



Shark Valley Site Plan Environmental Assessment



February 2022

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**United States Department of the Interior
National Park Service
Everglades National Park**

**Shark Valley Site Plan
Environmental Assessment**

February 2022

The National Park Service (NPS) proposes to enhance visitor experience, safety, and park operations at Shark Valley by providing on-site overflow parking, shelter/rest stops along the Tram Road, and increasing infrastructure resiliency at the Entrance Road, Tram Road, and the Administration Complex.

NPS prepared this environmental assessment (EA) to evaluate two action alternatives, describe the environment that would be affected by the alternatives, and assess the environmental consequences of implementing the alternatives. NPS also evaluated the impacts of a no-action alternative, which would maintain the existing parking and facilities conditions at Shark Valley. This EA examines potential impacts on wildlife and species of special concern; vegetation, wetlands, and soils; hydrology and water quality; visitor use and experience; human health and safety; lightscapes; and viewsheds.

This EA has been prepared in accordance with the National Environmental Policy Act and its implementing regulations (40 Code of Federal Regulations [CFR] 1500–1508) and Director’s Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2011) and its accompanying handbook (NPS 2015a) to assess the alternatives and their impacts on the environment.

Public Review and Comment

This EA will be available for public review for 30 days. If you wish to comment, you are encouraged to submit your comments directly through the NPS Planning, Environment, and Public Comment (PEPC) website: <http://parkplanning.nps.gov/ever>. You may also mail written comments to:

Everglades National Park
Superintendent
Shark Valley Site Plan EA
40001 State Road 9336, Homestead FL 33034

Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment, including your personal identifying information, may be made publicly available. While you can ask in your comment to withhold your personal identifying information from public review, NPS cannot guarantee that it will be able to do so.

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CHAPTER 1: PURPOSE AND NEED

INTRODUCTION AND PROPOSED ACTION

The National Park Service (NPS) is proposing to implement a site plan to address issues related to visitor safety concerns as a result of unsafe parking conditions and flooding at Shark Valley Visitor Center within Everglades National Park (Everglades NP or “the park”). This Environmental Assessment (EA) describes three alternatives, including the no action alternative, and analyzes the environmental consequences of the alternative actions proposed in the Shark Valley Site Plan (or “Site Plan”).

This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA); Council on Environmental Quality (CEQ) implementing regulations effective September 14, 2020, [40 Code of Federal Regulations (CFR) 1500-1508]; Director’s Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision making* (NPS 2011) and NPS NEPA Handbook (NPS 2015a). The NPS is also separately and concurrently preparing an assessment of effect to comply with the requirements of Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 USC 306108), and its implementing regulations (36 CFR 800).

BACKGROUND

Everglades NP was authorized by the United States (US) Congress in 1943. Through efforts by many supporters and funding provided by the State of Florida, Everglades NP was formally established as a national park in 1947. The park was the first national park in the US set aside solely for its biological resources rather than its scenic or historic values. The park covers 1.5 million acres and encompasses approximately 2,350 square miles of freshwater sloughs, sawgrass prairies, mangrove forests, and estuaries extending from US-41/Tamiami Trail south into Florida Bay (see Figure 1). In 1978, nearly 86%, or approximately 1.3 million acres of the park, was designated as permanent wilderness, preserving essential primitive conditions, including the natural abundance, diversity, behavior, and ecological integrity of the unique flora and fauna. More than 60 years after the park was established, protection of natural resources and the ecosystem remains and primary focus of park management.

A wide variety of recreational opportunities is available to visitors throughout Everglades NP. Popular activities include wildlife viewing, nature hikes, fishing, camping, bicycling, motor boating and kayaking/canoeing. The 99-mile-long Wilderness Waterway runs through the western portion of the park which provides backcountry boating and camping experiences. Five visitor centers provide visitors with interpretation, educational information and opportunities including access to the Ten Thousand Islands and western backcountry, Florida Bay, Whitewater Bay and the backcountry and the Upper Keys. The Shark Valley Visitor Center is located at the heart of the park’s freshwater ecosystem including the Northeast Shark River Slough.

The Shark Valley District is located 30 miles west of Miami off of US-41/Tamiami Trail in a freshwater marsh. The facilities at Shark Valley include Tram Road, a 15-mile loop located in the heart of the Shark River Slough that features the Observation Tower at the half way mark. The project area and visitor facilities

for the Site Plan are shown in Figure 2. Multiple recreational opportunities are provided for visitor use, all centered around the use of the Tram Road. Visitors are able to bring or rent bicycles to cycle the loop, purchase a ticket to ride the tram on a two hour naturalist guided tour, walk sections of the road or utilize one of the three trails available. Two trails, Otter Cave Hammock and Bobcat Boardwalk, are located within walking distance of the Shark Valley Visitor Center parking lot. The Borrow Pit Trail is located at the observation tower, located seven miles from the Visitor Center. Visitors do choose to walk the Tram Road on occasion, completing the 15-mile hike, or walking sections of the road. The 65-foot (ft.) observation tower located at the halfway point of Tram Road, provides panoramic views of the sawgrass marsh. A visitor center and concessions gift store are also located in Shark Valley.

The Shark Valley Visitor Center sees approximately 120,000 visitors each year, with highest visitation occurring particularly in the winter months. With the existing parking conditions (120 parking spaces), the parking is inadequate and does not accommodate the number of visitors to the park during periods of high visitation. With the current configuration, when the parking lot is full, visitors often park along US-41/Tamiami Trail, which poses a safety challenge for moving vehicles and pedestrians walking along US-41/Tamiami Trail to enter Shark Valley.

As documented in NPS Director's Order 2: Park Planning, general management planning for units of the national park system is conducted through a "portfolio planning" approach. Rather than relying on one regularly revised comprehensive document to meet a park's statutory requirements for park planning, parks may instead meet individual requirements through more targeted planning efforts that focus on specific sites, uses, or resources. These targeted efforts can either provide entirely new guidance or can update existing guidance. This document is part of the planning portfolio for Everglades NP. While the Site Plan improvements have been discussed in previous planning efforts, this document specifically addresses the safety and visitor experience improvements associated with public enjoyment and use of the area.

The existing guiding documents in the planning portfolio for the Site Plan include the Central Everglades Planning Project, Everglades Final General Management Plan, Everglades National Park Foundation Document and the Old Tamiami Trail Modifications Project. This project provides specific improvements for recreational and safety enhancements at the Shark Valley Visitor Center, consistent with these longer-term planning documents. The proposed project is anticipated to enhance visitor experience, safety, site resiliency and park operations at the Shark Valley Visitor Center. The plans that reference improvements to alleviate congestion and impacts from climate change and sea level rise at Shark Valley Visitor Center and were used to inform the proposed action described in this EA are below:

- Central Everglades Planning Project (CEPP) (2014)
- Final General Management Plan/East Everglades Wilderness Study (GMP/EEWS) (2015)
- Everglades National Park Foundation Document (2017)
- Old Tamiami Trail Modifications Project (2018)

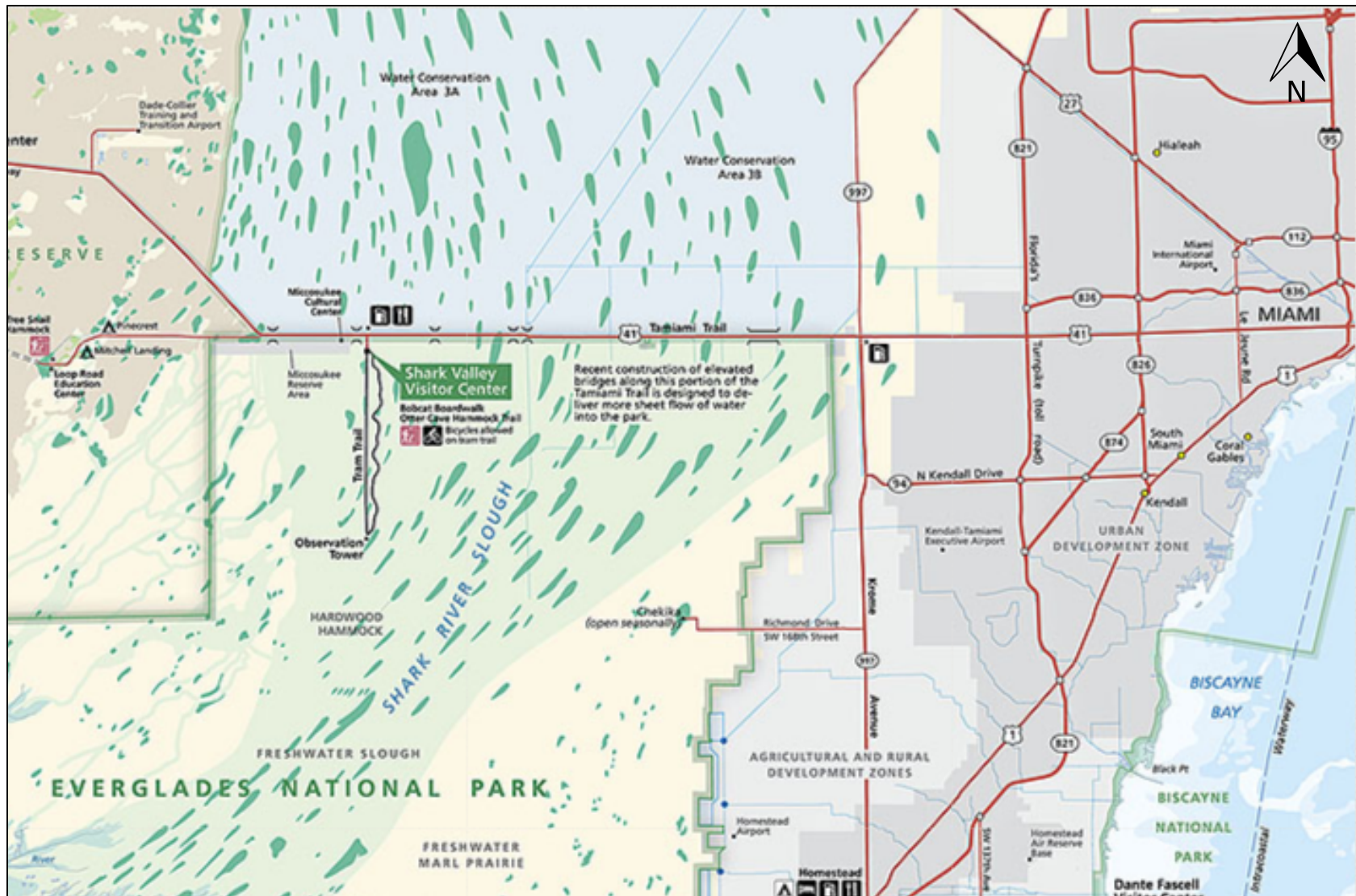


Figure 1. Project Vicinity Map

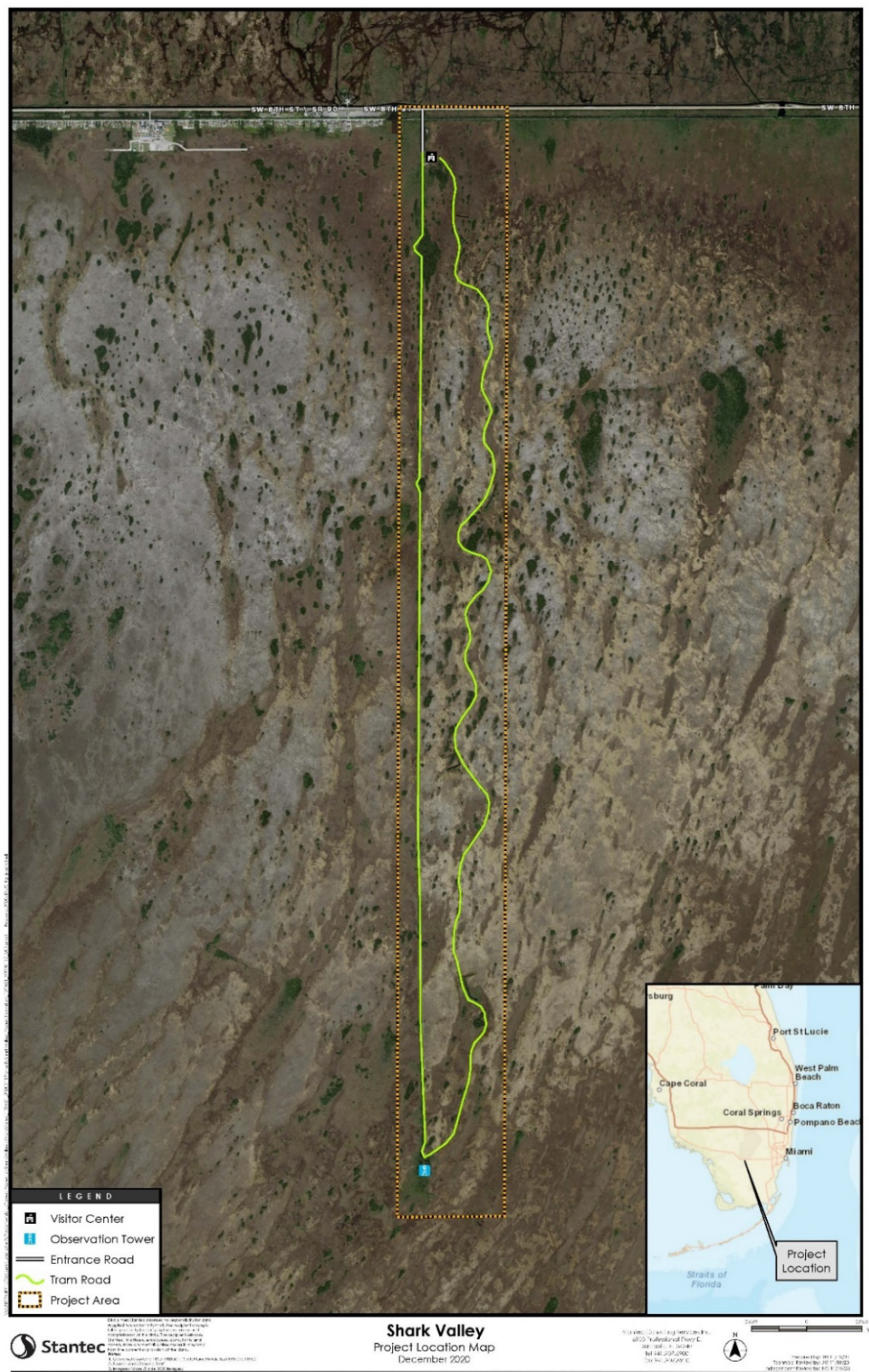


Figure 2. Project Location Map

Central Everglades Planning Project (2014)

In 2014, an Environmental Impact Statement (EIS) was developed for the Central Everglades Planning Project (CEPP), which was intended to improve quantity, quality, timing and distribution of water flows to the Northern Estuaries, central Everglades and Florida Bay, while increasing water supply for municipal, industrial and agricultural users (USACE 2014). The recommended plan sought to achieve these benefits by reducing the large pulses of regulatory flood control releases sent from Lake Okeechobee by redirecting approximately 210,000 acre-feet of water on an annual basis to the historical southerly flow path. As part of this effort to achieve additional deliveries of water to the park, removal of approximately 6 miles of Old Tamiami Trail between Shark Valley Entrance Road and the L-67 extension levee was proposed. This work was part of the Old Tamiami Trail Modifications Project.

Final General Management Plan/East Everglades Wilderness Study (2015)

In 2015, NPS approved the Final GMP/EEWS/EIS to provide long-term guidance for management of the park (NPS 2015). This plan identifies planning issues and concerns across the park, including impacts from climate change, storm surge, sea level rise and the cost and economic feasibility of new development at Everglades NP. The GMP/EIS articulates the park's mission, purpose, and significance, and defines desired resource conditions and visitor experiences to be achieved parkwide over a 20-to-30-year planning horizon. It also provides a framework for protecting resources, managing visitor experience and use, and determining the need for development in or near the park.

The GMP/EIS also seeks to address issues of congestion and crowding, including specific direction for managing these issues throughout Shark Valley, which had become congested during peak winter months at that time. The plan noted that this congestion affected visitor services and strained park infrastructure. Maintaining high levels of visitor satisfaction with park experiences is an important management goal for the NPS.



Figure 3. Parking Along US-41/Tamiami Trail

The GMP/EIS established a carrying capacity for all visitor areas within Shark Valley of 400-500 people at one time based on crowding, as well as visitor safety. The plan discussed the addition of shelters/rest stops along the Tram Road and additional onsite parking and traffic flow improvements to improve the visitor experience. The GMP/EIS states that NPS would pursue on-site options for improving parking and traffic flow conditions during peak times, which enhances visitor experience. Based on this analysis, the Site Plan incorporates an overflow parking lot consisting of 105 parking spaces in addition to the existing parking lot at the Visitor Center. The alternatives analyzed in this EA address the issues discussed in the GMP/EIS.

This EA tiers off the GMP/EIS and incorporates it by reference. “Tiering” refers to the coverage of general matters in broader or programmatic NEPA documents and focusing successive NEPA processes on the particular issues ripe for decision (40 CFR 1508.1). The GMP/EIS generally analyzes the impacts associated with the addition of shelters/rest stops along the loop road and additional onsite parking and traffic flow improvements at Shark Valley to improve the visitor experience. A copy of the GMP/EIS can be found at parkplanning.nps.gov/ever under “Archived Projects”. This EA analyzes site-specific impacts on wildlife and species of special concern; vegetation, wetlands and soils; hydrology; and other resources from a range of alternatives that would place the overflow parking area at different locations and raise the Tram Road to different elevations.

Everglades National Park Foundation Document (2017)

The Everglades National Park Foundation Document was prepared in 2017 to provide basic guidance for planning and management decisions (NPS 2017). The core components of the document include a brief description of the park as well as the park’s purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes.

Old Tamiami Trail Modifications Project (2018)

In 2018, NPS approved an Environmental Assessment (EA) for the Old Tamiami Trail Modifications Project, which was intended to enhance sheetflow into the Shark River Slough by removing 5.45 miles of the Old Tamiami Trail roadbed. It was anticipated that this project would complement the Site Plan by plugging the Entrance Road Canal, which would provide the necessary space for an additional travel lane to the Shark Valley Visitor Center. In 2020, the South Florida Water Management District (SFWMD) began removing the Old Tamiami Trail and completed the project in October 2021. A quarter-mile portion of the Old Tamiami Trail near the Shark Valley Entrance Road was retained to provide new interpretive and recreational opportunities for visitors to experience the biological and historical cultural resource values present at that site in the park.

PURPOSE AND NEED FOR ACTION

Purpose of Action

To meet the objectives established in the 2015 GMP/EEWS, the purpose of this action is to enhance visitor experience, safety and park operations at Shark Valley. This includes providing overflow parking, minimizing traffic congestion, enhancing traffic circulation during peak times, providing after-hours parking access, and providing shelters/rest stops along the Tram Road.

Need for Action

The improvements proposed under the Site Plan are anticipated to meet the NPS need of enhancing visitor experience, safety, and park operations while making the Shark Valley facilities more resilient to flooding impacts as a result of changes in intensity or frequency of tropical storm events as well as rising water levels resulting from the implementation of the Central Everglades Planning Project (CEPP). The proposed improvements would also meet the need to minimize congestion at the Entrance Road and at the Visitor Center parking area, provide after-hours parking access, and provide high quality visitor experiences and services.

Objectives in Taking Action

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

- Enhance visitor experience and safety by providing on-site overflow parking.
- Increase infrastructure resiliency by mitigating flooding at the Entrance Road, Tram Road and the Administration and Operations Complex (or “Administration Complex”).
- Provide resilient solutions to parking and structures of the existing Administration Complex.
- Promote long-term viability of commercial services.
- Enhance visitor experience by providing pedestrian rest stops on the eastern portion of Tram Road.

ISSUES AND IMPACT TOPICS

The NPS, participating agencies and stakeholders, and members of the public identified specific issues and concerns related to implementing the proposed action, or any alternative within the Site Plan, during civic engagement. Some of these issues and concerns were considered by the NPS but were ultimately dismissed from detailed analysis because they were determined not central to the proposal or of critical importance. Other issues and concerns were retained for detailed analysis and are included in the impact topics that are discussed in the “Affected Environment and Environmental Consequences” chapter of the EA. NPS organizes the discussions of the affected environment and environmental consequences by “impact topics,” which are headings that represent the affected resources associated with the issues refined during civic engagement and internal coordination.

Impact Topics Analyzed for Detailed Analysis

As described in the preceding section, this EA analyzes issues and impact topics for the project area. Impact topics are related to the following resources and values: vegetation, wetlands, and soils; wildlife and species of special concern; hydrology and water quality; visitor use and experience; human health and safety; lightscapes; and viewsheds. Issues analyzed in this EA were identified with support from an interdisciplinary team established for this project.

Impact Topics Considered but Dismissed from Further Analysis

NEPA and the CEQ regulations direct agencies to prepare NEPA documents that are “concise, clear and to the point”. Several issues and impact topics were considered during the development of the EA but ultimately were dismissed from detailed analysis for the following reasons: potential environmental impacts associated with the issue are not central to the proposal or of critical importance and/or a detailed analysis of environmental impacts related to the issue is not necessary to make a reasoned choice between alternatives. In addition, in cases where impacts are not anticipated, or expected to be minimal, the impact topics were dismissed. Details on the dismissal for these issues are described in the following subsections.

Air Quality

Everglades NP is located within a designated attainment area under the Clean Air Act. The Site Plan would have negligible effects on air quality compared to regional emissions. Impacts to air quality would be similar amongst both action alternatives. The proposed action would result in the discharge of greenhouse gas emissions and dust into the atmosphere. There would be short term, temporary impacts during the construction period from the use of construction equipment. However, these impacts would be negligible, and only occur while construction equipment is in use.

Ethnographic Resources

Ethnographic resources include landscapes, objects, plants and animals or sites and structures that are important to a people’s sense of purpose or way of life. Although ethnographic resources important to the areas’ Native American Tribes exist in the Everglades, no ethnographic resources have been identified in the project area at this time.

Archeological Resources

An archaeological assessment of the project area was prepared in June 2021. Archeological surveys were conducted in October 2020 and February 2021 within the study area. A visual reconnaissance and pedestrian survey indicated that areas conducive to shovel testing survey occur only along the Tram Road. The proposed overflow parking areas are all completely inundated and have little potential to contain cultural resources. Reviews of historic aerials confirmed that no deflated tree islands are present, and therefore inundated archaeological sites do not exist within these areas. Along the Tram Road, shovel testing was conducted adjacent to nearby tree islands and confirmed that cultural resources are not present.

There are fourteen previously recorded archeological sites within one mile of the study area and three known sites (8DA67, 8DA73 and 8DA136) are located within the study area boundary, adjacent to the Tram Road. The three sites were subject to shovel testing and no cultural deposits were found. Therefore,

none of these sites would be impacted by the project. Furthermore, a cultural resources monitor and/or fencing would be used as required to protect archeological resources during construction.

Cultural Landscapes

The project area is within the Shark Valley Developed Area Historic District, a cultural landscape. In 1965, during the early part of the NPS's Mission 66 program, the Observation Tower (tower) at the southernmost tip of Tram Road was constructed. A Setting Analysis of the Shark Valley Mission 66 Historic District was conducted by the NPS in October 2021. The location that provides the most visibility of the landscape is from the top of the tower, looking north. The view from the tower revealed that the existing parking lot, Visitor Center, and other structures are not visible in the landscape, as they are hidden by heavy and dense vegetation cover. Based on the analysis, the existing vegetation cover would significantly reduce, and in most cases prevent, visibility of the proposed overflow parking area and rest stops from being visible, or having any impacts on the setting, feeling or association of the Shark Valley Mission 66 Historic Landscape. Therefore, there would be no impacts to cultural landscapes from any of the alternatives considered.

Soundscapes

The construction activities would have short term, temporary impacts on noise. Any impacts on visitors to Shark Valley from construction noise is discussed under "Visitor Use and Experience". Any impacts on wildlife in Shark Valley from construction noise are discussed under "Wildlife and Species of Special Concern".

Geology

The improvements may include the excavation of soft material for the overflow parking lot and Entrance Road, including for drainage. However, no impacts to geologic features are anticipated as a result of the action alternatives. The loss of native soil, potential for increased turbidity during construction and compaction of existing soils will be discussed under "Vegetation, Wetlands and Soils".

Socioeconomics

The Site Plan would not discernably affect socioeconomics as a result of the proposed action. There are two minority populations (Native Americans and Hispanics) in the vicinity of the project area. However, the project is not expected to negatively impact minority populations in the long-term; the proposed action would better accommodate existing visitation levels and address unsafe parking conditions while adhering to the previously defined capacity of 400-500 people at one time at Shark Valley. Therefore, visitor-related economic impacts from spending at nearby tourism-related businesses and attractions (Miccosukee Indian Village) would remain the same. Economic impacts related to the implementation of the NPS preferred alternative would be one-time capital costs and would be short-term and negligible to the local and regional economy. Additionally, staffing would remain the same resulting in no change in the current economic impact. Short-term impacts during construction activities may reduce the number of visitors and associated spending in the project area. However, the NPS will avoid or limit construction activities during peak visitor-use periods to the extent possible in order to mitigate these short-term impacts.

Floodplains

Executive Order 11988, "Floodplain Management" requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.

The project area is located within a floodplain and is prone to flooding during the wet season. Hydrologic analysis has been conducted using data collected since 1963 and detailed site elevation data has been collected by Light Detection and Ranging (LIDAR). The analysis identified the area's most prone to flooding throughout the Shark Valley region and recommended raising the finished roadway elevation of the Entrance Road, Tram Road and the finished floor elevation of the Administration Complex to minimize seasonal flooding during the wet season to the greatest extent feasible. Raising these features would minimize impacts to the facilities from flood waters, enhance resiliency and minimize impacts to visitor use, and provide additional days throughout the year to access the area. Both action alternatives include raising the elevation of these facilities to mitigate the impacts of future flood and storm events. The overflow parking lots would also have a finished roadway elevation above the flood elevation. Therefore, a Floodplain Statement of Findings (FSOF) is not required as there would be no impacts to human health and life, capital investment nor effects to natural beneficial floodplain values as outlined in the companion procedural manual to DO 77-2. Minimization of harm and risks to life and property is accomplished by raising the Entrance Road and Tram Road elevations and the finished floor elevations at the Administration Complex for future flooding events. For these reasons, no long-term, adverse impacts to floodplains are anticipated as a result of this project.

Wilderness

The proposed action is outside of wilderness boundaries. However, wilderness boundaries are located east, west and south of Shark Valley. An appropriate buffer between the overflowing parking lot and wilderness was a consideration during the development of the proposed alternatives. Therefore, no impacts to wilderness are anticipated as a result of this project.

CHAPTER 2: ALTERNATIVES

CEQ implementing regulations for NEPA provide guidance on the consideration of alternatives in an EA. These regulations require the decision-maker (NPS) to consider the environmental effects of the proposed action and a range of alternatives, including no action (40 CFR 1502.14). NPS must consider reasonable alternatives, and for alternatives eliminated from detailed study, briefly discuss the reasons for them having been eliminated. To be reasonable, an alternative must meet the stated purpose of and need for the project and be technically and economically feasible.

The alternatives analyzed in this EA are based on the result of internal scoping and civic engagement. Alternatives and actions that were considered but would not be feasible and would not meet the purpose and need of the project were dismissed. These alternatives and their reasons for dismissal are discussed in the “Alternatives Considered but Dismissed from Detailed Analysis” section of this chapter.

NPS explores and objectively evaluates three alternatives in this EA:

- Alternative A (no action)
- Alternative B – Overflow Parking Lot Immediately South of US-41/Tamiami Trail
- Alternative C (proposed action and preferred alternative) – Overflow Parking Lot Immediately North of Visitor Center

ALTERNATIVE A (NO ACTION ALTERNATIVE)

Under alternative A (no action), the NPS would maintain the existing conditions at the Shark Valley Visitor Center. The existing parking facility is one parking lot at the Visitor Center consisting of 120 parking spaces. The current typical section of the Entrance Road has two-lanes, one inbound to the Visitor Center, and one-lane outbound to US-41/Tamiami Trail. The existing lowest elevation on Entrance Road is 9.7 ft. National Geodetic Vertical Datum (NGVD) [8.2 ft. National American Vertical Datum of 1988 (NAVD)]. The existing elevation on Tram Road is 7.6 ft. NGVD (6.10 ft. NAVD) on the southern end and 11.0 ft. NGVD (9.5 ft. NAVD) on the northern end. The existing typical section, traffic flow of the Entrance Road and number of parking spaces at the Visitor Center would not change. No overflow parking would be provided, and no improvements would be made except for existing routine maintenance of any feature or structure within the Shark Valley District. The no action alternative is used as a basis to compare and evaluate the other project alternatives.

ALTERNATIVE B – OVERFLOW PARKING LOT IMMEDIATELY SOUTH OF US-41/TAMIAMI TRAIL

Under alternative B, a new overflow parking lot would be proposed immediately south of US-41/Tamiami Trail, east of the Entrance Road. The parking lot would include 105 parking spaces (Figures 4 and 5) and would be approximately 2,000 feet walking distance from the Visitor Center. Six bus/recreational vehicle parking spaces would be installed in the center island at the end of the Entrance Road near the Visitor Center. The existing traffic flow would be maintained along Entrance Road and within the Visitor Center

parking area. A new sidewalk would be constructed along the east side of the Entrance Road from the new overflow parking lot to the Visitor Center. A sidewalk connecting the bus/RV parking lot to the Visitor Center would be constructed along the southern edge of the center island.

Alternative B would provide a visual buffer between the overflow parking and the rest of Shark Valley. This alternative would provide visitors a parking lot to access Shark Valley outside of park visiting hours when the gate is closed. Cameras and dark sky friendly parking lot lights would be installed at the overflow parking lot for security. Dark sky friendly lighting would also be installed along the Entrance Road sidewalk. Alternative B would incorporate dynamic/variable message signs for parking condition updates to alert visitors to use the overflow parking lot before proceeding to the Entrance Road.

