steps

The proposed Bon Secour Trail Enhancement project would repair and enhance aging trail infrastructure at the existing Jeff Friend Trail on the Bon Secour NWR in Alabama. It would also provide a raised viewing platform that would be handicap accessible. The proposed project is consistent with the Final Phase III ERP PEIS programmatic Alternative 4, "Contribute to Restoring Habitats, Living Coastal and Marine Resources, and Recreational Opportunities" (Preferred Alternative). Under the programmatic Preferred Alternative, the proposed project falls within the scope of the project type "Enhance Public Access to Natural Resources for Recreational Use".

NEPA analysis of the environmental consequences suggests that there would be local minor, short-term adverse impacts from construction activities to some resources (noise, air quality, substrates, land management, and infrastructure). Local moderate, short-term impacts could occur to tourism and recreation, and aesthetics and visual resources; however, long-term benefits are expected for those resources after construction is complete. Habitats would not be adversely impacted by the proposed construction and could benefit from visitors staying on the trail and not walking through habitat next to the trail to avoid areas of the trail in disrepair. Guided nature walks that educate the public on the importance of the habitats and other natural resources found on the Bon Secour NWR are conducted on the Jeff Friend Trail. No adverse cumulative impacts from the proposed project are anticipated. Overall, this project would enhance recreational opportunities on the Bon Secour NWR.

This proposed project will be implemented in accordance with all applicable laws and regulations. Endangered Species Act Section 7 consultation with the USFWS has been completed and the USFWS concurred that no threatened, endangered, or candidate species or critical habitat would be adversely affected as a result of implementing this project. The project was also reviewed for impacts to bald eagles and migratory birds in accordance with the BGEPA of 1940 and the MBTA , and determined take would be avoided (DOI 2015).

The Trustees have initiated coordination and review under Section 106 of the NHPA. A complete review of this project will be completed prior to project implementation. NHPA Section 106 and Tribal consultations may further identify potential cultural resources in the project areas and any mitigation measures necessary to protect those resources.

Pursuant to the CZMA, federal Trustees submitted consistency determinations for state review coincident with public review of this document. ADEM concurred with that determination of consistency with the enforceable policies of the Alabama Coastal Area Management Program for these proposed activities. Additional consistency review may be required pursuant to federal regulations (see 15 C.F.R. Part 930) prior to project implementation.

If any further need arises to coordinate and consult with other regulatory authorities, the additional coordination or consultation requirements will be addressed prior to project implementation.

The Trustees considered public comment and information relevant to environmental concerns bearing on the proposed actions or their impacts. Public comments and Trustee responses are found in Chapter 15.

8.3 References

CEQ 2014. Final Guidance for Effective Use of Programmatic NEPA Reviews, 79 FR 76986, December 23, 2014.

CEQ 2014. Revised Draft Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, 79 FR 77801 December 24, 2014.

DOI 2014. Programmatic and Phase III Early Restoration Plan and Programmatic Environmental Impact Statement.

DOI 2015. Informal consultation and conference request for the proposed Bon Secour NWR Trail Enhancement Project, Alabama. March 27, 2015. 2 pp. + Attachment.

USFWS 2005. Bon Secour National Wildlife Refuge Comprehensive Conservation Plan.

USFWS 2008. Eastern Indigo Snake (*Drymarchon couperi*) 5-year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Southeast Region, Mississippi Ecological Services Field Office, Jackson, Mississippi. pp. 33.

USFWS 2015. Informal consultation and conference for the proposed Bon Secour NWR Trail Enhancement project, Gulf Shores, AL. Alabama Ecological Services Field Office. Reference Number 2015-I-0430. April 10, 2015. 1 pp.