

**Confirmation of Previous Analyses of the Tamiami
Trail Next Steps Final EIS, Addressing Design
Modifications to the Authorized Plan**

National Park Service
South Florida Natural Resources Center
Everglades and Dry Tortugas National Parks

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1. Executive Summary

In April of 2021, the National Park Service (NPS) and the Florida Department of Transportation (FDOT) began construction of Phase 2 of the Tamiami Trail Next Steps (TTNS) project. Phase 1 of the project, 2.3 miles of bridging, was completed in April 2019. As part of the Modified Water Deliveries (MWD) Project, the Army Corps of Engineers completed a 1-mile bridge in 2013, and partially raised the remaining eastern Tamiami Trail roadway. These projects together will improve water conveyance into the Northeast Shark River Slough (NESRS) area of Everglades National Park (ENP) and improve the marsh connectivity and sheetflow between Water Conservation Area 3A/3B and ENP. Several elements of the Phase 2 project have been refined, as the design has reached completion. These design changes have been the result of continued coordination with the Miccosukee Tribe of Indians, alterations to stormwater swale design through coordination with the Florida Department of Environmental Protection (FDEP), and utility improvements that would benefit residents and businesses on the Tamiami Trail.

After completion of the 60 % design, the NPS continued coordination with the Miccosukee Tribe on proposed roadway design in the area near the Osceola Camp. Camp members were concerned that the expansion of the roadway would eliminate their informal parking area in front of the camp and require school buses to enter the camp to pick up children. In response, the design has been altered to remove the left turn lane, use barrier walls to hold the roadway near the current alignment, add a second driveway to allow school buses to enter and exit, and improve the informal parking lot by raising it with gravel. There have also been modest improvements to the design of the stormwater swales, the south side of the swales will now be at a 1:3 slope and there will be less outfalls increasing the residence time of stormwater in the swales and decreasing the overflow into ENP. Finally, Florida Power and Light (FPL) will install underground powerlines in the footprint of the project during construction. The construction of these lines would increase the resiliency of the power grid while decreasing the impacts to tribal residents and concessions businesses by installing the lines at the same time FDOT is rebuilding the roadway.

With the design changes, the wetland impacts for TTNS are now 56.83 acres of permanent wetland impacts and 0.43 acres of temporary wetland impacts. This includes the 18.83 acres impacted in Phase 1 and the 38 acres of wetlands estimated to be impacted as a worst-case final design refinement for Phase 2. This permanent impact is approximately 7.63 acres larger than the 49.2 acres of permanent impacts estimated for the Original Plan (Alt. 6e) in the NPS' 2010 TTNS Final Environmental Impact Statement (FEIS), and 3 acres larger than the 2020 Confirmation of Previous Analysis (CPA). The stormwater treatment system is the largest increase in wetland impacts. Such a system was not included in the 2010 FEIS although it is a regulatory requirement and would reduce pollutants from the road entering the northern boundary of the park. This small increase in wetland impacts will be offset by planned fill removal and wetland restoration actions on five adjacent developed sites located along the Tamiami Trail roadway (if approved by both Federal and State wetland agencies), or at the Hole-in-The-Donut mitigation bank. Impacts to threatened and endangered (T&E) species and cultural resources were assessed in this analysis. The impacts of the project to seventeen T&E species were evaluated, including eleven that have been listed or were not evaluated in the 2010 FEIS. Of these species, only the Wood Stork (*Mycteria americana*) and the Florida panther

(Puma concolor coryi) had *Likely to Adversely Affect* determinations. Wetland impacts have not increased substantially because of the design modifications, and losses of T&E species habitat will be minimal which has resulted in no change to the effect determinations for the species. The proposed changes have also been determined to have no new adverse effects on cultural resources. All adverse cultural impacts that would occur as a result of this project have been addressed in a Memorandum of Agreement between the State Historic Preservation Office (SHPO) and the NPS.

In summary, the design changes analyzed in this document have been made as a result of coordination with tribal and agency partners. The design changes better meet Osceola Camp residents' needs, improve constructability and functioning of the stormwater swale system while meeting FDEP regulations for Outstanding Florida Waters, and improve resilience of utility access for rural and tribal communities.

2. Need for this Confirmation of Previous Analyses

This is the third Confirmation of Previous Analyses that compares recommended modified features and their impacts with those included in the 2010 FEIS for the second phase of the Tamiami Trail Next Steps Project. The 2010 FEIS evaluated and recommended up to 5.5 miles of new bridges and reconstructing the Tamiami Trail roadway to improve water conveyance, marsh connectivity, and sheet flow into Northeast Shark River Slough.

The TTNS project objectives as described in the 2010 FEIS are as follows:

1. Construct additional bridging and Road Raising of Tamiami Trail to provide for unconstrained Flows to NESRS and Florida Bay
2. Improve ecological connectivity by removing obstructions to sheet flow between WCA3A/3B and NESRS
3. Enhance unobstructed movement of animals north and south of Tamiami Trail
4. Restore slough vegetation and deep-water sloughs
5. Restore processes that produce and maintain ridge and slough communities in NESRS

The project features have been reevaluated 5 times since the completion of the FEIS to ensure that the project continues to meet the original goals and the environmental impacts remain commensurate while also maximizing other project benefits and providing cost savings where possible. The modified features examined in this Confirmation of Previous Analyses includes modifications to the stormwater swale system, proposed design of the FPL underground utilities, and modifications to the design at Osceola Camp which were requested and approved by the Miccosukee Tribe.

The design changes that have occurred have been the result of the project moving forward, from concept, to design, to construction. These changes have improved the project and have resulted in benefits to Everglades National Park and surrounding communities. The need to meet regulatory requirements for stormwater discharge also improves water quality entering the northern boundary of the park. Wetlands have been protected to the maximum extent possible, while also providing the maximum water flow and habitat restoration benefits to a vast area of the greater Everglades ecosystem. Several of the features will significantly increase the safety of tribal communities and visitors who use Tamiami Trail. Changes in water conveyance features will meet construction guidelines for protecting endangered species while also improving conditions for common Everglades species. Finally, the design changes will provide for historic uses by businesses and tribal communities and increase the resiliency of the Tamiami Trail roadway and associated infrastructure.

Background

The Tamiami Trail Next Steps Project

The Tamiami Trail (US-41) is a 264-mile historic roadway that was completed in 1928. The roadway was built to connect the quickly growing cities of Miami and Tampa. Since construction the roadway has acted as a barrier to flow, decreasing the amount of water entering Everglades National Park. In 1989, Congress passed the Everglades National Park Protection and

Expansion Act. This act directed the NPS to acquire approximately 109,000 acres in what was Northeast Shark River Slough and directed the U.S. Army Corps of Engineers (Corps) to implement the Modified Water Deliveries Project, which would restore more natural hydrologic conditions within the new expansion area of Everglades National Park.

In 2009, the Omnibus Appropriations Act directed the Corps to complete a limited Tamiami Trail roadway improvement project that included the construction of a 1-mile bridge and partially raising the remaining 10.7 miles of roadway between the L67E canal and the L31N canal. The Act also directed the NPS to evaluate additional bridging and roadway improvements to allow additional flow to enter eastern ENP.

The Final EIS for the TTNS project was completed in 2010, and a Record of Decision was published in April 2011. The recommended alternative (Alternative 6e) included 5.5 miles of additional bridging and reconstructing/raising the remaining un-bridged roadway. Soon after, in 2013 the Corps completed the 1-mile bridge and limited reconstruction of the roadway. Operational tests, allowing the stage in the L29 canal to rise up to 8.5 feet NGVD, were undertaken in subsequent years along with hydrologic modeling of the full Comprehensive Everglades Restoration Plan (CERP) buildout. CERP is a framework for restoring the greater Everglades ecosystem authorized in the 2000 Water Resources Development Act.

TTNS Phase 1 Implementation

In 2011, Congress authorized the NPS to construct Alternative 6e as part of the Consolidated Appropriations Act of 2012. The TTNS project was split into 2 phases, with Phase 1 consisting of the western 2.6-mile bridge and the adjacent roadway approaches. In October 2012, the NPS directed staff at the NPS Denver Service Center (DSC) and Everglades National Park to begin Phase 1 implementation. In early 2013 the NPS developed a conceptual design and initial cost estimate of \$180 million for Phase 1. In late 2013, the State of Florida pledged \$90M in Florida Department of Transportation funds to construct the bridge. The NPS and the Federal Highway Administration committed to matching that funding up to \$90M.

During the TTNS Phase 1 project design, the single 2.6-mile bridge was modified to two smaller bridges totaling 2.3 miles with a short transition road to decrease wetland impacts and maintain access to Everglades Safari Park. The eastern bridge (0.88 miles of decking) was completed in April 2018. The western bridge (1.43 miles of decking) was completed in October 2018. Removal of the Tamiami Trail below the bridges began in October 2018 and was complete by April 2019, leaving a short stretch of the roadway to provide access to the Lincoln Financial Radio Towers who currently lease the land from the NPS. Once the lease ends in 2036, the remaining roadbed and towers would be removed.

Changing Design Considerations for TTNS Phase 2 Implementation

The original bridging and roadway design in the TTNS 2010 Final EIS was based on water conveyance, marsh connectivity, and sheetflow enhancement features included in the CERP. These Decompartmentalization and Sheetflow Enhancement features were expansive, including removal of the lower 7-miles of the L-67A and L-67C levees, backfilling their adjacent canals,

and removing the full 10.7-miles of the L-29 Levee north of Tamiami Trail adjacent to WCA-3B, and backfilling the adjacent L-29 Canal.

While construction was ongoing on TTNS Phase 1, planning was completed on the Central Everglades Planning Project (CEPP), a key component of the CERP. The authorized 2016 CEPP plan reduced the planned CERP levee removal between WCA3A/3B and ENP. These modifications reduced the benefits of large-scale bridging on Tamiami Trail as the broad areas of sheet flow and marsh connectivity were no longer feasible.

In 2018, as a result of the reduction in benefits of CERP to ENP, the NPS began reevaluating the TTNS Phase 2 components during an interagency Value Analysis (VA) workshop. The 2018 VA recommended no large bridges beyond the existing 3.3 miles of bridges, adding six 72-foot-wide precast concrete culverts, reconstructing/raising the remaining 6.5 miles of roadway and adding swales for stormwater detention and water quality treatment.

The design was again revisited in 2019 during a second VA workshop. As part of that evaluation, the precast concrete culverts were converted to six 60-foot slab bridges with the size of the remaining culverts being converted to 96 inches, the swale system was enlarged to meet the regulatory requirements for Outstanding Florida Waters, turn lanes were added at Gator Park, Coopertown, and the Airboat Association, and a parking area was added for the residents of Tigertail Camp.