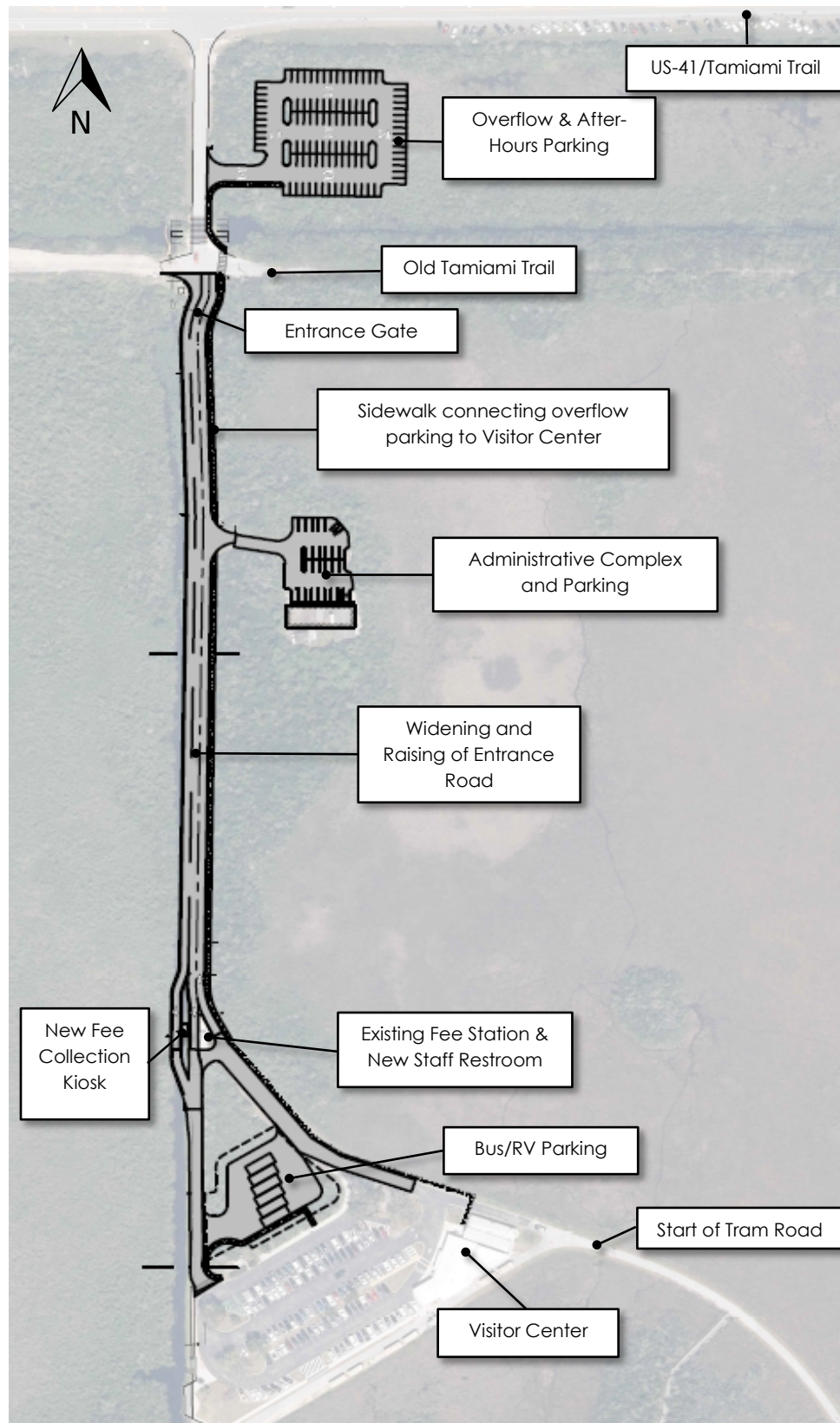


Figure 4. Overview of Alternative B

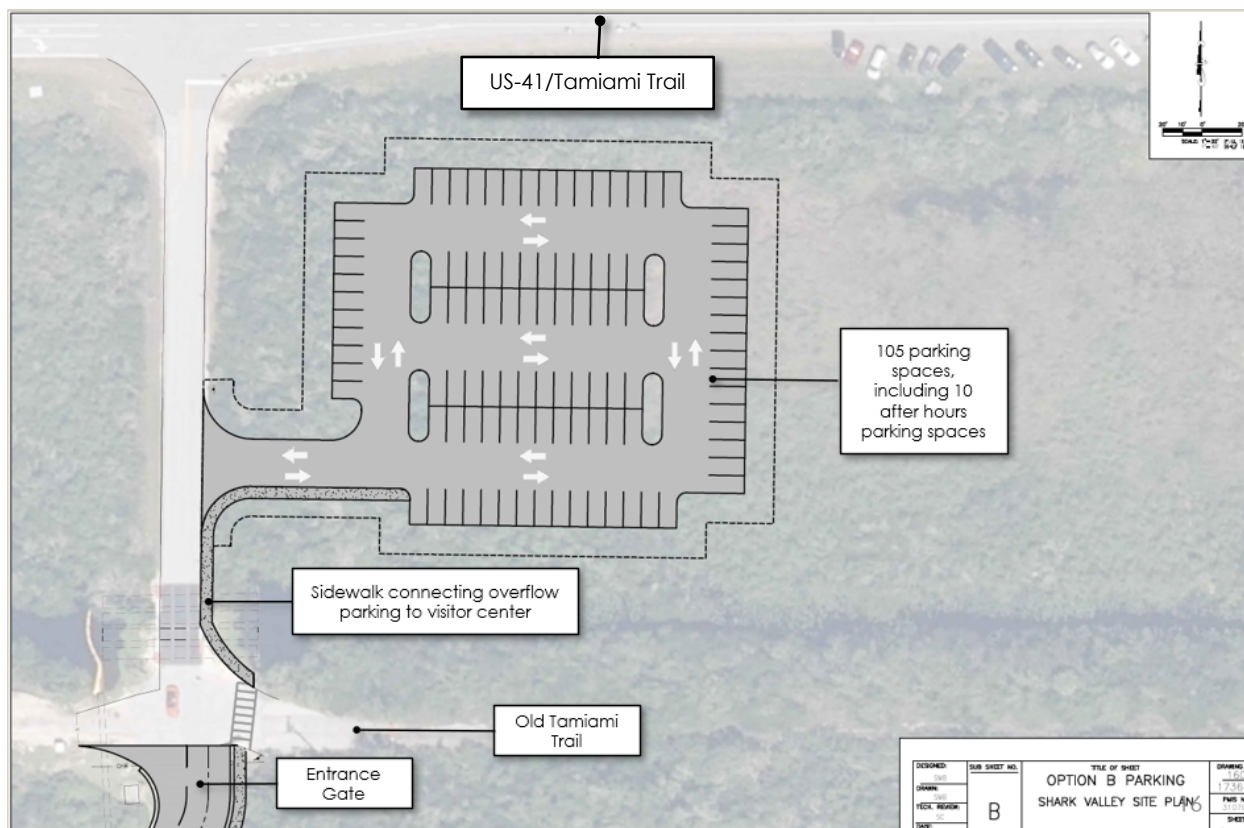


Figure 5. Enlarged View of Overflow Parking Lot for Alternative B

ALTERNATIVE C (PROPOSED ACTION AND PREFERRED ALTERNATIVE) – OVERFLOW PARKING LOT IMMEDIATELY NORTH OF VISITOR CENTER

Under the preferred alternative, a total of 105 standard and six bus/RV parking spaces would be provided. An overflow parking lot with 95 standard parking spaces and six bus/RV parking spaces would be located immediately north of the Visitor Center, inside the entrance gate. A small parking lot of 10 standard parking spaces would be provided east of the Entrance Road, using a portion of the remaining Old Tamiami Trail, to provide after-hours parking when the entrance gate is closed. Cameras would be installed at the after-hours parking lot for security. The existing traffic flow would be maintained along Entrance Road and within the Visitor Center parking area. Visitors would be directed to the main parking lot first, then to the overflow parking lot when needed (Figures 5, 6 and 7).

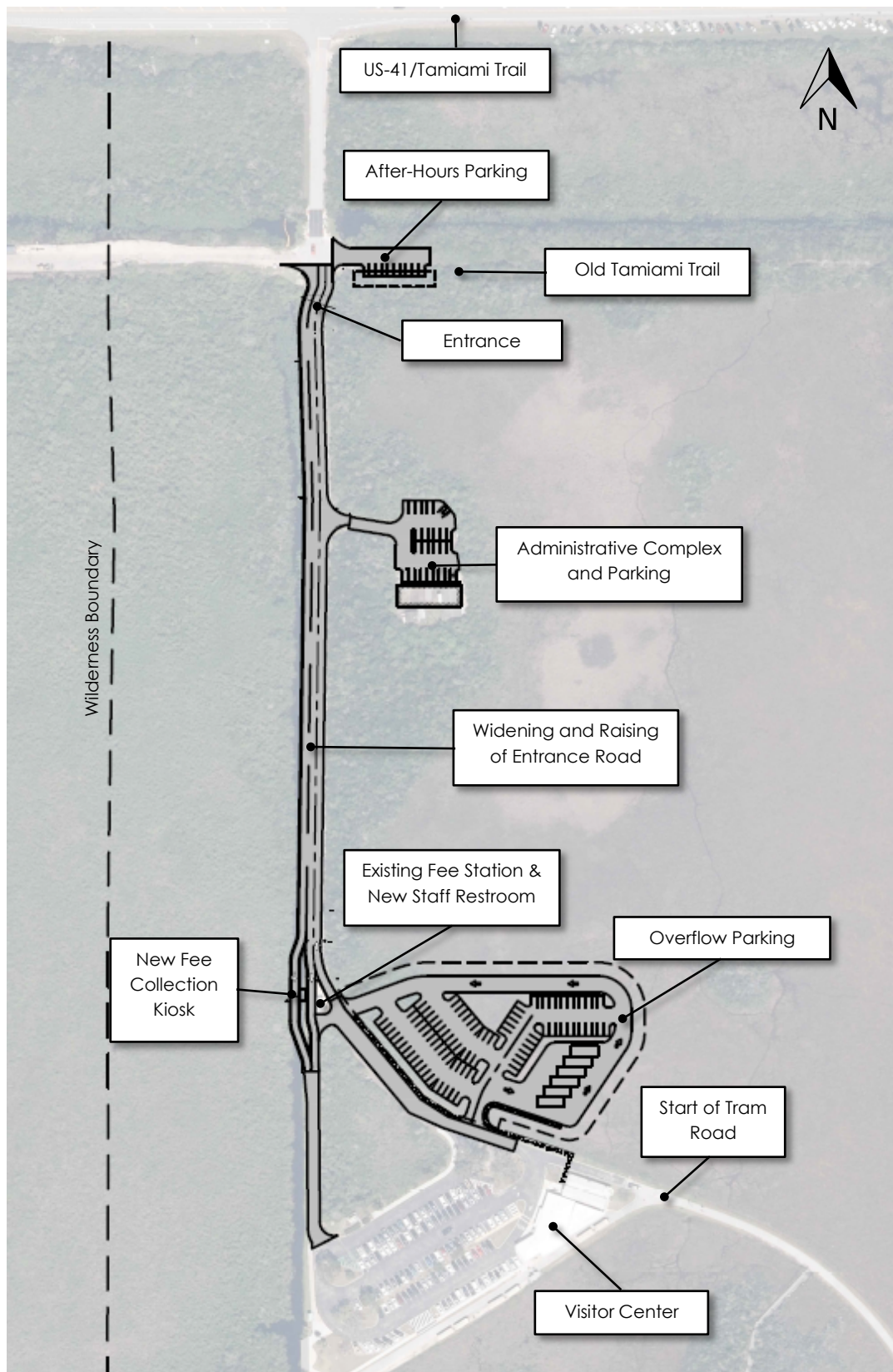


Figure 6. Overview of Alternative C

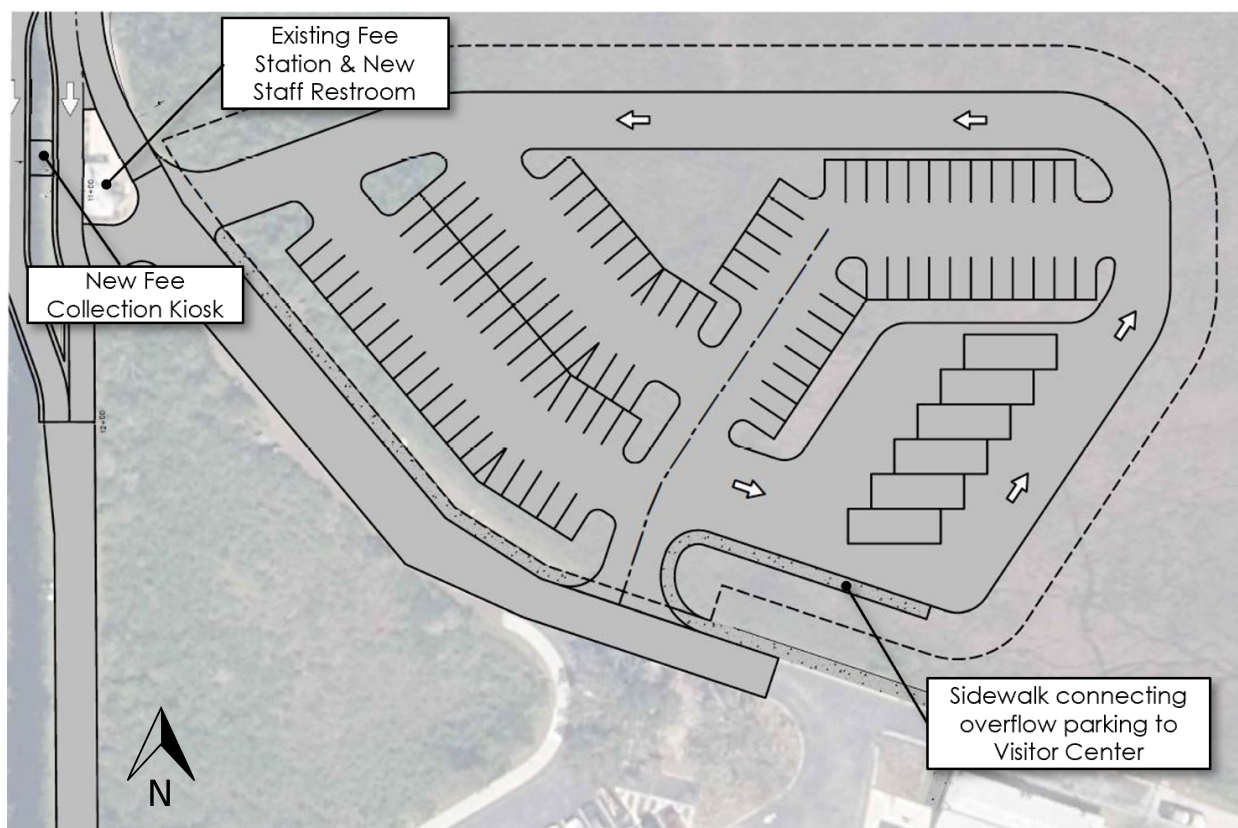


Figure 7. Enlarged View of Overflow Parking Lot for Alternative C

ELEMENTS COMMON TO ALL ACTION ALTERNATIVES

In addition to the alternatives mentioned previously in this chapter, the Site Plan would include several complementary elements that were analyzed as part of the 2015 GMP/EEWS. The park would evaluate improvements at the Administration Complex and along Tram Road to make these facilities more resilient, which would minimize impacts from future flooding and storm events and enhance visitor experience and safety. The improvements considered are outlined in the following subsections.

Administration Complex

The 2015 GMP/EEWS identifies centralizing law enforcement, maintenance operations, along with resource management administrative facilities in one new facility. The existing parking lot elevations at the Administration Complex varies from 9.5 ft. to 10.67 ft. NGVD (7.99 ft to 9.16 ft. NAVD). This EA takes into account the improvements to raise approximately 0.47 acres of the previously developed site elevation to 11.5 ft. NGVD (10.0 ft. NAVD) to make the site less susceptible to flooding. All work would occur within the previously developed footprint of the Administration Complex. The Administration Complex would consolidate the law enforcement, maintenance, and interpretive operations into a new facility, as well as improve parking lot design to better serve staff, volunteers, and concession staff parking needs (see Figure 8).

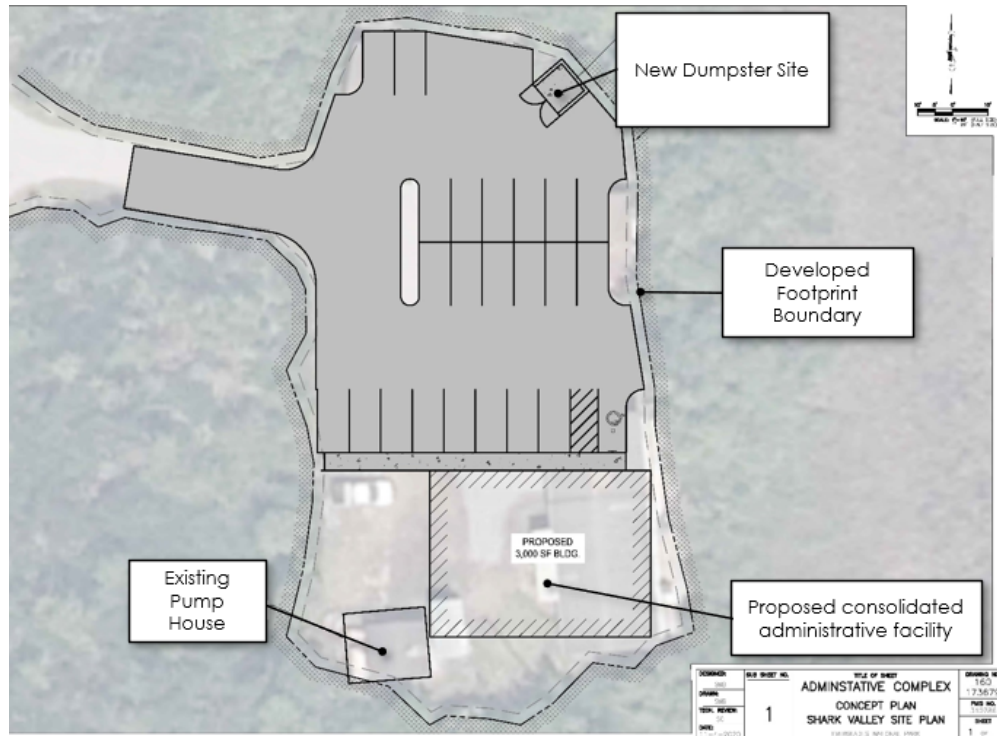


Figure 8. Proposed Site Layout for the Administration Complex

NAVD). The finished floors of the structures on-site are 9.90 ft., 11.31 ft., 12.42 ft., and 13.82 ft. NGVD (8.40 ft., 9.81 ft., 10.92 ft., and 12.32 ft. NAVD). The proposed minimum finished floor elevation for new structures would be 12.32 ft. NAVD. The proposed minimum finished floor elevation is the optimal elevation to protect the structure from future flood risk.

Entrance Road

The improvements on the Entrance Road includes widening the road to three lanes, two inbound lanes and one outbound lane and raising 10.50 ft. NGVD (9.00 ft. NAVD) to avoid flooding. The existing vehicular circulation pattern of the Entrance Road around the fee booth and into the main Visitor Center parking area would not be affected as a result of either action alternative.

The existing conditions of the west edge of pavement of the Entrance Road, south of the entrance gate, varies between 10.02 ft. and 9.78 ft. NGVD (8.51 ft. and 8.27 ft. NAVD). The Entrance Road and driveway to the Administrative Complex would be raised to 10.50 ft. NGVD (9.00 ft. NAVD) thereby reducing annual flooding duration from the current 14% to 3.3% annually.

Inductive loop wire counters would be imbedded into the roadway with a counter device located beyond the road shoulder. This would help in the estimating and monitoring of visitor use and may support future dynamic/variable message signs providing live, en-route information to travelers. All traffic counter components would be installed within the limits of disturbance of the roadway.

Fee Stations

The existing fee station would remain in place with a finished floor elevation of approximately 10.66 ft. NGVD (9.16 ft. NAVD). Due to being within 6 inches (in.) of the recommended grade, the fee station would be wet/floodproof to allow flood waters to enter and exit the structure while reducing the likelihood of structural damage. In addition, the fee station would be expanded southward to accommodate a restroom for employees. The new restroom and its small lift station would be connected to the existing wastewater line. All restroom utilities would be installed within the limits of disturbance of the roadway.

A second ancillary fee station would be located to the west of the existing fee station to service the second inbound lane and facilitate traffic flow.

Tram Road

The proposed improvements for the Tram Road under alternatives B and C would include raising specific portions of the roadbed to higher elevations to allow the road to be useable at all times of the year and ensure the road would be more resilient to storm events and seasonal flooding. The Tram Road pavement width and -horizontal alignment would remain the same and the overall function of the road would remain unchanged. The footprint of the overall typical section would increase by approximately 6 ft. to 10 ft. for the 8.2 ft. NGVD elevation and 6 ft. to 14 ft. for the 8.8 ft. NGVD elevation to accommodate the higher elevation of the roadway and the proposed 4:1 side slopes. In lieu of new culverts, the roadway would be re-graded to help drain and reduce flooding.

The existing Tram Road elevations vary along the course of the road with the lowest elevation of approximately 7.5 ft. NGVD (6.0 ft. NAVD) at the southern end near the Shark Valley observation tower. Two options for proposed elevations for the Tram Road to reduce or eliminate flooding are considered and analyzed in this EA. Option 1 is to reduce flooding, and Option 2 is to eliminate flooding. The proposed elevation options are described as follows:

- **Elevation Option 1.** The first proposed elevation of 8.2 ft. NGVD (6.7 ft. NAVD), would reduce flood risk from 5% to less than 1% based on the 38-year period of record. This elevation would result in an annual flooding duration less than that of the proposed Entrance Road elevation.

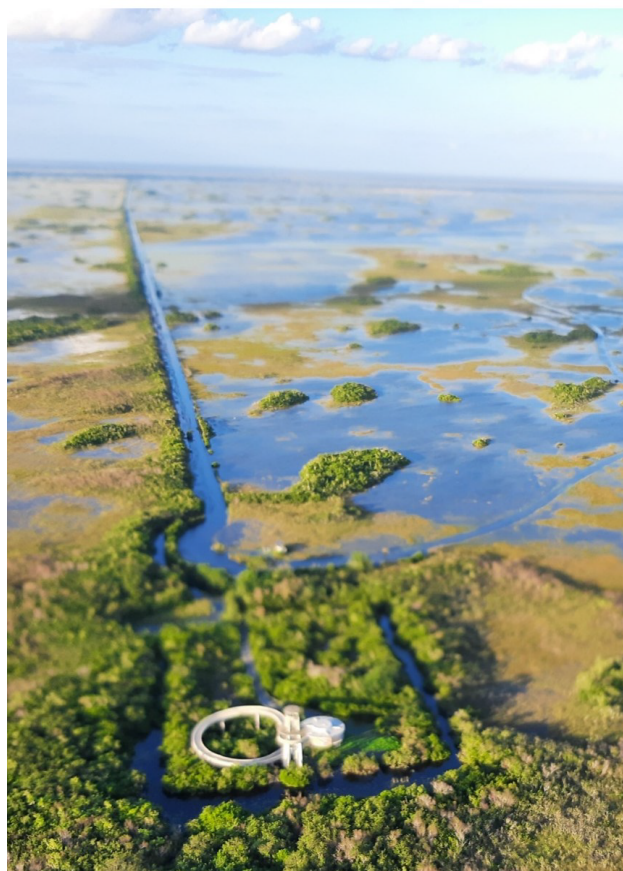


Figure 9. Aerial View – Flooding on Tram Road

However, the reduced flooding duration noted is an average over long periods of time. Observations during the wet year of 2017 indicate that the road would still be susceptible to flooding for up to 30 days during wet years.

- **Elevation Option 2.** The second proposed elevation of 8.8 ft. NGVD (7.3 ft. NAVD), would reduce flood risk to near 0% for both the longer period average as well as the wettest years. An elevation of 8.8 ft. NGVD would likely result in periods where the Tram Road is dry while the Entrance Road is flooded given the proposed elevation of the Entrance Road.

Rest Stops Along Tram Road

Currently, there are ten grass/unpaved pull-offs, as well as seven paved pull-offs for trams and bicyclists to stop along Tram Road. Most of the existing pull-off areas are uncovered and unshaded. Consistent with the guidance in the 2015 GMP/EEWS, two rest stops with shade structures and benches would be provided along the eastern leg of Tram Road for bicyclists and hikers (Figures 10 and 11). To minimize impacts to the wetlands, the rest stops would be located in previously disturbed areas, on the interior side of the Tram Road. The proposed footprint of a rest stop would be 15 ft. deep from the edge of pavement by 18 ft. wide from the start of the pull-off stop to the end of the pull-off stop, which would allow for a buffer between the existing Tram Road on one side and wetlands on the other side. The proposed shade structures and benches would be built to accommodate up to six persons at one time. Unlike the western leg of the Tram Road where natural resting or shade areas exist, currently there are no shaded areas along the eastern section of the road. The two proposed rest stops would be stationed approximately 3 miles apart on the eastern leg of Tram Road. Personal vehicles are not permitted on Tram Road.



Figure 10. Proposed Rest Stop Locations



Figure 11. Rest Stop Diagram

Tram Pull-Off Stop on Tram Road

The existing, grass tram pull-off area immediately north of mile marker four on the western leg of Tram Road would be stabilized with permeable pavers to allow year-round use of this area, including during the rainy season. Improving this existing pull-off area would bring the total number of paved pull-off areas to four locations on each side (east and west) of Tram Road.

MITIGATION MEASURES ASSOCIATED WITH ALL ACTION ALTERNATIVES

NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. In order to protect natural resources, the following mitigation measures and best management practices (BMPs) would be included for alternatives B and C.

General Resource Management

- Establishment of off-site staging areas on non-hardened surfaces requires consultation with the Environmental Planning and Compliance (EPC) Office and appropriate subject-matter experts.

Cultural Resources

- In accordance with the 2008 National Park Service Programmatic Agreement Section VI, if cultural resources are discovered during project implementation all work in that area must stop and the Superintendent, Chief of Cultural Resources, or park archeologist must be notified immediately.
- If items protected by the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during project implementation, all activity must cease in the area of discovery and immediate notice made to the Superintendent and Chief of Cultural Resources. The Superintendent or Chief of Cultural Resources will notify the appropriate Federally recognized Indian Tribes/Organizations and State Historic Preservation Officer (SHPO).
- A cultural resources monitor and/or fencing may be required for any work near archeological resources as determined by the Chief of Cultural Resources.

Vegetation and Wetlands

- Mitigation for unavoidable wetland impacts would be offset through the purchase of wetland mitigation credits from the Hole-in-the-Donut (HID) Mitigation Bank which is located in the southeast portion of the Everglades. The HID project is an approved wetland mitigation project under the Clean Water Act, as well as State law. This mitigation bank is the closest approved mitigation project to the site of impacts, and mitigating at HID is consistent with guidance on selecting appropriate mitigation sites provided in the 2008 mitigation rule under the Clean Water Act. This site consists of the same wetland type (palustrine emergent wetlands), within the same watershed. Additionally, the mitigation site would provide benefit to the same wildlife populations as those affected at the impact site; it lies within the foraging area of the same wood stork and wading bird colonies. The Compensatory Mitigation Plan will be further developed and finalized in conjunction with, and as a requirement of, the Federal Section 404 permit process and the state Environmental Resource Permit (ERP) process.
- To avoid or minimize the introduction or spread of non-native, invasive plant and animal species, disturbed areas will be allowed to recover naturally. If necessary, and in coordination with the park Botanist, any fill, mulch, reseeding, and sod material brought into the park must be free of non-native, invasive plants and animals, and noxious weeds.
- Identify measures to further minimize impacts to wetlands in the detailed design process.

Wildlife

- Implement the USFWS *Standard Protection Measures for the Eastern Indigo Snake* during project construction.
- Mitigate for unavoidable wood stork suitable foraging habitat (SFH) impacts associated with this project and fully address impacts in the Compensatory Mitigation Plan through the purchase of wetland mitigation credits from the Hole-in-the-Donut (HID) Mitigation Bank which is located in the southeast portion of the Everglades as outlined in the Biological Assessment. The Compensatory Mitigation Plan will be further developed and finalized in conjunction with, and as a requirement of, the Federal Section 404 permit process and the state Environmental Resource Permit (ERP) process.

- Mitigate for unavoidable impacts to Florida panther habitat associated with this project and fully address impacts in the Compensatory Mitigation Plan as outlined in the Biological Assessment. The Compensatory Mitigation Plan will be further developed and finalized in conjunction with, and as a requirement of, the Federal Section 404 permit process and the state Environmental Resource Permit (ERP) process.
- Conduct a Limited Roost Survey for the Florida bonneted bat in the selected alternative's project area prior to construction to include a thorough inspection of the administrative buildings that would be impacted by the proposed consolidation of those facilities. Document survey results and provide report to USFWS. If the Florida bonneted bat is found to be roosting in structures identified for demolition, work will stop and consultation with USFWS will be reinitiated to determine next steps.
- Conduct pre-construction survey for sensitive wildlife prior to implementing the project. This includes conducting snail kite surveys during the breeding season (January to May) and following the USFWS Snail Kite Survey Protocol (2004). If sensitive wildlife is detected, document the occurrence, and modify construction activities to avoid or minimize impacts.
- Conduct any additional species specific surveys required by the consultation with the USFWS.
- Consultation with the USFWS in accordance with the Endangered Species Act, would be updated as needed during the design process. Work would be scheduled to avoid protected species during nesting or breeding seasons.
- If evidence of wood storks, Everglade snail kites, eastern indigo snakes, Florida bonneted bats, Florida panthers, American crocodiles, or other listed species are present or observed at a proposed work location during construction, work will be postponed until individuals leave the area. Park Biologists and appropriate representative from the Biological Resources Branch will be notified immediately of the time and location of the sighting(s) to determine if further mitigations are necessary.
- All work should only be conducted during daylight hours to minimize disturbance to wildlife.

Visitor Use and Experience

- Visitors will be informed of construction activities by posting information at the park website, social media, and visitor centers.
- Avoid or limit construction activities during peak visitor-use periods to the extent possible.
- Temporary short-term full closure of areas may be necessary on limited occasions. Such full closures would be for the minimal time required to complete the work activity. To the extent possible, partial and/or limited closures of visitor access should be use.
- Place construction fencing and closure signage around construction areas, as needed, to discourage visitors from entering an active construction site.

Hydrology and Water Quality

- An Erosion and Sediment Control and Stormwater Pollution Prevention Plan (SWPPP) would be developed to comply with the current FDEP National Pollutant Discharge Elimination System (NPDES) requirements and a FDEP NPDES Construction General Permit coverage would be

obtained. The SWPPP would be developed to address all stormwater management Best Management Practices (BMPs).

- Appropriate measures would be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering waterways or wetlands. Actions would be consistent with state water quality standards and Clean Water Act, Section 401 certification requirements.
- Implement pre-and post-construction erosion control BMPs for drainage, erosion and sediment control to prevent or reduce runoff from entering the water column.
- Inspect and maintain erosion and sediment control BMPs on a regular basis and after each measurable rainfall to ensure they are functioning properly.
- Adhere to all BMPs resulting from required regulatory permits.
- Test fill material from the removed Old Tamiami Trail roadbed in compliance with FDEP permit requirements before being used to fill the overflow parking area and raise the elevation of the Entrance Road, Administrative Complex, and/or Tram Road.

