

# **Environmental Assessment & Earth Change Plan/Environmental Assessment Report**

## **Improvements to Tranberg Road and Parking Areas Sandy Point National Wildlife Refuge St. Croix United States Virgin Islands**





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Earth Change Plan/Environmental Assessment Report**

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Sandy Point National Wildlife Refuge  
St. Croix  
United States Virgin Islands**

*Prepared by the*  
U.S. Department of Transportation  
Federal Highway Administration  
Eastern Federal Lands Highway Division

*Prepared for the*  
U.S. Department of the Interior  
United States Fish & Wildlife Service  
Sandy Point National Wildlife Refuge

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Prepared pursuant to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (43 CFR 1500) and the Virgin Islands Department of Planning and Natural Resources Guidelines for Earth Change Plan/Environmental Assessment

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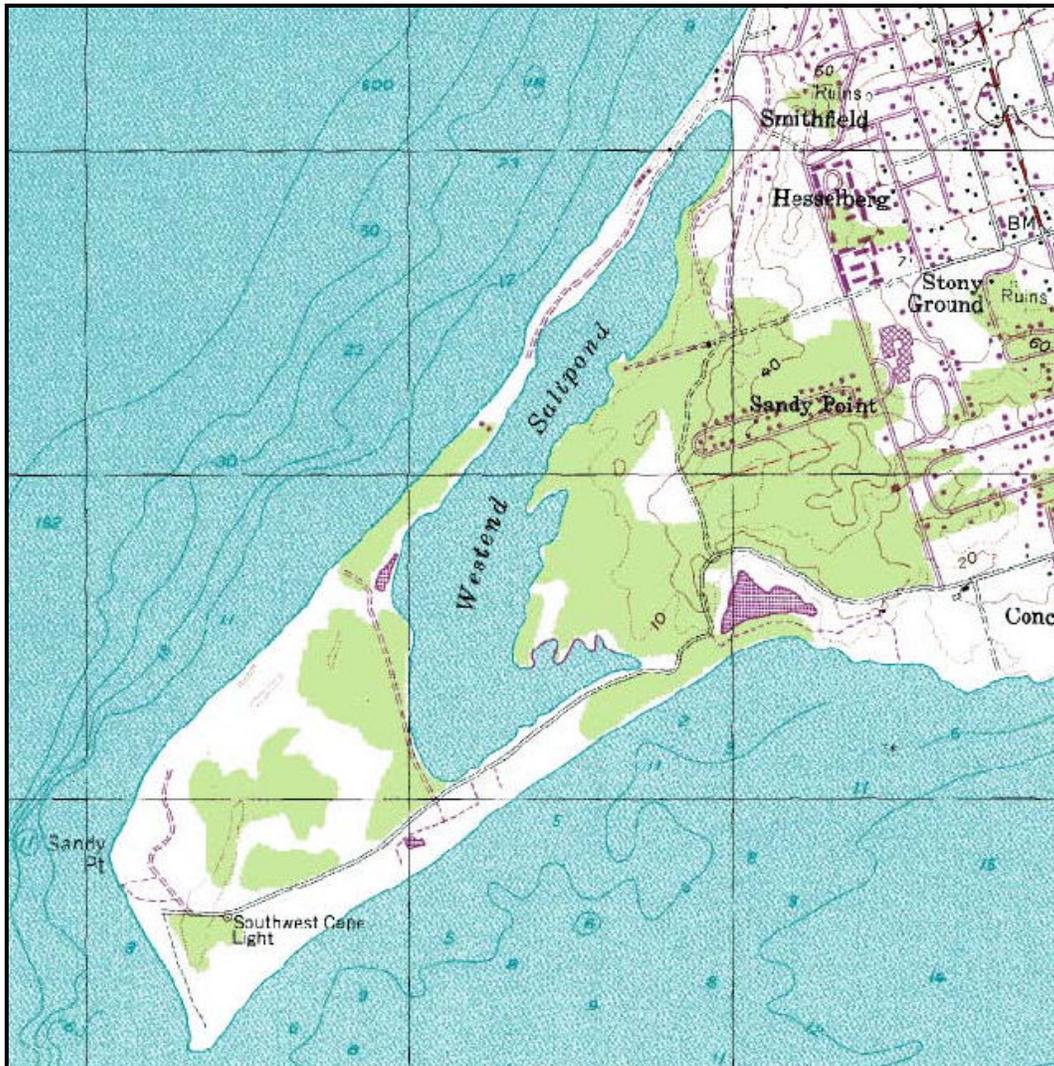
**APPENDIX A: Site Plans**

**APPENDIX B: Agency Correspondence**

## Section 2.00 – Location of Project

The project study area is within the Sandy Point National Wildlife Refuge (NWR) on the island of St. Croix, United States Virgin Islands. The Sandy Point National Wildlife Refuge is located on the southwestern tip of St. Croix, approximately 1.75 miles South Southwest of Frederiksted. The Refuge contains pristine beaches on its western perimeter and the largest natural salt marsh on the island. Tranberg Road stretches the entire length of the Refuge providing the only vehicle access to the beaches.

## Section 2.01 - Location Map



*Figure 1. The Refuge contains little topographic relief. Tranberg Road runs from the entrance of the Refuge to the very western most edge.*

### **Section 3.00 – Abstract**

This Environmental Assessment & Earth Change Plan/Environmental Assessment Report addresses the proposed plan to rehabilitate Tranberg Road and associated parking within the Sandy Point National Wildlife Refuge (NWR) on the island of St. Croix, United States Virgin Islands. The preferred alternative would improve the driving surface on Tranberg Road and make necessary changes to the drainage along Tranberg Road to reduce maintenance and sustain the condition of the road. Approximately 900 feet of the existing Tranberg Road would be relocated onto Refuge property and a dead-end at the terminus of Tranberg Road would be connected in a loop to facilitate emergency vehicle and bus passage.

The preferred alternative addresses the needs for improved access and safety within the Refuge. There were no reasonable alternatives to accomplish this goal outside of the proposed improvements. The No Build Alternative would have had less impact on the environment but would not have satisfied the needs of the Refuge to provide safe and efficient access to the beaches for the public and researchers.

This document determines which aspects of the proposed action have potential for social, economic, or environmental impact. It also identifies measures that may mitigate adverse environmental impacts.

This document is prepared pursuant to the National Environmental Policy Act (NEPA), Section 106 of the National Historic Preservation Act (NHPA), Section 7 of the Endangered Species Act (ESA), the Clean Water Act (CWA), the Coastal Zone Management Act (CZMA) and Executive Orders protecting wetlands and floodplains. This document was prepared to satisfy the Virgin Islands Department of Planning and Natural Resources Guidelines for Earth Change Plan/Environmental Assessment Report.

## **Section 4.00 – Statement of Objectives Sought By the Proposed Project** (Purpose and Need)

### **ABOUT THIS DOCUMENT**

In 1969, the United States Congress passed the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.) to establish a national policy,

“...which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; ...”

NEPA also established the Council on Environmental Quality (CEQ) as an agency of the Executive Office of the President. In enacting NEPA, Congress recognized that nearly all Federal activities affect the environment in some way. Section 102 of NEPA mandates that before Federal agencies make decisions, they must consider the effects of their actions on the quality of the human and natural environment. NEPA assigns CEQ the task of ensuring that federal agencies meet their obligations under the Act.

The CEQ regulations (40 CFR 1500-1508) describe the means for Federal agencies to develop the Environmental Impact Statements (EIS's) mandated by NEPA in Section 102. The CEQ regulations developed the Environmental Assessment (EA) to be used when there is not enough information to decide whether a proposed action may have significant impacts. If an EA concludes that a Federal action will result in significant impacts, the Agency is required to prepare an EIS or alter the action proposed. Otherwise, the Agency is directed to issue a Finding of No Significant Impact (FONSI).

Section 1508.09 of the CEQ regulations states that the purposes of an EA are to:

1. Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI.
2. Aid an Agency's compliance with the Act when no environmental impact statement is necessary.
3. Facilitate preparation of a statement when one is necessary.

Preparation of an EA is also used to aid in an Agency's compliance with Section 102(2)E of NEPA, which requires an Agency to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.”

The Department of the Interior issued its NEPA regulations as Part 516 of its Departmental Manual (516 DM), last revised in March 2004.

## NEED

Tranberg Road, the primary road through Sandy Point NWR, has a varying width which poses a potential hazard to motorists in multiple locations within the Refuge. Poor drainage along the roadway has resulted in multiple ruts and potholes.



*Figure 2. View of varying width road with exposed bedrock and variable surface.*

Localized flooding occurs on Tranberg Road in the vicinity of the West End Salt Pond. The roadway floods seasonally after heavy rain events. When the hypersaline mud on the road surface comes into contact with vehicles, it causes the vehicles to rust. Premature replacement of Refuge vehicles occurs due to accelerated rust conditions, resulting in elevated operational costs to the refuge and potential vehicle safety hazards for other motorists.



*Figure 3. Water from the West End Salt Pond flows across Tranberg Road creating difficult driving conditions.*

The entrance to the Refuge lies on a dangerous curve of a two-lane paved road that extends directly west from the western terminus of Melvin Evans Highway. Refuge staff have reported numerous vehicle incidents where cars have not made the curve and crashed onto Refuge property, occasionally damaging Refuge facilities. The hazards from this current configuration would be amplified with any proposed parking area that lies adjacent to the outside radius of this curve, which is the only site available for visitor parking at the Refuge Headquarters building.