3. Documents and Legislation Pertinent to Confirmation of Previous Analyses

This fifth re-evaluation of the TTNS project builds on the Congressional Directives and prior analyses and actions that have been undertaken by both the National Park Service and the U.S. Army Corps of Engineers. These include a series of legislative actions, planning studies, land acquisition, and ecosystem restoration projects in the southeastern Everglades:

- *1989 Everglades National Park Protection and Expansion Act (Public Law 101-229).*
- *Land Protection Plan Environmental Assessment, East Everglades Addition, NPS/Everglades National Park (1991).*
- *Army Corps Final Revised General Reevaluation Report/Second Supplemental Environmental Impact Statement (RGRR/SEIS): Tamiami Trail Modifications, Modified Water Deliveries to ENP Project (2005).*
- *Army Corps Modified Water Deliveries to Everglades National Park Tamiami Trail Modifications Final Limited Reevaluation Report and Environmental Assess. (2008).*
- *2009 Omnibus Appropriations Act (March 10, 2009).*
- *Tamiami Trail Modifications: Next Steps, Final Environmental Impact Statement, National Park Service, October 2010.*
- *2012 Consolidated Appropriations Act (Public Law 112-74).*
- *Memo to File and Supplemental Assessment for Lincoln Financial Media and Salem Communications Radio Tower Facilities Located in the East Everglades Expansion Area of Everglades National Park (June 2012).*

- *Value Analysis Final Report for 2.6-Mile Tamiami Trail Bridge, NPS (December 2013).*
- *Memo To File and Supplemental Assessment based on the Recommendations of the Value Analysis Workshop, 2.6-Mile Tamiami Trail Bridge, NPS (May 2014).*
- *Army Corps Central Everglades Planning Project. Final Integrated Project Implementation Report and Environmental Impact Statement (July 2014).*
- *Memo to File and Supplemental Assessment based on Regulatory Requirements of the Florida Department of Environmental Protection, Tamiami Trail Next Steps Project, NPS (March 2015).*
- *Final General Management Plan / East Everglades Wilderness Study / Environmental Impact Statement for Everglades National Park (August 2015).*
- *Value Analysis Final Report, Tamiami Trail: Next Steps Phase 2, Roadway and Conveyance Improvements, NPS (September 2018).*
- *Memo to File and Confirmation of Previous Analyses based on the Recommendations of the July 2018 Value Analysis Workshop Final Report (December 2018).*
- *Value Analysis Final Report, Tamiami Trail: Next Steps Phase 2, NPS (December 2019).*
- *Memo to File and Confirmation of Previous Analyses of the Tamiami Trail Next Steps Final EIS, Addressing Modifications to the Authorized Plan, Based on Recommendations from a 2019 Phase 2 Value Analysis Workshop (April 2020).*

4. Recommended Modifications and Consistency with Alternatives Evaluated in the 2010 FEIS

Stormwater Treatment

2021 Design:

The water quality treatment swale design has been modified during the final phases of design to standardize the width of the bottom of the swales. The swales in the western segment of the project, between L67E and the 2.3-mile bridges, will have a width of 7 feet. East of the 2.3-mile bridges, the swales will have a bottom width of 5 feet. The outfall control structures have also been modified, 16 lateral weirs with skimmers and bleeders will replace the 39 conceptual outfalls. Erosion protection on the north (L-29 Canal) and south (ENP) sides of the roadway have been modified to include articulated concrete blocks (ACB) on the north, at each of the 6 bridges to protect the side slopes, and the south side has been redesigned at a 1:3 slope with sodding (Figure 1). A 1:2 slope with ACB protection is also included in some locations along the southern slope within the project area to maintain the slopes within the permanent easement. The change in width of the swales as a result of the 1:3 slope varies along the corridor but is in all cases is the same or greater than the previous design.

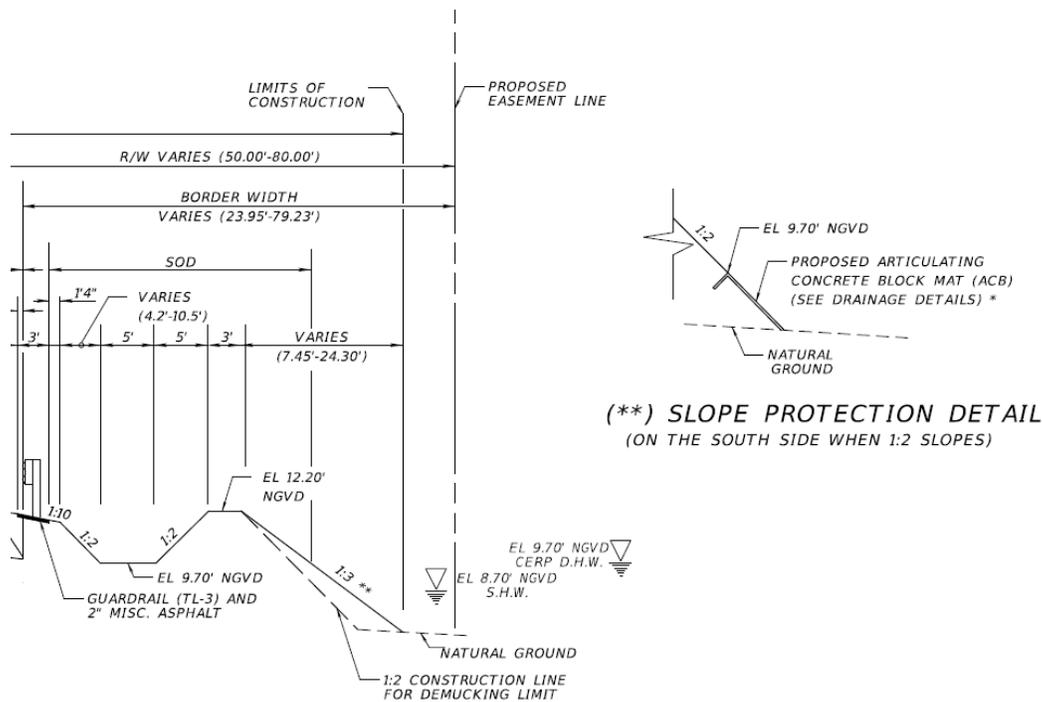


Figure 1. Typical section showing 1:3 slope with sodding modification.

Changes from 2020 Confirmation of Previous Analysis:

The design analyzed in the 2020 Confirmation of Previous Analysis included variable width stormwater treatment swales with 1:2 slope and riprap armoring on the southern bank.

- The 1:2 slope on the southern side of the stormwater treatment swales with rip-rap armoring have been redesigned as a 1:3 slope with sod erosion protection.
- The stormwater treatment swale design has been simplified to standard dimensions.
- The number of outfalls has been reduced from 39 to 16 and the conceptual design has been replaced with lateral weirs with skimmers and bleeders.
- ACB and a 1:2 slope will be used in areas where the swale bank cannot be widened to 1:3 because of proximity to the easement line.

Changes from FEIS:

The FEIS did not include stormwater treatment features along the raised roadway segments. The FDEP provided comments to the draft EIS in July 2010, and recommended development of stormwater treatment strategies, including the addition of swales and/or shallow wetland stormwater treatment areas to address runoff from the roadway/bridging impervious surfaces.

The FEIS stated that *“the reconstructed roadway will include a 6.5-foot grassed shoulder in addition to a 5-foot paved shoulder. While not tied to a formal numerical treatment standard,*

this measure is expected to provide more filtering for sediments and oils than exists today. Detention basins are not included in the project alternatives... “(FEIS, Appendix A – Engineering Report, p. 43)

The NPS anticipated that additional stormwater treatment requirements would need to be addressed during the detailed design phase of the project. Stormwater treatment features (dry detention ponds replacing the planned continuous deflective separation (CDS) units) were added during the second modification to the TTNS Phase 1 bridging project (and were evaluated in the 2015 CPA and associated Memo to File). The TTNS2 project will include this proposed stormwater treatment system (swales with associated exfiltration trenches and overflow weirs) along the reconstructed roadway to meet the FDEP requirements for Outstanding Florida Waters. The stormwater swales represent the largest increase in wetland impacts compared to the Original Project and will be discussed in more detail in the wetlands section.

Relocation of Utilities

Existing Conditions and 2021 Design:

Three utilities, FPL, AT&T, and Crown Castle Fiber have been identified as having facilities within the TTNS2 project corridor. Two utility companies, AT&T and FPL, have relocated preexisting facilities within Everglades National Park south of the TTNS2 project to continue to provide service to customers. Separate NEPA/NHPA compliance was completed for the relocation of preexisting poles and associated utility equipment within the Park. Crown Castle Fiber will be installing their facilities north of the boundary of ENP.

As part of the TTNS2 project FPL will be relocating their powerlines from their current location on the L-29 levee north of the park boundary into the project area. As part of CEPP, the western 4 miles of the L-29 levee will be removed at the location of the TTNS western bridges, to create a flow path from WCA-3A/3B to ENP. FPL must remove their aerial lines and poles from the L-29 levee prior to its removal. In response to NPS concerns over the impact of aerial powerlines on wildlife, FPL will install underground powerlines within the project footprint. Moving the lines off the levee will eliminate the need to do this work as part of the CEPP project and installing them underground will help improve the reliability of power transmission to businesses and tribal communities located in and west of the project area.

Doing the work in conjunction with TTNS Phase 2 will both simplify installation and avoid additional future impacts, as well as ensuring that the lines are underground instead of aerial. The lines will be moved into the future highway ROW south of the roadway (the only corridor with sufficient space), so while this constitutes a re-alignment of existing powerlines, it represents a new utility corridor within the current boundary of ENP (Figure 2). The underground powerlines will be constructed within the footprint of the water quality treatment swales using directional boring. Construction activities, and installation and staging will take place within the previously analyzed construction area.