OPTIONS AND ALTERNATIVE CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

During planning, the NPS evaluated a number of options to consider as part of the Site Plan. These options included the implementation of a new visitor parking lot near Dade Corners and providing transportation for visitors to Shark Valley Visitor Center via mass transit; entering into an agreement with the Miccosukee Tribe of Indians of Florida to utilize an existing paved parking area approximately 0.5 miles west of Entrance Road with visitor transportation; a new overflow parking lot located just south of the Administration Complex; a new overflow parking lot located near US-41/Tamiami Trail, west of the Entrance Road; a new overflow parking lot with bus/RV parking spaces located just west of the existing Visitor Center and a new overflow parking lot located just west of the Visitor Center with bus/RV parking spaces installed in the center island near the Visitor Center. However, these options were dismissed from further analysis due to impacts to natural resources, viewsheds, conflicts between pedestrians and vehicles, visitor disruptions during construction and not meeting the purpose and need of this site plan.

NPS evaluated and presented alternative concepts during civic engagement. These alternative concepts included an overflow parking lot located west of the existing Shark Valley Visitor Center with a new circulation pattern into the main Visitor Center parking area and the alternatives analyzed in this EA. The overflow parking lot west of the Visitor Center would be a prominent feature in the landscape after passing the fee station and therefore one of the first sights visitors would experience upon arrival. This overflow parking area would be the closest to the wilderness boundary area located to the west of the Entrance Road. Therefore, this alternative was not carried forward for analysis in this EA due to impacts to natural resources and viewsheds. The layouts associated with the options and alternative concept dismissed are included in Appendix A. As result of stakeholder input, a new multilevel parking garage option located on the existing parking lot at the Visitor Center was considered. However, this element was dismissed from further analysis due to adverse impacts to viewsheds.

ELEMENTS CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

Canoe/Kayak Launch

The 2015 GMP/EEWS identified providing canoe/kayak launches along US-41/Tamiami Trail, allowing both short and long distanced paddling opportunities. The canoe/kayak launch was removed from consideration due to resource protection concerns and because the launch may not provide an acceptable kayak/canoeing experience in low water periods compared to other launch points available in the area. While a canoe/kayak launch is not proposed as part of this proposed action, the NPS will continue to evaluate locations to provide a canoe/kayak launch along US-41/Tamiami Trail.

Tram Carport

Constructing a carport for the Shark Valley Tram when the tram is not in use was considered to be located northeast of the restroom facility at the Visitor Center. The carport would protect the tram cars from weather and other elements. However, the concept was determined to be impractical for tram operations due to the maneuverability of accessing the carport. The proposed location would block emergency access to Tram Road. Additionally, this new structure would impact the viewsheds of Shark Valley. Therefore, this element was dismissed from further analysis.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the affected environment, which is intended to document the existing conditions of the park. These descriptions serve as a baseline for understanding the resources that could be impacted by implementation of the proposed action. This chapter also includes an analysis of the environmental consequences or “impacts” of the no-action alternative and action alternatives, immediately following the affected environment descriptions for each resource topic. The resource topics addressed in this chapter include vegetation, wetlands and soils, wildlife and species of special concern, hydrology and water quality, visitor use and experience, human health and safety, lightscapes and viewsheds.

ANALYSIS METHODS FOR ESTABLISHING IMPACTS

The analysis of impacts follows CEQ implementing regulations (40 CFR 1500-1508), Director’s Order 12 procedures (NPS 2011), NPS *NEPA Handbook* (NPS 2015a), and NPS *NEPA Handbook Supplemental Guidance: Preparing Focused and Concise EAs* (NPS 2015b). The intensity of the impacts is assessed in the context of the park’s purpose and significance and any resource-specific context that may be applicable. The methods used to assess impacts vary depending on the resource being considered, but generally are based on a review of pertinent literature and park studies, information provided by on-site experts and other agencies, professional judgment, and park staff knowledge and insight.

The environmental consequences for each resource were identified and characterized based on impact type (adverse or beneficial), area of analysis, and duration.

In accordance with Council on Environmental Quality regulations finalized in 2020 [40 CFR 1508.1 (g)], effects or impacts are defined as follows:

Effects or impacts means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives.

(1) Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic (such as the effects on employment), social, or health effects. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

(2) A “but for” causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the

product of a lengthy causal chain. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.

(3) An agency's analysis of effects shall be consistent with this paragraph (g). Cumulative impact, defined in 40 CFR 1508.7 (1978), is repealed.

AREA OF ANALYSIS FOR IMPACTS

Area of analysis refers to the geographic setting within which an impact may occur, such as the affected region. For the purposes of this Site Plan/EA, most impacts are local to the immediate project area unless otherwise noted.

TYPE OF IMPACT

The potential impacts of the alternatives are described using the following terminology:

- *Short-term impacts:* Impacts that would occur as a result of the construction activities of the action alternatives. Depending on impact topic, impacts may be intermittent (days or weeks) or continuous during construction.
- *Long-term impacts:* Impacts that would occur after construction is complete and continue for years or decades.
- *Beneficial:* A favorable change in the condition or appearance of the resource, or a change that moves the resource toward a desired condition.
- *Adverse:* A change that declines, degrades, and/or moves the resource away from a desired condition or detracts from its appearance or condition.

VEGETATION, WETLANDS AND SOILS

Area of Analysis

The area of analysis for vegetation, wetlands and soils includes the areas directly affected by the proposed improvements as well as the adjacent natural habitat that may be impacted by the project.

Affected Environment

Everglades NP contains some of the most unique wetland ecosystems in North America and is renowned for its large expanses of continuous sawgrass (*Cladium jamaicense*) marshes (a.k.a. the River of Grass). In general, the existing Shark Valley Visitor Center and Tram Road areas are surrounded by jurisdictional wetland habitat which consists of hydric soils that are vegetated primarily by sawgrass dominated, marsh wetlands dotted with scattered tear drop shaped, hardwood tree island habitats which are typical of the Shark River Slough ecosystem. The Shark River Slough is over 170,000 acres in size and is the largest natural water flow way within the park. Typical wetland vegetation communities within this slough consist of sawgrass prairies and graminoid dominated marl prairies. Other habitats associated with the Shark River Slough include tree islands, tropical hardwood hammocks, alligator holes, other emergent freshwater wetland plant communities as well as scattered pockets of cypress domes and pine islands. Although the

Shark Valley area generally contains high functioning, relatively intact wetland ecosystems, some exotic/invasive vegetation has been documented encroaching into the region. This exotic/invasive vegetation includes Brazilian pepper (*Schinus terebinthifolia*), melaleuca (*Melaleuca quinquenervia*), Australian pine (*Casuarina equisetifolia*), and Old World climbing fern (*Lygodium microphyllum*).

The Entrance Road, the Administration Complex and the southern end of Tram Road are located in low elevation areas and experience periodic flooding. All proposed alternatives were determined to result in unavoidable impacts to wetlands; as such, the wetland evaluation for this project was based upon several factors that contribute to the functional value of a wetland including previous disturbances, coverage by undesirable vegetation, existing hydrology, expected wildlife use and access to and from the existing facilities.

Trends

The greater Everglades ecosystem has been largely impacted by the multitude of infrastructure projects in South Florida over the last 150 years which included a series of canals, levees, and other drainage systems that were constructed in order to drain the landscape for development as well as the construction of new roadways. These developments have altered historic hydrology to the region and in the Shark River Slough area in particular, water flow from the north was significantly reduced by the construction of US-41/Tamiami Trail in the late 1920s. The CERP consists of a variety of projects that focus on restoration of the Everglades on a widescale ecological basis. These CERP projects are expected to increase water delivery to Everglades NP, which elevates concerns of additional flooding in low-lying visitor use areas, but also is anticipated to restore historical hydrology to much of the previously impacted regions of Everglades NP. Generally, projects associated with the various Everglades restoration plans are expected to improve the hydrology and water quality/quantity within the park. Over the course of implementation of all projects, previously disturbed ecological and hydrological conditions are expected to improve, resulting in long-term beneficial impacts on restoring natural wetland communities throughout Everglades NP, including in the area of analysis.

Environmental Consequences

No Action Alternative

Under the no action alternative, the existing conditions at Shark Valley would remain the same. Only ongoing routine maintenance of features or structures within Shark Valley would continue. Therefore, no impacts to any natural areas, including wetlands, would occur. However, the no action alternative would not enhance visitor experience, safety or park operations or increase flooding resilience, and would therefore not meet the purpose and need for the project.

Impacts of Alternative B

Analysis

The area of analysis for alternative B contains the highest density of vegetative cover by undesirable nuisance and exotic vegetation of all the alternative sites evaluated. The overflow parking lot for alternative B is partly proposed in cattail (*Typha* spp.) dominated disturbed wetlands (which suggests elevated soil phosphorus) that lie between several man-made features including US-41/Tamiami Trail to the north, a

canal to the south, and the Entrance Road to the west. The sparse herbaceous wetland vegetation around the perimeter of this habitat include spike rush (*Eleocharis cellulosa*), maidencane (*Panicum hemitomon*), leather fern (*Acrostichum danaeifolium*) and the large central area of dense cattails. Shrub species within the remainder of this disturbed wetland include wax myrtle (*Morella cerifera*), cocoplum (*Chrysobalanus icaco*) and salt bush (*Baccharis halimifolia*). Tree species present include sparse pond apple (*Annona glabra*), swamp bay (*Persea palustris*), red maple (*Acer rubrum*), coastal plain willow (*Salix caroliniana*), scattered dahoon holly (*Ilex cassine*) and occasional Florida strangler fig (*Ficus aurea*) along the edges. None of the tree species are canopy size but are all mature trees. These lower-quality wetlands provide limited habitat for wildlife usage and are subject to daily anthropogenic disturbances due to their location adjacent to the highly traveled US-41/Tamiami Trail as well as to impaired water quality as stormwater sheet flows off the existing roadway into these wetlands.

The additional proposed bus/RV parking lot is in the existing triangular wetland area immediately south of the existing fee station. This triangular wetland consists of an isolated, pond apple habitat surrounded by shrub wetlands. This shrubby pond apple wetland is unique for the Shark Valley area of analysis and provides a diverse habitat that offers roosting and nesting opportunities for many of the avian species with potential to inhabit this region of the Everglades.

It is anticipated that alternative B would result in long-term, permanent impacts of 1.64 acres of wetlands from the construction of the overflow parking lot. The bus/RV parking lot portion is located in the only pond apple dominated community in the vicinity of the project and provides habitat that is not found elsewhere in Shark Valley. However, it is fully surrounded by a developed area and consists of degraded wetlands (altered hydrology, altered fire regime, woody species encroachment) compared to historic conditions. Therefore, alternative B impacts a less common, higher quality vegetative community by installing the bus/RV parking lot in the median area, just north of the Visitor Center. When combined with the additional proposed improvements for the Site Plan, alternative B includes a total of 5.44 acres of wetland impacts with Tram Road Option 1 (elevated to 8.2' NGVD) or 10.35 acres of wetland impacts with Tram Road Option 2 (elevated to 8.8' NGVD). The NPS would mitigate for all wetland impacts through the purchase of mitigation credits at the HID Mitigation Bank; as such, the construction of alternative B would be anticipated to result in no net loss of wetlands. A Uniform Mitigation Assessment Methodology (UMAM) scoring system was used to calculate wetland functionality for the wetlands that would be impacted under this alternative. As a result, an approximately 3.1 wetland mitigation credits would be required under this alternative. NPS anticipates that mitigation for wetland impacts from this project would be offset through the purchase of wetland mitigation credits from the HID Mitigation Bank. The HID Mitigation Bank is located in the southeast portion of the Everglades and services the project area in Shark Valley. NPS plans on reserving slightly more credits than the current UMAM analysis indicates are required to ensure ample credits are available once the regulatory review has been completed in case UMAM scores are modified as result of that review. The NPS would mitigate potential wetland impacts associated with this alternative such that the project would result in no net loss of wetlands. See **Appendix B** for the Wetland Statement of Findings (WSOF) for more details.

Alternative B would result in long term, permanent wetland impacts and their associated hydric soils and vegetation (5.44 – 10.35 acres) due to the placement of fill to raise Entrance Road, Tram Road and the Administrative Complex and from the construction of the overflow and bus/RV parking lot during construction activities. Existing hydric soils within the footprint of the parking lots proposed for alternative

B would be permanently converted to upland fill for this project; this fill has the potential to cause secondary impacts during construction if turbidity discharges into the surrounding wetlands. However, proper erosion control and stormwater pollution prevention plan measures would be implemented to avoid and minimize any secondary impacts to water quality which could impact adjacent wetlands.

Alternative B proposes to use a parcel near US-41/Tamiami Trail just east of the existing Entrance Road for the new parking lot, which would impact the lowest quality and smallest quantity of wetland habitat of the action alternatives considered. However, the bus/RV parking lot portion of alternative B impacts the pond apple wetland community which is unique in the immediate Shark Valley area and offers roosting and nesting opportunities for many of the avian species with potential to inhabit this region of the Everglades. Alternative B results in unavoidable impacts to wetlands in order to meet the purpose and need of the project. Given the required wetland mitigation discussed in the WSOF, impacts to wetlands are anticipated to be negligible compared to the quantity of high-quality wetland habitat present throughout Shark Valley.

In summary, past infrastructure projects in the Everglades have altered historic hydrology, thereby impacting vegetation, wetlands and soils in Shark Valley. Activities associated with CERP projects are expected to enhance wetland communities in the Everglades and the project study area. When taking into account wetland impacts anticipated to occur from implementation of this alternative, the required wetland mitigation discussed in detail in the WSOF, and the quantity of high-quality wetland habitats present throughout Shark Valley, impacts to wetlands under alternative B are anticipated to slightly detract from overall improvement trends in this area and are not anticipated to have noticeable effects to wetland function in the Everglades and the project study area.

Impacts of Alternative C (Preferred Alternative)

Analysis

Alternative C was designed to resolve the limited parking availability at Shark Valley by proposing a new overflow parking lot located just past (southeast) the existing entrance fee station and immediately adjacent (north) to the existing parking lot at the Visitor Center. This alternative would also result in long term permanent wetland impacts, within primarily herbaceous wet prairie type wetland habitat. This wetland community is dominated by a mix of sawgrass, cattails, coastal plain willow and other deeper marsh species and is the most common in the general vicinity of the Shark Valley area of Everglades NP. The northern edge of the proposed overflow parking lot would impact a portion of a shrub dominated wetland habitat, which is one of the least common habitat types in this general area. There are a few scattered hat-rack cypress (*Taxodium ascendens*) trees present as isolated individuals throughout the wet prairie habitat proposed for filling. The underlying caprock is high in this area which limits the tree/shrub growth due to this lack of usable substrate. The wetland is high functioning and provides habitat for an array of small mammals, reptiles, amphibians, and bird species. While many native wetland dependent species thrive in this habitat and it is very productive, it does not offer significant nest/roost habitat for birds or other roosting species.

Alternative C would result in a total of long term, permanent filling of 2.01 acres of wetlands associated with the construction of the overflow parking lot. This herbaceous wet prairie type wetland to be impacted consists of a vegetative community which is one of the more common in this general area of Everglades NP. While these wetlands provide function and habitat for wildlife, the habitat values to wildlife are much

less than those provided by the pond apple community present in the bus/RV parking area of alternative B. Additionally, this wetland type generally continues for miles to the east, west and south of the area of analysis. When combined with the additional improvements, alternative C includes a total of 5.81 acres of wetland impacts with Tram Road Option 1 (elevated to 8.2' NGVD) or 10.72 acres of wetland impacts with Tram Road Option 2 (elevated to 8.8' NGVD). These wetlands provide seasonal foraging opportunities for wading bird species and are a higher quality freshwater marsh and prairie wetland habitat than the wetlands present in alternative B. NPS would mitigate for all wetland impacts through mitigation credits purchase at HID as described in the WSOF; therefore, no net loss of wetlands would be anticipated to result from the construction of alternative C.

Alternative C would impact the greatest quantity of wetlands, their associated hydric soils and vegetation (5.81-10.72 acres) and would result in impacts to areas with the least amount of previous impacts due to the placement of fill to raise Entrance Road, Tram Road and the Administrative Complex and from the construction of the overflow parking lot. As would be the case for alternative B, existing hydric soils within the footprint of the parking lot proposed for alternative C would be converted to upland fill; this fill could lead to secondary impacts during construction from turbidity in the water. However, proper erosion control and stormwater pollution prevention plan measures would be implemented to avoid and minimize any secondary impacts to water quality which could impact adjacent wetlands.

As all wetland impacts would be mitigated through the purchase of wetland mitigation credits, no net loss of wetlands would be anticipated under this alternative. Alternative C would result in unavoidable impacts to wetlands in order to meet the purpose and need of the project. With wetland mitigation in place, impacts to wetlands are anticipated to be negligible compared to the quantity of high-quality wetland habitat present throughout Shark Valley.

In summary, the contribution to existing effects on wetlands from implementation of alternative C would be slightly greater than those described for alternative B due to the slightly larger wetland area and slightly higher wetland quality impacted. Activities associated with CERP projects are expected to enhance wetland communities in the Everglades and the project study area. When taking into account wetland impacts anticipated to occur from implementation of this alternative, the required mitigation discussed in detail in the WSOF, and the quantity of high-quality wetland habitats present in Shark Valley, impacts to wetlands under this alternative are anticipated to slightly detract from the overall improvement trends in this area and are not anticipated to have noticeable effects to wetlands function in the Everglades and the project study area.

WILDLIFE AND SPECIES OF SPECIAL CONCERN

Area of Analysis

The area of analysis for wildlife and species of special concern includes the areas directly affected by the proposed improvements as well as the adjacent natural habitat.

Affected Environment

Species of special concern include federally listed species which are designated as threatened or endangered by the United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA). The area of analysis falls within Everglades NP which provides habitat for a number of species of special concern and other wildlife. Species and wildlife known to occur or that may occur within the area of analysis are described below.

Trends

According to the Everglades Foundation Document, trends for native species within the park are mixed. With certain species improving (e.g., wood stork) and others declining or threatened by climate change (e.g., CSSS). Significant declines to CSSS in the 1990s have not improved. Habitat quality and quantity has diminished especially in compromised areas of the ridge, slough and tree island landscapes. The abundance of tree islands has decreased by approximately 70% over the last 50 years, and wading bird populations remain far below historic levels. Nonnative species introduction, especially the Burmese python and tegu are associated with declines in native mammal populations. Status of crocodiles within Everglades NP has improved in recent years. Opportunities for improvements include public education, continuation of Everglades restoration projects, management of nonnative species and protection of native species through enforcement. The park must identify strategies to address traffic, safety and visitor experience issues. Solutions to these issues would provide a beneficial impact to visitor use and experience, but may cause adverse impacts to wildlife, associated with construction and wetland fill.

The Old Tamiami Trail Modifications project, located adjacent to the Site Plan project components, resulted in the conversion of disturbed upland habitat to wetland habitat and restored hydrology in the area. The conversion of upland habitat to wetlands provided a net increase in wetland habitat and increased foraging opportunities and prey abundance. This project likely provided long-term beneficial impacts for the Everglade snail kite and wood stork in the general area.

Federally Listed Species

American crocodile (*Crocodylus acutus*)

The project falls within the designated consultation area for the American crocodile which is listed as federally threatened by the USFWS. This species has a grayish green back with a lighter underside and a narrow jaw. The American crocodile is known to inhabit brackish and saltwater estuaries, mangrove swamps, low-energy mangrove lined bays and inland swamps in South Florida. This species will nest on coastal shoreline or raised creek beds. Within Everglades NP, crocodiles are common along the mainland shoreline of Florida Bay and mangrove habitat in Key Largo. However, there are known occurrences of this species within Shark Valley including in the canal near the observation tower at the southern end of Tram Road. The main threats to this species include illegal hunting and habitat destruction from human development.

Eastern indigo snake (*Drymarchon corais couperi*)

The eastern indigo snake is listed as federally threatened by the USFWS. The area surrounding Shark Valley contains suitable habitat for the eastern indigo snake. The area of analysis falls within the known range for this species. This species is bluish black with reddish chin cheeks and throat. The eastern indigo snake will inhabit a variety of habitats including upland areas (e.g., pine flatwoods, scrubby flatwoods, dry prairie,

hardwood hammocks), agricultural fields, human altered areas, and edges of freshwater marshes. As there are no known occurrences of this species within the area of analysis, no gopher tortoise burrows (known refugia for the eastern indigo snake) and limited upland habitat, the eastern indigo snake is not likely to occur within the area of analysis. However, the snake may still utilize the currently developed areas and wetland fringes within the area of analysis. Furthermore, the wetlands within the area of analysis provide adequate habitat for prey (fish, frogs, turtles, snakes, alligators, birds and small mammals). Threats to this species include habitat loss, fragmentation and degradation from development.

Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*)

The area of analysis falls within the designated consultation area for the Cape Sable seaside sparrow (CSSS) which is listed as federally endangered. Critical habitat for this species has been designated but is located outside the area of analysis. This subspecies of seaside sparrow has a limited distribution to the southern Everglades. The CSSS utilizes short-hydroperiod marl prairie habitat, including muhly grass (*Muhlenbergia capillaris*), sedges and beak rushes (Post and Greenlaw 1994). This habitat provides areas of moderately dense vegetation for shelter and nesting, and open areas for movement and foraging. Shorter hydroperiods (60 to 270 days) support the full variety of vegetation for this species (Ross et al. 2006), while longer hydroperiods create wetland areas with tall dense sawgrass-marsh communities which this species typically avoids. Along with influencing plant composition, inundation of suitable habitat can affect foraging and nesting behavior and shelter conditions, and this species may even delay or terminate breeding and nesting due to flooding. The CSSS is not known to inhabit or nest in wetlands within or near this region of Everglades NP (personal communication, NPS biologists 2021), and a majority of the habitat within the area of analysis consists of flooded inland prairies or sawgrass marshes. However, under alternative C, the area of analysis would include minimal suitable habitat. Therefore, this species is unlikely to, but may occur, within the area of analysis. Threats to this species include increased flooding events, invasive pythons and sea level rise associated with climate change.

Eastern black rail (*Laterallus jamaicensis jamaicensis*)

The eastern black rail, a subspecies of the black rail, has been recently listed (November 9, 2020) as federally threatened and has no designated consultation area. However, the area of analysis falls within the known range for this species. The eastern black rail is a small marsh bird that inhabits salt, brackish and freshwater wetlands. This species requires dense vegetative cover that allows for safe movement from predators. It is thought that structure rather than species of plant is important for predicting habitat for this species. Habitats occupied by this species are typically composed of fine-stemmed emergent plants (e.g., rushes, grasses and sedges) with high stem density and a dense canopy cover (Flores and Edelman 1995). Little is known about this subspecies population, but it has been documented along Main Park Road and other locations in Everglades NP by citizen scientists (eBird, Christmas Bird Counts) and researchers. Although there is no known documentation of the eastern black rail within Shark Valley, suitable habitat for this species exists within the area of analysis. Primary threats to this species include habitat loss and climate change (sea level rise, tidal flooding, increased frequency and intensity of storms).

Everglade snail kite (*Rhostrhamus sociabilis plumbeus*)

The area of analysis falls within the designated consultation area as well as the critical habitat for the Everglade snail kite, which is listed as federally endangered. This medium-sized raptor inhabits freshwater marshes, lakes and shorelines with low density vegetation and clear calm shallow open waters (Sykes 1987; Kitchens et al. 2002). These habitats provide open space and suitable conditions for the snail kite to visually

forage for apple snails (*Pomacea paludosa*), their main prey. The apple snail requires shallow emergent wetlands with long hydroperiods in order to climb to the surface to breathe and lay eggs. Since the apple snail is the primary prey for this species, everglade snail kite survival depends on hydrologic conditions (Old Tamiami Trail Modifications Project 2018) and the presence of apple snails is a key indicator for the potential occurrence. This species nests in small trees and is nomadic to search for suitable foraging conditions and adequate food sources. Per NPS biologists, presently, the majority of snail kite nesting in Everglades NP has been detected outside (east) of the designated critical habitat boundary. Although known documentation of nesting for this species occurs outside the area of analysis, suitable wetland habitat for nesting or foraging occurs within the area of analysis and apple snails are known to exist within Shark Valley. Therefore, this species has the potential to occur within the area of analysis. Threats include loss/degradation of wetlands and hydrologic changes that may affect prey.

Wood stork (*Mycteria americana*)

The wood stork is a wading bird listed as federally threatened. The area of analysis is located within the 18.6-mile radius, known as the Core Foraging Area (CFA), of 12 known wood stork rookeries. The wood stork will nest in large rookeries, primarily in cypress and mangrove swamps located in or near standing water. This species will forage for fish, amphibians and invertebrates in shallow freshwater marshes, narrow tidal creeks and flooded tidal pools. The wood stork is a hydrologically dependent species as water levels regulate prey abundance and foraging habitat. With man-made levees, canals and floodgates altering the natural hydrologic regime in South Florida, wood storks will also nest in and forage in artificial habitats such as man-made lakes, roadside ditches and pasturelands. Shark River contains large areas of natural marsh habitat which provides nesting and suitable foraging habitat (SFH) for this species. Although there are no known nests or colonies within the area of analysis, the wood stork is frequently observed within Shark Valley. Threats to the wood stork include continued loss and degradation of natural wetland habitat within South Florida.

Florida bonneted bat (*Eumops floridanus*)

The area of analysis falls within the designated consultation area, but outside proposed critical habitat, for the Florida bonneted bat, which is listed as federally endangered. This species is endemic to Florida and is the largest species of bat found within the state. Its range is limited to 17 counties within central and southern Florida including Miami-Dade County. This species gets its name from its large ears that protrude forward over its eyes. The Florida bonneted bat is an insectivore and will forage over open areas (e.g., uplands, wetlands, parks, golf courses and other surface waters). Open freshwater and wetlands provide primary foraging habitat, but this species also will forage over ponds and streams and will drink when flying over open water (Marks and Marks 2008). Suitable roosting habitat for this species includes forest and other areas with tall, mature trees or suitable roost structures (e.g., utility poles, artificial structures). Forest habitat includes pine flatwoods, scrubby flatwoods, pine rocklands, royal palm hammocks, mixed or hardwood hammocks, cypress, sand pine scrub or other forest types. Structural characteristics are important for roosting and this species has been found roosting in tree snags, cavities, hollows, deformities, decay, crevices or loose bark (USFWS Florida Bonneted Bat Guidance and Consultation Key 2019). The Florida bonneted bat has been found in areas with a high incidence of large or mature trees with various deformities, rock crevices (e.g., limestone in Miami-Dade county) and artificial structures. The bat has been documented in trees greater than 33 feet in height, greater than 8 in. in diameter at breast height (DBH), with cavity elevations higher than 16 feet above ground level (Braun de Torrez 2019). Limited acoustic monitoring within Shark Valley was performed by NPS biologists in 2018 and the Florida bonneted bat was not

detected. While this species has been documented inside the park, there have been no documented occurrences for this species within Shark Valley (personal communication with NPS biologists 2021) and the closest known roost is approximately 11 miles away from the area of analysis. However, the area of analysis does include minimal roosting and foraging habitat and the species may occur within the area of analysis. Threats to this species include habitat loss and degradation and climate change.

Florida panther (*Puma concolor coryi*)

This subspecies of the mountain lion, cougar, or puma (*Puma concolor*) is listed as federally endangered, and the area of analysis is located within the designated Primary Focus Area for this species (no designated consultation area). The Primary Zone includes land occupied by the only known breeding populations for the Florida panther and are important for the long-term success of this species. The panther typically uses pinelands, hardwood hammocks, mixed swamp forest, grassland prairies and agricultural areas. This species requires large contiguous areas or open space to stalk and capture prey (USFWS 2016). The Florida panther will also utilize dry upland areas for denning and nesting. Florida panthers are generalist carnivores and will feed on mammals, birds, deer, feral hogs and large reptiles. Habitat loss and fragmentation have limited the panthers breeding range which has caused inbreeding that has led to genetic defects and sterility. Limited ranges also increase intraspecies aggression. Other threats include increased vehicle strikes, related to the residential development and construction of transportation corridors, and feline leukemia. Although the area of analysis falls within the Primary Zone, and the panther may occur within the area of analysis, this species is more frequently found in the pinelands and drier areas of Long Pine Key within Everglades NP. Furthermore, there have been no documented panther mortalities along the stretch of US-41/Tamiami Trail adjacent to Shark Valley (FWC Florida Panther Mortality Database 1972-2020). This species is also known to be relatively shy, and the area of analysis experiences high volumes of anthropogenic activity. Lastly, the natural habitat surrounding and within the area of analysis consists of frequently inundated wetlands that are more suitable for movement throughout the park rather than denning, resting or foraging. Therefore, the likelihood of the of this species to occur within the area of analysis is low.

Non-Listed Wildlife

The Everglades consist of low, flat sawgrass prairies, freshwater sloughs and estuaries. Shark Valley provides this terrestrial and aquatic habitat to support an array wildlife. The project area provides habitat for mammals such as deer, mice and rats that may occur within the project area. Additionally, the project area provides foraging, roosting and breeding habitat for resident, wading and migratory birds. Reptiles and amphibians such as turtles, frogs and alligators can be found on the banks of the canals and in the deep-water habitats along US-41/Tamiami Trail. Fish species are also present in the canals and deep-water habitat.

Environmental Consequences

No Action Alternative

Under the no action alternative, the existing conditions at Shark Valley would remain the same. Only existing routine maintenance of features or structures within Shark Valley would continue. Therefore, no impacts to any natural areas, including wetlands, would occur and the no action alternative would not affect species of special concern, including federally listed species, nor wildlife. The no action alternative would

not enhance visitor experience, safety or park operations or increase flooding resilience, and would therefore not meet the purpose and need for the project.

Impacts of Alternative B

Analysis

The construction of the overflow parking lot under alternative B would result in long term, permanent filling of 1.15 acres of wetland habitat. The overflow parking lot for alternative B contains the most disturbed wetland habitat within the project footprint, with higher density of exotic vegetation than alternative C. The area is dominated by cattails with sparse wetland vegetation around the perimeter including spike rush, maidencane and leather fern. Shrub species include wax myrtle, coco plum and salt bush, and tree species although sparse include pond apple, swamp bay, red maple, coastal plain willow, dahoon holly and an occasional Florida strangler fig. The bus/RV parking lot in the center island near the Visitor Center would impact 0.48 acres of wetland habitat. This area consists of cocoplum, royal fern (*Osmunda regalis*), dahoon holly, coastal plain willow, and scattered sawgrass with a deeper central pond dominated by pond apple.