The existing parking areas have limited capacity, and on normal weekends these parking areas are filled to capacity with vehicles. Many visitors are forced to park along the narrow shoulders of Tranberg Road. Parking along the roadway creates safety hazards and makes emergency vehicle (ambulance, police, etc.) access to the beaches difficult to impossible. In addition, Tranberg Road dead-ends at its west terminus in an irregular unplanned parking area, making it difficult for emergency vehicles or school buses to maneuver for access into, or out of this area.



*Figure 4. View looking south along the paved two-lane road that extends westward from Melvin Evans Highway at a dangerous curve near Refuge Headquarters.*

## **PURPOSE**

The purpose of the proposed project is to rehabilitate the surface of Tranberg Road, improve existing parking sites, and provide for proper drainage of Tranberg Road, all of which will provide for safer visitor and emergency vehicle access throughout the Refuge.

## **GOALS AND OBJECTIVES**

The Refuge is has the largest nesting population of endangered leatherback sea turtles under United States jurisdiction. Sandy Point NWR also provides critical nesting habitat to endangered hawksbill sea turtles and threatened green sea turtles. These sea turtle species are documented by researches, students, and volunteers who access the beach at night during the sea turtle nesting season. The current state of the road creates dangerous driving conditions, especially regarding night driving. The proposed road improvements proposed would improve the driving surface of Tranberg Road and provide for consistent road width. This would improve driving safety for visitors and researchers for both day and night driving of the Refuge.

Existing road conditions also prevent rapid response to incidents that occur within the Refuge. Road improvements would allow Refuge law enforcement staff, Virgin Islands Police Department staff, and emergency medical staff to respond quickly when incidents occur. Damage, excessive wear, and salt exposure to response vehicles would be significantly reduced.

Drainage improvements would reduce washout of the road and decrease the amount of maintenance required on the road. Currently, Refuge staff must maintain the road with limited equipment availability and even more limited funding availability. The proposed improvements would reduce the need for Refuge staff to perform extensive, substantial road maintenance, enabling them to concentrate on mission critical tasks more closely related to wildlife management.

Parking improvements along Tranberg Road would allow multiple cars to park in assigned areas and eliminate the need for parking along the roadway. The proposed improvements to parking areas would have individual parking spots delineated with wheel stops, creating a structured parking system with increased vehicle capacity. Existing parking conditions lack structure or proper design, resulting in irregular open areas where cars are often parked haphazardly. In addition to decreased motor vehicle capacity, existing parking conditions create potential safety hazards to motorists as they attempt to park, and to pedestrians as they enter and leave the parking areas. The proposed improvements to the parking areas would alleviate those issues.

## **SCOPING**

On June 25, 2008, a public information meeting was held at the Refuge Headquarters Building to provide the public with information regarding the proposed project, and to gather public comments. Information regarding the project was made available via internet for public review and comment from June 10, 2008 through July 15, 2008. Letters regarding the proposed project were also sent to potentially interested agencies and organizations.

Issues were identified during the scoping process are addressed as follows:

- Timing of construction activities is important to reduce impacts to sensitive species. Extensive roadwork should be avoided during sea turtle nesting and hatching periods. All work should be limited to daylight hours between 8:00am and 4:00pm. Measures should be taken to minimize impact from sedimentation or other pollutants, noise, or destruction of vegetation used for bird roosting or nesting at sites adjacent to the West End Salt Pond. Care should be taken to avoid damage or impact to the endangered Vahl's Boxwood trees during road construction.
- The placement of road shoulder embankment adjacent to the West End Salt Pond may impact the nesting habitat of the Least Tern and Wilson's Plover. Changes in road bed elevation may impact migratory patterns of land crabs, and may alter surface water flow. Impact of vehicle headlights sweeping across the West End Salt Pond at night due to the raised roadbed may disturb nesting Least Terns. Xeric scrub forest habitat may be lost through construction of new section of road adjacent to the Stilt Pond. Road Rehabilitation work may impact plant species that have restricted distribution in St. Croix, such as the St. Croix Orchid and Cocoa Plum.

- Construction of a bridge may be necessary at the section where the salt pond meets the road on the southeastern section of the refuge. Tagging of endangered or threatened plant species along Tranberg Road may be necessary in order to avoid impacting them.

## **5.00 DESCRIPTION OF THE PROJECT**

The CEQ has provided guidance on the development and analysis of alternatives under NEPA. A full range of alternatives, framed by the purpose and need, must be developed for analysis for any federal action. The alternatives should meet the project/proposal purpose and need, at least to a large degree. They should also be developed to minimize impacts to environmental resources. Alternatives should also be “reasonable,” which CEQ has defined as those that are economically and technically feasible, and show evidence of common sense. Alternatives that could not be implemented if they were chosen (for economic or technical reasons), or do not resolve the need for action and fulfill the stated purpose in taking action to a large degree, are therefore not considered reasonable.

### **No Action Alternative**

Tranberg Road would remain as a varying width rocky/sandy surfaced roadway. Regularly scheduled maintenance activities would continue, however, no major improvements would be made to the roadway.

### **5.01 Summary of Proposed Activity**

#### **Action Alternative – Preferred Alternative**

The Action Alternative would improve the existing Tranberg Road, construct two new roadway segments, create new parking, and enhance existing parking at the Refuge. The two new roadway segments would be the construction of a loop at the end of Tranberg Road, and the realignment of a portion of the road that is currently located off of Refuge property. The roadway repair would occur within the existing roadway prism that was previously disturbed during the original construction of the existing Tranberg Road, with the exception of the realignment portion. The existing road would be scarified to create an even surface to serve as the roadbed. Approximately 8 inches of aggregate would be placed on the roadbed to achieve a specified roadway elevation. Creating the roadway elevation would improve drainage of water from the roadway surface, and would provide a uniform driving surface.

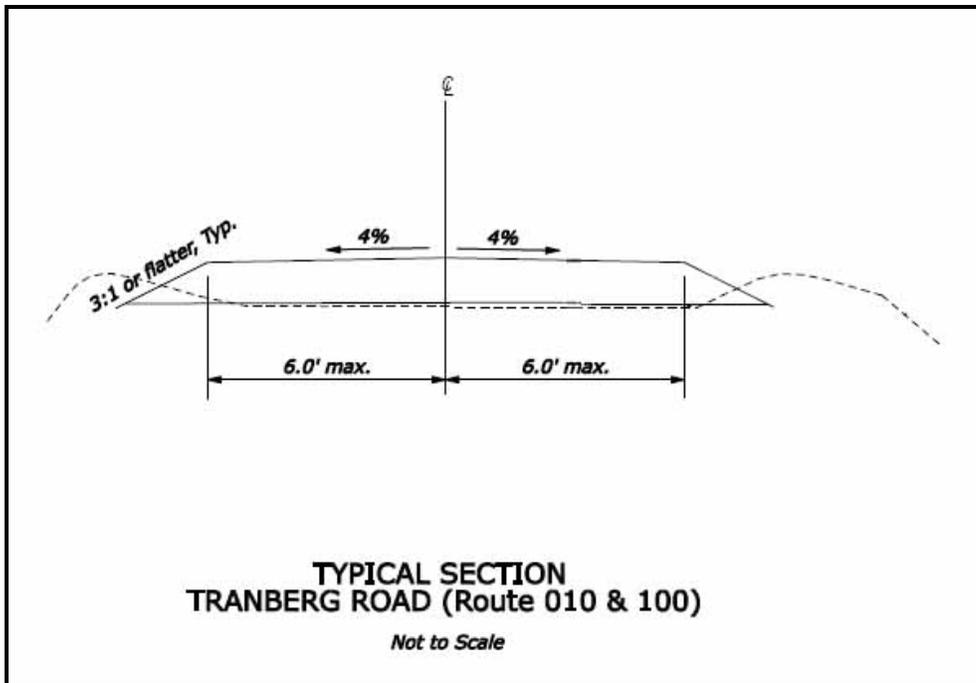


Figure 5. The typical pavement section would be used for the placement of aggregate material along Tranberg Road. The material would be placed within the previously disturbed area of the existing roadway.

Approximately 0.4 of a mile of Tranberg Road near the southeastern corner of the West End Salt Pond would be raised approximately 3 feet to prevent seasonal flooding of the roadway.