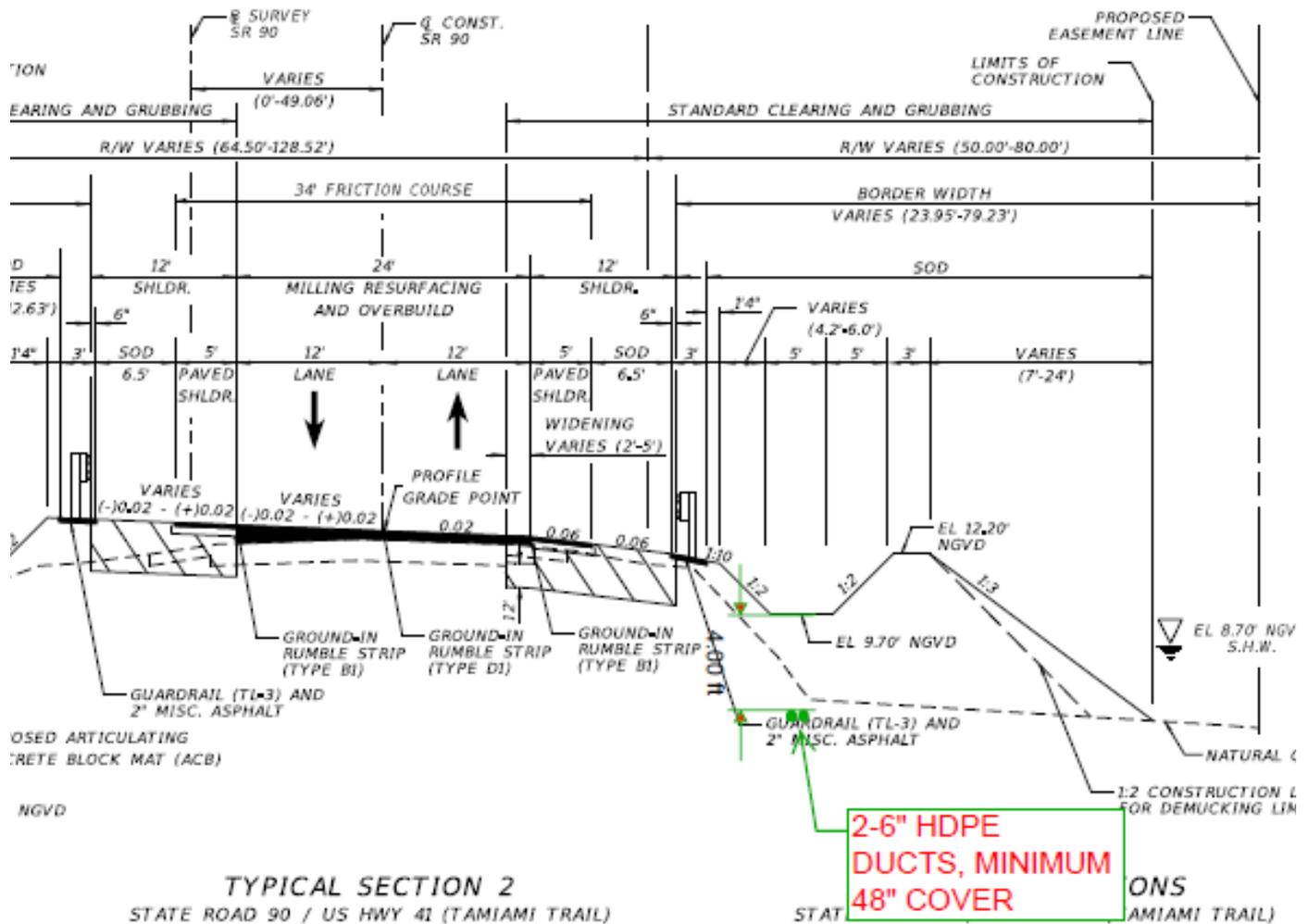


Figure 2. Cross section showing location of underground powerlines. Green circles show the location of the two conduits that will be placed at the bottom of the stormwater swale system.

At the three large bridge crossings, the lines will be housed in conduit currently in place under the bridge decking. There will be overhead crossings with poles where there are structures that need power on the north side of Tamiami Trail, such as the Tigertail Camp and S335A/B. Junction boxes and associated lines will be installed to provide service to existing users south of Tamiami Trail (Salem Road, Gator Park, Coopertown, and the Airboat Association). The specific location of the underground powerline and installation methods have not yet been determined where it crosses access roads to the three airboat concessions properties, however all electrical infrastructure and impacts will be within previously disturbed areas at these sites. There will be four aerial poles on the east side of the project, just west of the L31N levee, to provide power to the new S-356 pump station and to properly align the powerlines for the underground conduit.

Changes from 2020 Confirmation of Previous Analysis:

Utilities were not included in the 2020 Confirmation of Previous Analysis.

Changes from FEIS:

The utility information in the 2010 FEIS is found in the Utility Relocation section in Appendix A. The Engineering Report Section 6.6.4 (p. 49) states:

Five existing utilities are installed within the project corridor. Four will be affected by the proposed construction. Two buried telephone/fiber optic lines run along the south side of the roadway (AT&T and BellSouth). The location of these lines vary from the shoulder to outside the guardrail. BellSouth buried copper lines run along the north side of the roadway. A 12 kV Florida Power and Light (FPL) overhead electric line and a buried telephone/fiber optic line (Qwest) run along the embankment. The Qwest line should not be affected by the proposed improvements. FPL lateral power lines extend south from the distribution line along L-29C to customers on the south side of Tamiami Trail. These lines will likely require temporary or permanent adjustment due to the proposed improvements.

Utilities within the proposed typical section will need to be relocated so as to remain behind the future guardrail location. Utility relocations will be coordinated with each utility owner. As the affected utilities appear to lie within the ROW, their relocation costs are not included in the cost estimates. The estimated cost of relocating the two affected telecommunications utilities is \$3.5 to \$4.0 million, assuming that they are abandoned in place. Only a cost of allowance for coordinating these relocations is included in the project cost estimate.

Communication with the fiber optic utilities indicates that the likely relocation plan for the embankment sections will be to construct new facilities, coordinated with roadway construction and to abandon existing facilities in place. For the bridge segments, the utilities will be mounted on the bridge superstructure. Relocation plans will be finalized during the PED phase. Utility relocations must be finished prior to the Notice to Proceed (NTP) date shown in the detailed construction schedule.

Osceola Camp

Existing Conditions and 2021 Design:

The Osceola Camp is located on the south side of Tamiami Trail within the project boundary. The road right of way is currently approximately 60 feet across in this area and is a mix of grass and limestone fill. Visitors use this area as informal parking for events inside the camp and it is also used as a school bus stop for children who live in the camp. There is currently a wooden stockade fence with a gated entrance. Camp members can also access the interior by driving west past the fence. Changes to the design from the 2020 CPA include the removal of the left turn lane, the addition of a second driveway, raising and filling the existing informal parking area, and moving several cypress trees to an area outside the project footprint (Figure 3 – 5).



Figure 3. Roadway design at Osceola Camp for 2020 CPA.



Figure 4. Revised roadway design at Osceola Camp

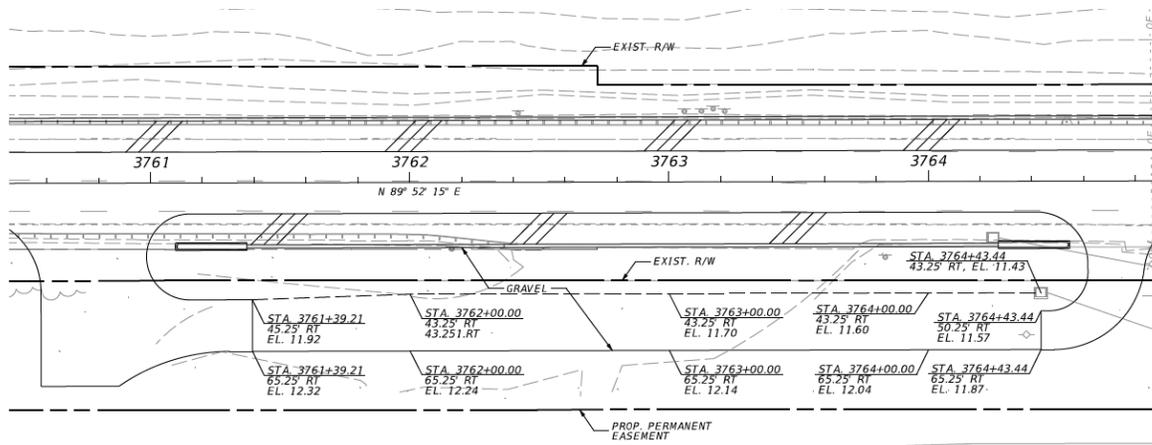


Figure 5. Detail of Parking Area at Osceola Camp

Changes from 2020 Confirmation of Previous Analysis:

The NPS had a series of meetings with the staff from the Miccosukee Tribe and Osceola Camp members in 2020 and 2021 to discuss the roadway design at the Osceola Camp. During those meetings Tribal staff and Camp members requested several changes to the design (Figure 3, Figure 4). These changes include:

- Removal of left turn lane to keep the new roadway within the current alignment.
- Reconfiguration to the current entrance/exit plans so there are two access points in and out of the camp.
- The external parking areas will use limestone fill to bring them up to approximately 12' elevation. Drainage off the parking area will be directed to the swales (Figure 5).
- Relocation of 2 cypress trees from the footprint of the western entrance driveway to the west side of the Camp.

Changes from FEIS:

The FEIS stated that “*All alternatives are being formulated to minimize impact on the Tigertail and Osceola Camps....*” but recognized “*Increasing the roadway height would require additional ROW at the ground level or base of the embankment, resulting in loss of usable ground*” at Osceola Camp (FEIS, p. 2-20). The FEIS reported a minor impact at Osceola Camp as a result of any of the action alternatives (Alt 1-6e). The roadway expansion would remain within the 50-foot easement included in the FEIS.

5. Changes in Environmental Impacts and Effects Determinations

A. Hydrology

The two previous Confirmation Assessments analyzed changes to conveyance features within the Tamiami Trail Next Steps project. The 2018 confirmation assessment analyzed the change in conveyance from replacing 2.8 miles of planned bridging with box culverts. The 2019 confirmation assessment looked at the hydrologic implications of converting six box culverts to 60-foot slab bridges and increasing the diameter of the remaining culverts.

Unlike the previous assessments, there are no changes to hydrologic conveyance features to be analyzed in this confirmation assessment. The impacts to hydrology investigated in the current CPA are a result of minor design changes that decrease wetland hydroperiod and hydrology, decrease the discharge from swales, direct runoff from less pervious areas into stormwater swales, and change the hydroperiod and water depths near the outlet of the bridges and culverts.

The expansion of the swale footprint as a result of increasing the slope of the southern berm to 1:3 would decrease wetland function in 3 acres of wetland from the previous CPA (Figure 1). The hydroperiod in the area between the 1:2 construction line and the 1:3 construction line would decrease. The toe of the slope extends further in the marsh, raising the elevation and decreasing the number of days the area is submerged. Ground surface elevation and water depth varies along the project boundary. Similarly, the area of altered hydroperiod decreases moving up the slope of the swale bank (Figure 6). At one location at the project, increasing the elevation by one foot, decreases the hydroperiod by 17 days over the course of a year. Reduced wetland function would remain along the bottom of the slope; hydroperiods would become shorter and weedy wetland species would become more dominant. These areas would continue to provide some value to wetland fish and other aquatic species and impaired foraging habitat of less value than surrounding wetlands.