Under alternative B, the Entrance Road improvements would result in impacts to 0.23 acres of wetlands, previously permitted by FDEP and USACE. Tram Road also would be raised to a worst-case scenario elevation of 8.8' NGVD and would cause impacts to 8.32 acres of wetlands. Other improvements associated with alternative B would not impact wetland habitat. The total acreage of wetland impacts associated with the alternative B worst-case scenario is 10.35 acres.

The wetland habitat impacted by this alternative, although lower quality, still provides potential habitat for a number of listed species. The area of analysis for alternative B does not include suitable habitat for the CSSS and the species is not known to inhabit the area of analysis, and the project is not anticipated to cause any short/long-term or adverse impacts to this species.

Although the magnitude of wetland impacts is not anticipated to affect the hydrology of the surrounding Shark River Slough area or cause discernable impacts to prey populations, the project would cause long-term adverse impacts to wetland habitat that may provide suitable foraging and nesting habitat for the Everglade snail kite and the wood stork. A wood stork foraging analysis was completed and approximately 35.42 kilograms (kg) of foraging biomass would be lost. Therefore, the compensatory mitigation plan for wetland impacts would be required to adequately offset this lost biomass. In order to minimize adverse impacts to these species, surveys prior to construction would be completed to determine the presence/absence of each species. Snail kite surveys should be conducted during the breeding season (January to May) and follow the USFWS Snail Kite Survey Protocol (2004). Although the Everglade snail kite critical habitat does not have any primary constituent elements, the project would adversely impact suitable wetland habitat within the designated critical habitat boundary. Therefore, this project would cause short-term adverse impacts such as noise disturbances, displacements and risk of mortality or injury to these species and long-term adverse impacts to their habitat. However, given there is extensive habitat suitable for foraging in the vicinity of the project study area, and adjacent, unimpacted graminoid dominated wetlands, which are common in Shark Valley, impacts to foraging habitat for the wood stork and Everglade snail kite are anticipated to be negligible.

The eastern black rail also utilizes similar habitat and could be impacted by the proposed project improvements if this species occurs within the project area. While the project would adversely impact suitable habitat, and short-term impacts to behavior are anticipated from construction, the impact area would be surveyed (standardized or acoustic) prior to construction to determine the presence/absence of this species. If evidence of presence is documented through standardized surveys or acoustic monitoring, NPS will coordinate with the USFWS to determine the proper actions to ensure direct impacts to the species can be avoided. Any sightings of eastern black rails (especially with young) will be reported to the park Biological Resources Branch Chief and/or the Park Biologist. Given the above precautions, no direct impacts to this species are anticipated as a result of this project.

The area of analysis contains suitable habitat for the eastern indigo snake and the American crocodile. While the project would impact wetland habitat through the long-term conversion of natural areas to developed areas, the USFWS *Standard Protection Measures for the Eastern Indigo Snake* (2013) would be utilized during construction to minimize adverse impacts to this species. Therefore, only short-term impacts such as noise or visual disturbance or displacements would be anticipated for the eastern indigo snake. Eastern indigo snakes are not known to occur on the site, but it is possible that they could occur within the proposed project area. Given the lack of observations of eastern indigo snakes at the site and the mitigation measures in place, impacts to the eastern indigo snake are anticipated to be negligible. While the American crocodile is not typically found in this area of Everglades NP, an individual is known to inhabit the canal near the observation tower. Therefore, the construction activities associated with alternative B has the potential to cause short-term disturbances during construction that may result in behavioral changes. However, these modifications to behavior from disturbance at this site are of little consequence to the species and the intensity of impact is considered negligible.

Forested areas suitable for the Florida bonneted bat are limited within the Shark Valley area and no forested areas were identified within the area of analysis associated with alternative B. Vegetation in the area does not contain tall mature trees and therefore does not provide suitable roosting habitat for the bat. The only impact to potential roosting habitat would be the demolition of the existing administrative building. While acoustic surveys performed by NPS biologists did not detect any individuals, a limited survey of the building would be completed before demolition. If Florida bonneted bats are observed roosting in structures during the pre-demolition survey, work will stop and consultation with USFWS will be reinitiated to determine next steps. The project would impact wetland habitat suitable for foraging. These impacts would result from the long-term conversion of natural habitat to developed areas. However, given there is extensive habitat suitable for foraging in the vicinity of the project study area, and adjacent, unimpacted graminoid dominated wetlands, which are common in Shark Valley, impacts to foraging habitat for the Florida bonneted bat are anticipated to be negligible.

The area of analysis would convert 10.35 acres of habitat within the Primary Focus Area for the Florida panther. Habitat within the Primary Zone is considered of the highest importance in the context of the panther's continued survival and determines the level of compensation necessary to minimize the project's impacts. Therefore, a Florida Panther Habitat Assessment was completed following USFWS methodology to determine the amount of Panther Habitat Units (PHUs) impacted. Under the alternative B worst-case scenario, impacts to 10.35 acres of marsh and shrub swamp/brush habitat would require the compensation of 35 PHUs. The panther is unlikely to occur in the area of analysis as the species is known to be shy and the area of analysis experiences daily anthropogenic disturbances. However, short-term adverse impacts to

behavior, such as avoidance, may occur. Shark Valley is one of the most popular tourist destinations, with daily human activity. With the unlikelihood of panthers to occur in the project study area due to the presence of human activity at Shark Valley, impacts to the panther are anticipated to be negligible.

NPS would mitigate for all wetland impacts and would fully compensate for the loss of wood stork foraging biomass and PHUs. Mitigation is anticipated to occur at HID Mitigation Bank which is located in the southeast portion of the Everglades. The HID Mitigation Bank is in the same watershed as the project site and contains the same type of wetlands that would be impacted by the proposed action. The functional value of impacted wetlands will be fully mitigated. This mitigation bank is within the park, it is the closest wetland mitigation bank to the project area and this mitigation would comply with federal mitigation rule.

The filling of wetlands adjacent to the project area, the noise associated with construction activities and the presence of construction personnel would cause short term, temporary impacts to wildlife and their habitat. Construction related activities would result in dispersal of wildlife to nearby habitat. These impacts would occur only during the construction period. The implementation of BMPs during construction would minimize additional impacts to wildlife and their habitat, such as spills from equipment, erosion and sedimentation. Alternative B would result in short term, adverse effects to wildlife due the filling of wetlands and destruction of habitat. However, due to the availability of nearby habitat in the project area, no long term, adverse effects to wildlife are anticipated as a result of this project.

In summary, past actions in Shark Valley have contributed to changes in upland and wetland habitats, therefore declines/inclines in wildlife and listed species have occurred. Generally, projects associated with the Everglades restoration plans have the potential to improve conditions for various wildlife and listed species. The potential contribution to those impacts to wetland habitat as a result of implementation of this alternative would result in short-term and negligible impacts on wildlife and listed species, as there is other available, nearby suitable habitat in the project area. Furthermore, with the implementation of mitigation measures, and limited wetland impacts compared to the available habitat in the project area, this alternative is anticipated to have a negligible and slightly noticeable impact on wildlife and listed species in the context of the wildlife and listed species population and habitat trends as species will potentially relocate to other areas, however, they would likely remain within the park.

The following effect determinations were made for the federally listed species and their critical habitat:

- **No effect:** CSSS
- **May Affect, Not Likely to Adversely Affect:** Everglade snail kite, wood stork, eastern black rail, eastern indigo snake, American crocodile, Florida bonneted bat, and Florida panther
- **May Affect, Likely to Adversely Affect:** Everglade snail kite critical habitat

Impacts of Alternative C (Preferred Alternative)

Analysis

The overflow parking lot under alternative C would result in long term, permanent filling of 1.95 acres of wetlands. The after-hours parking lot would result in long term, permanent filling of 0.06 acres of wetlands.

The new overflow parking lot for this alternative would be located within primarily herbaceous wet prairie wetland habitat. The northern edge consists of more shrub wetland habitat. Although sparse, there are scattered cypress trees, but the area does not include large, mature trees. The underlying caprock is high which limits tree growth in the area. These high functioning wetlands provide habitat for a variety of listed species.

The remaining improvements associated with alternative C would be identical to alternative B or would not include any impacts to wetland habitat. The total acreage of wetland impacts associated with the alternative C worst-case scenario is 10.72 acres, which is slightly higher than the alternative B worst-case scenario.

Impacts to species are similar to the impacts associated with alternative B with the exception of suitable CSSS habitat, wood stork foraging biomass, and PHUs. While alternative B does not include any suitable habitat for the CSSS, alternative C contains minimal suitable habitat. However, the species is still not known to inhabit wetlands in the area of analysis (personal communications, NPS biologists 2021). Therefore, adverse impacts to this species are not anticipated. The remaining impacts described for alternative B are identical for alternative C.

Due to the differences in impact acreages and impacted habitat types, the wood stork foraging biomass and PHU compensation would also differ. Alternative C would require compensation of 37.86 kg of lost foraging biomass and 34 PHUs.

In summary, the contribution to cumulative impacts on wildlife and species of special concern under alternative C would be the same as those described for alternative B. The effect determinations for the above listed species and their critical habitat and impacts to wildlife are the same as alternative B.

HYDROLOGY AND WATER QUALITY

Area of Analysis

The area of analysis for hydrology and water quality includes the areas directly affected by the proposed improvements as well as the adjacent natural habitat that may receive runoff from the project area.

Affected Environment

Waters throughout the Everglades NP are designated as an Outstanding Florida Water (OFW) (designated in 1978); these waters provide the predominate water recharge for the Biscayne Aquifer, which serves as a drinking water source for most of South Florida, including the Miccosukee Reserve Area which abuts the project area to the east. As such, no degradation of surface water quality is permitted to these waters. Currently, the Entrance Road, the Administration Complex and the southern end of Tram Road are located

in low elevation areas and experience periodic flooding. Most of the southern tip of Tram Road was flooded after Hurricane Irma, which occurred on September 10, 2017. Flooding was experienced beginning on September 27, 2021, when control gates were opened to drain larger areas north of US-41/Tamiami Trail. The impact area of the new Tram Road typical section would expand outward due to raising and adjusting back to existing elevations. The center island at south end is the lowest point in the area and stormwater is currently directed to flow and remain here. Currently, due to existing grading, water is trapped north of the existing type 'D' curb, thus prolonging flood events in this area.

Potential concerns for water quality include direct stormwater runoff from the existing impervious areas during flood events along with short-term, temporary increased turbidity from construction activities, and potential minor impacts from oil or gas release from construction equipment.

Trends

With the implementation of the CERP, currently scheduled for completion no earlier than 2028, restoration would be expected to increase water delivery to Everglades NP which elevates concerns of additional flooding in low-lying visitor use areas. Restoration would deliver additional water primarily to Northeast Shark Slough, moving water away from the S12A and S12B structures closest to Shark Valley. Modeling completed for the CEPP predicted conditions based on the Post-Authorization Change Report (PACR), which would bring an additional 240,000 acre-ft. of flow to the park. The water levels at the tailwater (TW) of the S12B structure, the structure closest to Shark Valley, shows a shift toward lower water levels. This shifting of water away from the western structures was planned, in part, to replicate historic flow paths and, in part, in response to other resource management needs. If management needs change, then additional modeling may be performed to determine the remaining extent that water is delivered to the east and away from the Shark Valley region; however, at this time results of the CEPP project are expected to reduce flooding potential in the Shark Valley region.

Generally, projects associated with the various Everglades NP restoration plans are expected to improve the hydrology and water quality in the park. Over the course of implementation of various projects, degraded ecological conditions would be expected to improve, resulting in long-term beneficial impacts on hydrology and water quality in the park, including in the area of analysis.

Environmental Consequences

No Action Alternative

Under the no action alternative, there would be no change in the current hydrology or water quality. The amount of impervious areas would remain the same, no additional stormwater features would be installed and the existing facilities would not be raised to a higher elevation. This would maintain the flooded condition during the wet season and produce adverse impacts on the water quality of park water resources.

Impacts of Alternative B

Analysis

Under alternative B, new impervious areas would be added from the construction of the overflow parking lot, new bus/RV parking lot, a wider Entrance Road, and an elevated Tram Road. Fill would be brought on

site to raise the Administrative Complex; however, the improvements would remain in the existing previously disturbed footprint. The total added impervious of the overflow parking lot for alternative B is 1.48 acres. Additional stormwater features to collect and treat stormwater runoff from the new paved areas would be included in the Site Plan to ensure that the water quality and quantity of the runoff meets the criteria of applicable federal and state laws.

The hydrology of the area will not change as a result of the implementation of alternative B. There is no subsurface excavation associated with the improvements and no change in water flows anticipated. However, the elevation of Entrance Road, Administration Complex and Tram Road will be raised in order to alleviate flood concerns. The Elevation Option 1 (8.2 NGVD) may still result in water overtopping the road and would be susceptible to flooding during the wet season, where the Elevation Option 2 (8.8 NGVD) would eliminate flooding entirely.

The short-term water quality impacts during construction would be a direct result of the placement of new fill material in the parking areas and of raising the Entrance Road and Tram Road. New fill also would be placed at the Administrative Complex to raise the site elevation. Soils disturbed by construction, as well as potential oil/fuel spills from equipment, would contribute to turbid run-off and pollution in adjacent surface waters or wetlands. BMPs, including the use of staked silt fence and turbidity barriers, would be implemented to minimize the potential for runoff during construction and prevent turbidity and consequent degradation of water quality. Silt fences would be installed prior to commencement of construction around the outer perimeter of each work zone to minimize the potential for runoff entering adjacent wetlands. Turbidity barriers would be installed in the canal adjacent to the Tram Road prior to construction activities, if needed, to encapsulate the work zone along canal bank to ensure any turbidity generated during construction would not migrate off site. The project is located in an OFW, which has restrictive requirements pertaining to water quality (i.e., zero NTUs above ambient).

To ensure compliance with water quality standards in OFWs, a turbidity monitoring plan would be implemented during construction. If monitoring reveals that turbidity levels exceed the standards, construction activities shall cease immediately and shall not resume until corrective measures are performed (e.g., the use of additional barriers, modifications to equipment). The barriers would remain in place and be regularly inspected throughout the construction phase of the project. The turbidity barriers and silt fences would be removed once turbidity has subsided following completion of construction. Therefore, anticipated runoff within the work area would be expected to result in short-term adverse impacts to local water quality with a potential for short-term negligible adverse impacts to water quality outside the limits of the turbidity barriers and silt fences. Additionally, no long-term adverse effects are anticipated for water quality as a result of runoff generated from the added impervious areas.

The use of NPS spill prevention, control, and countermeasure procedures would reduce the potential for petroleum products from leaking equipment to reach surface waters or adjacent wetlands. Thus, taking into consideration the impacts and the proposed mitigation measures for incidental spills/discharges, construction activities would be anticipated to result in short-term, localized, adverse impacts to water quality within the area of analysis.

After construction is completed, temporarily disturbed areas would be restored to pre-existing conditions (e.g., regraded, compacted). To further reduce the potential for erosion, the temporarily impacted areas would be restored to pre-existing conditions and replanted, as needed, with native wetland vegetation.

Alternative B would result in short-term adverse impacts to water quality with the associated placement of fill to raise Entrance Road, Tram Road, and the Administrative Complex, as well as from the construction of the overflow and bus/RV parking lot during construction activities. Long-term beneficial effects to water quality are anticipated post-construction from the installation of stormwater treatment features to collect and treat runoff from the Entrance Road, Administrative Complex and new parking areas. In addition, no impacts to the hydrology are anticipated from raising the elevation of these features. However, raising the elevation of these features would prevent flooding during most of the year, thereby reducing the sheet-flow to adjacent wetlands during extreme flood events. Given the long-term restoration goals of various projects in the Everglades, it is anticipated that the short-term adverse impacts to hydrology and water quality would be negligible compared to the long-term benefits associated with the proposed stormwater treatment improvements and from providing more resilient features within Shark Valley.

In summary, the ongoing restoration projects are expected to improve the hydrology and water quality in the park including in the Shark Valley area. The contribution to impacts on hydrology and water quality under alternative B would be negligible. In combination with the restoration projects and the Site Plan, long-term benefits on hydrology and water quality are anticipated.

Impacts of Alternative C (Preferred Alternative)

Analysis

Similar to alternative B, alternative C would add new impervious area from the construction of raising and widening Entrance Road, elevating Tram Road, and elevating the Administrative Complex. New impervious areas also would be added from the installation of the new overflow parking lot and after-hours parking lot. However, the triangular median area just south of the fee station would not be backfilled as part of alternative C. The total added impervious area of the overflow parking lot for alternative C is 1.33 acres as compared to 1.48 acres with alternative B. Alternative C would result in less new impervious area than alternative B. However, alternative C also would include the same stormwater features to collect and treat stormwater runoff as alternative B.

The short-term impacts during construction are the same as those associated with alternative B. The same protective measures (BMPs) would be installed to prevent potential sediment and erosion runoff from entering adjacent wetlands or surface waters, and for spill prevention during construction. In addition, areas temporarily disturbed during construction would be restored to pre-existing conditions under alternative C.

Alternative C would result in potential short-term adverse impacts to water quality with the associated placement of fill to raise Entrance Road, Tram Road and the Administrative Complex, as well as from construction of the overflow and after-hours parking lot during construction activities. Similar to alternative B, long-term beneficial effects to water quality are anticipated post-construction from the installation of stormwater treatment features to collect and treat runoff from the Entrance Road, Administrative Complex and new parking areas. In addition, raising the elevation of these features would prevent the roadways and

buildings from flooding during most of the year, thereby reducing the sheet-flow to adjacent wetlands during extreme flood events.

In summary, the contribution to impacts on hydrology and water quality are anticipated to be the same as alternative B.

VISITOR USE AND EXPERIENCE

Area of Analysis

The area of analysis for visitor use and experience encompasses the project area.

Affected Environment

Enjoyment of park resources and values by the public is a fundamental purpose of the national park system. NPS is committed to providing the appropriate, high-quality opportunities for visitors to enjoy national park units, and NPS will maintain within the parks an atmosphere that is open, inviting and accessible to the public (NPS 2006). As a result, the public parking fills up daily at Shark Valley (Everglades Foundation Document 2017). Recreational visitation to Everglades NP is highly seasonal. Peak visitation in the park occurs within the winter months, from December to April, with a low season from June to September. Seasonal weather differences are a major influence on recreational use, with heat and mosquitoes discouraging visitation in the summer, tropical storm/hurricane season deterring visitors in the fall, and thereby, increased visitor use in the winter months. Bird watching is also popular in the winter as a result of bird migrations.

Shark Valley is one of the most visited areas in Everglades NP. Recreational activities in Shark Valley include hiking, fishing, canoeing/kayaking, camping, wildlife viewing and biking. Walking trails are located throughout Shark Valley stemming off of the 15-mile Tram Road for visitor enjoyment. Tram Road extends into the sawgrass marsh and offers one of the best opportunities for viewing the natural environment in the park. Shark Valley is available to the public after-hours, which makes the area a popular destination for biking in the early morning and during the full moon. The Shark Valley Visitor Center offers educational displays, a park video, an underwater camera, and information brochures. Concessions available at Shark Valley include guided tram and bicycle tours and bicycle rentals from Shark Valley Tram Tours, Inc. The Observation Tower is located at the half-way point off of Tram Road, which gives open-air views of the River of Grass and Shark Valley Slough. More recently, visitation levels have increased at Shark Valley, while the number of recreation visitors at Everglades City and the number of boat visits has decreased (GMP 2015).

Trends

Over the last decade, the NPS has invested in the renovation and replacement of visitor facilities and infrastructure at Shark Valley to enhance visitor use and experience. Improvements have included the construction of a new comfort station and entrance station in 2009, new visitor center in 2013, new observation deck at the Shark Valley Entrance Road Canal in 2016 and replacing the Bobcat Trail Boardwalk in 2017, among other projects. Visitor use and recreational activities such as biking, hiking and enjoying the park's landscapes are anticipated to continue in the area of analysis in the long term.

Environmental Consequences

No Action Alternative

Under the no action alternative, unsafe parking conditions, pedestrian safety, vehicular congestion and long waiting lines would continue to be a common part of the Shark Valley visitor experience during peak visitor season. No overflow parking would be provided, the Entrance Road would not be raised or widened and flooding along Tram Road would continue. The existing parking area would continue to be insufficient, and visitors would continue to park in unsafe conditions along US-41/Tamiami Trail.

Impacts of Alternative B

Analysis

Currently, there is limited parking and long traffic waiting lines during peak season at Shark Valley. Alternative B would provide a new overflow parking lot, an additional entry lane on Entrance Road, and new rest stops along Tram Road. These changes would ease parking congestion, provide additional interpretive opportunities, and enhance the overall visitor experience at Shark Valley.

During the project construction, the presence of construction equipment and temporary closures would result in short-term, adverse impacts on visitor use and experience. The operation of construction equipment would result in more noise and would potentially disrupt visitor experience. The construction activities would potentially disrupt visitor experiences and access to certain recreational opportunities, such as trails and access to portions of Tram Road. To mitigate these impacts, construction activities during peak visitor-use periods would be avoided or limited to the extent possible. Full closures would be for the minimal time required to complete the work activity.

Post-construction, full access to Shark Valley would be reinstated, and would include enhancements to recreational access and amenities in the park. More efficient vehicle circulation through an additional entry lane into Shark Valley would be provided to reduce congestion, an overflow parking lot would be available after park visiting hours, additional paved pull-off stops would be constructed for the Tram, and additional rest stops for bicyclists and/or pedestrians would be added along Tram Road.

Alternative B would result in long-term, beneficial impacts on visitor use and experience through enhanced and safer access to recreational opportunities at Shark Valley. Impacts from construction activities, including noise, would be short-term and only slightly noticeable. Overall, impacts would be beneficial with alternative B improving visitor safety via the overflow parking option and enhancing visitor use and experience by providing improved recreational amenities and opportunities.

In summary, the ongoing restoration related projects along US-41/Tamiami Trail are expected to result in short-term adverse impacts on visitor use at Shark Valley due to disruptions in traffic including lane closures and negligible long-term impacts. Under alternative B, short-term impacts on visitor use and experience are expected during construction activities. Long-term beneficial impacts are anticipated on visitor use and experience at Shark Valley from the construction of the overflow parking lot, sidewalks, and rest stops along the Tram Road. This alternative is anticipated to add beneficial impacts to the overall improvement trend in visitor use and experience over the last decade in the project area.

Impacts of Alternative C (Preferred Alternative)

Analysis

Impacts on visitor use and experience as a result of alternative C would be similar to those described under alternative B. Alternative C would provide fewer pedestrian conflicts and safety issues with traffic circulation, as there is a natural progression for visitors to check availability for parking in the closest lot, before moving to an overflow lot. Additionally, there would be an easier route for vehicles to drop off elderly and handicapped individuals to the Visitor Center before accessing the overflow parking lot. Alternative C would provide visitors closer access to the Visitor Center and the many recreational opportunities Shark Valley has to offer as compared to alternative B. Short-term impacts from construction activities under alternative C would have more temporary disturbance to visitors that are closer to the Visitor Center and Tram Road compared to alternative B.

Alternative C would result in more long-term beneficial impacts on visitor use and experience from safer vehicular and pedestrian access to the Visitor Center than alternative B. Alternative C provides a natural extension on the existing development (Visitor Center and parking lot) and would be safer for visitors entering Shark Valley. Impacts from construction activities would be temporary and would cease after the construction period. Overall, alternative C would result in long-term beneficial impacts on visitors as a result of the new overflow parking lot, better access to Shark Valley, and other amenities.

In summary, the potential contribution to impacts on visitor use and experience are anticipated to be the same as alternative B.

HUMAN HEALTH AND SAFETY

Area of Analysis

The area of analysis for human health and safety encompasses the project area and US-41/Tamiami Trail within Shark Valley.

Affected Environment

While recognizing that there are limitations on its capability to totally eliminate all hazards, the NPS and its concessioners, contractors and cooperators seek to provide a safe and healthful environment for visitors and employees (NPS 2006). When practicable and consistent with congressionally designated purposes and mandates, the NPS will reduce or remove unknown hazards and apply other appropriate measures. One of the objectives of the Site Plan is to enhance visitor safety by creating additional on-site parking within the park's developed zone and eliminate parking along US-41/Tamiami Trail (Everglades Foundation Document 2017).

Shark Valley is a popular developed visitor use area that is especially busy during the peak winter visitor season. During peak season, the Visitor Center parking lot is unable to accommodate the number of cars and school buses that attempt to park at the visitor center parking lot. Currently there is an existing capacity of 120 parking spaces, one parking space for buses, and four parking spaces for oversized vehicles. When the visitor center parking lot is full, visitors unsafely park along US-41/Tamiami Trail, which creates

hazardous conditions for visitors walking along US-41/Tamiami Trail and then along the congested Entrance Road where there are no pedestrian facilities (i.e., sidewalks) to enter Shark Valley.

Trends

Recreational activities, such as hiking and biking, are anticipated to continue in Shark Valley. Demand for outdoor recreational activities are expected to increase primarily as a result of regional population growth, including the seasonal “snowbird” migration. Visitation at Shark Valley was stable up to the 1990s, and visitation has decreased over the last few years. The visitor capacity at Shark Valley is, and will remain, 400-500 people at one time. Therefore, the park does not anticipate increased visitor use at Shark Valley. The park will continue to inform visitors about any congestion issues at the site so visitors can plan accordingly (adjust their visit day, have options for other recreational opportunities in the vicinity of Shark Valley, etc.).

Environmental Consequences

No Action Alternative

Under the no action alternative, health and safety would not be addressed and would not meet the purpose and need of the project. Visitors would continue to unsafely park along US-41/Tamiami Trail and walk along the congested Entrance Road, where there are no pedestrian facilities, to enter Shark Valley.

Impacts of Alternative B

Analysis

Under alternative B, the proposed overflow parking lot would be located immediately south of US-41/Tamiami Trail. Visitors would be required to walk 2,000 linear feet, or approximately 0.4 miles, from the overflow parking lot to the Visitor Center. The new sidewalk along Entrance Road would provide visitors a dedicated facility to walk from the overflow parking lot to the Visitor Center, which would reduce conflicts with vehicles. However, the potential for incidents between vehicles and bicyclists may remain. Although the overflow parking area is not anticipated to be frequently used during the summer months, which is the low visitation season, the use of this parking area during the hot and humid months may result in increased cases of heat stress in visitors. In addition, due to the short distance between US-41/Tamiami Trail and the entrance to the proposed overflow parking area, new traffic congestion on US-41/Tamiami Trail may result from visitors having to slow down to make the left turn to access the overflow parking lot. With the addition of dynamic/variable message signs to notify visitors to utilize the overflow parking lot once the visitor center parking lot is full, alternative B would alleviate additional traffic along the Entrance Road as visitors would access the overflow lot first. The new sidewalk along Entrance Road would provide pedestrians a dedicated facility to walk from the overflow parking lot to the Visitor Center, which would reduce conflicts with vehicles.

There are no shaded rest stops for bicyclists on the eastern leg of Tram Road. The addition of two rest stops with shade structures, three miles apart, along the eastern leg of Tram Road would provide bicyclists the opportunity to rest and recharge before completing the 15-mile loop. The addition of the rest stops with shades would result in long-term beneficial impacts to the health and safety of visitors biking that area.

Alternative B would provide long-term beneficial pedestrian safety improvements due to the new sidewalk proposed along Entrance Road and dedicated overflow parking lot which is expected to displace the current use of US-41/Tamiami Trail road shoulder as visitor parking. Furthermore, improvements along the Tram Road would provide more opportunities for visitors to rest while bicycling and/or walking. As a result of alternative B, human health and safety at Shark Valley is anticipated to be enhanced and would provide long-term benefits for visitors.

In summary, the construction of the overflow parking lot, new sidewalk, and rest stops along the Tram Road would represent a discernable and long-term beneficial improvement to the continuous NPS efforts to improve visitor health and safety.

Impacts of Alternative C (Preferred Alternative)

Analysis

The impacts of health and safety would be similar to those described under alternative B. The primary difference between the two alternatives is that alternative C would have less pedestrian and vehicle conflicts than alternative B given the shorter distance pedestrians would be required to walk from the overflow parking lot to the Visitor Center. Alternative C decreases the potential for conflicts between pedestrians, drivers, and bicyclists as compared to alternative B.

Alternative C would provide similar long-term beneficial impacts to health and safety similar to alternative B. In addition, due to the overflow parking lot proximity to the visitor center, alternative C would further separate pedestrians from the Entrance Road thereby minimizing opportunities for safety issues to arise from conflicting uses.

In summary, the potential contribution to impacts on human health and safety are anticipated to be the same as alternative B.

LIGHTSCAPES

Area of Analysis

The area of analysis for lightscapes includes the immediate project area, and surrounding areas that would be affected by new lighting.

Affected Environment

NPS strives to preserve natural lightscapes, which are natural resources and values that exist in the absence of human-caused light (NPS 2006). At Everglades NP, NPS endeavors to limit the use of artificial outdoor lighting other than what is necessary for basic safety requirements, ensuring outdoor lighting is shielded to the maximum extent possible and keep light on the intended subject and out of the night sky (GMP 2015).

The park is an ideal place to view the night sky because of its location away from the lights of the urbanized coastlines. Shark Valley is located in an area with accessible proximity to urban areas, while being far enough away from the coastlines as to not be impacted by the night sky light that they generate. Shark Valley offers nighttime ranger-led programs, including full moon bicycle rides along Tram Road.

Additionally, Shark Valley's dark skies are beneficial to the species that live there, as well as astronomical viewing opportunities.

Trends

Regional growth in South Florida due to increases in population and new developments has resulted in new artificial lighting in Miami-Dade County and Collier County, east and west of Shark Valley. Shark Valley is located in a remote area of the park away from developing areas. Due to the location of Shark Valley, the night sky at Shark Valley would not be affected by the developments outside of the park.

Environmental Consequences

No Action Alternative

Under the no action alternative, there would be no project-related impacts to lightscares in the area of analysis and surrounding areas, as existing conditions at Shark Valley would remain the same. Currently, there is motion sensor lighting at the Visitor Center which is needed for safety and is night sky friendly. In addition, the Administration Complex building has outdoor lights that are left on overnight approximately twice per month. The fee station outdoor light stays on overnight for security. There are no lights at the Observation Tower. Routine maintenance and lighting of existing features or structures within Shark Valley would continue.

Impacts of Alternative B

Analysis

Under alternative B, the overflow parking lot would remain open to visitors during after-hours, and therefore would require full lighting for the parking and entry and exit lighting as per Miami-Dade County (MDC) Ordinance (2001). The proposed lighting would implement best management practices for night sky friendly outdoor lighting. Lights would be added only where needed, shielded and directed to keep light on the intended subject, and localized. Therefore, the proposed new lighting would have minor adverse impacts on the naturally dark lightscape of Shark Valley.