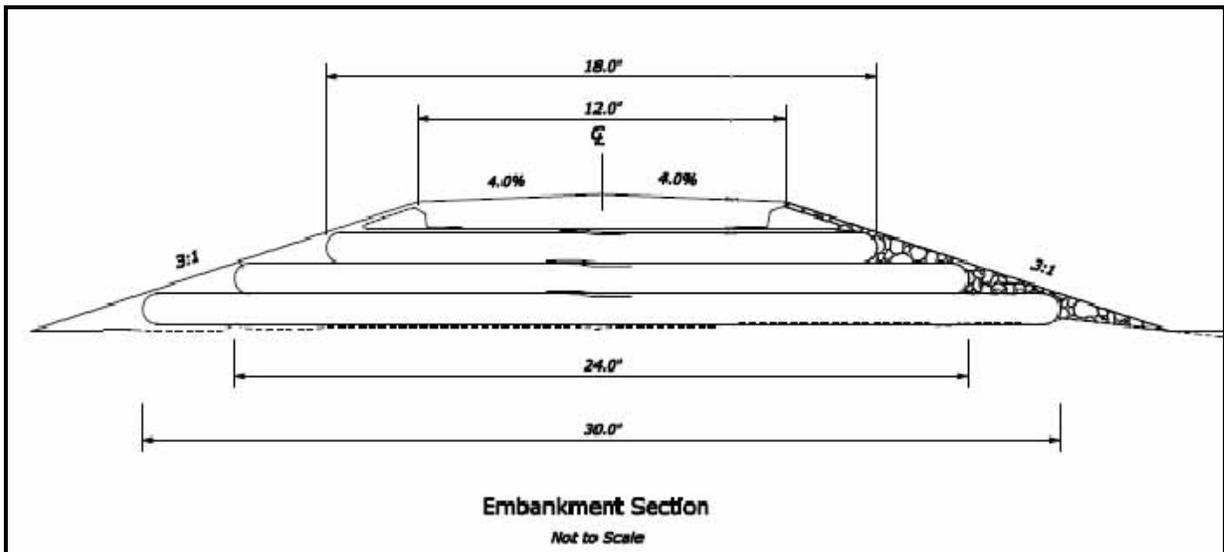


Figure 6. The embankment section would be used in the portion of the roadway along the West End Salt Pond that is currently experiencing flooding.

A 0.02 mile section of Tranberg Road located approximately 0.4 miles from the Refuge entrance is currently outside of the Refuge property boundary. This portion of the

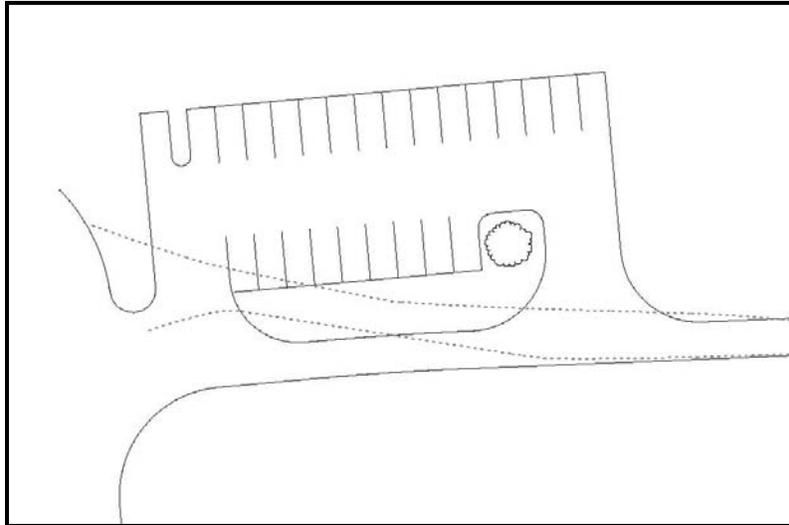
roadway is maintained by the Refuge. The Action Alternative (Preferred Alternative) would realign this portion of the roadway and shift it to the south, resulting in a roadway that is completely within the Refuge property boundary.

Additional parking would be created at Parking Areas 900, 902, and 904. Parking is currently available at Parking Area 901, but vehicle capacity would be expanded by formalizing vehicle site layout. Vehicle parking is currently available at Parking Area 902 and capacity would be expanded. Limited parking is available in the vicinity of Parking Area 904. However, the area would be reconfigured to create a loop at the end of the roadway, which will expand available parking along the loop.



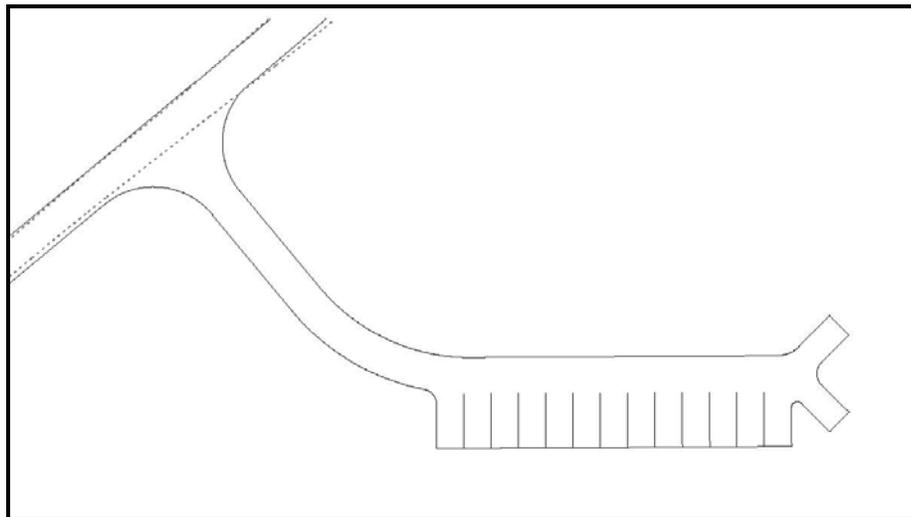
*Figure 7. Location Map showing the parking areas proposed for improvement and new alignment*

The portion of Tranberg Road at the Refuge entrance would be reconfigured to correct the blind curve. A new parking area would be constructed at the entrance to the Refuge to provide parking and access to the refuge headquarters and visitor center.



*Figure 8. Parking Area 900 (Area A)*

The existing Parking Areas 901 and 902 would be scarified, and new aggregated would be placed. It would also be formalized using wheel stops or timbers to allow for more efficient use of the parking area. Vegetation would be cleared to reconstruct parking area 902, and this area would be graded.



*Figure 9. Parking Area 901*

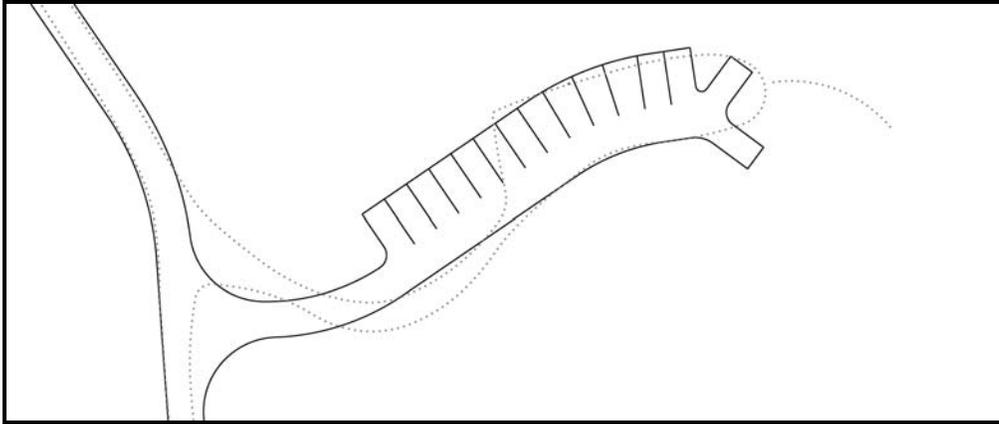


Figure 10. Parking Area 902 (Area D)

The existing parking area (Parking Area 903, shown with the dotted lines in Figure 9) would be extended to connect with Tranberg Road to create a loop. This new parking area would be designated as Parking Area 904. Vegetation would be cleared along the new roadway and parking segment. The area would be graded to create an even surface, and aggregate would be placed. Wheel stops or timbers would be placed to delineate the parking areas.