However, the goals of the TTNS2 project are to restore the hydrology of the wetlands downstream of the L29 canal, so any impacts to hydroperiod from construction of the project features would be decreased over time by increases in water levels in Everglades National Park. The previous projects on Tamiami Trail have already increased water flow into the northern boundary of the park, and as CERP projects complete construction, flow would increase substantially.

The swales have been designed to have good percolation through the bottom. The muck would be removed to limestone and replaced with fill that meets FDOT requirements as in the previously analyzed concept design (Figure 6). FPL would locate their buried powerlines (in two six-inch diameter conduit) four feet under the swale bottom, which may slightly reduce the downward percolation of water. The elevation of the bottom of the swale is 9.7 ft, the conduit would be located at approximately 5.7 ft NGVD29 (48-inch depth). During wet season when water levels are high, this area is expected to regularly flood.

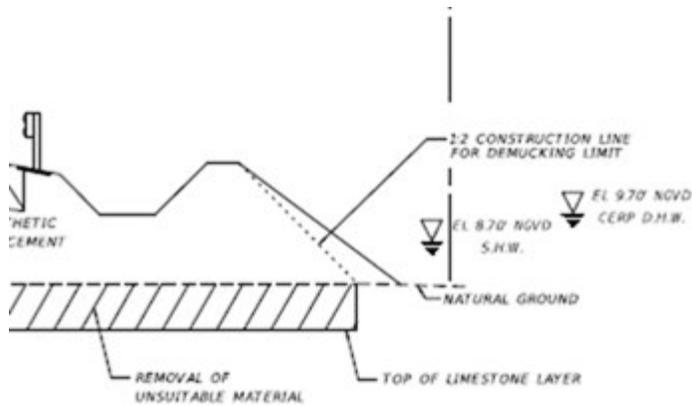


Figure 6. Diagram showing demucking limit at 1:2 slope.

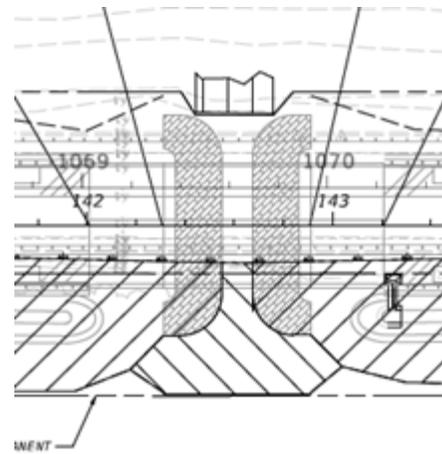


Figure 7. Dredging downstream of bridges. Temporary wetland impacts shown by hatching L → R.

At Osceola Camp, gravel would be added to the informal parking area to raise the elevation. The parking area would be sloped to the northeast to prevent runoff from entering the camp. A drain would direct the water to the wetlands east of the camp (Figure 4). Previously the parking area was ungraded, and water could flow into the wetlands on the east and west and into the camp. These changes are not expected to have a discernable impact on local hydrology.

The impacts of the design changes on hydrology would not differ from those analyzed in the FEIS. Project construction would have short-term, adverse, minor, localized impact on hydrology. The project would have a long-term, beneficial effect on hydrology based on its capacity to convey full CERP flows at relatively low velocities.

The estimated total permanent impacts to soil as a result Tamiami Trail Next Steps project is 57 acres. This includes 18.83 acres of impact from Phase 1, and 38 acres of impact from phase 2 including the referenced design changes in this document. The FEIS estimated 49 acres of impact. The minor increase in soil impacts is due to the inclusion of the stormwater treatment swales in the project. The swales are required by the FDEP and provide water quality benefits to the northern boundary of Everglades National Park. Soil impacts remain adverse, local, minor and long-term.

The additional permanent impacts to soil result from the design change in the side slopes of the swales from 1:2 to 1:3 which would occur throughout most of the length of the project. In areas where the toe of the swale is near the proposed permanent easement, the slope would remain 1:2

and be protected by articulated concrete block, resulting in no changes to soil impact in those locations. Soils would not be removed under the expanded swale slope as they would be under the 1:2 construction limit (Figure 6). Instead, the swale slope would be placed on top of the existing soils without demucking. Three acres of soil would be impacted by compaction and installation of turbidity barriers.

There would also be 0.44 acres of impacts to soils that would result from dredging downstream of the new bridges and culverts (Figure 7). These impacts are necessary to recreate functional flowlines into Everglades National Park from the L-29 canal and promote the natural redevelopment of open water sloughs.

FPL's underground powerlines would be placed within the constructed swale footprint. The soil in this location would be removed and replaced as part of the swale construction, so no additional disturbance is expected. Power poles, junction boxes, and other associated equipment would also be placed in the footprint of construction.

At Osceola Camp, soil disturbance would decrease from the previous CPA because of the removal of the left turn lane and the swale system from the area between the camp and Tamiami Trail (Figure 2 and 3). The area between the camp and roadway that is currently used for informal parking by visitors, would be raised to approximately 12 feet NGVD29 elevation using limestone fill and gravel and a drainage system would be installed to direct water from the gravel lot to the east (Figure 4 and 5). The soil would be disturbed in the area between the camp and the roadway west of the informal parking lot to relocate two cypress trees that are currently in the footprint of the western driveway at the request of the camp members.

Construction activities are expected to have short term impacts to soils in NESRS as stated in the FEIS and earlier MTFs. Best management practices such as silt fencing and other erosion control actions would be implemented to minimize impacts to adjacent soils resulting from Phase 2 construction. FPL may add additional silt fencing as necessary to prohibit runoff from their activities, however it would likely not be necessary since the turbidity control would have been installed by the roadway contractor prior to any soil disturbing activities. Soil disturbance and compaction are expected to occur during temporary construction related activities and would be limited to the construction footprint, the impacts are expected to remain adverse, local, minor, and short-term.

C. Wetland Impacts

This section described the wetland impacts that are planned in conjunction with the final design which incorporates the modified swale design that includes a 5–7-foot constant bottom width with 2.5-foot depths along the complete corridor. Erosion protection on the north (L-29 Canal) and south (ENP) sides of the roadway have been modified to include articulated concrete blocks (ACB) on the north and at each of the 6 bridges to protect the side slopes, and the south side has been designed at a 1:3 slope with sodding. A 1:2 slope with ACB protection is also included in some locations along the southern slope within project area to maintain the slopes within the permanent easement. While this design change results in an increased area of permanent and temporary wetland impacts, there would be a reduction in nutrients and contaminants entering

the Park as a result. The design change is in line with water quality criteria that meets the Outstanding Florida Water Designation set by FDEP.

For the purposes of this analysis, the amount of wetland impacts was calculated using ArcGIS. Construction impacts to wetlands were determined by converting Google Earth KML files into shapefiles to be compared to wetland boundaries shapefiles recorded during a 2019 jurisdictional wetland delineation.

This analysis represents the expected wetland impacts based on current data, and is not directly comparable to the analysis completed for the 2010 FEIS for several reasons: 1) the wetland boundary may have changed due to vegetation changes and differences in jurisdictional delineations, 2) changes in delineation of cover classifications as a result of vegetation change or classification methodological differences, and 3) the wetland characteristics have likely changed since 2010 as hydrological operational plans have begun lengthening hydroperiods and delivering more water to the area.

As in the April 2020 confirmation assessment, we are analyzing expected wetland impacts based on a generalized expectation of construction impacts. In the previous 2020 assessment, only conceptual design documents were available, as a result the analysis was based on estimated project boundaries. The final design available for this analysis has slightly higher impacts to wetlands than the 2020 Confirmation of Previous Analyses.

The 2021 final design showed expected impacts of 37.11 acres to wetlands (Figure 8). We have generalized that amount to 38 acres, approximately 3 percent greater than represented in this design iteration. In this manner, this evaluation represents the worst-case analysis in recognizing that design changes may occur. The NPS would continue to work with our partners and design engineers to minimize wetland impacts throughout the remaining construction.

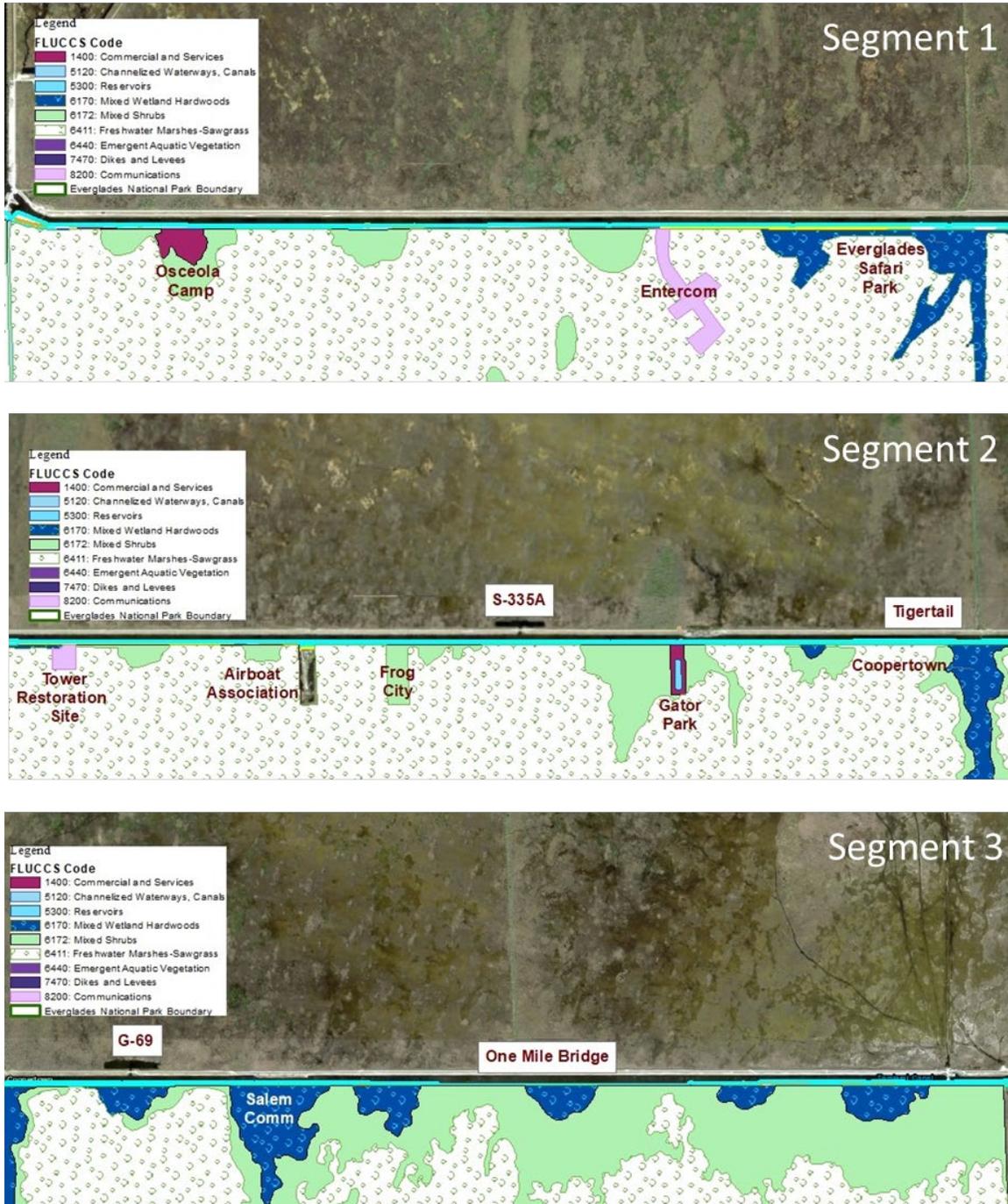


Figure 8. Florida Land Use and Cover map for the Tamiami Trail project area. This information was used to estimate soil and wetland impacts for the Phase 2 Recommended Alternative, compared to the No-Action Alternative.