In summary, the new artificial lighting under alternative B would slightly contribute to the regional trend of increased artificial lighting and decreased dark sky areas.

Impacts of Alternative C (Preferred Alternative)

Analysis

Alternative C would have similar impacts as alternative B in the after-hours parking area. Under alternative C, entry and exit lighting to the after-hours parking lot would be required for safety purposes according to Miami-Dade County Ordinance. However, alternative C would require less outdoor lighting since the overflow parking lot would not be open to visitors after the entrance gate is closed, thereby not requiring leaving the lights on for security. Limited lighting would be installed in the overflow parking lot, similar to the existing lighting in the Visitor Center parking lot for use during evening programs. Therefore, the proposed new lighting under alternative C would have indiscernible impacts on the dark sky conditions at Shark Valley.

In summary, the contribution of impacts on lightscapes under alternative C are anticipated to be negligible and not noticeable in the overall regional trend of increased artificial lighting and decreased dark sky areas.

VIEWSHEDS

Area of Analysis

The area of analysis for viewsheds encompasses the project area, and US-41/Tamiami Trail near the entrance to Shark Valley.

Affected Environment

Shark Valley provides an uninterrupted view of the sawgrass marsh of the Everglades from various viewing points. The existing parking lot, Visitor Center, and other structures are not visible in the landscape from the Observation Tower, as they are hidden by heavy and dense vegetation cover. US-41/Tamiami Trail provides views of Everglades NP for motorists and all visitors entering or leaving Shark Valley. A new viewshed was established from the remnant area of the Old Tamiami Trail, north of the Shark Valley Visitor Center, looking south into the Shark River Slough as a result of vegetation clearing that occurred in early 2021 as a result of the Old Tamami Trail Modifications project.

Trends

Since 2013, with the implementation of CERP, new viewsheds into the expansive sawgrass marsh habitat at Everglades NP have been created along the Tamiami Trail. Viewsheds at Shark Valley are anticipated to remain the same in the area of analysis in the long term.

Environmental Consequences

No Action Alternative

Under the no action alternative, viewsheds would remain unchanged in Shark Valley as existing conditions at Shark Valley would remain the same.

Impacts of Alternative B

Analysis

Under alternative B, viewsheds would remain very similar to the existing conditions in the project area. Due to the higher elevation of the Tamiami Trail, visitors entering or exiting Shark Valley may have a view of the overflow parking lot rather than a view of the mixed native and nuisance and exotic vegetation that currently dominates that area. Existing native vegetation to the north and west of the proposed overflow parking area would be retained to provide a natural screen, to the extent possible, between the Tamiami Trail and the overflow parking lot. The existing pond apple habitat and shrub wetlands to the north of the proposed bus/RV parking lot would also be retained to naturally screen that parking area. Therefore, the current viewsheds upon visitor arrival into Shark Valley would remain. Under alternative B, long-term adverse impacts to viewsheds would occur for visitors entering into Shark Valley, visitors walking on Old Tamiami Trail and motorists traveling on US-41/Tamiami Trail. However, this view would only be visible

from visitors entering and exiting the park. Given other unaltered and unobstructed views at Shark Valley, it is anticipated that impacts to viewsheds would be negligible and not noticeable.

In summary, viewsheds in the Everglades are anticipated to be altered over time as a result of vegetation growth, storms, prescribed fires and other projects in the area. Overall, changes in viewsheds at Shark Valley are expected to change over time as a result of factors other than the proposed project and the contribution to altered viewsheds from implementation of this project is not expected to be noticeable.

Impacts of Alternative C (Preferred Alternative)

Analysis

The viewshed from Old Tamiami Trail, looking south into the Shark River Slough toward the Visitor Center would be impacted as a result of the overflow parking east of the Visitor Center under alternative C. The location of the proposed overflow parking lot would have long-term, adverse impacts on viewsheds east of the Visitor Center. Visitors at the Visitor Center and on Tram Road also would have a new viewshed as a result of the overflow parking area similar to that of alternative B. However, the new viewshed with the overflow parking lot would be similar to the existing viewshed due to the adjacent Visitor Center, which already disrupts the view of Shark Valley.

Under alternative C, there would be long-term adverse impacts to viewsheds for visitors at the Visitor Center and visitors walking or bicycling on Tram Road. Given other unaltered and unobstructed views at Shark Valley, it is anticipated that impacts to viewsheds would be negligible.

In summary, the contribution of impacts on viewsheds under alternative C are anticipated to be the same as alternative B.

CHAPTER 4: CONSULTATION AND COORDINATION

The NPS places a high priority on public involvement in the NEPA process and on giving the public an opportunity to comment on the proposed action. Consultation and coordination with federal, state, and local agencies, as well as American Indian tribes, were conducted to identify issues and concerns related to natural and cultural resources within the park. This chapter describes the public involvement and agency and tribal consultation used during the preparation of the Shark Valley Site Plan/EA.

PUBLIC INVOLVEMENT

Civic Engagement

Civic engagement was conducted in January and February 2021 to provide the public an opportunity to learn about the Site Plan and provide input. A newsletter was distributed to the park's interested parties email list on January 29th and a press release was issued on February 3rd. Project information, including the newsletter, was also posted on the NPS Planning, Environment and Public Comment (PEPC) website, the park website and social media accounts. The public was invited to submit comments on the project electronically, through the PEPC website, or by mailing written comments.

Two virtual public meetings were held on February 9 and 10, 2021. Comments were received at the meetings and through PEPC from the public and stakeholders, including the Miccosukee Tribe of Florida, Seminole Tribe of Florida, Florida Fish and Wildlife Conservation Commission, National Parks Conservation Association, Miami-Dade County Parks, Recreation and Open Spaces, and Shark Valley Tram Tours. The public raised concerns regarding the viewsheds of Shark Valley, pedestrian safety, impacts to natural resources in the project area, visitor access to the overflow parking areas and rest stops, alternative parking areas, providing security and parking enforcement, traffic circulation, construction costs and impacts to entrance fees as a result of the project. In general, commenters expressed significant support for the planned improvements, and the preferred alternative was refined based on public input.

Environmental Assessment Review

The EA will be available for a 30-day public comment period. The public comment period will be announced by press release, posts on the PEPC website, and by electronic mail sent to the park mailing list. Agencies and tribes also will be notified by letter. Hardcopies of the Site Plan/EA will be available for review at Everglades NP headquarters. During this time, the public is encouraged to post comments online at <https://parkplanning.gov/EVER> or mail comments to Pedro M. Ramos, Superintendent, Attn: Shark Valley Site Plan, Everglades National Park Headquarters, 40001 State Road 9336, Homestead, Florida 33034. After the close of the public comment period, all public comments will be reviewed and analyzed prior to the release of a NPS decision document.

AGENCY AND TRIBAL CONSULTATION

NPS initiated consultation with relevant agencies during the preparation of the Site Plan/EA. Consultation efforts, as described in the following section, including with the USACE, USFWS, SFWMD, FWC, SHPO

and Native American Tribes, began during civic engagement and continued through the preparation of the Site Plan/EA. All agencies will be provided with a copy of the EA for review and comment.

Endangered Species Act Section 7 Consultation

Section 7 of the Endangered Species Act requires federal agencies to ensure that the actions they authorize, fund, or carry out do not jeopardize the continued existence of listed species nor destroy or adversely affect critical habitat. The NPS conducted early coordination with the USFWS on this project. A Biological Assessment was prepared, and the NPS will complete the Section 7 consultation process prior to finalizing the NPS decision document for this plan.

Section 106 of the National Historic Preservation Act Consultation

Consultation with the State Historic Preservation Officer is pending. NPS will complete the Section 106 consultation process prior to preparing a NPS decision document for this plan.

Tribal Consultation

Consultation with the Seminole and Miccosukee Tribe of Florida is pending. NPS will complete Tribal consultation prior to preparing an NPS decision document for this plan.

CHAPTER 5: PREPARERS AND PLANNING TEAM

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Tatiana Marquez, Park Planner

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REFERENCES

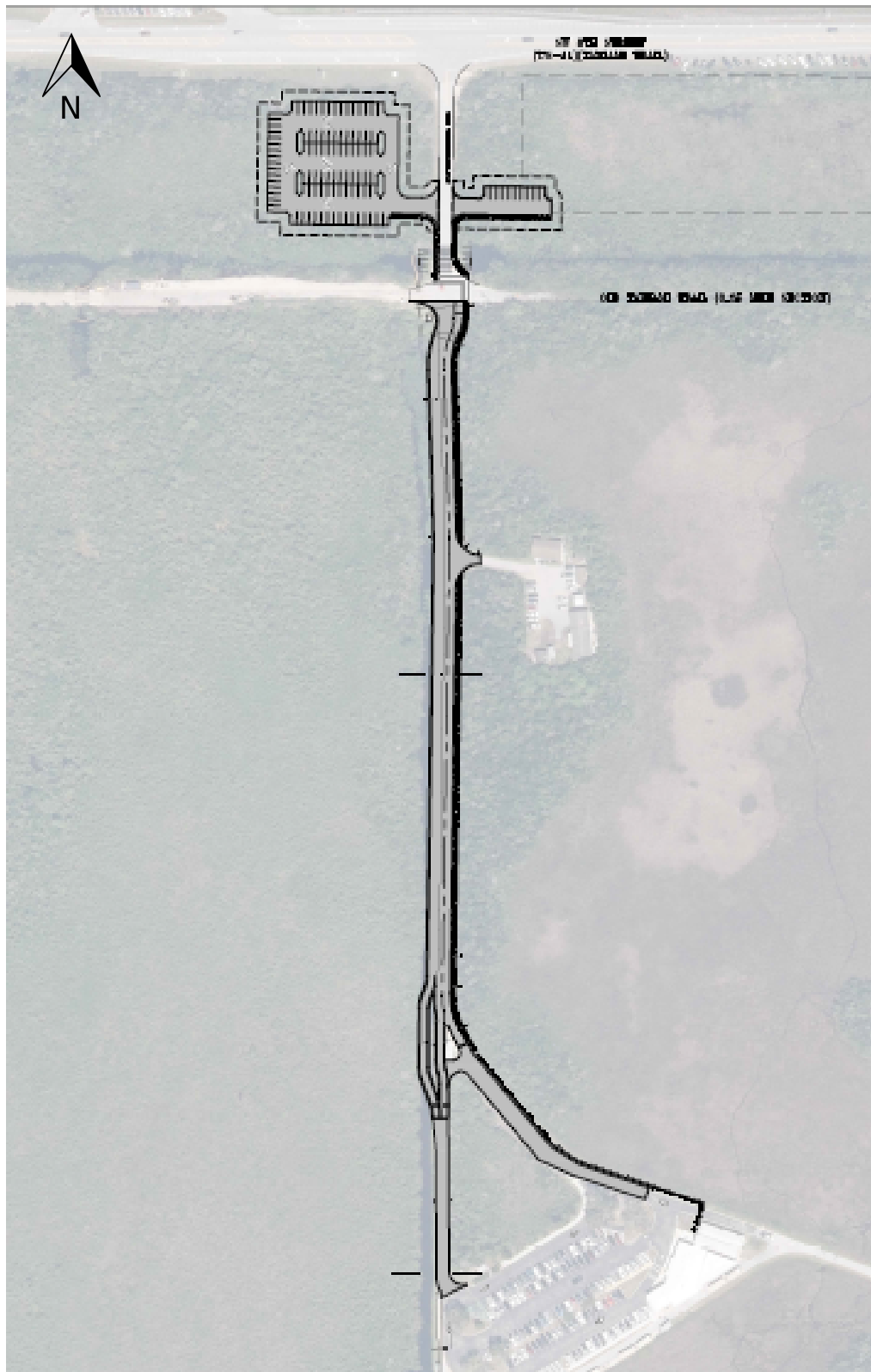
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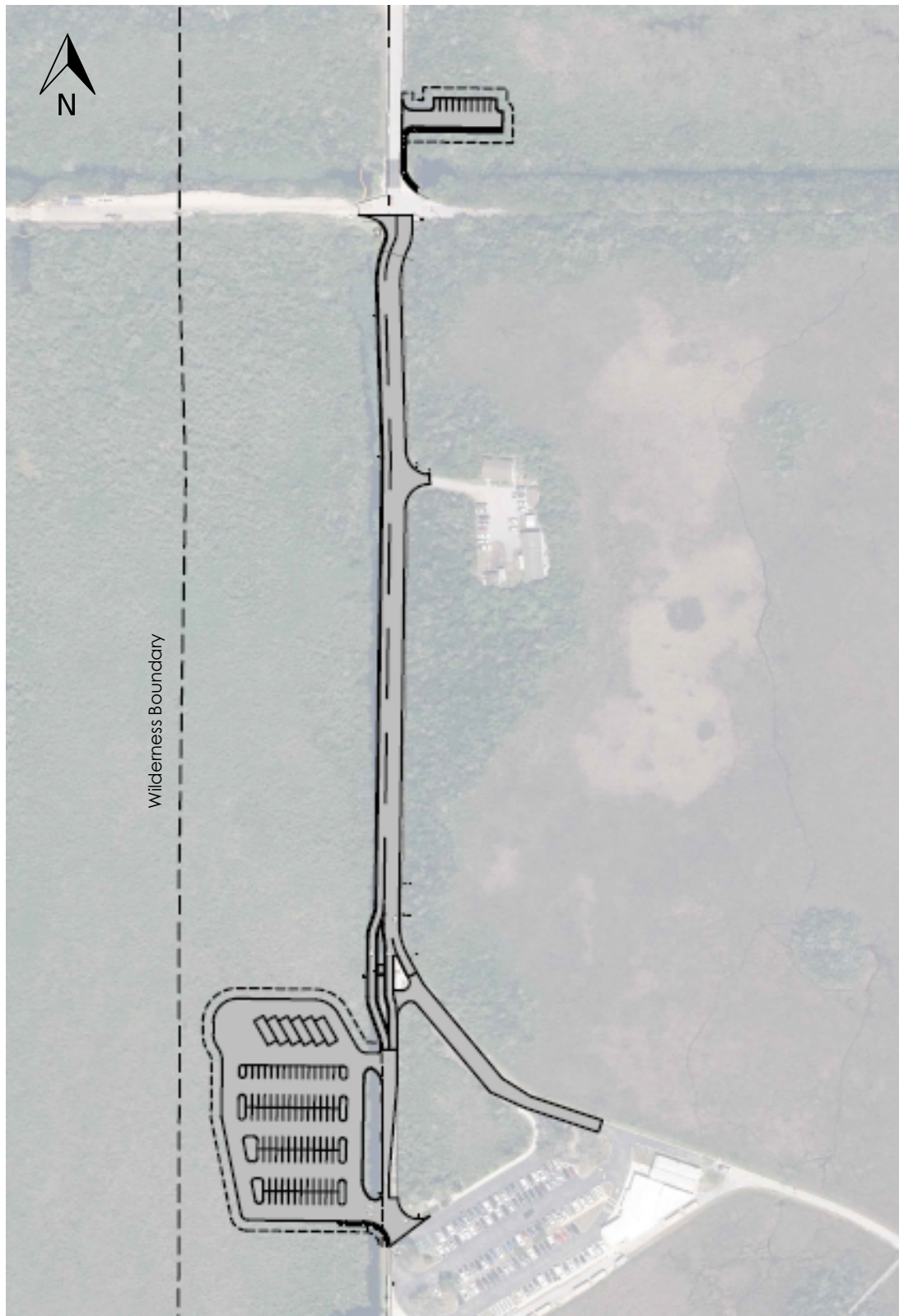
APPENDICES

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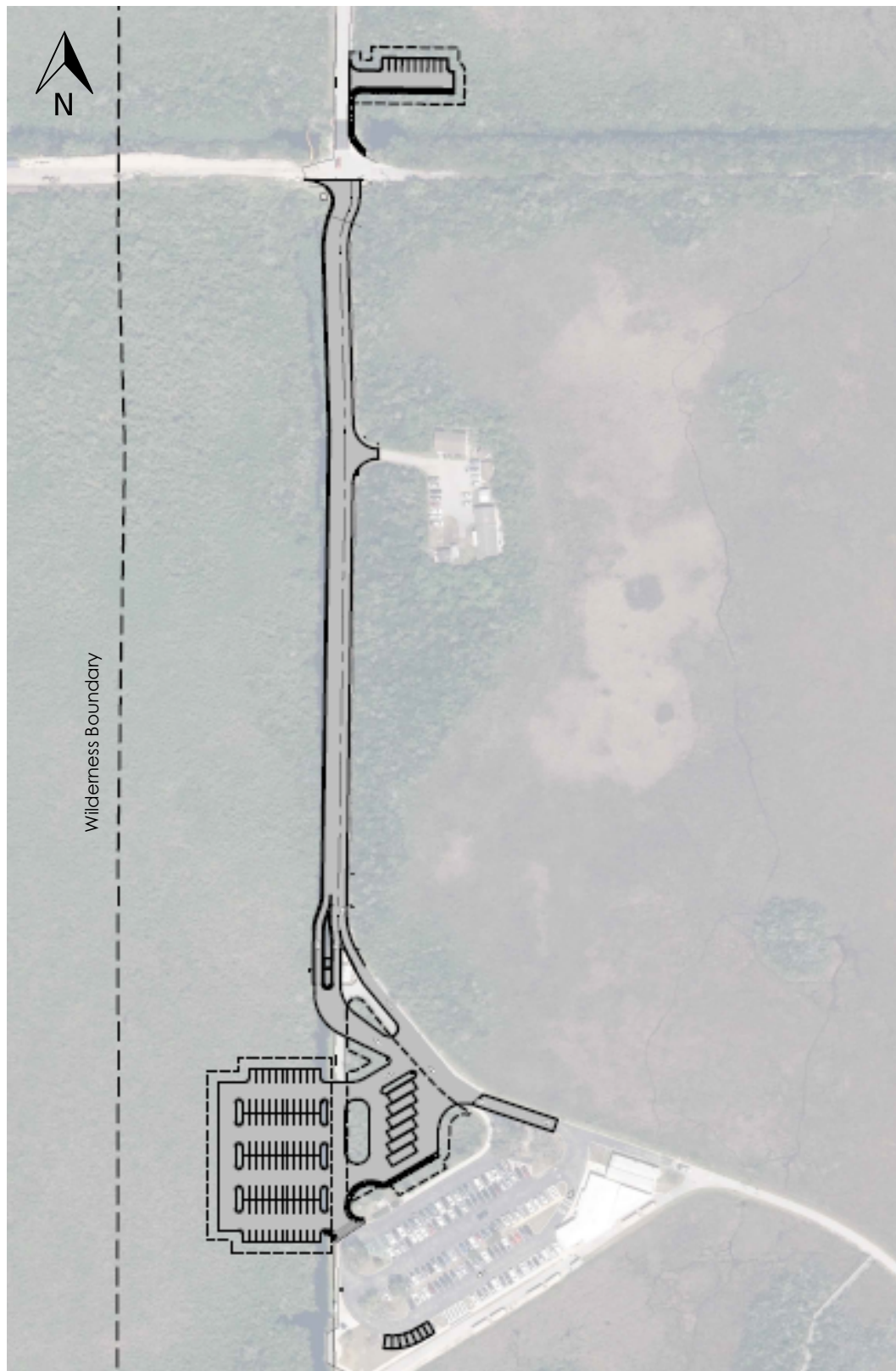
APPENDIX A – OPTIONS AND ALTERNATIVE CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS



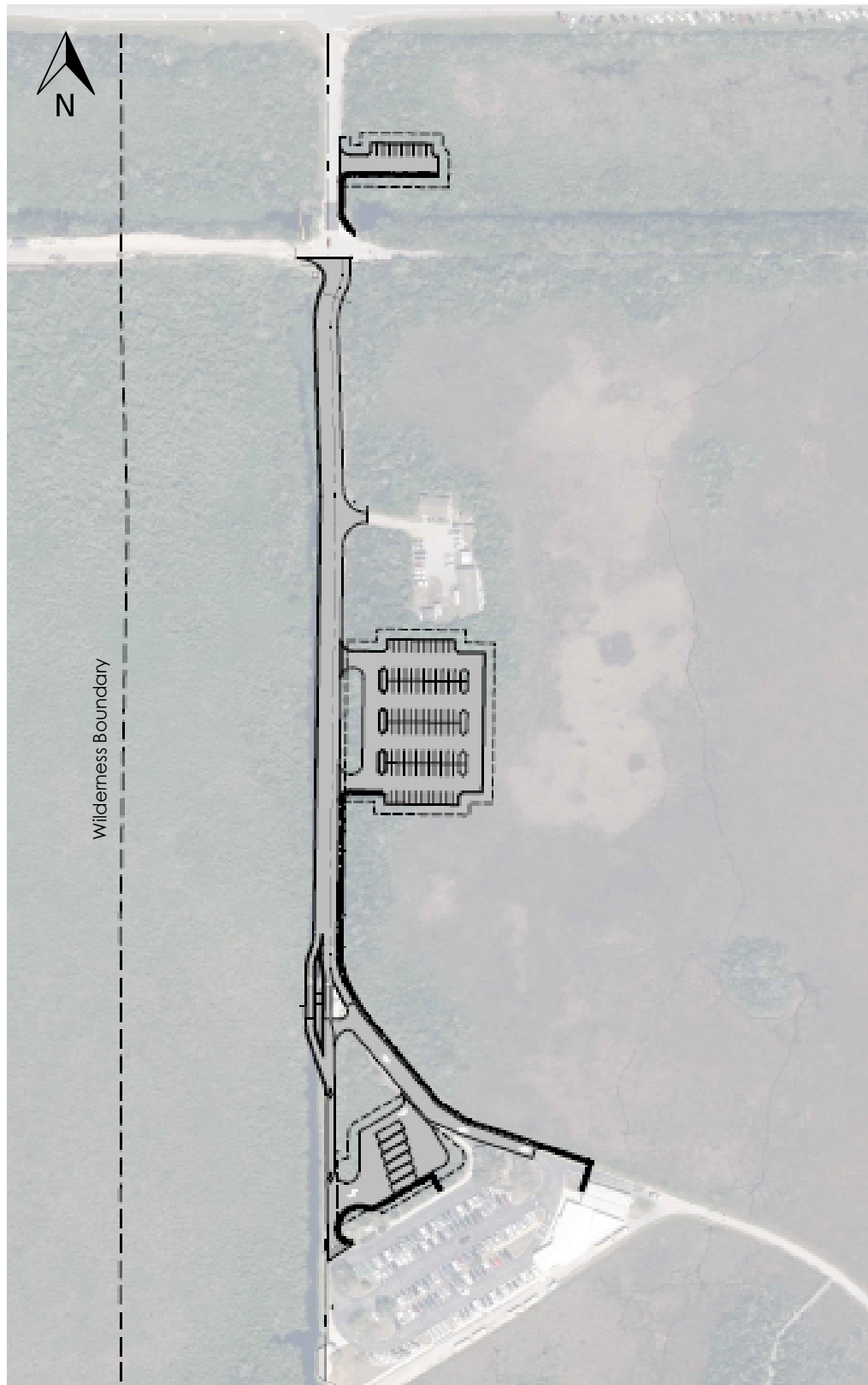
Overflow Parking Lot West of Entrance Road near US-41/Tamiami Trail



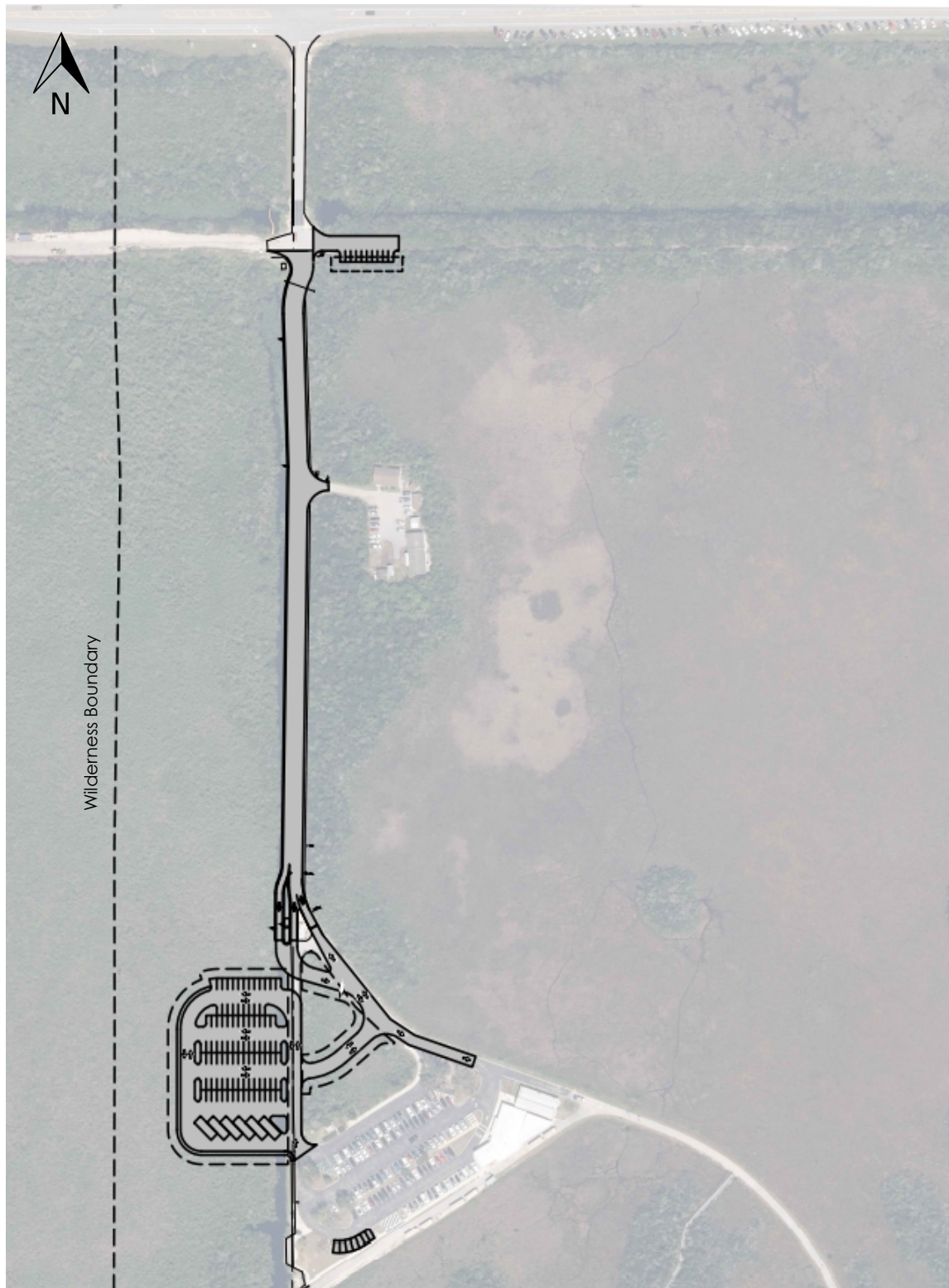
Overflow Parking Lot West of Visitor Center



Overflow Parking Lot West of Visitor Center with Bus/RV Lot at Center Island



Overflow Parking Lot South of the Administration Complex



Overflow Parking Lot West of Visitor Center with New Traffic Flow



APPENDIX B – WETLAND STATEMENT OF FINDINGS

United States Department of the Interior
National Park Service

Everglades National Park

Shark Valley Site Plan

Statement of Findings for Wetlands

January 2022

Recommended:

Superintendent,

Date

Everglades National Park

Certification of
Technical Adequacy and
Servicewide Consistency:

Chief,

Date

Water Resources Division

Approved:

Director,

Date

Region 2

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INTRODUCTION

The National Park Service (NPS) is preparing a Site Plan for Shark Valley at Everglades National Park (herein after referred to as “the park”). Shark Valley is a visitor attraction in the park that is located 30 miles west of Miami along US41/ Tamiami Trail (Tamiami Trail) to the south (see **Figure 1**). Shark Valley is one of the best locations in the park to experience sawgrass marshes and Everglades’ wildlife and is a popular visitor destination particularly during peak visitation months. The purpose of this project is to enhance the visitor experience, safety, and park operations at Shark Valley as envisioned in the park’s 2015 General Management Plan (GMP). The Site Plan will address issues due to unsafe parking conditions, frequent and continued flooding along the Entrance Road and on portions of the Tram Road, and improvements to the Administration and Operations Complex (Administration Complex). It will also include accommodations for after-hours parking, and two shaded rest stops on the Tram Road to improve the visitor experience. The proposed action areas of several design alternatives were reviewed for the new parking lot location. The analysis of each action area reviewed the existing quality of wetland habitat to be impacted, uniqueness of the habitat type within the general project area, prior disturbances/existing impacts, and habitat value for wildlife species expected to be present or observed while on site.

The purpose of this Statement of Findings document is to comply with NPS wetland protection procedures. Executive Order 11990 “Protection of Wetlands” requires NPS and other federal agencies to evaluate the likely impacts of actions in wetlands. NPS Director’s Order #77-1: *Wetland Protection* and NPS *Procedural Manual 77-1* (NPS 2016) provide NPS policies and procedures to comply with Executive Order 11990. The Draft Statement of Findings will be published and made available for public review with the Environmental Assessment (EA).

PROJECT DESCRIPTION

The existing facilities at Shark Valley include approximately 2,200 feet (ft.) of park entrance roadway, administration facilities, a fee station, restroom facilities, a Visitor Center, an observation tower, and a 15-mile paved asphalt trail loop (aka Tram Road). The Tram Road is an elevated, paved trail leading from the Visitor Center south to the observation tower and back. The Tower Road Borrow Canal lies adjacent to the western edge of the western portion of Tram Road from the observation tower north all the way to Tamiami Trail. Currently, parking is limited to the lot at the Visitor Center which does not have the capacity to handle the volume of park visitors at this location. As a result, visitors often park along the shoulder of Tamiami Trail and have to walk/bike to the entrance from there. This creates opportunities for potential safety issues and conflicts between pedestrians, bicyclists and vehicular traffic.

The purpose of this project is to provide overflow parking and operational improvements at the Entrance Road for the Shark Valley Visitor Center. The project would enhance traffic circulation through the Visitor Center complex and allow emergency vehicle access during peak times; seek to mitigate flooding at the Entrance Road, the Administration Complex and Tram Road; and evaluate the location of the existing fee station in relation to the proposed overflow parking. In addition, the project would provide resilient solutions to parking and structures of the existing Administration Complex, while increasing parking capacity and visitor safety. A tram pull-off area on Tram Road would also be provided. Finally, the project would include two pedestrian rest stops on the eastern portion of Tram Road to improve visitor experience.