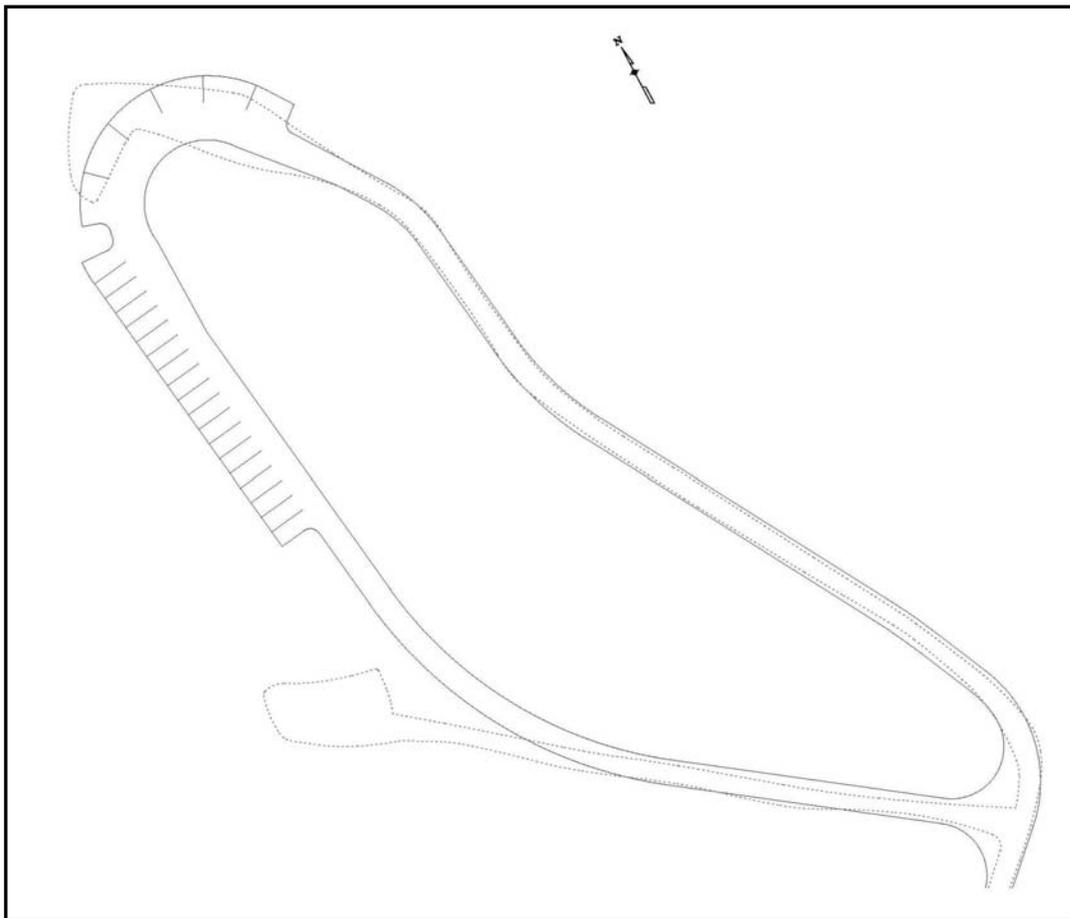


Figure 11. Parking Area 904 (Area C)

It is anticipated that an area of approximately 2.1 acres would be cleared to construct the new roadway segments and parking areas. The areas of disturbance would be minimized so that only those areas essential for construction would be cleared and graded. Where possible, any rare or uncommon plants within the area of disturbance would be transplanted to appropriate sites outside of disturbed areas.

An erosion and sediment control plan would be implemented at the commencement of project construction activities. Best Management Practices (BMP) such as silt fence, erosion matting, or filter berms would be implemented to prevent erosion of disturbed soil areas, and to reduce the amount of sedimentation entering nearby bodies of water. The temporary BMPs would be maintained throughout the duration of the construction period, and removed only once permanent vegetation or other erosion control measures have been implemented.

## **6.00 ECOLOGICAL SETTING AND PROBABLE PROJECT IMPACT ON THE NATURAL ENVIROMENT**

Each alternative is compared to a baseline to determine the context, duration, and intensity of resource impacts. For purposes of impact analysis, the baseline is the continuation of current management (the No Action Alternative) projected over the next 10 years. In the absence of quantitative data, best professional judgment was used to determine impacts. In general, the thresholds used come from existing literature, Federal and State standards, and consultation with subject matter experts and appropriate agencies.

Cumulative impacts are considered for all alternatives, including the no-action alternative. They were determined by looking at each resource (impact topic), determining which past, present, and future actions would impact the resource for the determined spatial and temporal boundaries, and then combining the impacts of the alternative being considered with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at the Refuge and, if applicable, the surrounding region.

### *Past projects:*

The island of St. Croix has been heavily disturbed by agricultural use. Virtually all of the primary tropical forest was cleared by the early twentieth century, primarily for the cultivation of sugarcane and cotton. There is a lack of significant homesteading in the study area. No structures are shown in historical maps that place them within the existing Refuge boundary.

Sand mining occurred in the study area, and likely began as a commercial operation sometime after 1958.

Sandy Point National Wildlife Refuge was established in 1984 by the U.S. Fish and Wildlife Service when it purchased 340 acres purchased from the West Indies Investment Company. The Refuge was established to protect nesting habitat for the endangered leatherback sea turtle. An additional 43 acres have been acquired since then in order to protect the Aklis archeological site and the endangered Vahl's boxwood tree.

Tranberg Road was likely constructed as part of sand mining operations through blading and minor excavation to flatten and level the driving surface.

### *Present projects:*

The Refuge encompasses some of the last relatively undisturbed dry coastal scrub forest habitat on St. Croix. The shoreline beach areas of the Refuge form the longest beaches in the US Virgin Islands. Management of this habitat involves techniques such as reforestation and control of invasive plants and animals. Additional management measures involve control of public access, enforcement of Refuge regulations, distribution of information to the public, and outreach and other public educational programs. Management of both dry coastal scrub habitat and shoreline / beach habitat is also indirectly addressed by biological survey programs and a

variety of research and endangered species monitoring programs (sea turtles, bird banding, least tern nest site enhancement and protection, reptile surveys, etc.).

The Refuge is best known for the Leatherback Sea Turtle Monitoring and Recovery Project that has operated every year since 1978. This project records data involving nesting adult leatherback sea turtles, nest success, hatch success, and hatchling productivity.

#### *Future projects*

The Refuge is located directly south of Frederiksted, consisting of the peninsula that forms the extreme southwestern tip of the island of St. Croix. Almost the entire land boundary of the refuge has residential structures adjacent or nearby. As a result, the refuge preserves local habitat that would otherwise be lost to residential or commercial development. Public education is a priority for the refuge, especially in fostering an appreciation of the need for habitat conservation and management.

Construction of an interpretive trail near the Sandy Point NWR visitor contact station (refuge office building) will provide educational opportunities by enabling visitors access into dry coastal habitat with minimum impact. The 1/4-mile trail will extend through coastal habitat and include a view of beach shoreline from an overlook.

Visitor-oriented information, exhibits, and facilities involving the refuge office building will be expanded. If additional staff can be funded, the refuge will open to the public 7-days per week, outside of the seasonal closure (May through August) needed to protect sea turtle nests within beach habitat.

### **6.01 Climate and Weather**

St. Croix lies within the belt of subtropical, easterly tradewinds. The climate is maritime tropical and is characterized by generally fair weather, steady winds, and slight but regular annual, seasonal, and diurnal ranges in temperature. Rain-producing weather systems generally move into St. Croix from the east in summer and from the northwest in winter. From June through November, these weather systems are in the form of tropical waves that develop in the tropical Atlantic. Some of these waves develop into tropical storms or hurricanes, especially during August and September. St. Croix's wettest period generally is from September to November, and the driest period is from January to June. (USVIRCD) The average annual precipitation according to the National Weather Service is between 25 to 35 inches on the southwestern coast where the Refuge is located.

#### *Environmental Consequences:*

##### No Action Alternative:

There would be no impact to climate and weather. There can be no cumulative impact to climate and weather because there is no direct impact.

Action (Preferred) Alternative:

There would be no impact to climate and weather. There can be no cumulative impact to climate and weather because there is no direct impact.

**6.02 Landform, Geology, Soils, and Historic Land Use**

St. Croix began forming millions of years ago from under water volcanic eruptions on the ocean floor and is 54,563 acres in size. Although the island of St. Croix included agricultural use, primarily sugar and cotton plantations, there was a lack of significant homesteading in the study area. No structures are shown in what is now the Refuge in historical maps. Sand mining in the study area likely began soon after 1958.

The Refuge includes very subtle rises in its eastern end, and broad flat expanses to the west of the salt ponds, as shown in the topographic map in Figure 1. Elevations range from five to 20 feet above mean sea level. There are two broad soil clusters in the Refuge. The eastern side of the study area sits atop outcrops of Kingshill Marl and Jealousy FM. The soils are mapped as Glynn gravelly loam and Hesselberg clay. Both of these have clay subsoil at 10-12 inches below surface. The second soil cluster in the Refuge is situated on ancient beach and alluvial deposits. The soils in the western end of the study area are mapped as Jaucas sand, which sandy deposits throughout its profile. The soil survey indicates that subsoil typically begins at six inches below surface. There is no evidence for significant Aeolian or alluvial reworking of this soil during the Holocene.

*Environmental Consequences:*

No Action Alternative:

There would be no impact to landform, geology, or soils. There can be no cumulative impact to landform, geology, soils, and historic land use because there is no direct impact.

Action (Preferred) Alternative:

The soils would be impacted through the earth moving activities in order to construct the turn around and parking area. The majority of the roadway would be constructed by the placement of gravel therefore a limited amount of soil would be disturbed other than to level and scarify the surface. The proposed roadway improvements would have a minor adverse impact to landform, geology, and soils.

**Cumulative Impacts:** The historic soils were disturbed by sand mining and by the initial construction of Tranberg Road. The construction of a trail and interpretive exhibits would disturb the soils; however these impacts would be negligible. The majority of the soils in the study area have been previously disturbed; therefore the other present and future actions combined with the proposed roadway improvements would have a minor cumulative adverse impact to landform, geology, and soils.

### **6.03 Drainage, Flooding, and Erosion Control**

According to the *1995 Soil Survey of the U.S. Virgin Islands*, approximately two-thirds (66.8%) of the territory's soils are classified as Highly Erodible Land (HEL), and another 14.7% are classified as potential HEL soils. The majority of soil loss in the U.S. Virgin Islands results from erosion of dirt roads and areas cleared for residential or commercial construction, since only 2.94% of the land mass is classified as cropland and another 8.82% of the territory's land area is classified as arable (i.e., pasture or grazing land, see *U.S. EPA, Region 2 USVI Facts & Figures*).