The wetland impacts for the Tamiami Trail are now 56.83 acres of permanent wetland impacts and 2.14 acres of temporary wetland impacts. This includes the 18.83 acres impacted in Phase 1 and the 38 acres of wetlands estimated to be impacted as a worst-case final design refinement for Phase 2. This permanent impact is approximately 7.63 acres larger than the 49.2 acres of

permanent impacts predicted for the Original Plan (Alt. 6e) in the 2010 FEIS, and 3 acres larger than the 2020 Confirmation Assessment. The Phase 2 final design has a total of 0.43 acres of temporary wetland impacts, which is 24.97 acres less than the 22.4 acres for the Original Plan (Alt. 6e) in the 2010 FEIS. Table 1 provides the estimated permanent and temporary wetland impacts of the Original Plan as compared to wetland impacts from the Phase 2 final design.

Though the overall amount of permanent wetland impacts would be slightly larger than what was anticipated in the 2010 FEIS analysis, the Phase 2 plan with design refinements would have very similar types of impacts as those disclosed in previous analyses, and the wetland cover types impacted are proportional to those expected in previous analyses. In the case of temporary wetland impacts, far less would be impacted than what was anticipated in the 2010 FEIS analysis; no one wetland cover type would be impacted substantially more than was previously considered.

Throughout the analyses from the 2010 FEIS through present, permanent wetland impacts have been defined as the permanent changes to wetlands. This includes permanent conversion of wetlands to another type of wetland that still retains wetland value. Temporary impacts have been consistently defined in our analyses as impacts that are completely removed following completion of the project, with the expectation that they would revert to their previous condition and type over time. These definitions differ slightly from FDEP regulatory definition of temporary impact, which can include changes in wetland type or condition, such as areas underneath bridges.

The Original Plan described in the FEIS included the creation of wetlands (or more correctly, open water areas) that would result from removal of the existing Tamiami Trail roadway. The three additional bridges proposed in alternative 6e (0.40-mile, 1.80-mile, and 0.70- mile bridges) are not included in the Phase 2 alternative. As a result, the area under the bridges would not contribute wetland mitigation benefits to offset the impacts. These wetland/open water areas that would have been created in Alternative 6e, FEIS, total 21.93 acres and are not included in the determination of wetland mitigation requirements (Table 1).

Table 1. Estimated soil and wetland impacts of the Original Plan and the Phase 2 plan based on the Florida Land Use, Cover and Forms Classification System analysis.

Project Design	Permanent Impact (acres)	Temporary Impact (acres)	Estimated wetlands or open water created (acres)
FEIS Alternative 6e Original Plan (2010)	49.2	40.0	21.93
Phase 1 As-Built	18.83	1.49	12.27
Removal of Lincoln Financial Access Road	0	0	4.96
Final Design Phase 2	38	0.43	
Total Planned	56.83	2.14	17.23

As described in the March 2020 Confirmation Assessment, no new wetlands/open water areas would be created by Phase 2 with the design refinement. The NPS is proposes to mitigate wetland impacts through on-site mitigation at five sites along Tamiami Trail (Tamiami Fill Pad Removal Restoration Plan) if approved by Federal and State wetland agencies. To date, the FDEP has indicated support for the Tamiami Fill Pad Removal as mitigation. NPS will complete separate site-specific compliance for the Tamiami Fill Pad Removal Restoration Plan during the design phase of the project. If the mitigation sites do not provide enough credits to compensate for the additional impacts, credits from the Hole-in-the-Donut would be used.

In sum, despite the slightly greater wetland impacts compared to previous evaluations, the type and amount of wetland impact would remain very similar to that considered in the 2010 FEIS, and the impact level is still consistent with a moderate level of impact. Most of the increased wetland impact is associated with the 1:3 slope design on the south side of the project.

UMAM Wetland Functions Units

The FDEP conducted a Uniform Mitigation Assessment Method (UMAM) evaluation to estimate the wetland relative functional losses (FL) anticipated under the final design phase of Phase 2 in conjunction with submittal of the CERPRA permit application for Phase 2. The final design that was analyzed indicated 36.76 acres of permanent wetland impacts, and 0.44 temporary wetland impacts for a total of 37.20 wetland impacts which is slightly less than the 38 acres that we project in our worst-case assessment.

The UMAM indicates that the Phase 2 recommended alternative would result in an overall FL of 19.56 wetland functional units, through the fill of wetlands resulting from the 1:3 slope design. The NPS would acquire an equivalent number of wetland mitigation credits to offset these impacts, either at the sites proposed in the Tamiami Fill Pad Removal Restoration Plan, or the nearby HID mitigation project managed by NPS. At this time, the USACE has not conducted a UMAM evaluation for Federal permits, but the NPS anticipates similar scoring of functional value if the USACE chose not to adapt the UMAM prepared in conjunction with FDEP.

The updated UMAM for the remaining features in the Original Plan in the 2010 FEIS indicate that alternative 6e would have resulted in a loss of 14.26 wetland functional units from permanent impacts. However, removal of some sections of the existing Tamiami Trail would result in creation of wetlands with a functional value of 5.13 functional units (includes the time lag and risk factor). This alternative would also require off-site mitigation for the remaining 9.13 functional units, and this amount would similarly be met at the HID or another permittee-responsible mitigation site. The NPS would assure that any off-site mitigation would meet the requirements for Clean Water Act permits, State Environmental Resource Permits, and other applicable permits, as well as maintaining consistency with the NPS Wetland Statement of Findings prepared for the 2010 FEIS. The NPS would also address mitigation for potential impacts to wood stork foraging habitat, to maintain consistency with the 2010 Biological Opinion prepared in conjunction with the 2010 FEIS.

In summary, the UMAM results show that the Tamiami Trail Next Steps Phase 2 project would have slightly greater wetland functional impacts than the Original Plan, but all necessary mitigation would occur as analyzed in the 2010 FEIS and would fully mitigate for the project impacts to wetland function and values. The impacts would also offset by the improvements to the quality of water entering the northern boundary of Everglades National Park. Currently, water runs off the Tamiami Trail roadway with no treatment. The swales would provide treatment and decrease contaminants and nutrients flowing in the Park. It should also be noted that with implementation of future Comprehensive Everglades Restoration Plan projects, such as the CEPP, the long-term restoration benefits to wetlands are still expected to substantially outweigh the current project's impacts to wetland functions and values, though those future benefits are not assessed explicitly in the current evaluation. The NPS finds that the Tamiami Trail Phase 2 project is consistent with NPS Director's Order 77-1, which clarifies the service-wide no net loss of wetland policy, as well as Executive Order 11990 for the protection of wetlands, and associated State and Federal regulatory requirements, and the current assessment of wetland impacts is consistent with the Wetlands Statement of Findings prepared for the 2010 FEIS.

D. Water Quality Impacts

The addition of water quality swales into the Tamiami Trail Next Steps Phase 2 project was determined to provide a local, minor to moderate, and long-term benefit to Everglades National Park in the 2020 CPA. The design changes analyzed in this CPA provide an additional incremental benefit. Decreasing the number of outfalls and raising the outfall control elevations would increase the amount of water held inside the swale system after rainfall events. The water in the swales would percolate through the ground before entering the park, decreasing the contaminate and nutrient load.

As analyzed in the FEIS and previous MTFs, there would be short term impacts to water quality in the park during the project because of excavation and other construction activities. Best Management Practices (BMPs) would be implemented during roadway construction to prevent impacts. BMPs include the use of floating turbidity barriers, staked turbidity barriers, and silt fence to prevent turbid water from leaving the construction area.

A turbidity monitoring plan is also in place. While there is ground disturbing activity, the construction contractor must monitor turbidity downstream of construction. This turbidity is compared to the turbidity of a reference site in the park, outside of the construction area. If the turbidity exceeds the reference site, construction is stopped while the contractor improves the BMPs. Short term water quality impacts from construction and maintenance would be local, minor, and short term.

E. Land Use Impacts

The design modifications would not discernably change the land use impacts from previous assessments. All the additional impacts from the design changes analyzed in this document are to wetlands and undeveloped uplands. The increased wetland impacts, both permanent and temporary, are discussed in detail in the wetland impacts section above. The increased impacts to uplands are at the fill pad located adjacent to the Airboat Association, Frog City, and several other small vacant properties in Everglades National Park. The design changes would result in no additional conversion of commercial and developed land uses beyond what was analyzed in the 2020 CPA.

The addition of FPLs underground powerlines could be considered a change in land use but would be located within the footprint of the new road, and therefore it is embedded and indistinguishable from the previously analyzed infrastructure development. The powerlines are currently located north of the Everglades National Park boundary on the L-29 levee. As a result of the roadway project those powerlines would be shifted south and would be placed under the bottom of the stormwater swales through most of the corridor and relocated to the existing conduit on the 2.3-mile bridge. The buried power lines would make electric power more reliable and resilient, particularly during tropical events. More reliable power would be a benefit to the businesses and tribal communities located along Tamiami Trail. FPL would have periodic maintenance and repairs on the underground powerlines and lines in conduit under the bridges. The work on the conduit under the bridges would take place from the top of the bridge. Work on the underground powerlines would be contained within the footprint of the swales.

The areas impacted at the Osceola Camp are in the FDOT right of way. The Osceola Camp uses this area as informal parking and a school bus stop for children who live in the camp (Figure 2). Land use impacts have decreased at the Osceola Camp in this updated design. At the request of the tribe the left turn lane into the camp has been removed. In addition, the current entrance and exit driveways have been redesigned to allow for 2 access points in and out of the camp. The parking area would be improved using gravel to bring the elevation up to approximately 12 feet NGVD29 and provide drainage to the northeast.