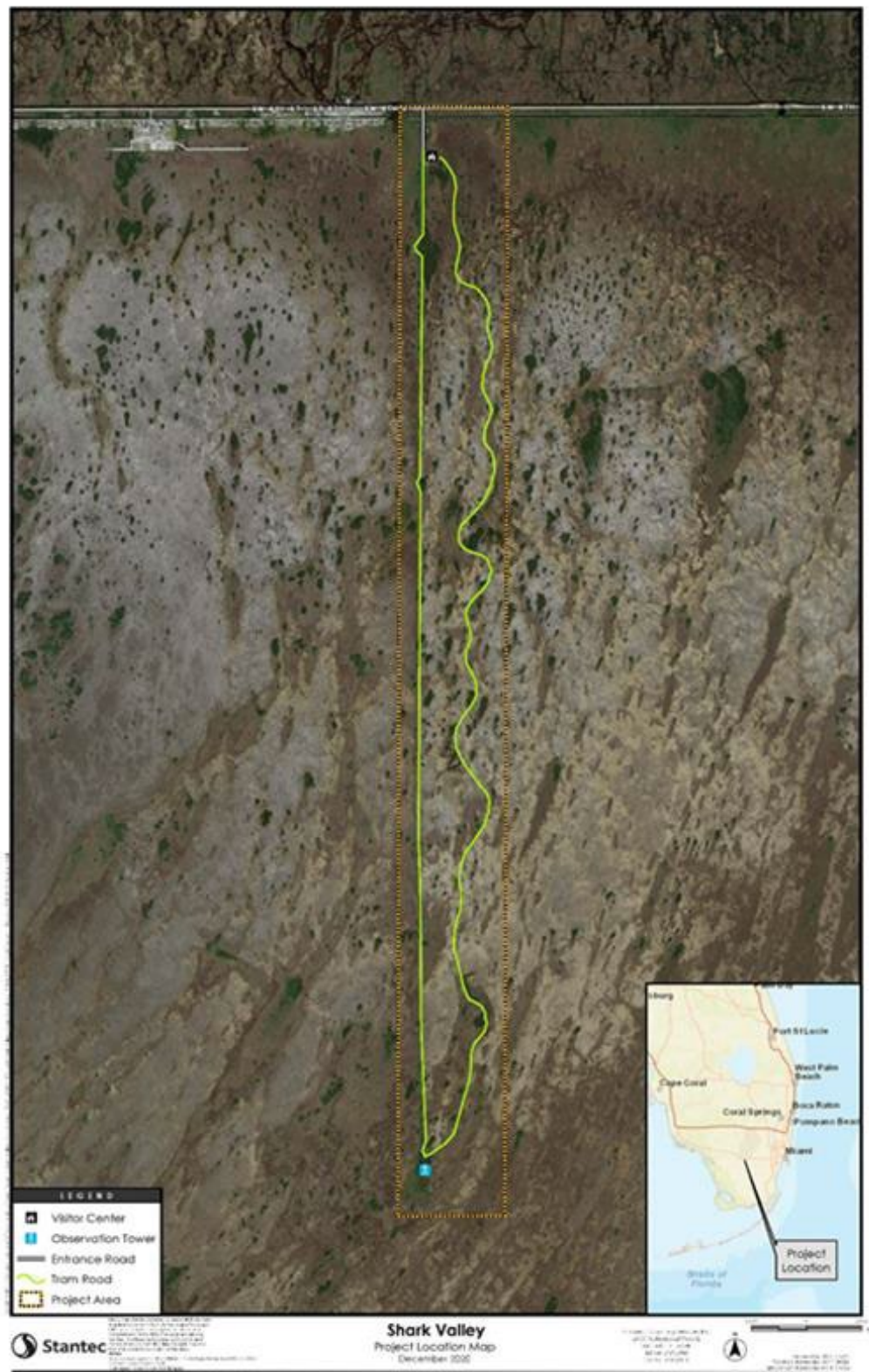


Figure 1. Project Location Map

The project improvements are anticipated to enhance the visitor experience, improve multi-modal traffic safety and park operations, support concessions by promoting the long-term viability of those concessionaire services, minimize congestion on Tamiami Trail, and provide after-hours parking accommodations.

SITE DESCRIPTION

The Shark Valley project area occurs within the “Shark River Slough” region of the park. The habitat within this Slough is primarily an oligotrophic freshwater marsh/inland slough and contains mixed wet prairie, sawgrass dominated slough, cyanobacteria dominated periphyton mat, and scattered wetland shrub dominated hammocks present as small islands within the wet prairie habitats, which are typical of the general Everglades ecosystem. The hydroperiod of this region varies with seasonality and is driven by rainfall. In general, the wetlands in the project area retain water throughout most the year within the region (i.e., long hydroperiod wetlands). The vegetative communities within the different proposed parking alternatives and roadway action areas are typical of those found throughout the Everglades and vast expanses of these wet prairie wetlands extend for miles in all directions from the project area. The wet prairie habitat is dominated primarily by spike rush (*Eleocharis cellulosa*), maidencane (*Panicum hemitomon*), various sedges and wiregrasses with many open pockets where the underlying caprock is exposed. The inland slough habitats are dominated by sawgrass (*Cladium jamaicense*), cattails (*Typha spp*), scattered leather fern (*Acrostichum danaeifolium*), coastal plain willow saplings (*Salix caroliniana*), and sparsely scattered hat-rack cypress (*Taxodium distichum*).

Wetland habitat types located within the action areas of the proposed improvements are detailed in the following sections and are categorized as “Elements Common to All Action Alternatives” as well as specific to either “Alternative B” or “Alternative C”; alternative C is the proposed action and preferred alternative. The proposed alternatives have been evaluated by total area of proposed impact (fill), scarcity/uniqueness of habitat type within the footprint of each alternative, potential wildlife use/habitat value of the area that would be affected by each option, and location relative to existing structures/facilities to minimize the overall footprint of the guest service amenities being proposed. Visitor access and public safety were also significant considerations in the decisions about which sites were to be evaluated.

Elements Common to All Action Alternatives

In addition to the alternatives for the proposed overflow parking lot, this project includes complementary elements also included in the 2015 GMP. The park is evaluating improvements at the Administration Complex and along Tram Road to make these facilities more resilient, which would minimize impacts from future flooding and storm events and enhance visitor experience and safety. The improvements considered are outlined below and would be included for either of the design alternatives:

Administration Complex

The GMP identifies centralizing law enforcement, maintenance operations, and resource management administrative facilities in one new facility. The NPS is evaluating improvements to raise approximately 0.47 acres of the previously developed site elevation to make the site less susceptible to flooding. The Administration Complex would consolidate the law enforcement, maintenance, and interpretive operations into a new facility as well as improve parking lot design to better serve staff, volunteers, and concession staff parking needs.

The wetland habitat surrounding the existing administrative complex is a shrubby, cocoplum (*Chrysobalanus icaco*) dominated wetland. This habitat type provides potential for use by listed wildlife species in the form of potential nest/roost habitat; however, as the site is an active park facility, daily disturbance by NPS staff occurs in the area. At this time, based on the improvements being proposed in the same footprint as the existing administrative complex, no wetland impacts are anticipated from these improvements.

Entrance Road and Entrance Road Canal

The improvements on Entrance Road includes widening the road to three lanes, two inbound lanes and one outbound lane, and raising to 10.50 ft. NGVD (9.00 ft. NAVD) to avoid flooding. The existing vehicular circulation pattern of the Entrance Road around the fee booth and into the main Visitor Center parking area would not be affected. The Entrance Road traverses a shrub dominated wetland habitat to the east with cocoplum being the most prevalent species, along with sparse pond apple (*Annona glabra*), royal fern (*Osmunda regalis*), dahoon holly (*Ilex cassine*), magnolia bay (*Magnolia virginiana*), swamp bay (*Persea palustris*), and coastal plain willow. Muscadine grape (*Vitis rotundifolia*), morning glory (*Ipomoea* spp.) and Virginia creeper (*Parthenocissus quinquefolia*) are growing throughout the general area in the shrubs and trees presently. Just north of the existing gate to the park, a canal running east to west along the Old Tamiami Trail roadbed (currently being removed under a separate action) crosses under the entrance road and turns to the south. The Tower Road Borrow Canal then parallels the Entrance Road and the west side of Tram Road. Vegetation west of the canal becomes typical of Everglades wetlands with dominant sawgrass, cattails, scattered coastal plain willow, corkwood (*Stillingia aquatica*), and various other typical herbaceous species.

The proposed Entrance Road realignment would result in impacts to the Tower Road borrow canal; however, this canal is proposed to be backfilled with the material obtained from the removal of the Old Tamiami Trail roadbed and restored to wetland elevation prior to the widening of the Entrance Road under this action. The existing wetland along the Entrance Road, west of the canal, consists of a variety of herbaceous and mixed hardwood species which would facilitate the natural recruitment of this remaining filled area. This filled area would be expected to naturally recruit with typical Everglades wetland vegetation including sawgrass, corkwood, scattered coastal plain willow saplings, leather fern, and sparse pond apple would naturally recruit into this backfilled area immediately upon project completion. Over time, a natural shrubby buffer similar to the existing shrub dominated habitat on site may establish along the roadway slopes and would likely include cocoplum, coastal plain willow, wax myrtle (*Morella cerifera*), swamp bay, red maple (*Acer rubrum*), dahoon holly and many of the fern species present in those existing communities throughout this project area. The filling of this canal has already been permitted under a separate action; therefore, those impacts are not included in the wetland evaluation for impacts associated with the Shark Valley Site Plan project.

Tram Road

The proposed improvements for the Tram Road include raising specific portions of the roadbed to higher elevations to allow the road to be useable at all times of the year and ensure the road would be more resilient to storm events and seasonal flooding. The existing Tram Road pavement width and horizontal alignment would remain the same and the overall function of the road would remain unchanged. However, the footprint of the overall typical section would increase to accommodate the higher elevation of the roadway and the associated 4:1 side slope into the adjacent wetlands (typical section). The impacted area would expand outward on both sides of Tram Road to accommodate elevating the road and

grading the slope back to existing elevations. The center island at south end is the lowest point in the area and stormwater is currently directed to flow and remain here. Currently, due to existing grading, water is trapped north of existing type 'D' curb, thus prolonging flood events in this area. In lieu of new culverts, the roadway would be re-graded to help drain and reduce flooding.

The existing Tram Road elevations vary along the course of the road with the lowest elevation of 7.5 ft. NGVD (6.0 ft. NAVD) at the southern end, near the Shark Valley observation tower. The Summary of Flood Risk Analysis by the South Florida Natural Resources Center (SFNRC) provided flood analysis data to support two different proposed elevations for the Tram Road to reduce or eliminate flooding. The first proposed elevation of 8.2 ft. NGVD (6.7 ft. NAVD) (described as Option 2 below), reduces flood risk from 5% to less than 1% based on the 38-year period of record. This elevation results in an annual flooding duration less than that of the proposed Entrance Road elevation. However, the reduced flooding duration noted is an average over long periods of time. Observations during the wet year of 2017 indicate that the road would still be susceptible to flooding for up to 30 days during wet years. The second proposed elevation of 8.8 ft. NGVD (7.3 ft. NAVD) (described as Option 1 below), reduces flood risk to near 0% for both the longer period average as well as the wettest years. It is worth noting, that an elevation of 8.8 ft. NGVD would likely result in periods where the Tram Road is dry while the Entrance Road is flooded given the proposed elevation of the Entrance Road. While both proposed elevations (8.2 ft. NGVD and 8.8 ft. NGVD) would significantly reduce the risk of flooding based on historic flood data, modelling of future water levels and flow paths that take into consideration the Central Everglades Planning Project (CEPP) efforts indicate even further reduction of flood risks when compared to the current elevation.

The majority of the Tram Road passes through a large expanse of wet prairie habitat that contains wire grasses, sawgrass, spike rush, maidencane, and small clumps of individual hat-rack cypress. This area is typical of Florida Everglades wet prairie that also includes a moderate to dense mat of periphyton. Water levels are fairly shallow and consistent throughout this grassy habitat due to the general flat topography throughout this habitat type. Trees are notably sparse primarily due to the high caprock throughout much of this area. In areas where the caprock subsides, small ponds and in some areas, small cypress communities are present. However, most of the cypress trees are hat-racked primarily due to the absence of soil over the underlying caprock. This habitat type is generally very abundant within the Everglades and provides water quality benefits. These areas also experience long periods of inundation during the summer rainy season which provides seasonal habitat and forage opportunities for many species of wading birds due to the fluctuating water levels.

Rest Stops Along Tram Road

Currently, there are ten grassy/unpaved pull offs, as well as seven paved pull offs, for trams and bicycles to stop along Tram Road. Most of the existing pull offs areas are uncovered and unshaded. Consistent with the guidance in the GMP, two rest stops with shade structures and benches would be provided along the eastern leg of Tram Road for bicyclists and hikers. To avoid impacts to wetlands, the rest stops would be located along Tram Road that are already (existing) widened/filled land masses on the interior side of the Tram Road. Figure 2 displays the potential locations of the rest stops.

Tram Pull-Off Stop on Tram Road

The existing, grass tram pull-off area immediately north of mile marker four on the western leg of Tram Road would be stabilized with permeable pavers to allow year-round use of this area, including during the rainy season.



Figure 2. Potential Rest Stop Locations along Tram Road

Action Alternatives

Alternative B – Overflow Parking Lot Immediately South of Tamiami Trail

This design alternative (**Figure 3**) has two parking area components: a new overflow parking lot proposed immediately south of Tamiami Trail, east of the Entrance Road which will have 105 parking spaces, including 10 spaces for after-hours parking and a bus/recreational vehicle (RV) parking lot which is proposed within the center island at the end of the Entrance Road near the Visitor Center. In addition, a new sidewalk would be constructed along the east side of the Entrance Road from the new overflow parking lot to the Visitor Center, and would be approximately 2,000 ft. walking distance from the Visitor Center. A sidewalk connecting the bus/RV parking lot to the Visitor Center would be constructed along the southern edge of the center island. The proposed parking area east of the entrance road has been considerably impacted by the canal to the south and Tamiami Trail to the north. As a result, the existing wetlands are highly disturbed and contain nuisance/exotic vegetation. The action area of this alternative contains the highest density of vegetative cover by undesirable nuisance and exotic vegetation of all the alternative sites evaluated. The middle of this disturbed wetland has a large area dominated by cattails, which suggests elevated soil phosphorus. The sparse herbaceous wetland vegetation around the perimeter of this habitat included spike rush, maidencane, leather fern and the large central area of dense cattails. Shrub species within the remainder of this disturbed wetland included wax myrtle, cocoplum and salt bush (*Baccharis halimifolia*). Tree species present included sparse pond apple, swamp bay, red maple, coastal plain willow and scattered dahoon holly and occasional strangler fig (*Ficus aurea*) along the edges. None of the tree species were canopy size, but they are all mature trees. This general area had standing water of varying depth present during the field inspections. The hydrology of these wetlands was historically a relatively contiguous sheet flow of water heading south from Lake Okeechobee through the Taylor Slough to Florida Bay. However, this historic hydrologic regime has been substantially altered by elevated roadways (most notably Tamiami Trail to the north) that have been constructed within many sections of the Everglades surrounding this property. Additional hydrologic impacts have occurred as a result of the development of the Miccosukee Village on the adjacent property to the west. The entrance road to the Shark Valley Visitor Center also contributed to the altered hydrology in this immediate area. This entire section of the Everglades has been affected by the historic changes to sheet flows including the man-made canal that lies immediately west of the entrance road to Shark Valley. This canal is already permitted to be filled as part of the removal of the Old Tamiami Trail roadbed. Some of the proposed improvements to the entrance road and new parking facilities will be located on the newly placed fill where this canal is being filled to minimize impacts to Everglades wetland habitats.

The proposed bus/RV parking lot located in the triangular area surrounded by roadways to the north of the Visitor Center is an isolated, pond apple habitat surrounded by shrub wetlands. This area has two large culverts from the canal to the west that flow through the pond apple habitat and discharge to the east. The water is discharged through double culverts in the northern edge of this triangular area to the wetlands lying east of the roadways. This shrubby pond apple wetland is unique for the Shark Valley project area and provides a diverse habitat that offer resources such as roosting and nesting opportunities for many of the avian species with potential to inhabit this region of the Everglades.

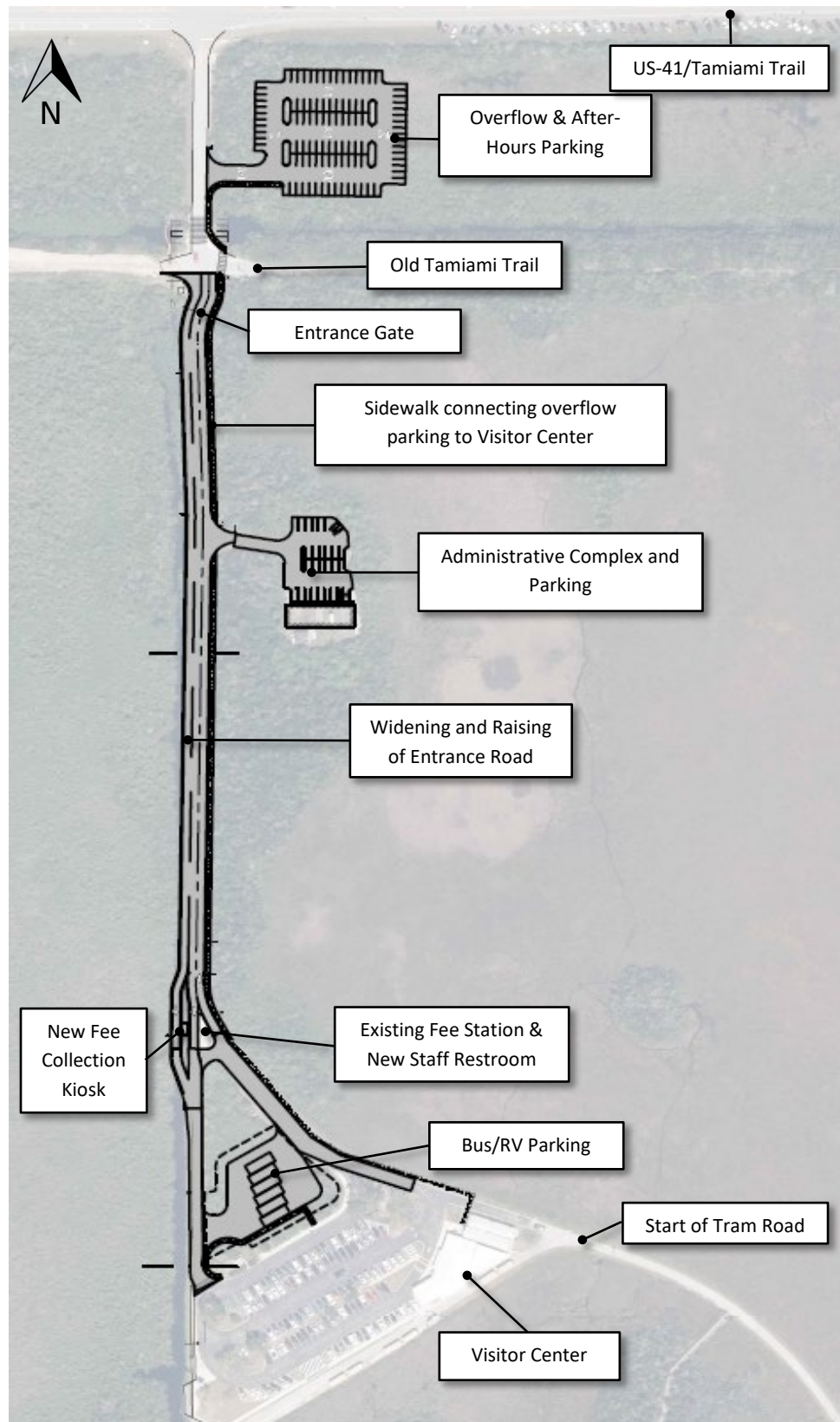


Figure 3. Design Alternative B

Alternative C (Proposed Action and Preferred Alternative) – Overflow Parking Lot Immediately North of the Visitor Center

This design alternative (**Figure 4**) consists of 105 standard and six bus/RV parking spaces. An overflow parking lot with 95 standard parking spaces and six bus/RV parking spaces would be located immediately north of the Visitor Center, inside the entrance gate. The overflow parking lot would be within primarily herbaceous wet prairie type wetland habitat. The northern edge of the proposed overflow parking lot would impact part of a shrub dominated wetland habitat, which is the least common habitat types in this general area. There are a few scattered hat-rack cypress present as isolated individual trees throughout the wet prairie habitat proposed for filling. The underlying caprock is high which limits the tree/shrub growth in the general area due to this lack of usable substrate. The wetland habitat is still functioning and providing a diversity of habitat types for small mammals, reptiles, amphibians, and bird species. This wetland habitat type is the most common in the general vicinity of the Shark Valley area of the park. While many native wetland dependent species thrive in this habitat and it is very productive, it does not offer significant nest/roost habitat for birds.

As this design alternative is located immediately adjacent to the existing parking/Visitor's Center, it is anticipated that this alternative would concentrate the disturbances of this public access facility in one central location and thereby minimize the secondary and cumulative impacts on the Everglades. Using this alternative minimizes impacts to other wetland communities present on site that offer more potential uses for wildlife species while also being very productive and high functioning wetland communities.

Alternative C also includes an after-hours parking facility to accommodate 10 parking spaces just east of the Entrance Road outside of the entrance gate. The parking lot is mostly situated on the remnant roadbed of Old Tamiami Trail but will impact 0.06 acres of wetlands along the southern edge of the existing roadbed. This habitat is similar to the shrub dominated habitat within alternative B; however, nuisance or exotic vegetation is present.

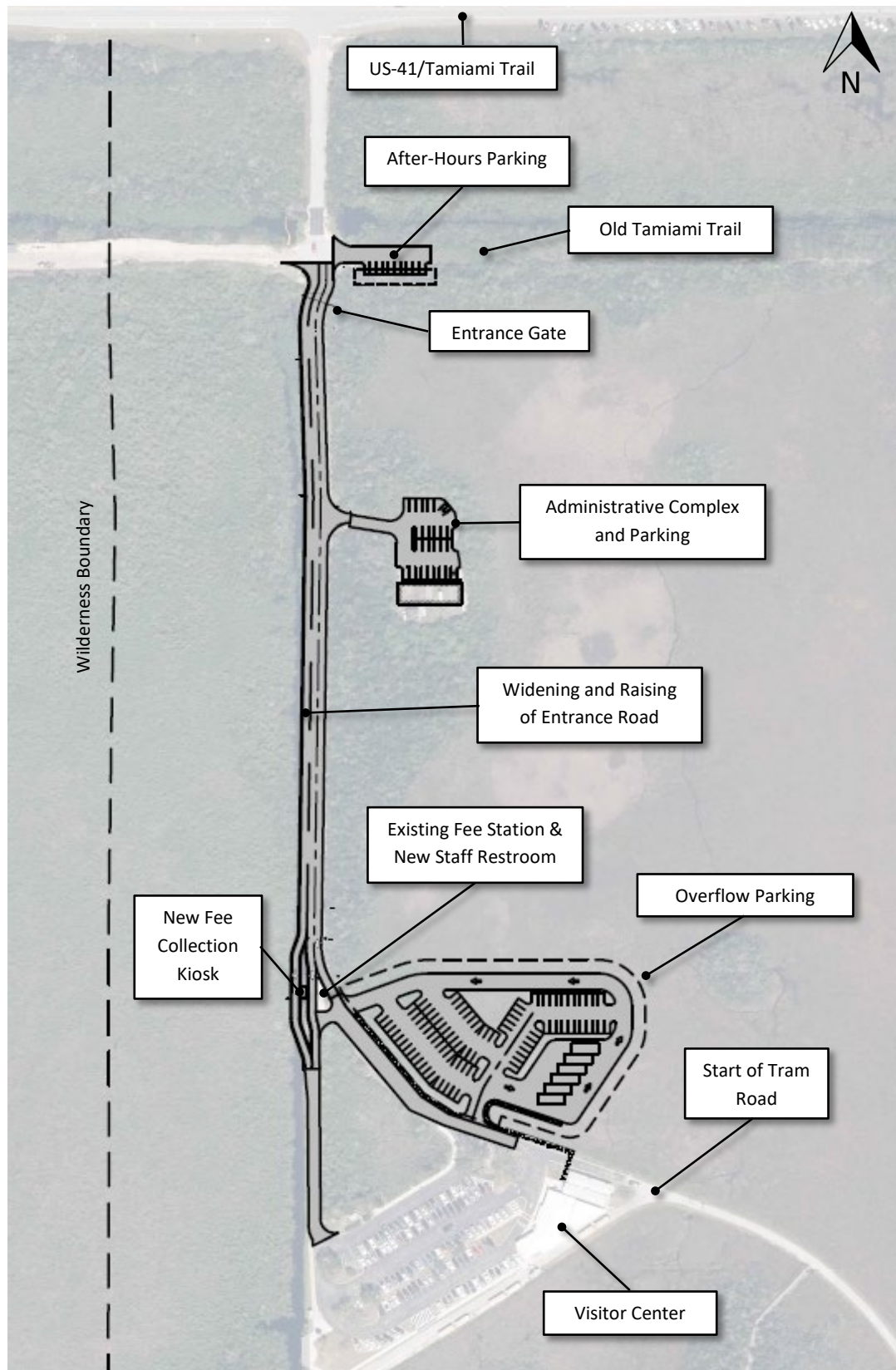


Figure 4. Design Alternative C

JUSTIFICATION FOR THE USE OF WETLANDS

Alternatives Considered but Dismissed

Additional parking options were considered in order to avoid and minimize impacts to wetland habitats on site. These options included construction of an off-site parking lot at the nearby Miccosukee Indian Village parking area. The eastern portion of the existing parking lot at the Village was considered but dismissed during the Value Analysis. This site would be located off of park lands and would require NPS to provide a shuttle for visitors to access Shark Valley. The shuttle would need to travel along Tamiami Trail and Entrance Road to access the Visitor Center. In addition, this option does not meet the goals of the project which are to provide a safe and convenient parking location onsite for visitors to access the recreational opportunities at Shark Valley. Other off-site locations, such the implementation of a new visitor parking lot near Dade Corners, may be considered as part of a future planning effort as it also did not meet the goals of the project. Other options considered included a new overflow parking lot located just south of the Administration Complex; a new overflow parking lot located near Tamiami Trail, west of the Entrance Road; a new overflow parking lot with bus/RV parking spaces located just west of the existing Visitor Center and a new overflow parking lot located just west of the Visitor Center with bus/RV parking spaces installed in the center island near the Visitor Center. An on-site multi-level parking garage was also considered. However, these options were dismissed from further analysis due to impacts to natural resources, viewsheds, conflicts between pedestrians and vehicles, visitor disruptions during construction and not meeting the purpose and need of this project.

Alternative B – Overflow Parking Lot Immediately South of Tamiami Trail

Limited parking availability has been an issue at Shark Valley, and alternative B was developed to address this issue while also improving public safety. Alternative B location is partly proposed in cattail dominated, disturbed wetlands that lie between several man-made features including Tamiami Trail to the north, a canal to the south, and the Entrance Road to the west. These wetlands contain the highest density of exotic and nuisance vegetation and are subject to impaired water quality as stormwater sheet flows off the existing roadway into these wetlands. These poor-quality wetlands provide limited habitat for use by wildlife species. However, this area is directly adjacent to the heavy traffic along Tamiami Trail and would require visitors to walk or cycle the entire length of the Entrance Road, to access the Visitor Center. Although a new sidewalk is proposed to connect the new parking lot with the Visitor Center, there is still a potential for conflicts between vehicles and pedestrians/bicyclists. In addition, NPS would need to install variable message signs to notify visitors to utilize the overflow parking lot prior to driving through the entrance gate. This public safety issue outweighs the minimal difference in UMAM scores for developing this wetland habitat instead of the preferred alternative, alternative C. It is anticipated that alternative B would result in a total of 1.64 acres of wetland impacts for the construction of the overflow parking lot in this location. However, the second half of alternative B is located in a high functioning, relatively pristine pond apple community just north of the existing Visitor Center parking lot. This habitat is the only pond apple dominated community in the vicinity of this project and it provides habitat that is not found elsewhere in Shark Valley. Therefore, alternative B impacts a less common, high quality vegetative community by installing the bus/RV lot in the median area, just north of the Visitor Center.

When combined with the additional improvements, alternative B includes a total of 10.35 acres of wetland impacts with Tram Road Option 1 (elevated to 8.8 NGVD) or 5.44 acres of wetland impacts with Tram Road Option 2 (elevated to 8.2 NGVD). NPS would mitigate for all wetland impacts and details on

the mitigation plan are included in this statement of findings (SOF). No net loss of wetlands will result from the construction of alternative B.

Alternative C (Proposed Action and Preferred Alternative) – Overflow Parking Lot Immediately North of the Visitor Center

Alternative C was also designed to resolve the limited parking availability at Shark Valley. This alternative will also result in unavoidable wetland impacts to Everglades wetlands. However, this proposed parking lot location is located just past (southeast) the existing entrance fee station and is immediately adjacent (north) to the existing parking lot at the Visitor Center. Alternative C significantly reduces the potential for conflicts between pedestrians and bicyclists moving between the overflow parking lot and the Visitor Center. It also eliminates requiring visitors to walk or cycle the entire length of Entrance Road to access parking for the site. In addition, there is no change in vehicular flow from the fee station to the parking lots and visitors will be able to access the main parking lot before the overflow parking lot.

This alternative would result in a total of 2.01 acres of wetland impacts associated with the construction of the overflow parking lot. This wetland community is dominated by a mix of sawgrass, cattails, coastal plain willow and other deeper marsh species and this vegetative community type is one of the more common in this general area. While these wetlands provide function and habitat for wildlife, the habitat values to wildlife are much less than those provided by the pond apple community present in the bus/RV parking area of alternative B.

When combined with the additional improvements, alternative C includes a total of 10.72 acres of wetland impacts with Tram Road Option 1 (elevated to 8.8 ft. NGVD) or 5.81 acres of wetland impacts with Tram Road Option 2 (elevated to 8.2 ft. NGVD). These wetlands provide seasonal foraging opportunities for wading bird species and are a higher quality freshwater marsh and prairie wetland habitat than the wetlands present in alternative B. However, restating the public safety issues considered, this alternative C is preferred because the visitor experience is enhanced by providing direct parking access to the site and will not require visitors to walk or bicycle along the entire length entrance road alongside vehicular traffic. NPS would mitigate for all wetland impacts and details on the mitigation plan are included in this SOF. No net loss of wetlands will result from the construction of alternative C.