Eroding road beds and cut slopes (e.g. behind houses or along roadsides) cause costly property damage. Sediment and other pollutants run-off from uphill construction sites, roads, parking lots and other land areas and are deposited along roadways, in guts, on lower-lying property, and in ponds and coastal waters, polluting surface and ground water. Sediment is, by volume, the most significant pollutant impairing water quality and harming coastal ecosystems in the Virgin Islands (USVIRCD 2009).

Most of the study area drains directly into the Caribbean Sea. A portion of the eastern half of the roadway drains into the remnant of the smaller of two salt ponds, which formerly drained south into the sea. Other than the West End Salt Pond and the sea, there is no surface water in the Refuge.

The peninsula originated from sand accumulation caused by oscillating north and south shore currents. Although the underlying geologic formation of sandstones and limestone is quite stable, beach areas are highly dynamic. Sand deposition and erosion occur continuously, and the width of the beach varies significantly throughout the year.

There is currently localized seasonal flooding of Tranberg Road where it is adjacent to the West End Salt Pond. The water on the clay/dirt road creates muddy driving conditions which make driving difficult.



Figure 12. Floodplains are shown in relation to the study area.

The project is located in a Zone AE and VE floodplain. Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by detailed methods of analysis. Zone VE is the flood insurance rate zone that corresponds to areas within the 1-percent annual chance coastal floodplain that have additional hazards associated with storm waves.

*Environmental Consequences:*

No Action Alternative:

Flooding of Tranberg Road near the West End Salt Pond would continue. The dirt roadways would continue to erode by wind and precipatory events; therefore the No Action Alternative would have a minor adverse impact to drainage, flooding, and erosion control.

Cumulative Impacts: The installation of Tranberg Road created an erodible surface, vulnerable to flooding and drainage problems over time. The other present and future actions would not impact drainage, flooding, and erosion control. The other present and future actions combined with the No Action Alternative would have a minor cumulative adverse impact to drainage, flooding, and erosion control.

Action (Preferred)Alternative:

The placement of aggregate material on Tranberg Road would create a driving surface that is less erodible, and would improve drainage from the roadway surface. Embankment to be placed in flooding area near West End Salt Pond would be

encapsulated with geo-textile to reduce erosion and covered with riprap. Flooding of this section of Tranberg Road near the West End Salt Pond would be alleviated. Culverts may be placed in this area to allow for continuation of water movement through this area. Although embankment and aggregate material would be placed to construct the roadway, this fill would not impact the coastal floodplain because the impacts would be too negligible to measure.

Mitigation Measures: Best Management Practices (BMPs) would be implemented as part of the Action Alternative. BMPS would include the installation of erosion control measures, such as silt fence, erosion matting, check dams, etc. where appropriate. The temporary measures would be maintained throughout the construction of the project until permanent vegetation is in place.

Cumulative Impacts: The installation of Tranberg Road created an erodible surface of clay and sand, vulnerable to flooding and drainage problems over time. The other present and future actions would not impact drainage, flooding, and erosion control. The other present and future actions combined with the Action Alternative would have a beneficial cumulative impact to drainage, flooding, and erosion control.

#### **6.04 Fresh Water Resources**

There are no fresh water resources in the Sandy Point NWR. Due to their geological structure, topographic relief and relatively small land areas, there are no permanent stream courses on the Refuge. Surface water flow occurs during and immediately after heavy rains and storm events.

##### *Environmental Consequences:*

##### No Action Alternative:

There are no fresh water resources in the Refuge; therefore there would be no impacts to fresh water resources as a result of the No Action Alternative.

##### Action (Preferred) Alternative:

There are no fresh water resources in the Refuge; therefore there would be no impacts to fresh water resources as a result of the No Action Alternative.

## 6.07 Terrestrial Resources



Figure 13. This view of Tranberg Road shows the typical roadside vegetation, dense shrubland.

Most of the Refuge, about two thirds, is covered with dense shrubland. Most of the dense shrubland is likely a sere (successional phase), and through natural succession would likely succeed eventually to dry forest. The shrubland consists of species such as: buttonwood, bay lavender, bay cedar, *Grnodea littoralis*, sea grape, and manchineel. Approximately one-quarter of the Refuge consists of the Westend Salt Pond. The remaining 10-15 percent of the Refuge is divided among the dry forest, herbaceous, sparse vegetation and woodland categories.

In terms of biodiversity, there are far more species of invertebrates, than any other fauna in the Virgin Islands. They include a wide variety of tropical snails, slugs, crabs, spiders, scorpions, centipedes, millipedes, and insects, as well as freshwater fauna such as snails, crabs, crayfish and insects. Three native species of amphibians inhabit St. Croix, and three lizards are endemic to St. Croix.

The Virgin Islands are inhabited by few native species of terrestrial mammals. There are six species of bats found in the USVI, and eleven other species of mammals have established feral or free ranging populations. These species are the domestic dog, domestic cat, small Indian mongoose, horse, pig, white-tailed deer, goat, roof rat, Norway rat, and house mouse. The primary cause of bat population decline is the loss, fragmentation, and degradation of habitat. The USVI is home to eleven lizards, four snakes, two chelonians, and one amphisbaenid. Three lizards are endemic to St. Croix. The endemic St. Croix ground lizard is federally listed. It is found only on three cays off of the main island of St. Croix. Diurnal lizards bask in open areas, sometimes on

roadways. During their breeding season they are particularly vulnerable to being crushed by vehicles, as they are more mobile. The decline of terrestrial reptiles is most likely from predation by mongoose, cats, and rats, habitat loss, degradation, and fragmentation from human development, predation and killing by humans, and crushing by vehicles on roads.

Of the 39 recorded seabird species recorded breed in the Virgin Islands, 15 breed locally. Most of the least terns recorded in the Virgin Islands nest at St. Croix, where the breeding population is currently between 300-325 pairs. On St Croix they have been recorded nesting at 26 sites (USVIRCD 2009).

*Environmental Consequences:*

No Action Alternative:

Lack of parking spaces results in damage to vegetation alongside the road during periods of high visitation. Vegetation would continue to be damaged as a result of the No Action Alternative.

Cumulative Impacts: Vegetation was cleared for sand mining and the installation of Tranberg Road and associated parking areas. Vegetation was re-established, some of it invasive species, and after becoming a protected Refuge, this vegetation was allowed to grow and follow a natural succession series. The construction of a trail and visitor interpretive areas and opening of the Refuge during the weekdays would increase human contact with wildlife, and may increase the spread of invasive species. The other present and future actions combined with the No Action Alternative would have a minor adverse cumulative impact to terrestrial resources.

Action (Preferred) Alternative:

Approximately 2.1 acres of habitat would be converted to a paved roadway or parking area, however, the habitat type impact would consist primarily of the dense shrubland. Approximately two-thirds of the 360-acre Refuge is comprised of this dense shrubland habitat, therefore there would be abundant habitat of a similar type available for wildlife species displaced by the proposed clearing. The aggregate placed to formalize Tranberg road would likely be at a depth of six to eight inches, allowing wildlife to continue to migrate across the roadway. In the area proposed for the embankment, culverts would be installed to allow for wildlife to migrate from one side of the roadway to the other.

Mitigation Measures: Mangroves would be planted along the embankment adjacent to the West End Salt Pond. The mangroves would eventually provide a vegetative screen to reduce the impact of vehicle noise and headlights. The mangroves would also provide a barrier to reduce the potential for visitors to access the West End Salt Pond.

Cumulative Impacts: Vegetation was cleared for sand mining and the installation of Tranberg Road and associated parking areas. Vegetation was re-established, some of it invasive species, and after becoming a protected Refuge, this vegetation was allowed to grow and follow a natural succession series. The construction of a trail and visitor

interpretive areas and opening of the Refuge during the weekdays would increase human contact with wildlife, and may increase the spread of invasive species. The other present and future actions combined with the Action Alternative would have a minor adverse cumulative impact to terrestrial resources.

## **6.08 Wetlands**

Wetlands areas sufficiently inundated or saturated by water to support a prevalence of “hydrophytic” vegetation, that is, plants adapted for life in saturated soils. Wetlands are vital habitats for wildlife and fisheries, providing food, shelter from predators, protective nurseries, and filters of sediments and pollutants. Salt ponds and mangroves are two wetland categories that occur at the Refuge.

Salt ponds are small bodies of saltwater that form into intertidal basins. Originally open to the sea as bays or inlets, they become isolated from the sea over time as oscillating currents and storms deposit materials that form a berm. The berm may become permanent, isolating the pond from surface sea water influx. The resulting ponds may maintain an influx of salt water either through tidal seepage or periodic breaching of the berm by the sea during storm surges. Water salinity, oxygen content, and temperature are highly variable and dependent on rainfall and evaporation. Salt ponds support invertebrates and vertebrates (fish species) that are important prey for shorebirds and other waterbirds. These ponds also act as catchment basins for surface water runoff, debris, and pollutants, thus protecting coral and seagrass beds in the marine environment.

Mangrove wetlands are periodically-flooded forests that grow in sheltered, tidal areas throughout the tropics. Mangrove wetlands are nursery grounds for reef fishes and invertebrates, and mangrove roots trap sediment washed from upland areas. Trapped soil eventually causes the shoreline to grow seaward over time, as terrestrial vegetation fills in the land created behind the mangrove stand.