Phase 2 roadway construction activities would cause the commercial and developed land use areas to experience short-term adverse impacts. Commercial areas may have their entrances temporarily blocked by construction and temporary parking may need to be provided. Construction would also create noise and dust which may dissuade visitors from stopping and reduce the enjoyment of visitors at the commercial sites. Traffic may be rerouted based on construction slowdowns or detours, causing less visitors to use Tamiami Trail. Any impacts from

the construction would be short-term, adverse, and highly localized, these impacts are consistent with the FEIS and previous analyses.

Impacts to commercial and developed land uses in the transportation corridor are expected to remain long-term and adverse however, these impacts are considered minor to moderate given the acreages that are involved and the planned remedies. Long-term impacts are considered beneficial, since the roadway reconstruction would raise the entrance roads and add left turn lanes to the commercial entrances and the Airboat Association. These changes increase the safety of Tamiami Trail, raising the roadway would increase the stability and resiliency of the roadbed especially under high water conditions that are expected in the future.

F. Endangered Species Effects Determination

This section describes the threatened and endangered species impact assessment and effect determinations under Section 7 of the Endangered Species Act for the final design Phase 2 recommended alternative. It also compares the expected effects with those expected under the Original Plan – Alt. 6e in the 2010 FEIS and associated Biological Opinion dated July 26, 2010, The Tamiami Trail Next Steps Phase 1 project and associated July 8, 2014 Biological Opinion amendment, and the preliminary effects analysis of the Phase 2 project prepared in conjunction with the 2020 Confirmation Assessment (Table 2).

The amounts, types, and locations of soil and wetland impacts in the Phase 2 plan are similar to those expressed in Alt 6e in the 2010 FEIS. The permanent impacts to wetlands and soils exceed the permanent impacts identified under Alt 6e by 7.63 acres, primarily as a result of the 1:3 slope final design on the south side of the project. The temporary impacts to wetlands and soils from the final design amounts to 0.43 acres, approximately 38.08 acres fewer temporary wetland impacts combined across all phases of the project. The 2010 biological opinion associated with the project identified an expected 100.5 acres of impacts in total, which remains substantially more than the expected permanent and temporary impacts to wetland habitats for listed species.

The 2010 biological opinion also did not include creation of wetlands (open water areas) resulting from the removal of the existing Tamiami Trail at the bridges, due to uncertainty and timing of potential availability. Over time, these areas may contribute prey base that would benefit listed species and support foraging by wood storks (*Mycteria americana*), Everglade snail kite (*Rostrhamus sociabilis plumbeus*), and Florida panther (*Puma concolor coryi*); however, this difference does not alter the Section 7 effect determinations for threatened and endangered species described in the Original Plan FEIS.

The 2014 biological opinion amendment and the December 2018 confirmation assessment both addressed newly listed species.

Table 2. Threatened, Endangered, and Proposed Species considered during Section 7 Consultation on the Tamiami Trail Next Steps Phase 2 project final design.

Species	Scientific Name	Listing Status	Section 7 Determination	Change from 2010 Biological Opinion
Cape Sable seaside sparrow	<i>Ammodramus mariitimus mirabilis</i>	Endangered, designated critical habitat	MANLAA*	None – Confirmation of Previous Analyses
Wood stork	<i>Mycteria americana</i>	Threatened	Likely to adversely affect	None – Confirmation of Previous Analyses
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	Endangered, designated critical habitat	MANLAA	None – Confirmation of Previous Analyses
Eastern black rail	<i>Laterallus jamaicensis ssp. jamaicensis</i>	Proposed threatened	MANLAA	Not addressed in 2010
Florida leafwing butterfly	<i>Anaea troglodyte floridalis</i>	Endangered, designated critical habitat	No effect	Not addressed in 2010
Bartram’s scrub hairstreak	<i>Strymon acis bartrami</i>	Endangered, designated critical habitat	No effect	Not addressed in 2010
Florida bonneted bat	<i>Eumops floridanus</i>	Endangered, Potential future critical habitat	MANLAA	Not addressed in 2010
Florida panther	<i>Puma concolor coryi</i>	Endangered	Likely to adversely affect	None – Confirmation of Previous Analyses
West Indian manatee	<i>Tricheus manatus</i>	Threatened, designated critical habitat	No effect	None – Confirmation of Previous Analyses
Blodgett’s silverbush	<i>Argythamni blodgettii</i>	Threatened	No effect	Not addressed in 2010
Pineland sandmat	<i>Chamaesyce deltoidei ssp. pinetorum</i>	Threatened	No effect	Not addressed in 2010
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>	Endangered	No effect	Not addressed in 2010

Florida prairieclover	<i>Dalea carthagenensis</i> <i>var. floridana</i>	Endangered	No effect	Not addressed in 2010
Florida pineland crabgrass	<i>Digitaria pauciflora</i>	Threatened	No effect	Not addressed in 2010
Everglades bully	<i>Sideroxylon reclinatum</i> ssp. <i>austrofloridense</i>	Threatened	MANLAA	Not addressed in 2010
Florida bristle-fern	<i>Trichomanes punctatum</i> ssp. <i>floridanum</i>	Endangered, proposed critical habitat	No effect	Not addressed in 2010
Eastern indigo snake	<i>Drymarchon cooperi</i>	Threatened	MANLAA	None – Confirmation of Previous Analyses

*MANLAA – May affect, but not likely to adversely affect

Within this document, we are only addressing updated information on impacts resulting from the final design of Phase 2 while taking into account the impacts of Phase 1 construction, but we are not updating the analysis of the entire plan in the FEIS.

“Likely to Adversely Affect” Determinations

Wood Stork – The circumstances affecting the threatened wood stork that were considered in the FEIS remain largely unchanged and the analysis in the biological opinion is still applicable. Compared to the biological opinion, the proposed impacts of Phase 2, when considered in conjunction with the effects that have already occurred during construction of Phase 1, are still less than those assessed in the 2010 biological opinion. The incidental take in the 2010 biological opinion was assessed in terms of the area of lost foraging habitat and the prey biomass. The total wetland impacts in total with Phase 2 including the design refinement are less than the 100.5 acres anticipated under the biological opinion. Additionally, since the 2010 FEIS and biological opinion, hydroperiods in Northeast Shark River Slough have lengthened as operational plans have moved toward delivering more water in alignment with the intent of the Modified Water Deliveries project. The 2010 biological opinion indicates a hydroperiod of approximately 252 days, which is considered a Class 5 hydroperiod, and the biomass of fish production to support wood storks was calculated accordingly. From 2010 to present, annual discontinuous hydroperiod has increased to approximately 321 days, which corresponds to a Class 6 hydroperiod, and has an expected greater fish biomass than occurred in the area in 2010. We applied the methodology used in the 2010 Biological Opinion and determined that the 38 acres of wetland impacts anticipated in Phase 2 final design would result in 167.93 kg of prey biomass. When combined with the estimated lost prey biomass from Phase 1, the overall lost biomass for the Tamiami Trail Next Steps project, including Phase 2 final design, is 250.95 kg, still less than the 387.29 kg identified in the incidental take statement in the 2010 Biological Opinion.

Wetland Impacts are proposed to be offset through mitigation at the nearby HID mitigation site, or through mitigation credits from restoration activities on five sites along Tamiami Trail (Tamiami Fill Pad Removal Restoration Plan) within Everglades National Park. Both of these potential mitigation sites would also increase wood stork foraging habitat and prey productivity and largely replace the reductions in foraging suitability within the core foraging habitat of the three stork colonies that occur near Tamiami Trail (Table 3). These additional benefits to wood stork foraging were not considered in the 2010 FEIS or biological opinion, and further reduce overall project impacts to stork foraging.

Table 3. Wood Stork nesting in 3 colonies along Tamiami Trail

Wood Stork Colony Maximum Nests Counted Per Year			
Year	Tamiami West	Tamiami East 1	Tamiami East 2
2010	350	15	30
2011	400	0	0
2012	120	0	0
2013	400	5	0
2014	300	0	0
2015	75	0	0
2016	0	0	0
2017	138	0	0
2018	0	0	0
2019	12	0	0
2020	220	0	0

Impacts to wood stork colonies are also reduced under Phase 2 compared to the analysis in the FEIS and biological opinion. The Tamiami East 2 colony referenced in the 2010 Biological Opinion has now been unoccupied for 10 years (as of 2020), and based on USFWS guidelines, no longer requires consideration as a nesting colony (Bill Brooks, USFWS wood stork species recovery lead, personal communication 2020). This colony would not be impacted by Phase 2. Tamiami East 1 colony has not been active for several years, but still requires consideration.

The 2010 Biological Opinion identified potential permanent impacts to wood stork nesting habitat within the Tamiami West stork colony. ArcGIS comparisons of the specific areas impacted in that vicinity of Tamiami West compared to the FEIS Alt 6e indicate that permanent impacts within and adjacent to the colony are substantially less under Phase 2 final design than was anticipated the Original Plan Alt 6e, primarily as a result of the elimination of the bridge at this site in Alt 6E. All impacts of Phase 2 fall within the boundaries of the permanent impact polygons for Alt 6E. Additionally, the temporary wetland impacts, which total 0.44 acres, are considerably less than those calculated for 2010 FEIS Alt. 6e resulting in less impacts to wood stork nesting habitat.

Phase 2 does include construction within the buffer zones of existing wood stork colony sites, but those effects are also reduced. Instead of building an elevated bridge (with a larger area of

habitat disturbance) near the Tamiami West wood stork colony, Phase 2 proposes to expand the road base and widen the road prism. This activity still has the potential to result in disturbance to nesting storks, but these effects, with associated mitigations, were fully addressed in the 2010 BO, and disturbance and potential mortality to storks through collisions are likely reduced since the proposed roadbed elevation in Phase 2 is below the tree canopy level, instead of at or near the tree canopy immediately adjacent to the Tamiami West Colony in Alt. 6e.

After evaluating all of the potential effects that the Phase 2 project would have on wood storks and comparing those effects to what was described in the 2010 biological, the adverse effects to wood storks under Phase 2 are reduced. We believe the Phase 2 with design refinement falls completely within the analysis of effects and resulting incidental take in the previous 2010 BO and 2014 amendment.