Entrance Road

The Entrance Road is the only way to enter/exit Shark Valley for visitors and NPS staff alike, and this road has been experiencing major flooding impacts in recent years. As recent as 2020, flooding required the park entrance to be shut down for several weeks. The current configuration of the Entrance Road only allows for one lane of vehicles to enter the park at a time as there is one lane to exit the park. During peak season, cars line up (stack) in the entrance lane and can back traffic up all the way to Tamiami Trail. This creates safety issues for vehicles traveling on Tamiami Trail and deters from the visitor experience as there can be a lengthy wait to access the park at peak times. The proposed new alignment of the Entrance Road will allow the park to collect access fees from two vehicles at a time which will reduce traffic backups and visitor delays to enter the park. The wetland impacts that result from this new alignment are minimal and limited to 0.16 acres of mowed/maintained right-of-way (ROW) and 0.23 acres of canal. These impacts have been minimized to the extent possible and are necessary to meet the goals of this project to improve visitor experience at the park as well as to make the Entrance Road more flood

resilient. Furthermore, NPS would mitigate for all wetland impacts and details on the mitigation plan are included in this SOF. No net loss of wetlands will result from the construction of these improvements.

Tram Road Improvements

The operational requirements of the Tram Road would not change other than raising the finished elevations to allow the road to be useable at all times of the year and ensure the road is more resilient during storm events and seasonal flooding. The Tram Road pavement width and layout would remain the same and the overall function of the road would remain unchanged. However, the footprint of the overall typical section would increase to accommodate the higher elevation of the roadway.

The Tram Road fill analysis and quantities were developed based on LiDAR information provided by NPS; therefore, quantities would need to be confirmed with a topographic survey during design development. The areas to be filled to raise Tram Road to either 8.8 ft. NGVD or 8.2 ft. NGVD are shown in **Appendix A**. The proposed side slopes are shown as 4:1 (H:V) to accommodate maintenance operations. The conceptual cross sections shown in **Appendix B** are based on removing 2 inches of the existing asphalt layer, the existing base would remain. The finished product is expected to be 8 inches of limerock base and 2 inches of asphaltic concrete. Therefore 8 inches was subtracted from the overall fill depth for the purposes of fill volume required.

The existing Shark Valley Tram Road was constructed in Everglades National Park to provide an educational and recreational facility for the general public. This facility was constructed primarily through jurisdictional wetlands but was constructed in a disturbed area of the Everglades, adjacent to existing borrow canals, and other disturbances to minimize the effects to high quality wetlands. Tram Road continues to be very popular and is the main attraction to visitors of Shark Valley. In recent years this tram road had to been closed for extended periods due to prolonged flooding and generally higher water levels. Some of the higher water levels experienced are a result of the continual removal of Old Tamiami Trail, filled roadbed in an effort to restore historic sheet flows to the Everglades.

The anticipated increase in normal seasonal water levels requires the park service to undertake this project to raise the crown elevation of the tram road so the facility can remain open even during periods of seasonal high water. By increasing the crown elevation of the tram road so it remains higher than anticipated peak water levels, visitors would be able to safely access the site during periods of normal seasonal high waters instead of dry season/low water periods only. This would greatly improve the safety of the facilities at the Shark Valley Visitor Center while at the same time greatly increasing the annual access to the facilities. In addition, by preventing the seasonal high-water levels from submerging some or most of Tram Road, it will reduce the potential for erosion, undermining of the road base, depositing mud/debris on the surface of the tram road as well as prolonging the life of the structure by reducing surface damage. Maintenance costs would also be reduced. The proposed regrading and elevating of this tram road as a factor of public safety improvements will result in unavoidable wetland impacts along most of the length of the road due to the presence of jurisdictional wetlands along both sides of the tram road for the entire length of the roadway. These impacts will be minimized to the greatest extent practical while achieving the desired improvements to the tram facilities. By maintaining the centerline of the existing road and utilizing the majority of the existing developed footprint, new impacts to jurisdictional wetlands will be greatly reduced. The proposed improvements will be designed to avoid trees and higher quality wetlands to the greatest extent practical, especially along the west leg of tram road. Placing fill on both sides of the tram road, avoiding the higher quality wetlands and directing impacts to the lower

quality or disturbed wetlands assures this goal will be achieved. In addition, the underlying caprock is near the surface throughout much of this proposed work area. The high caprock eliminates the need for de-mucking (which would result in a much wider footprint to stabilize the fill base) resulting in a reduction in the amount of fill required to reach the desired minimum road crown elevation. A detailed topographic survey to determine adjacent elevations will be performed once the final project details have been approved. Following the completion of this survey, refined fill quantities and a definitive footprint of the wetland impacts will be generated during the design phase. This survey will precisely quantify the location and extent of all proposed fill impacts to jurisdictional wetlands associated with raising the crown elevation of the tram road.

All wetland impacts resulting from the construction of these proposed improvements will be mitigated by purchasing wetland credits at the Hole-in-the-Doughnut (HID) Mitigation Bank. This project is not a for profit development, but rather improvements to a public access facility in Everglades National Park. The recreational and educational opportunities provided by this facility are an important part of the National Park System to provide public access to taxpayer owned property. These proposed improvements are necessary to provide safe, year-round access to the general public. Some wetland impacts will result from the proposed project, however the benefit to the general public will be significant and justifies the minimal wetland footprint to be affected by these improvements.

This pathway is a main attraction to visitors of Shark Valley and in recent years, this road has been closed due to prolonged flooding. By raising the surface elevation of the Tram Road above anticipated high-water levels, visitors would be able to safely access the site year-round instead of dry season/low water periods only thereby preserving year-round access to this recreational resource. In addition, the facilities would be much safer than the current Tram Road surface that is seasonally partially submerged, mud-coated and inaccessible.

Wetland impacts are limited to the existing Tram Road footprint and a narrow strip of land on either side directly adjacent to the existing road footprint. These impacts would not be anticipated to affect the contiguous Everglades wetland habitat that will remain undisturbed. The existing Tram Road passes through typical wet prairie habitat vegetated with sawgrass, spike rush, maidencane, and scattered hat-rack cypress. This habitat type is the most common throughout the general area adjacent to the Tram Road where most of the improvement related wetland impacts will occur. While it is a much more abundant habitat type, the wetland function and habitat value are high due to the water cleansing and foraging it provides. Impacts to this habitat type will be limited to the small footprint immediately adjacent to both sides of the road to the existing Tram Road to accommodate the increase in elevation to prevent the roadway from being inundated in the rainy season.

Impacts to wetlands for both Tram Road options were calculated based on the width of widening needed to create a 4:1 side slope from the road edge to existing ground. The area of impact was calculated based on the width of fill needed to reach the desired elevation at a 4:1 side slope multiplied by the length of road. See the summary table (**Table 1**) below used to calculate the impact acreage. The total wetland impacts are 8.32 acres resulting from raising the Tram Road to 8.8 ft. NGVD and 3.41 acres from raising to 8.2 ft. NGVD.

Impact Calculations for Elevating Road to 8.8' NGVD				
Average Proposed Fill Depth (Ft.)	Length of Fill (Ft.)	Width of Impact (includes both sides of the road) (Ft.)	Total Impact - Square Feet	Total Impact - Acres
0.5	23200	6	139200	3.2
1	9600	10	96000	2.2
1.5	9100	14	127400	2.92
TOTALS			362600	8.32

Impact Calculations for Elevating Road to 8.2' NGVD				
Average Proposed Fill Depth (Ft.)	Length of Fill (Ft.)	Width of Impact (includes both sides of the road) (Ft.)	Total Impact - Square Feet	Total Impact - Acres
0.5	9600	6	57600	1.32
1	9100	10	91000	2.09
TOTALS			148600	3.41

Table 1. Wetland Impact Calculations for Elevating Tram Road

PROJECT IMPACTS

Due to the location of Shark Valley, which is centrally located in the park, the construction of the action alternatives will result in unavoidable wetland impacts within the park. Table 2 below breaks down the anticipated wetland impacts by acreage per alternative. The Uniform Mitigation Assessment Methodology (UMAM) scoring system was used to calculate wetland functionality for the wetlands proposed to be impacted by this project. **Table 3** below details the total functional loss of each impacted wetland as determined using the UMAM scoring (UMAM score sheets are included in **Appendix C**). In addition, **Figure 5** through **Figure 9** below show the impacted wetland areas mapped out atop of recent aerial imagery.

Tram Road Option 1 (raise road to 8.8 ft. NGVD) results in approximately 5 additional acres of wetland impacts compared to Tram Option 2 (raise road to 8.2 ft. NGVD). For either action alternative, the majority of the wetland impacts, 75-80%, are associated with the Tram Road improvements, which will impact a thin strip of wetlands immediately adjacent to both sides of the existing Tram Road. Tram Option 1 would result in 8.32 acres of impacts and Option 2 would result in 3.41 acres of impacts. These impacted wetlands offer potential foraging opportunities for wildlife; however, other uses by wildlife are limited as the path is used daily by numerous people, resulting in anthropogenic disturbance for these areas.

The Entrance Road improvements associated with both action alternatives results in impacts to 0.23 acres of the previously existing canal which is considered an Other Surface Water and was located west of the existing Entrance Road. This filling of this canal has already been permitted by FDEP and USACE in association with the removal of the Old Tamiami Trail road base. The proposed entrance road improvements would also impact approximately 0.16 acres of impacts to existing mowed/maintained ROW associated with the existing entrance road. These wetlands, while jurisdictional, provide very little in the way of habitat or foraging opportunities for wildlife species due to the frequent

mowing/maintenance activities and constant disturbance by vehicles and pedestrians. The wetland function is also significantly reduced as a result of the frequent maintenance activities. Impacts to this habitat will be mitigated based on the UMAM analysis included with this report.

The proposed parking lot from alternative B results in impacts to 1.64 acres of wetlands. The wetlands have been previously disturbed due to the adjacent man-made features and consequently contain a high density of exotic/nuisance vegetation. Due to the location and poor quality of these wetlands, impacts would not be anticipated to disrupt any natural hydrology or create substantial secondary impacts. In addition, it is anticipated to have minimal results on wildlife that could potentially occur in the project area. However, this location is the farthest away from the Visitor Center and would require visitors to walk along the entrance road the entire distance to the Visitor Center. This has potential to create a significant safety issue for pedestrian / vehicle conflict. The bus/RV parking area associated with alternative B will impact a high functioning, relatively pristine pond apple community just north of the existing Visitor Center parking lot. This habitat is the only pond apple dominated community in the vicinity of this project and it provides habitat that is not found elsewhere in Shark Valley.

Alternative C, the preferred alternative, proposes a parking lot within wetlands located northeast of the existing parking lot/Visitor Center. This alternative would result in impacts to 2.01 acres of wetlands that are less disturbed than the areas that would be impacted from alternative B. These wetlands currently provide seasonal foraging habitat for wading bird species and provides suitable freshwater wet prairie and sawgrass marsh habitat for an array of species that have the potential to occur in the project area. This parking lot would basically enlarge the existing footprint of the parking lot/Visitor Center and thereby centralize the impacts from human presence to one location as opposed to the lot location for alternative B.

Design Components	Land Cover	Impacted Acreage
Tram Road Options	Option 1 (Raise to 8.8')	8.32
	Option 2 (Raise to 8.2')	3.41
Entrance Road	511 – Canal	0.23
	814 - Mowed/Maintained ROW	0.16
Elements Common to All Action Alternatives Total (Option 1)		8.71
Elements Common to All Action Alternatives Total (Option 2)		3.80
Alternative B - Overflow Parking Lot	631 - Shrub Wetlands	0.79
	6412 – Cattails	0.36
	814 - Mowed/Maintained ROW	0.01
Alternative B - Bus/RV Parking Lot	631 - Shrub Wetlands	0.21
	618 - Pond Apple	0.27
Alternative B Total		1.64
Alternative C - Overflow Parking Lot	631 - Shrub Wetlands	0.41
	643 - Wet Prairie	0.9
	6411 – Sawgrass	0.64
Alternative C - After Hours Parking Lot	631 - Shrub Wetlands	0.06
Alternative C Total		2.01

Table 2. Project Impacts for Each Element within the Shark Valley Site Plan's Action Alternatives

Alternative	Total Functional Loss (Per UMAMs)	Total Wetland Impact Acreage
Alternative B (Tram Option 1 Raise to 8.8') Total	2.75	10.35
Alternative B (Tram Option 2 Raise to 8.2') Total	1.42	5.44
Alternative C (Tram Option 1 Raise to 8.8') Total	3.10	10.72
Alternative C (Tram Option 2 Raise to 8.2') Total	1.77	5.81

Table 3. Wetland Impact Summary Table with UMAM Total Scores

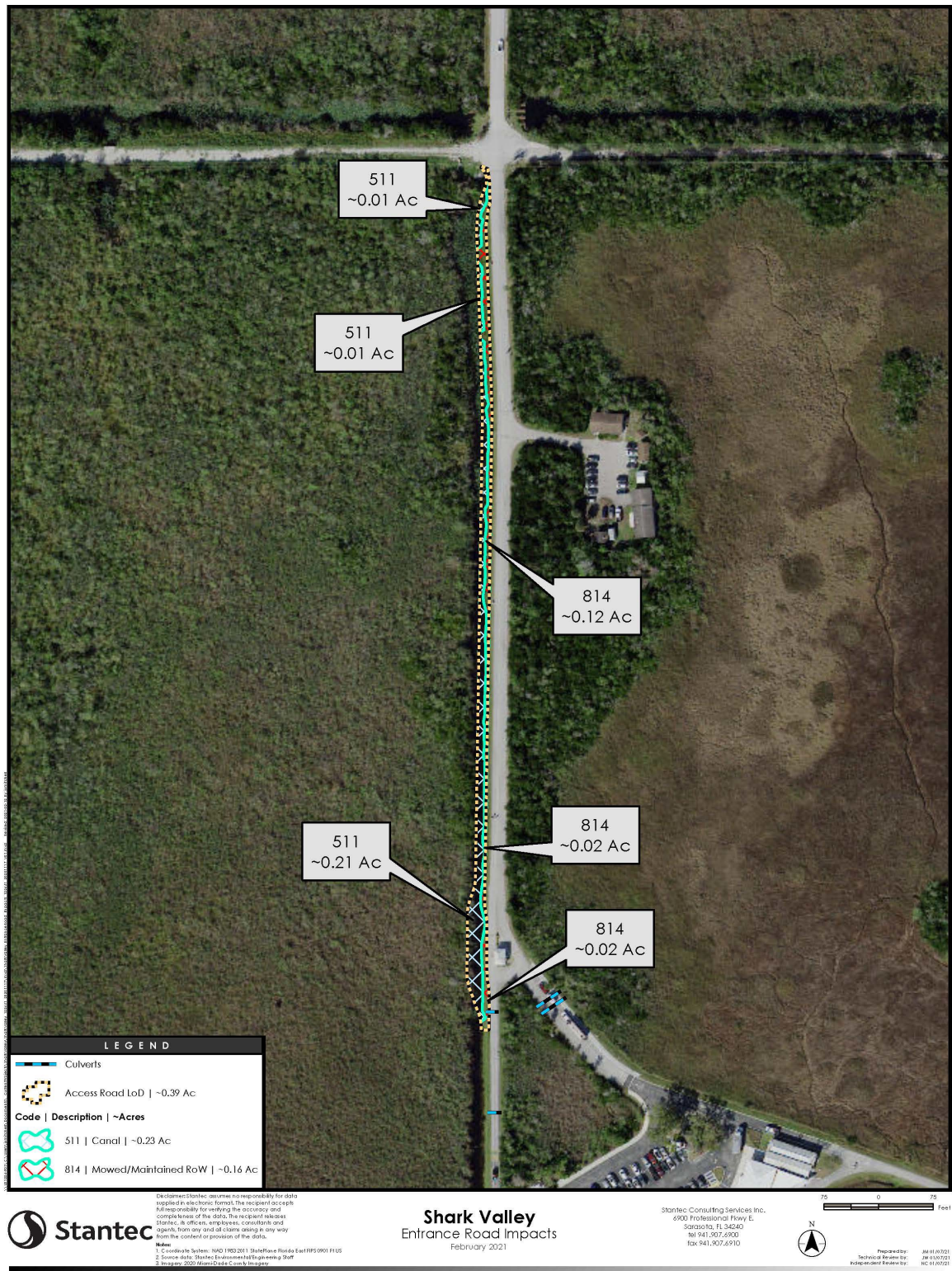


Figure 5. Entrance Road Wetland Impacts Map



Figure 6. Alternative B - Overflow Parking Lot Wetland Impacts Map

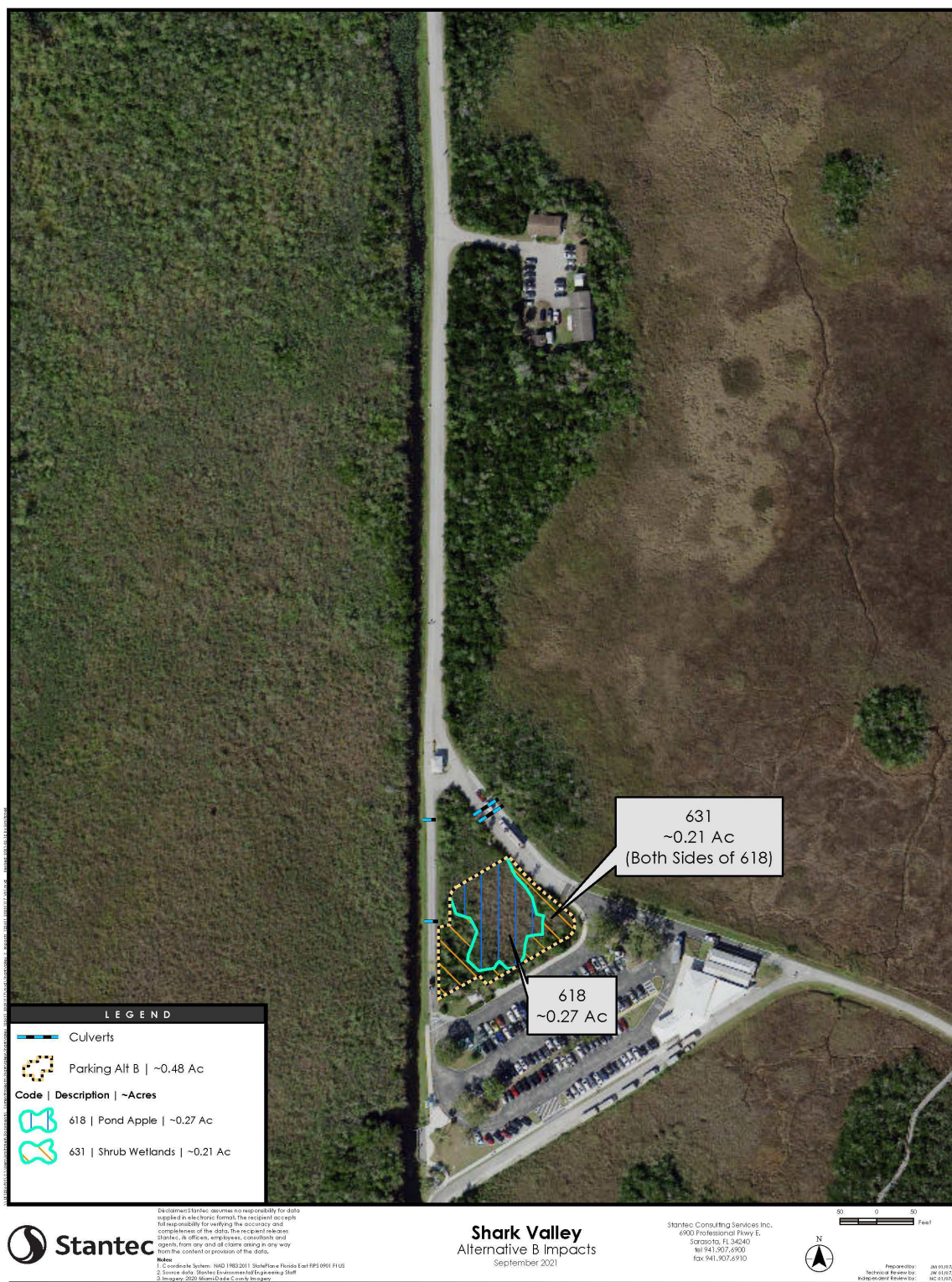


Figure 7. Alternative RV/Bus Parking Lot Wetland Impacts Map

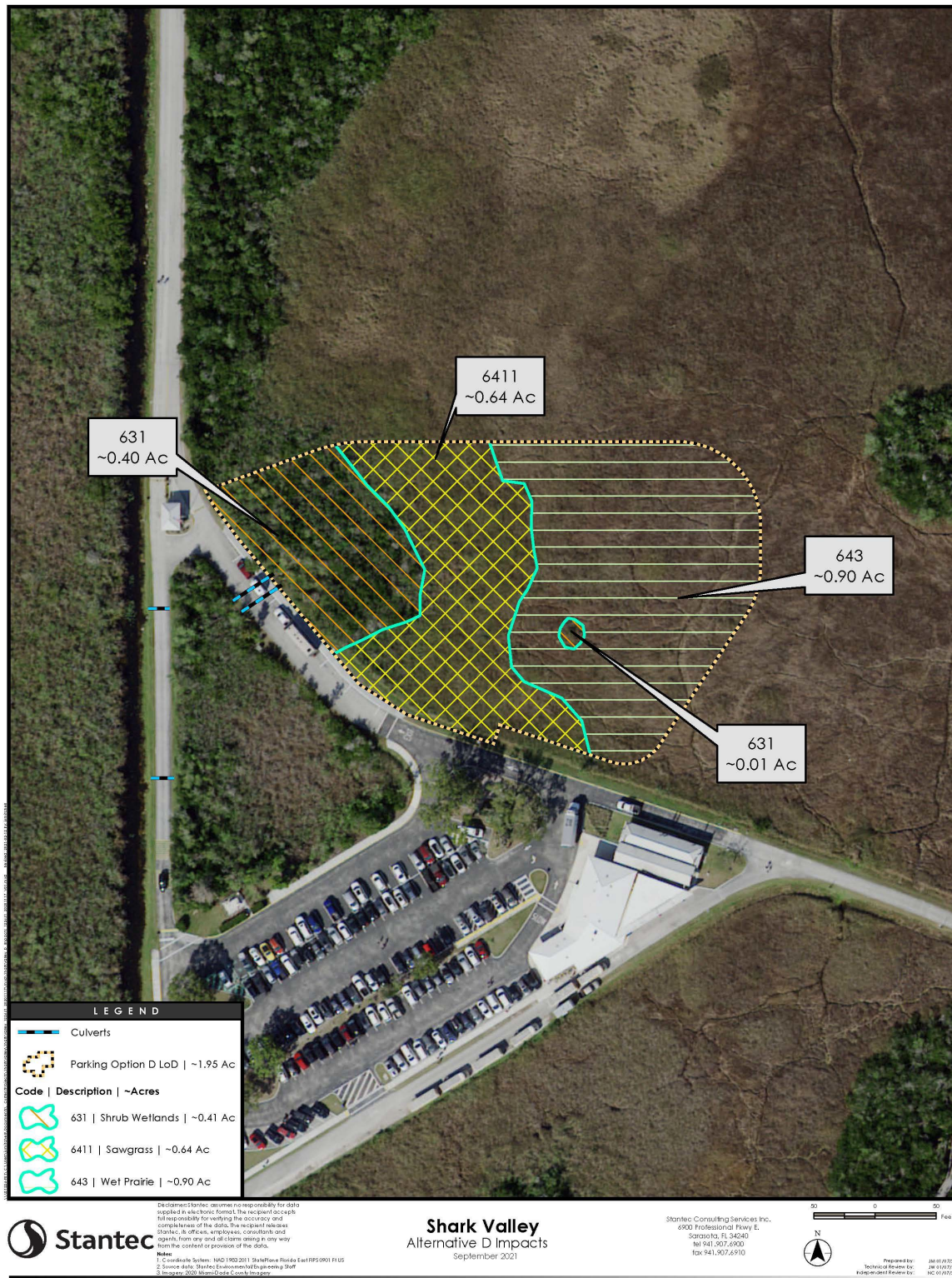


Figure 8. Alternative C - Overflow Parking Lot Wetland Impacts Map

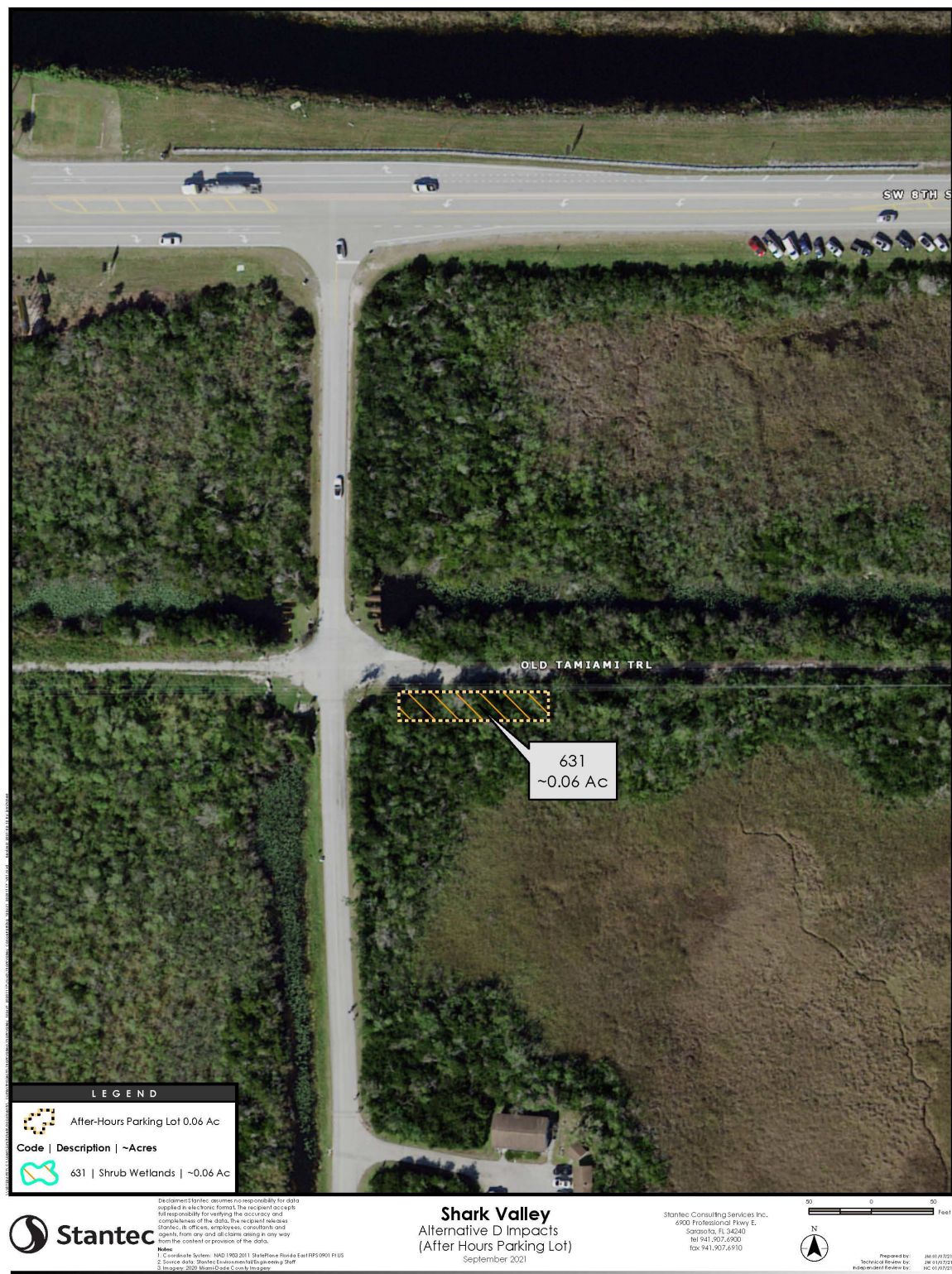


Figure 9. Alternative C – After-hours Parking Lot Wetland Impacts Map

MITIGATION

NPS Procedural Manual 77-1 states that wetland compensation is required if adverse impacts on wetlands from the project total 0.1 acres or more (NPS 2016). Permanent impacts on the wetlands associated with the action alternatives would result in over 5 acres of impacts; therefore, compensatory mitigation is required. It is anticipated that mitigation for wetland impacts from this project will be offset through the purchase of wetland mitigation credits from the HID Mitigation Bank. The HID Mitigation Bank is located in the southeast portion of the Everglades and services the project area in Shark Valley. The HID project is an approved wetland mitigation project under the Clean Water Act, as well as State law. This mitigation bank is the closest approved mitigation project to the site of impacts and mitigating at HID is consistent with guidance on selecting appropriate mitigation sites provided in the 2008 mitigation rule under the Clean Water Act. This site consists of the same wetland type (palustrine emergent wetlands), within the same watershed. Additionally, the mitigation site would provide benefit to the same wildlife populations as those affected at the impact site; it lies within the foraging area of the same wood stork and wading bird colonies.

NPS anticipates reserving slightly more credits than the current UMAM analysis indicates are required to ensure ample credits are available once the regulatory review has been completed in case they modify the UMAM scores. Based on the preliminary UMAM estimates, wetland impacts associated with the most impactful alternative equates to 3.1 credits being required and the NPS plans to reserve at least 4 credits at HID to allow some buffer for regulatory agency negotiations. To further minimize impacts to wetlands, any disturbed areas will be allowed to recover naturally in order to avoid/minimize the introduction or spread of non-native, invasive plant and animal species. If necessary, and in coordination with the park Botanist, any fill, mulch, reseeding, and sod material brought into the park must be free of non-native, invasive plants and animals, and noxious weeds. Finally, The NPS would mitigate wetland impacts associated with the Shark Valley Site Plan such that the project results in no net loss of wetlands and will continue to work to identify any measures to further minimize impacts to wetlands during the detailed design process. The Compensatory Mitigation Plan will be further developed and finalized in conjunction with, and as a requirement of, the Federal Section 404 permit process and the state Environmental Resource Permit (ERP) process.

COMPLIANCE

In addition to Executive Order 11988, applicable laws and regulations pertaining to wetland impacts include Clean Water Act Section 401 and 404 and the National Environmental Policy Act (NEPA) of 1969.

CONCLUSIONS

The Shark Valley District is a popular destination for visitors particularly during peak visitation months. The site location just south of Tamiami Trail, nearly equal distance from both the east and west coasts, provides recreational and educational opportunities for visitors traveling from both regions. With the ongoing restoration of the historic Everglades hydrology through numerous projects including the removal of the Old Tamiami Trail roadbed, permanent water levels are rising, and seasonal inundation of the Shark Valley site has increased in duration. This has resulted in extended closures of the facility, limiting access to this popular recreational destination. The current facilities at Shark Valley are inadequate to safely serve the growing number of visitors to the site. The proposed improvements

associated with the preferred alternative will significantly benefit both park staff and visitors by locating the parking in one central location and maintaining existing traffic flow. It will also eliminate the need for people to walk down the entrance road thereby eliminating potential conflicts between pedestrians and bicyclists. NPS understands there will be wetland impacts to Everglade's wetland ecosystems as a result of the proposed improvements. However, the improvements will allow many more visitors to safely visit the site than can currently be accommodated today, resulting in a project that is clearly in the public interest and in accordance with the park's GMP.