### *Environmental Consequences:*

#### No Action Alternative:

There would be no impact to wetlands. There can be no cumulative impact to wetlands because there is no direct impact.

#### Action (Preferred) Alternative:

The majority of the project would be constructed along the existing roadway alignment. The realignment areas, Area B and Area D; and the new parking areas, Area A and Area C, would be constructed on new alignments. Soil testing was completed for these four areas as part of the archeological investigation.

The most identifying soil characteristic of hydric soils is the color as compared to a Munsell soil color chart. The soil color is expressed in a designation indicating the hue, value, and chroma, i.e. 10YR 3/1. The critical portion of this designation is the chroma, expressed as the last digit following the slash (/). For monochromatic (single color) soils, a soil is generally considered hydric when the chroma of the subsoil (not topsoil) equals 1

or less. For mottled (multi-color or blotchy) soils, the soil is considered hydric when the chroma of the matrix, or dominant color, equals 2 or less. The soils in Area A were found to contain three stratum. Stratum A was a strong brown clay loam (7.5YR5/6). Stratum B was dark yellowish brown clay (10YR3/4). Stratum C was blown clay with dense rock (7.5YR5/4). Area B contained areas with limestone bedrock on or near the surface, and areas with brown loam topsoil (10YR4/3) over bedrock or red clay subsoil (5YR4/3). Area C contained deep deposits of coarse sand. Stratum A was yellowish brown (10YR5/4) coarse sand. Stratum B was brown (10YR4/3) coarse sand. Stratum C was brownish yellow (10YR6/8) coarse sand. Area D also contained coarse sand. Stratum A was yellowish brown (10YR5/4) coarse sand. Stratum B, was brownish yellow (10YR6/6) coarse sand. Stratum C was brownish yellow (10YR6/8) coarse sand. The soils found in the areas of new alignment are not considered hydric soils.

The vegetation in these areas is comprised mostly of sea grape, acacia, and guinea grass adjacent to the roadway. Sea grape (*Coccoloba uvifera*) and guinea grass (*Urochloa maxima* (Jacq.)) are facultative upland plants, FACU and FACU- respectively, and usually occur in non-wetlands, but are occasionally found on wetlands. Acacia (*Acacia macracantha* Humb. & Bonpl. ex Willd) can be found in either wetlands or uplands.

The soils and vegetation in the study area do not indicate that wetlands are present in the study area, therefore there would be no impact to wetlands. There can be no cumulative impact to wetlands because there is no direct impact.

## 6.09 Rare and Endangered Species

The Refuge is designated critical habitat for the endangered leatherback sea turtle (*Dermochelys coriacea*) and provides habitat for the endangered hawksbill sea turtle (*Eretmochelys imbricata*), brown pelican (*Pelicanus occidentalis*), and the threatened green sea turtle (*Chelonia mydas*) and the endangered tree *Buxus vahlii*.

The listed brown pelican and least tern use mangroves, mud and salt flats, and the West End Salt Pond for nesting and roosting. Discouraging visitor access to the West End Salt Pond would minimize human presence and the potential for periodic to regular disturbance of roosting pelicans.

The following species are listed by the US Virgin Islands as species of concern:

### Animal:

<i>Mabuya</i>	<i>mabouia</i>	Slipperyback Skink
<i>Otus</i>	<i>nudipes newtoni</i>	VI Screech Owl
<i>Chordeiles</i>	<i>gundlachii</i>	West Indian Nighthawk
<i>Anthracothonax</i>	<i>dominicus</i>	Antillean Mango (Hummingbird)
<i>Podiceps</i>	<i>dominicus</i>	Least Grebe
<i>Sterna</i>	<i>antillarum</i>	Least Tern
<i>Phaethon</i>	<i>lepturus</i>	White-tailed Tropicbird
<i>Ardea</i>	<i>herodius</i>	Great Blue Heron
<i>Casmerodius</i>	<i>albus</i>	Great (Common) Egret

<i>Egretta</i>	<i>thula</i>	Snowy Egret
<i>Nycticorax</i>	<i>nycticorax</i>	Black crowned Night Heron
<i>Ixobrychus</i>	<i>exilis</i>	Least Bittern
<i>Anas</i>	<i>bahamensis</i>	Bahama Duck
<i>Oxyura</i>	<i>jamaicensis</i>	Ruddy Duck
<i>Rallus</i>	<i>longirostris</i>	Clapper Rail
<i>Fulica</i>	<i>caribea</i>	Caribbean coot
<i>Charadrius</i>	<i>alexandrinus</i>	Snowy Plover
<i>Catoptrophorus</i>	<i>semipalmatus</i>	Willet
<i>Puffinus</i>	<i>iherminieri</i>	Audobon Shearwater
<i>Aratinga</i>	<i>pertinax</i>	Brown-throated Parakeet
<i>Columba</i>	<i>leucocephala</i>	White-crowned Pigeon
<i>Geotrygon</i>	<i>mystacea</i>	Bridled Quail Dove
<i>Myiarchus</i>	<i>stolidus</i>	Stolid Flycatcher
<i>Noctilio</i>	<i>leporinus</i>	Fisherman Bat
<i>Stenoderma</i>	<i>rufum</i>	Red Fruit Bat
<i>Brachyphylla</i>	<i>cavernarum</i>	Cave Bat
<i>Epinephelus</i>	<i>itajara</i>	Jewfish
		Black Coral
<b>Plant:</b>		
<i>Agave</i>	<i>eggersiana</i>	Egger's Agave
<i>Cypselia</i>	<i>humifusa</i>	
<i>Ilex</i>	<i>sideroxyloides</i>	Central American Oak
<i>Ilex</i>	<i>urbanii</i>	Urban's Holly
<i>Tillandsia</i>	<i>lineatispica</i>	Pinon
<i>Mammillaria</i>	<i>nivosa</i>	Wooly Nipple
<i>Opuntia</i>	<i>triacantha</i>	
<i>Maytenus</i>	<i>cymosa</i>	
<i>Operculina</i>	<i>triquetra</i>	
<i>Croton</i>	<i>fishlockii</i>	
<i>Erythrina</i>	<i>eggersii</i>	Egger's Cockspur
<i>Galactia</i>	<i>eggersii</i>	Egger's Galactia
<i>Brysonima</i>	<i>sp.</i>	
<i>Malpighia</i>	<i>infestissima</i>	Stinging Bush
<i>Malpighia</i>	<i>linearis</i>	
<i>Malpighia</i>	<i>sp.</i>	
<i>Malpighia</i>	<i>woodburyana</i>	Cowage Cherry
<i>Psidium</i>	<i>amplexicaule</i>	Mountain Guava
<i>Psidium</i>	<i>sp.</i>	
<i>Sida</i>	<i>eggersi</i>	
<i>Calypttranthes</i>	<i>thomasiana</i>	St. Thomas Lidflower
<i>Eugenia</i>	<i>sp.</i>	
<i>Schoepfia</i>	<i>schreberi</i>	
<i>Brassavola</i>	<i>cuccullata</i>	
<i>Epidendrum</i>	<i>bifidum</i>	Sandy Point Orchid
<i>Epidendrum</i>	<i>ciliare</i>	Cruzan Christmas Orchid
<i>Epidendrum</i>	<i>cochleatum</i>	
<i>Habenaria</i>	<i>alata</i>	
<i>Oncidium</i>	<i>prionochilum</i>	Yellow Dancing Lady Orchid
<i>Oncidium</i>	<i>variegatum</i>	White Dancing Lady Orchid
<i>Polystachya</i>	<i>concreta</i>	

<i>Ponthieva</i>	<i>racemosa</i>	
<i>Prescottia</i>	<i>oligantha</i>	
<i>Prescottia</i>	<i>stachyoides</i>	
<i>Spiranthes</i>	<i>elata</i>	
<i>Tetramicra</i>	<i>canaliculata</i>	
<i>Tetramicra</i>	<i>canaliculata alba</i>	
<i>Vanilla</i>	<i>barbellata</i>	Vanilla Orchid
<i>Peperomia</i>	<i>myrtifolia</i>	Myrtle-leaved Pepermonia
<i>Coccoloba</i>	<i>rugosa</i>	
<i>Catesbaea</i>	<i>melanocarpa</i>	
<i>Machaonia</i>	<i>woodburyana</i>	
<i>Manilkara</i>	<i>bidentata</i>	Bulletwood
<i>Solanum</i>	<i>conocarpum</i>	
<i>Solanum</i>	<i>mucronatum</i>	
<i>Pilea</i>	<i>richardii</i>	Richard's Clearwood
<i>Callicarpa</i>	<i>ampla</i>	Capa Rosa
<i>Nashia</i>	<i>inaguensis</i>	
<i>Guaiacum</i>	<i>officinale</i>	Lignum Vitae

*Environmental Consequences:*

No Action Alternative:

There would be no impact to rare or endangered species as a result of the No Action Alternative. There can be no cumulative impact to rare or endangered species because there is no direct impact.