Florida Panther – There has been no additional information about panther occurrence in or near the project area in recent years that would change our previous consideration of this species. The proposed Phase 2 project, when considered in conjunction with the construction of the 2.3-miles of bridges in Phase 1, is expected to have fewer potential impacts to Florida panthers than what was considered in the 2010 FEIS and associated biological opinion. We analyzed the impacts of Phase 2 in the same manner as was conducted in 2010, and calculated Panther Habitat Units (PHU) impacted. In addition to the 38 acres of wetlands impacted, with a panther habitat value of 5.0, we identified approximately 1.45 acres of uplands composed of mixed hardwoods and applied the panther habitat value of 9.0 to these wooded uplands. Developed areas received a score of 0. Using these values and applying the 2.5 multiplier that was determined for habitat value within the panther primary one, Phase 2 with final design refinements would impact 508 PHUs. When this total is combined with the Phase 1 impact of 194 PHUs, the total impacts still remain less than the 1,278.48 PHUs that have been allocated for the Tamiami Trail Next Steps project resulting from restoration in Picayune Stand that were identified in the 2010 BO. In total, the types of effects under Phase 2 are the same as those considered in Alt 6E and the 2010 biological opinion, and the amount of adverse impacts is reduced relative to the BO. Consequently, we believe the proposed change for the final design for Phase 2 falls completely within the analysis of effects and resulting incidental take in the previous BO.

“May Affect, but Not Likely to Adversely Affect” Determinations

The March 2020 Confirmation Assessment provided updated information and Section 7 determinations for other listed species for the proposed design of Phase 2 compared to the FEIS and taking into account updated information about the status of other species considered in the biological opinion, the effects considered previously, and newly listed or proposed species. Most of that analysis and information included in that document still applies, and we are only providing relevant updates since the 2020 confirmation assessment.

Table 4 provides a list of the species for which there are no new project-specific effects or significant changes in species occurrence or abundance within the action area, and we refer readers to the Confirmation Assessment, 2010 Biological Opinion, and 2014 amendment to the biological opinion for detailed discussion.

Table 4. Species for which there are no substantial changes in status or effects compared to previous analyses

Species	Scientific Name
Cape Sable seaside sparrow	<i>Ammodramus mariitimus mirabilis</i>
Florida leafwing butterfly	<i>Anaea troglodyte floridalis</i>
Bartram’s scrub hairstreak	<i>Strymon acis bartrami</i>
Blodgett’s silverbush	<i>Argythamnia blodgettii</i>
Pineland sandmat	<i>Chamaesyce deltoidea ssp. pinetorum</i>
Cape Sable thoroughwort	<i>Chromolaena frustrata</i>
Florida prairieclover	<i>Dalea carthagenensis var. floridana</i>
Florida pineland crabgrass	<i>Digitaria pauciflora</i>
Everglades bully	<i>Sideroxylon reclinatum ssp. austrofloridense</i>
Eastern indigo snake	<i>Drymarchon corais cooperi</i>

In this section, we briefly provide only the new information about species or changes to the effect’s analyses compared to previous analyses.

Everglades snail kite and its critical habitat – In 2019 and 2020, there were elevated numbers of snail kites using a portion of the region prior to peak breeding season in January and February. In 2020, there were records of aggregations of 20-30 kites in some areas. Most of these snail kites did not remain in the area to breed, and we only recorded nesting that was very similar to previous years – less than 5 nests, many of which were located along airboat trails or old canals. We believe the increased use may be related to lengthening hydroperiods and resulting availability of prey that are associated with the additional deliveries of water to Northeast Shark River Slough. Surveys were conducted in 2021 showing 7 active nesting sites in the project area. Typical peak nesting occurs between January and July. No further nesting is expected to occur for 2021. The increase in seasonal use seen in 2019 and 2020 does not change previous section 7 determinations of effect. There were no changes to their designated habitat.

Eastern black rail – This species was listed as threatened in October 2020. We have not conducted surveys specifically for black rail along Tamiami Trail and have no new information. However, several surveys for black rails have been conducted in the general vicinity and in adjacent lands, and rails were detected in many places, including areas where they had not been previously reported. This information supports the potential that they may occur in the vicinity of the project, though it remains unlikely that they would occur immediately adjacent to the existing road and in this area where water levels are consistently deeper than preferred by the species. This new information does not change previous Section 7 determinations of effect.

Florida bonneted bat and proposed bonneted bat critical habitat– NPS staff recently completed acoustic surveys at two locations along Tamiami Trail where future restoration is planned: at the Frog City airboat launch, and at a small fill pad just west of the Coopertown airboat concession. Consistent with previous surveys in the region, Florida bonneted bats were present at both locations. Unlike previous surveys, we detected large numbers of bonneted bat calls at the property near Coopertown – up to 41 calls per night, including calls near sunset and sunrise.

This result is consistent with high use by bonneted bats and suggests that a Florida bonneted bat roost site is near. All potentially suitable roost trees within the bounds of proposed construction were visually inspected for evidence of bat roosting, and no potential bat roosts were found. We would conduct additional visual surveys of potentially suitable roost sites in coming weeks and also plan to continue acoustic surveys along Tamiami Trail. If potential roosting areas are identified, we would conduct emergence surveys as well. We have coordinated these results and plans with the USFWS office Florida Bonneted bat recovery lead in Vero Beach and would be providing our official survey report in coming weeks. The currently proposed design modification would result in a small incremental reduction in suitability of potential foraging habitat adjacent to the roadway resulting from conversion from marsh to the toe of swales installed for water quality treatment. This additionally affected area would likely become shorter hydroperiod wetlands supporting weedy wetland species following completion of construction. Neither this modification nor the al design in the 2020 CPA would affect potential bat roosting sites. Consequently, the effects of this change are expected to be insignificant and discountable.

Critical habitat was proposed for the Florida bonneted bat in June 2020. The proposal included the section of Tamiami Trail where work is ongoing, including this proposed design modification. The project area does contain essential physical and biological features identified in the proposed critical habitat. The proposed construction would affect small areas of representative forest types – in particular the mixed hardwood hammocks that occur on tree islands where the Tamiami Trail intersects with them. Few of the forested habitats that would be affected by the final design support potential roosting habitat because most woody vegetation found adjacent to the road is low-growing and shrubby. A few trees adjacent to the project corridor meet the size criterion for roosting trees as described in the proposed rule, however, most do not fit the criterion. The portion of the proposed construction area farthest from the existing road support open herbaceous wetland that meets the definition of foraging habitat, consisting of sawgrass and weedy herbaceous wetland vegetation. The conversion of the forested areas and sawgrass/weedy herbaceous wetlands to road shoulder and water quality treatment swales would reduce the characteristics and amount of foraging habitat, though the water quality treatment swales would continue to provide some degree of foraging habitat. The amounts of critical habitat affected are summarized in the wetland impacts section above. Overall, low quality foraging habitat would be predominantly affected. In sum, the current proposed modifications may affect but are not likely to adversely affect the proposed critical habitat through reduction of suitable, foraging habitat, but would not adversely modify the proposed critical habitat unit.

West Indian Manatee – The Phase 2 final design increases the size of wetland impacts to the project area due to the 1:3 slope on the south side of the project area, into Everglades National Park. The worst-case scenario used in this confirmation assessment totals to 38 acres of wetland impacts. There have been no additional changes to the design for the slab bridges or culverts that are to be installed as part of the project. Recognizing the very limited use of this area by manatees, we believe the change does not represent a substantial change from what was considered previously, and we still maintain our determination that the project may affect but is not likely to adversely affect manatees. The project would have no effect on manatee designated critical habitat.

Florida bristle fern – There is no new information to suggest that the Florida bristle fern may occur within the project area, and we maintain our previous determination of no effect for this species. On February 21, 2021, the USFWS proposed critical habitat for the Florida bristle fern in Everglades National Park. The 174-acre area is located at Royal Palm Hammock, far downstream from Tamiami Trail. We have reviewed the proposed critical habitat and determined that the proposed Phase 2 project would have no effect on the essential features of the proposed critical habitat.

G. Wilderness Impacts

The Marjory Stoneman Douglas Wilderness located within Everglades National Park is the largest unit of the National Wilderness Preservation System located east of the Rocky Mountains. Much of the land within Northeast Shark River Slough immediately south of the project area is eligible for wilderness designation and has been proposed as potential wilderness. Although not currently designated wilderness, by NPS policy the area must be managed as if it were and must be maintained to preserve the five qualities of wilderness character; 1. Untrammeled, 2. Natural, 3. Undeveloped, 4. Solitude or primitive recreation, and 5. Other features of value.

Wilderness impacts of the project have not changed from those analyzed in the 2010 FEIS or the previous two CPAs. According to the FEIS, construction of up to 5.5 miles of bridging and roadway reconstruction has a minor, short-term localized adverse impacts to wilderness, but a long-term beneficial impact to the natural quality of wilderness as a result of the completion of the project. There is a ¼ mile buffer area south of Tamiami Trail that was determined to be ineligible for Wilderness designation. The activities analyzed in this document would physically remain inside the buffer area and any negative impacts from the design changes proposed in this document, including modification to the swale design, addition of utilities, and changes to the design of the project at Osceola Camp, would remain less than the full buildout of 5.5 miles of bridging.

Construction activities that create noise and vibration are expected to impact wilderness qualities in the areas of the closest proximity to Tamiami Trail for the duration of the project. As a result of the project area being located outside of the wilderness, temporary wilderness impacts would be limited to the natural and solitude or primitive recreation qualities of wilderness. Temporary impacts to the natural quality of wilderness are related to the behavior of wildlife due to construction related noise and activity and any impacts to air quality or water quality as a result of the use of construction equipment and the generation of dust and turbidity. Temporary impacts to the solitude visitors experience within the wilderness would be affected by the sight of construction equipment, construction noises and the migration of wildlife away from the construction zone. These impacts can be mitigated by enforcement of noise, vibration, and emissions regulations by FDOT and the implementation of BMPs for the suppression of dust and turbidity leaving the project area. Project activities also have the potential to impact additional wilderness lands downstream by intentionally manipulating environmental conditions through alteration of the hydrologic flow into wilderness. While this is an impact to the untrammeled quality, it is intended to result in long-term benefits to the natural quality and wilderness

character as a whole. As a result, the impacts to wilderness would remain adverse, localized, short term, and minor.

H. Wildlife and Vegetation Habitat Impacts

The final design for Phase 2 would not substantially change the project impacts to Wildlife and Vegetation/Habitat as analyzed in the 2020 Confirmation of Assessment. These impacts are related to the presence of construction personnel and noise from operation of construction equipment. These activities would temporarily disperse wildlife to adjacent habitats. There remains the possibility of pollution, erosion, and sedimentation in the construction area, however BMPs would be used to minimize impacts, including the installation and inspection of staked silt fences, staked turbidity barriers, floating turbidity barriers, hay bale barriers, sediment traps, or other equivalent measures.