Shark Valley is comprised predominantly of jurisdictional wetland habitat. Wetlands were evaluated based upon several factors including previous disturbances, undesirable vegetation, existing hydrology, wildlife use and access to and from the existing facilities. The purpose of this project is to enhance visitor experience, safety, and expanded parking facilities in Shark Valley. Issues that have been considered and evaluated as part of the design for new and improved facilities include additional onsite parking, traffic flow improvements, widening of Entrance Road, raising of the Tram Road and improved treatment of stormwater runoff. The Shark Valley Site Plan considered off-site options for overflow parking that would eliminate wetland impacts; however, these options were dismissed due to the logistics of transporting the visitors to and from the site and the fact that an off-site location did not meet the goals of the project. All of the proposed action alternatives result in impacts to wetlands. The no action alternative would also avoid wetland impacts. However, the no action alternative fails to address the goals of the GMP to address parking and multi-modal traffic safety issues, flood resilience of the facilities, nor does it enhance visitor's experience.

NPS would mitigate all project related wetland impacts associated with the Shark Valley Site Plan. Since all action alternatives considered for this project would result in wetland impacts, determining which alternative would move forward as the preferred alternative was based on an evaluation of public safety, visitor experience, overall function and which alternative best addressed the goals of the GMP. Although alternative C would result in slightly more direct wetland impacts, the location significantly reduces the potential for secondary and cumulative impacts. In addition, it was determined alternative C creates a safer option for pedestrians and bicyclists and aligns with the goals of the GMP. In addition, since this alternative is completely within the Shark Valley recreational area, the park would have the ability to control all vehicular access to the area.

Alternative B utilizes the parcel near Tamiami Trail just east of the existing Entrance Road, which would impact the lowest quality and smallest quantity of wetland habitat of the alternatives considered. However, the bus/RV parking lot portion of alternative B impacts the pond apple wetland community which is unique in the area and provides some of the highest quality wetland habitat on site. Alternative C, where additional parking is proposed to be constructed contiguous with the existing parking lot near the Visitor Center, would impact wetlands of slightly higher quality and a larger area as compared to alternative B, but significantly improves visitor safety and concentrates all activities in one central location.

Alternative C is the preferred alternative to provide a new overflow parking facility on site. The wetland impacts from alternative C and associated features including the worst-case scenario of the options for elevating the Tram Road (8.8 ft. NGVD), construction of the Shark Valley Site Plan would result in direct impacts to 10.72 acres of wetlands. NPS would mitigate all wetland impacts associated with the project and will be purchasing wetland mitigation credits at HID mitigation bank. As all wetland impacts will be

properly mitigated for, it is anticipated that this project will result in no net loss of wetlands. The result of this project will be the resolution of the parking safety issues, improving the overall visitor experience while making the facilities at Shark Valley more resilient to flooding. The construction of the preferred alternative satisfies the goals detailed in the GMP by providing an overflow parking facility on site, ease of vehicle traffic flow and ease of pedestrian access to the visitor center.

QUALIFICATIONS OF THE DELINEATORS

Craig Schmittler, Senior Environmental Scientist

Professional Wetland Scientist #776

Certified Senior Ecologist, Ecological Society of America

Master of Science, Zoology, Eastern Illinois University, Charleston, Illinois, 1984

Bachelor of Science, Eastern Illinois University, Charleston, Illinois, 1982

Scott McLeay, Environmental Scientist

Master of Science, Biological Sciences, Concentrations: Aquatic Ecology, Biogeochemistry,
University of Alabama, 2017

Bachelor of Science, Fisheries and Wildlife, Minor: Water Science, Concentration: Fisheries
Ecology and Management, University of Nebraska-Lincoln, 2015

REFERENCES

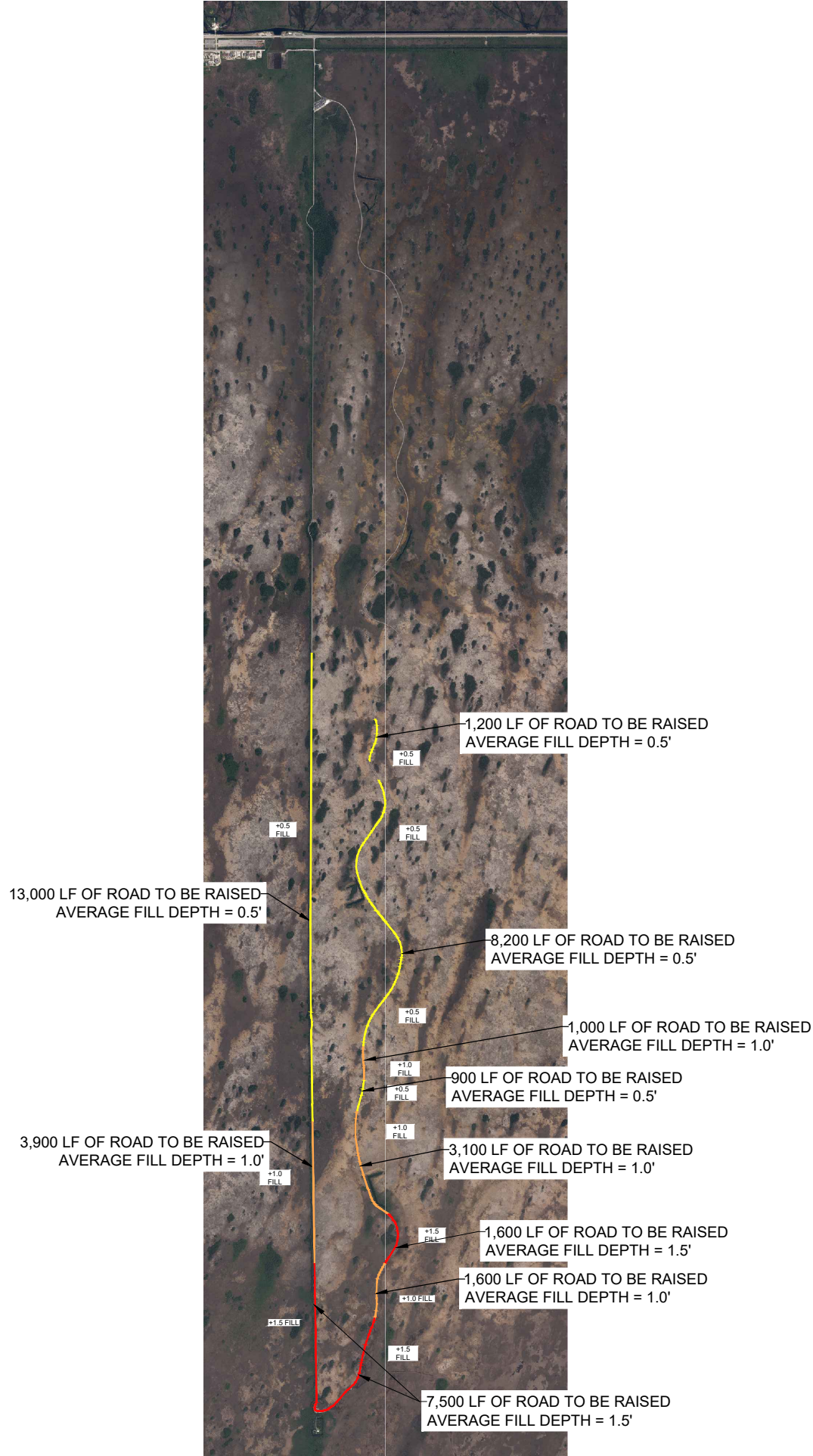
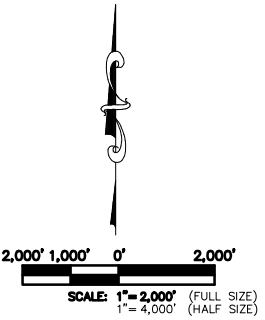
National Park Service, US Department of the Interior (NPS)

- 2021 *Preliminary Design Report, Shark Valley Site Plan*
- 2021 *Draft Pre-NEPA Report, Shark Valley Site Plan*
- 2020 *Summary of Flood Risk Analysis, Shark Valley Site Plan, South Florida Natural Resources Center (SFNRC)*
- 2016 *Procedural Manual 77-1: Wetland Protection*
- 2015 *Everglades National Park General Management Plan*

US Fish and Wildlife Service (USFWS)

- 2020 “National Wetlands Inventory Wetlands Mapper.”
<https://www.fws.gov/wetlands/data/mapper.html>

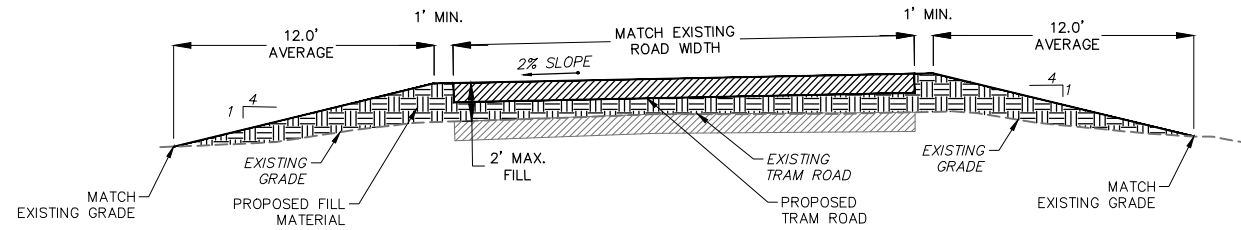
Appendix A
Tram Road Areas to be Filled



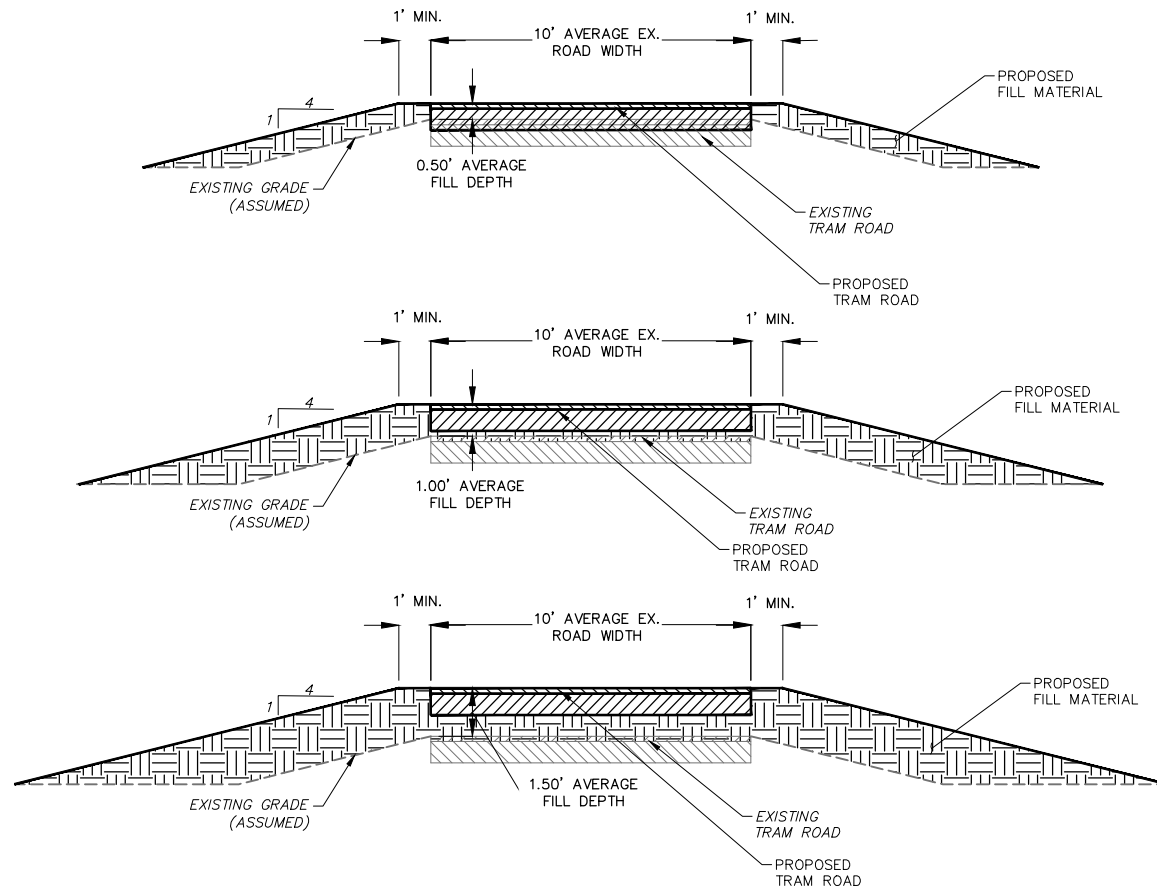
DESIGNED: SMB	SUB SHEET NO. 1	TITLE OF SHEET TRAM ROAD SHARK VALLEY SITE PLAN EVERGLADES NATIONAL PARK	DRAWING NO. 160 173679
DRAWN: SMB			PMIS NO. 310786
TECH. REVIEW: SC			SHEET 1 OF
DATE: 10-23-2020			

Appendix B

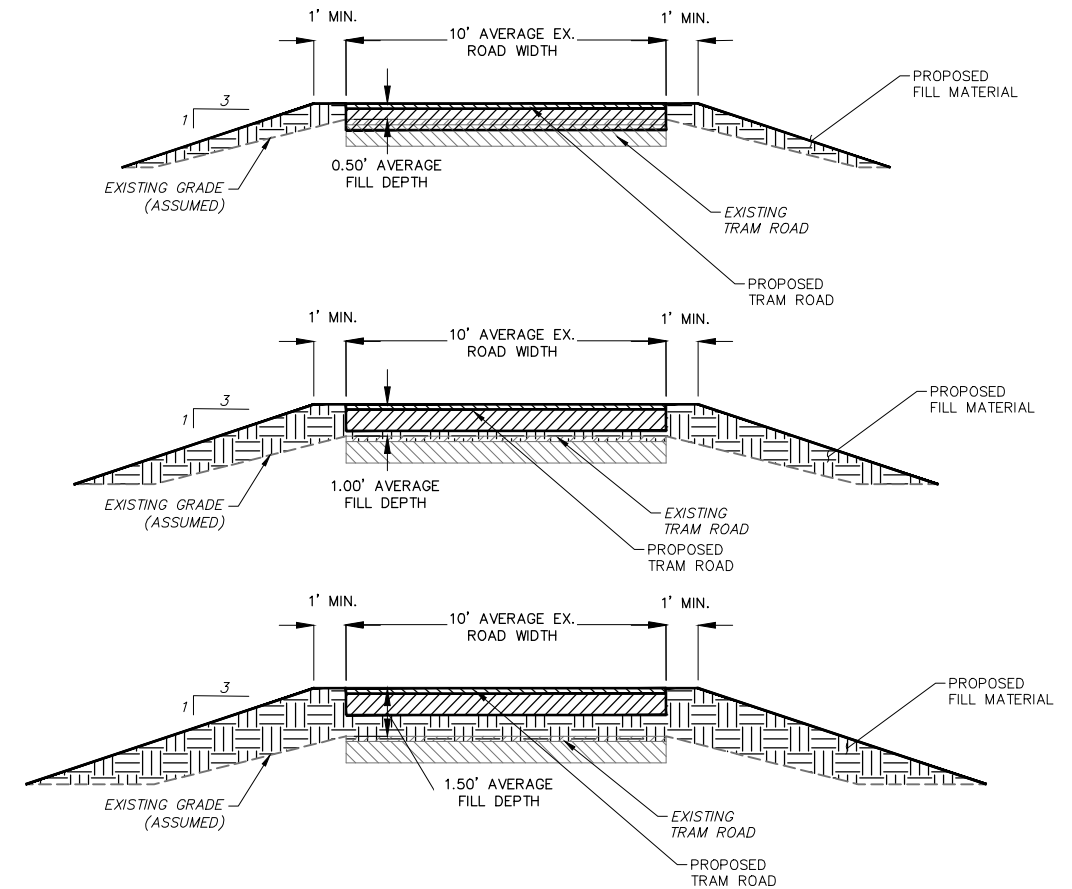
Tram Road Conceptual Cross Sections



TYPICAL TRAM ROAD SECTION
NOT TO SCALE



TYPICAL TRAM ROAD SECTION (4:1 FILL SLOPES)
NOT TO SCALE



TYPICAL TRAM ROAD SECTION (3:1 FILL SLOPES)
NOT TO SCALE

DESIGNED: SMB	SUB SHEET NO. 1	TITLE OF SHEET TRAM ROAD SHARK VALLEY SITE PLAN EVERGLADES NATIONAL PARK	DRAWING NO. 160
DRAWN: SMB			173679
TECH. REVIEW: SC			PMIS NO. 310786
DATE: 10-23-2020			SHEET 1 OF

Appendix C

UMAM Score Sheets for all Impacted Wetlands

PART I – Qualitative Description
(See Rule 62-345.400, F.A.C.)

Site/Project Name Shark Valley		Application Number		Assessment Area Name or Number Alternative B	
FLUCCs code 631 & 6412		Further classification (optional) Shrub wetlands / cattails		Impact or Mitigation Site? Impact	
				Assessment Area Size A-1 - 631 - 0.79 ac, 6412 - 0.36 ac, 814 -0.01 ac;	
Basin/Watershed Name/Number Everglades National Park		Affected Waterbody (Class) Class III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Outstanding Florida Waters	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Mixed Forested Wetland Swamp within Everglades National Park, and the entrance to Shark Valley Visitor's Center					
Assessment area description Shrub dominated Wetland Swamp within Everglades National Park, adjacent to the entrance to Shark Valley Visitor's Center. Area A h is located in the disturbed, lower quality wetlands east of east of the Park Entrance, and south of US 41.					
Significant nearby features Everglades National Park, US 41, Canal, existing park offices, existing internal roads and guard house and three filled roadways			Uniqueness (considering the relative rarity in relation to the regional landscape.) Somewhat unique - the shrub wetlands in this alternative all contain dense shrub and tree species. The abundance of small trees in the parts of this option make it less desirable to impact as forested wetland habitats in the general area of this project are not as		
Functions High diversity of potential wildlife habitat types due to mix of herbaceous and forested components. Low exotic presence except in small areas near US 41 making it higher quality habitat. Variety of water levels in these habitats means greater wildlife utilization.			Mitigation for previous permit/other historic use N/A		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Typical wetland fish, reptiles and amphibians as well as small mammal species and wading birds found in the Everglades. Potential roosting / nesting for avian species due to abundant shrubs and trees. More diverse habitat offers potential use by wider range of wildlife species			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Potential forage habitat for several listed wading bird species, everglades mink, other species found in the Everglades. Potential roosting / nesting by avian species because of abundant trees.		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Cooter, softshell snapping turtle, alligator, numerous fish species, limpkin, snowy egret and white ibis.					
Additional relevant factors: Several large, dense pockets of cattails in apparent disturbed sections of this habitat (Eastern option); Dense vegetation and deep water prevent many species from utilizing this specific habitat. Nuisance and exotic species generally limited to disturbed edges and previously disturbed portions of this habitat. There are numerous shrubs and small trees present in both options that could be used seasonally for nesting / roosting by avian species.					
Assessment conducted by: C Schmittler / S McLeay			Assessment date(s): 9/24/2020 & 1/14/2021		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Rules 62-345.500 and .600, F.A.C.)

Site/Project Name Shark Valley	Application Number	Assessment Area Name or Number Alternative B
Impact or Mitigation Impact	Assessment conducted by: C. Schmittler / S. McLeay	Assessment date: 9/24/2020 & 1/14/2021

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current 8 with 6	The pre score is slightly higher due to the addition of newly filled and unsuitable habitat where the new parking lot is located. Both are still adjacent to natural wetlands within Everglades National Park. The proximity to large expanses of suitable habitat and a variety of habitats within the Everglades will keep the buffer habitat values relatively the same pre and post development, however, due to the development of the parking lot, wildlife use of the actual property will be eliminated and very limited habitat improvements from nuisance and exotic removal will keep the scores higher. In addition, the new fill slopes for the new parking lot will add habitat that will potentially allow the spread of nuisance and exotic species establishing on that newly created / disturbed area.
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current 5 with 4	Pre scores will be slightly higher, post scores will be slightly lower due to the increase potential for polluted runoff to enter the Everglades that was not previously present. Nutrient removal currently being provided by the vegetation in this parcel will be lost lowering the scores slightly in post condition. Potential for erosion and shoaling will increase in the post development phase due to newly filled slopes adjacent to the Everglades reducing the post scores slightly. Risk for turbidity / pollution from the parking lot is also significantly increased in the post development condition.
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 7 with 0	Pre scores are high because of native wetland vegetation even with few exotic species present in the Everglades. Post scores drop to zero because all vegetation and wetland function has been lost in the developed previously wetland habitat.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.67	0.33

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = A-1 - 0.34 x 1.16 = 0.39;

Delta = [with-current]
0.34

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Rule 62-345.400, F.A.C.)

Site/Project Name Shark Valley		Application Number		Assessment Area Name or Number Alternative C	
FLUCCs code 631, 643 & 6411		Further classification (optional) Shrub wetlands, Wet Prairie & Sawgrass		Impact or Mitigation Site? Impact	
				Assessment Area Size 631 - 0.41 ac, 643 - 0.90 ac, 6411 - 0.64 ac.	
Basin/Watershed Name/Number Everglades National Park		Affected Waterbody (Class) Class III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Outstanding Florida Waters	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Shrub Dominated Wetland Swamp within Everglades National Park, and the entrance to Shark Valley Visitor's Center					
Assessment area description Shrub dominated Wetland Swamp within Everglades National Park, adjacent to the entrance to Shark Valley Visitor's Center. Area D has a single component, which is located east of the existing parking facilities near the existing visitor's center. The habitat to be affected includes shrub wetlands, sawgrass wetlands and wet prairie.					
Significant nearby features Everglades National Park, US 41, Canal, existing park offices, existing internal roads and guard house and three filled roadways			Uniqueness (considering the relative rarity in relation to the regional landscape.) Somewhat unique - the shrub wetlands contain several desirable shrub and tree species. The abundance of trees in the parts of this option make it less desirable to impact as forested wetland habitats in the general area of this project are not as common as herbaceous		
Functions High diversity of potential wildlife habitat types due to mix of herbaceous and forested components. Low exotic presence except in small areas near US 41 making it higher quality habitat. Variety of water levels in these habitats means greater wildlife utilization.			Mitigation for previous permit/other historic use N/A		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Typical wetland fish, reptiles and amphibians as well as small mammal species and wading birds found in the Everglades. Potential roosting / nesting for avian species due to abundant shrubs and trees. More diverse habitat offers potential use by wider range of wildlife species			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Potential forage habitat for several listed wading bird species, everglades mink, other species found in the Everglades. Potential roosting / nesting by avian species because of abundant trees.		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Numerous fish species, flame back turtle, cooter, alligator, brown rat, little blue heron, white ibis, mockingbird, cardinal, carolina wren					
Additional relevant factors: The shrub habitat within this option contains numerous shrubs and trees that are not present within most of the other options. There are a few exotics, but the area is generally vegetated by desirable native wetland species. These abundant shrubs and trees present could be used seasonally for nesting / roosting by avian species.					
Assessment conducted by: C Schmittler / S McLeay			Assessment date(s): 9/24/2020 & 1/14/2021		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Rules 62-345.500 and .600, F.A.C.)

Site/Project Name Shark Valley	Application Number	Assessment Area Name or Number Alternative C
Impact or Mitigation Impact	Assessment conducted by: C. Schmittler / S. McLeay	Assessment date: 9/24/2020 & 1/14/2021

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current 8 with 5	Post scores will be reduced due to loss of forested habitat in the general area around the entrance road and visitors center reducing the diversity of the wetlands habitats within this section of Everglades National Park. The proximity to large expanses of suitable habitat and a variety of habitats within the Everglades will remain the same pre and post development, however, due to the development of the parking lot, wildlife use of the actual property will be eliminated. In addition, the new fill slopes for the new parking lot will add habitat that will potentially allow the spread of nuisance and exotic species establishing on that newly created / disturbed area.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current 6 with 4	Pre scores will be slightly higher than post scores due to the increased potential for polluted runoff to enter the Everglades that was not previously present. Nutrient removal currently being provided by the vegetation in this parcel will be lost lowering the scores slightly in post condition. Potential for erosion and shoaling will increase in the post development phase due to newly filled slopes adjacent to the Everglades reducing the post scores slightly. Risk for turbidity / pollution from the three new sections of parking lots is also significantly increased in the post development condition.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 8 with 0	Pre scores are high because of forested native wetland habitat which is unique to this area. There are very few exotic species present in these areas allowing for higher wetland function and wildlife use. Post scores drop to zero because all vegetation and wetland function has been lost in the developed wetland habitat.

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres 0.73
with 0.3

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.43 x 1.95 = 0.84

Delta = [with-current]
0.43

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Rule 62-345.400, F.A.C.)

Site/Project Name Shark Valley		Application Number		Assessment Area Name or Number Canal	
FLUCCs code 510		Further classification (optional) canal		Impact or Mitigation Site? Impact	
Assessment Area Size					
Basin/Watershed Name/Number Everglades National Park		Affected Waterbody (Class) Class III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Outstanding Florida Waters	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Adjacent to non-forested wetlands within Everglades National Park, and the entrance to Shark Valley Visitor's Center					
Assessment area description roadside canal to be filled (already permitted) under current phase of Next Steps restoration project for removal of Old US 41 road fill					
Significant nearby features Everglades National Park, US 41, existing park offices, existing internal roads and guard house and three filled roadways			Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique - the canal conveys water from the US 41 drainage to the north into the everglades where it discharges.		
Functions conveys water, point discharge into the Everglades, fish refugia in dry season, aquatic habitat for fish, reptiles and amphibians year round			Mitigation for previous permit/other historic use N/A		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Typical aquatic fish habitat, reptiles and amphibians breeding, as well as wading birds foraging in the Everglades. Lot of freshwater invertebrates, snails, shrimp, etc..			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Potential forage habitat for several listed wading bird species, everglades mink, other species found in the Everglades. Spawning / breeding habitat for fish, reptiles, amphibians.		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Numerous fish species, flame back turtle, cooter, soft shelled snapping turtle, alligator, little blue heron, white ibis, American egret, gret blue heron					
Additional relevant factors: This is the only source of permanent water in the immediate area around the Shark Valley visitors center. Source of fish, and forage for wading birds; breeding habitat for reptiles, amphibians, and fish.					
Assessment conducted by: C Schmittler / S McLeay			Assessment date(s): 9/24/2020 & 1/14/2021		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Rules 62-345.500 and .600, F.A.C.)

Site/Project Name Shark Valley	Application Number	Assessment Area Name or Number Canal
Impact or Mitigation Impact	Assessment conducted by: C. Schmittler / S. McLeay	Assessment date: 9/24/2020 & 1/14/2021

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current 8 with 6	Post scores will actually increase slightly for this area due to revegetation of current open water habitat and increased diversity of plant species present once canal has been backfilled
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current 3 with 6	Post scores will be slightly higher due to change in habitat type. Nutrient removal not currently being provided by the canal due to lack of vegetation will be improved. Potential for erosion and shoaling will decrease due to removal of fast flowing water and point discharge of polluted water will be reduced to sheet flow through the Everglades to recreate historic conditions.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 2 with 7	Pre scores are high because of forested native wetland habitat which is unique to this area. There are very few exotic species present in these areas allowing for higher wetland function and wildlife use. Post scores drop to zero because all vegetation and wetland function has been lost in the developed wetland habitat.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.43	0.63

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.2 x =

Delta = [with-current]
positive 0.2

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Rule 62-345.400, F.A.C.)

Site/Project Name Shark Valley		Application Number		Assessment Area Name or Number Tram Road Option 1	
FLUCCs code 631, 643 & 6411		Further classification (optional) Shrub wetlands, Wet Prairie & Sawgrass		Impact or Mitigation Site? Impact	
				Assessment Area Size 8.32 Acres	
Basin/Watershed Name/Number Everglades National Park		Affected Waterbody (Class) Class III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Outstanding Florida Waters	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Wetland Swamp within Everglades National Park, and adjacent to the existing filled Tram Grade at Shark Valley Visitor's Center					
Assessment area description Wet prairie dominated wetlands within Everglades National Park, adjacent to the existing tram grade at the Shark Valley Visitor's Center. The habitat to be affected includes primarily wet prairie, but small pockets of sawgrass wetlands, a few shrub dominated wetlands and scattered hat rack cypress wetlands will also be affected byb the improvements to the tram facilities.					
Significant nearby features Everglades National Park, US 41, Canal, existing park offices, existing internal tram roads, guard house and three filled roadways			Uniqueness (considering the relative rarity in relation to the regional landscape.) not unique, most common wetland type at this site		
Functions moderate diversity of potential wildlife habitat types due to mix of herbaceous and forested components. Low exotic presence except in small areas near elevated ramp feature for viewing.			Mitigation for previous permit/other historic use N/A		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Typical wetland fish, reptiles and amphibians as well as small mammal species and wading birds found in the Everglades. Potential roosting / nesting for avian species in scattered shrubs and trees. More diverse habitat offers potential use by wider range of wildlife species			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Potential forage habitat for several listed wading bird species, everglades mink, other species found in the Everglades. Potential roosting / nesting by avian species because of scattered trees.		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Numerous fish species, cooter, alligator, brown rat, little blue heron, American egret, snowy egret, white ibis, mockingbird, cardinal					
Additional relevant factors: Several old alligator nests were observed in the first inspection, wading birds were foraging throughout the site during both inspections					
Assessment conducted by: C Schmittler / S McLeay			Assessment date(s): 9/24/2020 & 1/14/2021		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Rules 62-345.500 and .600, F.A.C.)

Site/Project Name Shark Valley	Application Number	Assessment Area Name or Number Tram Road Option 1
Impact or Mitigation Impact	Assessment conducted by: C. Schmittler / S. McLeay	Assessment date: 9/24/2020 & 1/14/2021

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support w/o pres or current <div>8</div> with <div>7</div>	Post score slightly lower due to loss of wetlands associated with fill placement for tram grade improvements
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current <div>5</div> with <div>5</div>	Pre-Post scores will be relatively unchanged due to stabilizing fill slopes after construction to minimize erosion / runoff
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current <div>7</div> with <div>0</div>	pre scores higher due to loss of vegetation in footprint of fill

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.67	0.4

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.27 x 8.32 = 2.25

Delta = [with-current]
0.27

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =



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

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US Department of the Interior – National Park Service