Action (Preferred) Alternative:

The FHWA consulted with the U.S. Fish and Wildlife Service regarding potential impacts of the proposed action to any federally listed species. The U.S. Fish and Wildlife Service, Boqueron Field Office, determined that the proposed activities are not likely to adversely affect threatened and endangered species located in the refuge. There would be no cumulative impact to rare or endangered species because there is no direct impact.

The proposed roadway improvements would occur primarily within the “footprint” of the existing roadway. Human / vehicle presence along the roadway has the potential to discourage use of the nearby areas as nesting sites. Impacts to the West End Salt Pond would be limited to the extent possible in order to minimize impacts to VI species of concern. Nesting area for the least tern was identified as being within the proximity of Tranberg Road approximately one mile from the Refuge entrance. This portion of the roadway will be constructed within the existing previously disturbed roadway prism.

Mitigation Measures: In order to mitigate potential adverse impacts to the ground nesting least tern, nesting platforms would be constructed, which would help maximize successful nesting and hatching. The location of the platforms would be determined by the Refuge Biologist.

Endangered or threatened plant species along Tranberg Road would be tagged in order to minimize impacts (avoid disturbance or damage), or be relocated. Coordination with the University of the Virgin Islands Cooperative Extension Service will occur to identify these species.

Cumulative Impacts: Potential habitat for rare or endangered species was severely impacted when vegetation was cleared for sand mining operations more than 50 years ago, including the construction of Tranberg Road. Existing parking areas are the result of unplanned and uncontrolled vehicle parking over a long period of time. Vegetation was damaged or destroyed frequently enough to result in open areas of bare ground that are now Refuge parking areas.

The construction of a trail and visitor interpretive areas and opening of the Refuge during the weekdays may increase human proximity or contact with wildlife. However, it is unlikely to have a noticeable impact on rare or endangered species. Other present and future actions combined with the Action Alternative would have a negligible adverse cumulative impact on rare or endangered species.

## 6.10 Air Quality

Air Quality in the U.S. Virgin Islands is regulated by the Division of Environmental Protection (DEP), a unit of the DPNR. DEP provides regulatory oversight and has authority to implement and enforce air pollution and air quality requirements in the USVI. Under the auspices of its Air Pollution Control Program, the DEP is responsible for both air quality and compliance monitoring, as well as for issuing permits. Air quality monitoring consists of collecting weekly particulate matter samples from five monitoring stations in the territory. On St. Croix, the local oil refinery, Hovensa – one of the largest in the western hemisphere – conducts sulfur dioxide monitoring at its petrochemical facility.

All areas of the USVI meet the Environmental Protection Agency's new, more stringent, health-based fine particle standard. Ozone is monitored by the National Park Service at the Virgin Island National Park on the island of St. John. The data indicates no exceedences of the 1-hour human health based primary NAAQS, or any calculated exceedences of the new 8-hr primary NAAQS.

Dust from the Sahara Desert frequently contributes to visibility impairment in the USVI, and episodes of volcanic ash and "acid rain" occur in St. Croix resulting from volcanic eruption episodes on the nearby island of Montserrat. An active volcano located there occasionally erupts, sending ash clouds across the USVI on prevailing easterly trade winds.

Tranberg Road is currently an unpaved dirt road with a clay and rock surface. Vehicles traveling along this road create dust clouds. The clouds of fine particulate matter are temporary, and settle after a short period of time.

### *Environmental Consequences:*

#### No Action Alternative:

Dust clouds created by vehicles traveling along Tranberg Road would continue. There would be no impact to air quality from the No Action Alternative.

#### Action (Preferred) Alternative:

During construction, particularly during earth moving activities, there is likely to be an increase in dust, and a temporary adverse impact to air quality. However, after the construction is completed, air quality would return to pre-construction conditions. The dust clouds created by driving on the existing clay/dirt surface would likely be similar to the dust clouds created by driving on an aggregate surface. Traffic volumes may increase slightly as a result of the installation of additional parking in the Refuge.

**Cumulative Impacts:** The commercial development of St. Croix, including the oil refinery, factories, vehicle exhaust, etc. adversely impact air quality. Natural conditions also adversely impact air quality, through the deposition of sand from the Sahara Desert, and volcanic ash from nearby islands. There would be a temporary increase in particulate

matter in the air from the operation of construction heavy equipment disturbing the ground, and a temporary increase in emission from the construction equipment. This impact combined with the other present and future actions would not cause a noticeable difference in air quality in the study area.

## **7.00 IMPACT OF THE PROPOSED PROJECT ON THE HUMAN ENVIRONMENT**

### **7.01 Land and Water Use Plans**

The Refuge has a draft Comprehensive Conservation Plan underway. Refuge owned lands are protected from development in perpetuity.

#### *Environmental Consequences:*

##### No Action Alternative:

There would be no impact to land and water use plans from the No Action Alternative. There can be no cumulative impact to land and water use plans because there is no direct impact.

##### Preferred Alternative:

There would be no impact to land and water use plans from the Preferred Alternative. There can be no cumulative impact to land and water use plans because there is no direct impact.

### **7.02 Visual Impacts**

The Refuge provides an uninhabited natural view of the island, particularly of its sandy beaches. A single primary roadway, Tranberg Road, runs through the Refuge. The view from Tranberg road is of the dense roadside shrub vegetation. In some portions of the roadway other sights are visible, such as the West End Salt Pond and elevated areas of western St. Croix.



*Figure 14. A typical view while driving along Tranberg Road*



*Figure 15. A view of the West End Salt Pond from Tranberg Road*

*Environmental Consequences:*

No Action Alternative:

The views within the Refuge would not change, and the views of the area from Tranberg Road would not change as a result of the No Action Alternative. There can be no cumulative impacts to visual resources because there were no direct impacts.

Action (Preferred) Alternative:

Although vegetation would be cleared to construct parking and realign Tranberg Road, the visual resources would only experience minor impacts. The roadway may look different to drivers, as it would appear more formalized through the placement of aggregate material. The aggregate material may be of a different color than the existing sand, clay, and rock surface. The views from Tranberg Road would be similar, as drivers and passengers would continue to see primarily dense shrub vegetation.

**Cumulative Impacts:** Sand mining and the construction of Tranberg Road disturbed the natural vegetation, and allowed for invasive and shrub species to grow in this area. The establishment of the Refuge protected the vegetation that had established at that time. The Refuge continues to do invasive control/ and revegetation of native species, which impacts the view of and within the Refuge. The other current and future projects combined with the proposed project would have a minor impact to the visual resources.

### **7.03 Impacts on Public Services and Utilities**

Water, sewage treatment and disposal, solid waste disposal, and electricity are only available at the Refuge Headquarters. There is only one roadway through the Refuge, Tranberg Road. It is not a through road; however it provided access for emergency and law enforcement personnel to the southwest corner of St. Croix. There are no facilities located in the Refuge, and the only utilities are located at the Refuge Headquarters.

#### *Environmental Consequences:*

##### No Action Alternative:

The No Action Alternative would have no impact to public services or utilities. There can be no cumulative impacts to public services or utilities because there is no direct impact.

##### Action (Preferred) Alternative:

The proposed improvements would have no impact to public services or utilities. There can be no cumulative impacts to public services or utilities because there is no direct impact.

### **7.04 Social Impacts**

The population of St. Croix in 2000 was approximately 53,000, of which about 73 percent were black or African American, 12 percent white, and 15 percent other races (including those who selected more than one race on the Census form). There are no private residences or commercial buildings within the Refuge.

#### *Environmental Consequences:*

##### No Action Alternative:

The No Action Alternative would have no social impacts. There can be no cumulative social impacts because there are no direct impacts.

##### Action (Preferred) Alternative:

The proposed improvements would have no social impacts. There can be no cumulative social impacts because there are no direct impacts.

### **7.05 Economic Impacts**

The percentage of persons below the poverty level on St. Croix is 39 percent. Tourism is an important part of the island's economy as the largest industries are arts, entertainment, recreation, accommodation, and food services; educational, health, and social services; and retail trade.

The construction project would create jobs; however those impacts would be temporary. Better access to this beach area could increase tourism on St. Croix, and have long-term

beneficial impacts to the economy. The road is critical to ongoing research and visitor usage.

*Environmental Consequences:*

No Action Alternative:

The No Action Alternative would have no economic impacts. There can be no cumulative economic impacts because there is no direct impact.

Action (Preferred) Alternative:

The proposed improvements would have no economic impacts. There can be no cumulative economic impacts because there is no direct impact.

### **7.06 Impacts on Historical and Archeological Resources**

The Aklis Archeological Site is located within Sandy Point NWR. This former settlement is located on the southeast corner of the Refuge, on land that was acquired by the Refuge to protect the site and a nearby stand of endangered Vahl's boxwood trees. The site ranges from six to 14 acres in size and was a settlement or village. Primary occupation at the site was continuous, containing a mix of Cuevas/Longford and Monserrate/Magens Bay I ceramic styles dated to a calibrated age range of A.D. 600-900.

*Environmental Consequences:*

No Action Alternative:

The No Action Alternative would have no impact to historical or archeological resources. There can be no cumulative impact to historic or archeological resources because there is no direct impact.

Action (Preferred) Alternative:

Background research of the study area demonstrated that there were no previously recorded sites in the Area of Potential Effects (APEs). The intensive archeological examination of the four APEs discovered no archaeological sites. The proposed undertaking will therefore not affect any archaeological site that is eligible for or listed in the National Register of Historic Places. There can be no cumulative impact to historic or archeological resources from the proposed improvements because there is no direct impact.

### **7.07 Recreational Use**

Sandy Point contains the longest beach in the U.S. Virgin Islands because the shoreline it represents essentially wraps around an enormous sandy peninsula, which comprises the southwestern end of the island of St. Croix. Every year thousands of visitors flock to the Refuge to enjoy the wide sandy beach and warm, clear waters in a lovely, natural setting. The Refuge provides opportunities for controlled observation of wildlife. During most of the year, outside of the leatherback sea turtle nesting season (generally from March

through August) access to the Refuge and its beaches is permitted on Saturday and Sunday from 10 am to 4 pm. Visitation on Saturday and Sunday averages 25 to 50 people per day, and totals approximately 11,000 visitors annually. Tranberg Road often carries heavy vehicle traffic and limited visitor parking space is an issue.

Additionally, hundreds of students, youth groups, and families arrive at the Refuge at night to participate in guided sea turtle nesting and hatching observation. Researchers, student interns, and volunteers help with the Leatherback Sea Turtle Research and Conservation Project. The Turtle Watch Education Program has provided the public with conservation and educational opportunities and a conservation experience directed at learning about nesting leatherback sea turtles.

The Refuge also has a Youth Conservation Corps (YCC) program. For two months in the summer, local teenagers assist with a variety of manual tasks and projects. The aim of the YCC program nationally is to provide environmental and outdoor education and job experience to youths.

Pedestrian access to the beach is allowed. Horseback riding and vehicle use on the beach is prohibited. Landing power boats on the Refuge beach (or attaching anchor lines) is also prohibited. Hunting, camping, and open fires are also not permitted on the Refuge.

#### *Environmental Consequences:*

##### No Action Alternative:

Visitors to the Refuge would continue to encounter difficulty driving on the road, locating adequate parking, and accessing the beaches. The No Action Alternative would continue to adversely impact recreational use.

**Cumulative Impacts:** The installation of Tranberg Road created additional recreational access to the area and its beaches. Currently, access to the beaches is limited to weekends (outside of peak leatherback sea turtle nesting times) due to limited staff. Opening the Refuge to the public during the week would increase recreational use of the Refuge. Permitted activities would not change. The other present and future activities combined with the No Action Alternative would have a beneficial impact on recreational use.

##### Action (Preferred) Alternative:

Parking and vehicle movement through the Refuge would be improved. These improvements would be noticeable to visitors, and may cause a slight increase in the number of visitors to the Refuge. Access to the Refuge and its beaches would not be changed as a result of this project.

**Cumulative Impacts:** The installation of Tranberg Road created additional access to the area and its beaches, however once the area became a Refuge, access to the beaches was limited to weekends outside of peak nesting times. Opening the Refuge to the public during the week would have a noticeable beneficial impact on recreational use of the

Refuge; however the permitted activities would not change. The other present and future activities combined with the Action Alternative would have a beneficial impact on recreational use.

### **7.08 Waste Disposal**

Disposal of wastes and refuse is a major problem on heavily populated islands. Accumulation of trash, household refuse, and industrial waste, combine with point and non point source water pollution from cars leaking engine oil or radiator fluid, road spills, excessive exhaust emissions, runoff during heavy rains containing agricultural substances (pesticides, fertilizers, and sediments), and inadequate sewer systems that frequently fail, ensure a continual influx of contaminants into the ecosystem.

*Environmental Consequences:*

#### No Action Alternative:

The No Action Alternative would no impact waste disposal. There can be no cumulative impact to waste disposal because there is no direct impact.

#### Action (Preferred) Alternative:

The construction contractor would be responsible for the disposal of any wastes generated by the proposed project during construction and operation. The proposed improvements would not impact waste disposal. There can be no cumulative impact to waste disposal because there is no direct impact.

### **7.09 Accidental Spills**

Best Management Practices (BMPs) and Spill Pollution Prevention plans are used to minimize the potential for any accidental releases of hazardous waste such as oil, fuel, etc. A Spill Prevention Plan specifies materials handling procedures and storage requirements and identifies spill cleanup procedures for areas and processes in which spills may potentially occur.

*Environmental Consequences:*

#### No Action Alternative:

The No Action Alternative would no impact accidental spills. There can be no cumulative impact to accidental spills because there is no direct impact.

#### Action (Preferred) Alternative:

The proposed improvements would slightly increase the likelihood for accidental spills because of the presence of heavy equipment during construction. A Spill Prevention Plan and BMPs would be implemented to decrease the chances of an accidental spill, and ensure a process is in place for the clean-up of any accidental spills.

Cumulative Impacts: The presence of vehicles along Tranberg Road creates a potential for the accidental spilling of hazardous fluids, such as oil and fuel. However, these amounts would likely only be a result of leaks, and be of a negligible amount. The other present and future projects combined with the Action Alternative would have a negligible increase in the possibility for accidental spills.

#### **7.10 Potential Adverse Effects which Cannot be Avoided**

##### No Action Alternative:

The implementation of the No Action Alternative would include potential adverse impacts that cannot be avoided to vegetation, recreational use, and erosion. Vegetation would continue to be disturbed due to vehicles parking on the side of the road as a result of inadequate parking. The inadequate parking, uneven roadway surface, flooding at the West End Salt Pond, and dangerous curve at the Refuge Headquarters would continue to impact recreation use. Erosion of the sand and clay that currently comprises Tranberg Road would continue. These impacts would be permanent.

##### Action (Preferred) Alternative:

The implementation of the Action Alternative would include potential adverse impacts that cannot be avoided to vegetation, wildlife habitat, soils, and air quality. Approximately 2.02 acres of vegetation, wildlife habitat and soils would be impacted through the realignment of Tranberg Road and the construction of new and redesigned parking areas. These impacts would be permanent. Air quality would be impacted during construction from the emission from the construction equipment, and the disturbance of the earth, which would increase dust in the air. These impacts would be temporary, ending once construction is completed.

## **8.00 MITIGATION PLANS**

Mitigation for impacts to terrestrial habitat and habitat connectivity consist of the following measures:

- Construction of least tern nest platforms
- Planting of mangroves at West End Salt Pond
- Installation of culverts to maintain water flow and habitat connectivity in the vicinity of the West End Salt Pond
- Best Management Practices to minimize erosion and sediment control

## **9.00 ALTERNATIVES TO PROPOSED ACTION**

### Alternatives that were Considered, but Dismissed

The proposed action improves an existing roadway; therefore, alternate locations of the roadway were not explored. Improvements to the parking areas were explored and an alternative variation of the parking at 904 was analyzed. It was determined that adequate parking along the loop was being provided; therefore this extra parking area was not necessary.

### No Action Alternative

A discussion of the No Action Alternative can be found throughout sections 5.00, 6.00, and 7.00 of this document.

## **10.0 RELATIONSHIP BETWEEN SHORT & LONG TERM USE OF MAN'S ENVIRONMENT**

Nonrenewable resources that may be irreversibly committed to the Action Alternative include funding to complete the design and environmental compliance for the proposed action, funding for the construction of the project, and the resources used to construction the project. These resources would likely be aggregate material, materials used for sign construction, and materials used to construct drainage structures and erosion control measures. The improvements to Tranberg Road would not provide new access to previously not accessible via the existing roadway. However, improvements to Tranberg Road will provide for safe access for future generations.

## **11.0 REFERENCES**

### **LIST OF PREPARERS AND REVIEWERS**

The following individuals contributed to the development of this document:

#### Federal Highway Administration

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Charles Crawford, Highway Designer

Joseph Fabis, Highway Designer

#### Sandy Point NWR

Michael Evans, Refuge Manager

Claudia Lombard, Biologist

### **COORDINATION**

The following agencies will receive a copy of this report:

Office of the Delegate to Congress, U.S. Virgin Islands

Office of the Governor, U.S. Virgin Islands

Virgin Islands Department of Housing, Parks, and Recreation

Virgin Islands Department of Planning & Natural Resources

Virgin Islands Coastal Zone Management

Virgin Islands Department of Public Works

Virgin Islands Department of Tourism

University of the Virgin Islands, Cooperative Extension Service

National Park Service

Our Town Frederiksted

St. Croix Environmental Association

The Nature Conservancy

The Environmental Assessment will be made available to the public for review and comment for at least 30 days.

### **PERMITS**

The following permits are expected to be necessary for the implementation of the Action Alternative:

TPDES Permit: The Department of Planning and Natural Resources, as authorized by the Environmental Protection Agency, administers the Virgin Islands Water Pollution Control Act Rules and Regulations (Title 12, Chapter 7, Section 184-26 of the Virgin

Islands Rules and Regulations). Stormwater discharges from construction activities that disturb a total of 1 or more acres of land require a TPDES permit.

Coastal Zone Management Act Permit: The Department of Planning and Natural Resources administers the Virgin Islands Coastal Zone Management Act. A permit is required for any development activity in the first tier of the coastal zone.

## **REFERENCES**

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Division of Coastal Zone Management. <http://czm.dpnr.gov.vi/>

Division of Environmental Protection. <http://www.dpnr.gov.vi/dep/home.htm>