There are two active wading bird colonies within the vicinity of the Phase 2 project area, and effects to wading bird species and anhinga nesting within these colonies are anticipated to range from short to long-term and are at the moderate impact level. The project would not have a substantial effect on wading bird colonies, and effects may be limited to local changes in suitability of nesting, roosting, and foraging habitat. We would expect a similar level of impacts for other avian species that may be nesting within the project area. In addition, monthly check ins by NPS staff are conducted to report any additional wading bird nesting and colony activities that may occur during construction.

Construction of the Phase 2 design would result in temporary and permanent loss of useable habitat by wildlife with effects that are anticipated to range from short to long term, and range from minor to moderate, dependent on the species. This could result in a loss of breeding, foraging, roosting, loafing, shelter, and/or ranging habitat. Based on availability of other useable habitat in the vicinity of the project area, the scale of the project, and the ability of wildlife to move away from disturbance activities, it is estimated that habitat losses resulting from implementation the Phase 2 plan would be remain minor for most fish, invertebrates, mammals, amphibians, and reptiles.

The ability for wildlife to move between habitat components is crucial for maintaining wildlife population health and diversity. Tamiami Trail has long represented a barrier to wildlife movement to the north and south and the construction of the six slab bridges in the Phase 2 plan would provide much improved access for species to move between habitats in the WCAs and Northeast Shark River Slough. A wildlife crossing shelf would be provided adjacent to all bridge abutments under bridge decks and the bottom under the bridge would be natural. Increasing the diameter of culverts replaced 'in kind' to eliminate the need to add grates to prevent manatee entrapment would allow numerous species to continue to traverse under the Tamiami Trail and prevent additional vehicle collisions. However, the deaths of small animals from collision with vehicles would continue to occur in the unbridged sections of Tamiami Trail. The mortality of wetland dependent amphibians and reptiles and potentially some mammals would be somewhat reduced by the small bridges. There would be no changes in wildlife mortality from what was described in the 2020 CPA.

I. Cultural Resources Impacts

Federal Agencies are required to consider the effects of projects, or undertakings, they carry out, assist, fund, permit, license, or approve on historic properties listed (or eligible for listing) in the National Register of Historic Places (NRHP) by Section 106 of the National Historic Preservation Act of 1966 (as amended). Tamiami Trail Next Steps is a multi-year project that has gone through multiple funding processes, design iterations, engineering analyses, and construction phases. Due to the long-term nature of this project, the NPS has determined that a re-evaluation of properties is prudent and necessary.

The Park identified one property within the area of potential effect (APE) that requires re-evaluation and verification of impacts to historic properties under Section 106 of the National Historic Preservation Act. Osceola Camp would have direct and/or indirect impacts related to the undertaking.

Description of Undertaking and Project Modifications

Several design modifications have occurred since the completion of the FEIS in 2010 as conditions changed or on-site studies have produced additional information that was not available earlier in the project formulation. Previous design changes in 2018 and 2019 required reevaluation of impacts to historic properties. Addendum 1 (NPS 2018) analyzed the impact of changing the project design from three (3) large span bridges to large culverts or small bridges in key locations. The evaluation found “no new adverse effect would occur due to the project change” (NPS 2018, SHPO Concurrence 12/10/2018 and 1/29/2020). Addendum 2 (NPS 2020) analyzed the impact of replacing the water conveyance features and altering the roadway design at Osceola Camp, Gator Park, Coopertown, and Tigertail Camp. The evaluation found “no new adverse effects” (NPS 2020, SHPO Concurrence 1/29/2020).

Recent design modifications to the project, including changes in the design of the stormwater treatment swales, inclusion of underground electric transmission lines within the project footprint, and a change in highway design elements at the Osceola Camp, requested by the Miccosukee Tribe of Indians and Osceola Camp members, were evaluated. These design changes did not produce any additional impacts (NPS 2021).

Identification of Historic Properties

A cultural resource evaluation of the properties located along the project corridor was conducted as part of the preparation of the environmental impact statement (EIS) in July 2009 (Price et al. 2010). In addition to Tamiami Trail (8DA6510) and the Tamiami Canal (8DA6453) which had previously been determined eligible, the Airboat Association of Florida, Coopertown Restaurant and Airboat Rides, and the Miccosukee Osceola Camp were found to be eligible for listing in the NRHP (Table 5). Since 2009, three additional assessments of properties within the APE were conducted to confirm past findings.

Table 5. Historic properties located within or adjacent to APE.

Park Site Number	SHPO Site Number	Site Name	Site Descrip.	NRHP Eligibility	SHPO Concur.	Within APE	Effect Determination
EVER 00248	8DA6453	Old Tamiami Canal	Canal	Eligible	Y	Non-contrib. segment within APE	No Adverse Effect
EVER 00247	8DA6510	Old Tamiami Trail	Road	Eligible	Y	Y	Adverse Effect
	8DA6767	Coopertown	Airboat Operation	Eligible	Y	Y	Adverse Effect
	8DA6768	Airboat Association of Florida	Airboat Operation	Eligible	Y	Y	No Adverse Effect
	8DA10088	Gator Park	Airboat Operation	Not Eligible	Y	Y	No Effect
		Miccosukee Osceola Camp	Domestic	Unevaluated /Treated as Eligible	Y	Y	No Adverse Effect
		Everglades Safari Park	Airboat Operation	Unevaluated	N/A	N	N/A
		Tigertail	Domestic/ Parking Lot	Unevaluated /Treated as Eligible	Y	Y	No Adverse Effect

As part of Addendum 2, NPS was unable to evaluate the Miccosukee Osceola Camp due to access constraints. For the purposes of this undertaking, this property is treated as eligible for listing on the NRHP and the Secretary of Interior Standards for Treatment of Historic Properties would be followed for actions occurring near these properties. The SHPO concurred with this recommended treatment on 1/29/2020. Gator Park was found to be ineligible for listing in the NRHP (NPS, 2020; SHPO Response 1/29/2020).

Undertaking Impacts to Historic Properties

The Osceola Camp has been in the current location since the construction of Tamiami Trail in the 1930s according to documentary and local sources (Price et al, 2010). The camp has undergone significant changes, including the addition of non-historic buildings such as mobile homes, single family homes, storage, and other buildings. This undertaking reduces the impact to the area surrounding Osceola Camp compared to previous analyses; the left turn lane has been

eliminated from the design and a retaining wall has been added to maintain the area south of the roadway. A second driveway has been added at the request of camp members and gravel would be added to raise the existing informal parking area. Underground utilities would be added within the footprint of the construction. No buildings or structures would be affected by the changes. The NPS has determined there would be no adverse effects to Osceola Camp related to this undertaking.

Table 6. Undertaking and Determination of Effect, under Section 106 of the NHPA.

Historic Property	Undertaking Action	Determination of Effect under Section 106
Old Tamiami Canal	No work is proposed that would affect the canal. There is not contributing segment of the canal within the APE	No Adverse Effect
Old Tamiami Trail	Modification of 5.5 miles of bridges, roadway, rights-of-ways as described in the Tamiami Trail Modifications: Next Steps Report and 2018 plan revisions. Segments of the Old Tamiami Trail would be removed within the APE.	Adverse Effect
Coopertown (8DA6767)	Construction of an elevated bridge across the front of the property and an access ramp that would require about 40% of the parcel for expanded right-of-way. The location the ROW adjacent to the structures would result in a visual impact to the district.	Adverse Effect
Airboat Association of Florida	FDOT has acquired approximately 17,457 square feet (0.4 acres) of land through a Murphy Deed issued by the State of Florida. NPS does not have authority or jurisdiction to fund or permit this type of land acquisition. However, the land transfer does not affect the historic integrity or	No Adverse Effect

	eligibility of the Airboat Association of Florida for listing in the NRHP.	
Miccosukee Osceola Camp	The alignment of the roadway would be moved back to the north, a barrier wall would be used to limit the expansion of the roadway to the south. Two new driveways would be constructed, and the existing easement area would be raised using gravel. Two (2) cypress trees would be moved to the west.	No Adverse Effect

Summary of Cultural Resources Impacts

The NPS has evaluated the effects of properties within the APE that are, or may be, eligible for listing on the National Register of Historic Places. Of the properties identified within this amendment, NPS has determined there would be no adverse effects to historic properties as a result of these changes to the Tamiami Trail plans (NPS 2021). This report amendment does not supersede the previous adverse effects determination to the Tamiami Trail or Coopertown. Mitigation for those properties will still be ensured based on the 2010 Memorandum of Agreement (MOA) (Amended 2016 and 2020) between NPS and the Florida SHPO.

Table 7. Resolution of Adverse Effects, under Section 106 of NHPA.

Property	Determination of Effect	Resolution of Adverse Effects
Old Tamiami Trail	Adverse Effect	An interpretive display was completed and is on display at the Shark Valley Interpretive Area in accordance with the 2010 MOA. No further mitigation or resolution is required as a result of these changes.
Coopertown	Adverse Effect	A wayside exhibit on Coopertown and the history of Airboat tourism on the Tamiami Trail will be developed and located at the Coopertown location. No further mitigation is required as a result of these changes.

6. Summary of Impacts

Impact Topic (From the 2010 Tamiami Trail Next Steps FEIS)	Original Plan Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind	2018 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind	2020 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking	2022 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales
Geology, Topography, and Soils	Effects on soils are related to short-term and long-term construction, operations, and maintenance activities. The soil impacts resulting from temporary construction related activities would be adverse, local, minor, and short-term . Long-term impacts resulting from implementing this alternative would be adverse, local, and minor . No impairment of soils is anticipated from construction and maintenance-related activities.	Same as Original Plan (FEIS), with minor incremental differences due to bridge and roadway lengths.	Same as Original Plan (FEIS), with minor incremental differences due to bridge and roadway lengths and increased roadway widths and increased stormwater retention areas.	Same as Original Plan (FEIS), with minor incremental differences due to bridge and roadway lengths, increased roadway widths, increased stormwater retention areas, and small areas of dredging downstream of bridges and culverts.
Water Resources, Hydrology	Project construction would have a short-term, adverse, minor, localized impact on hydrology. The project would have a long-term, beneficial effect on hydrology based on its capacity to convey full CERP flows at relatively low velocities. No	Same impact as Original Plan (FEIS), with incremental differences due to bridge length. A long-term, beneficial effect on hydrology based on its capacity to convey full CERP flows at relatively low velocities.	Same impact as Original Plan (FEIS), with incremental differences due to bridge length. A long-term, beneficial effect on hydrology based on its capacity to convey full CERP flows at relatively low velocities.	Same impact as Original Plan (FEIS), with incremental differences due to bridge length and changes in swale design. A long-term, beneficial effect on hydrology based on its capacity to convey full CERP flows at relatively low velocities.

Impact Topic (From the 2010 Tamiami Trail Next Steps FEIS)	Original Plan Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind	2018 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind	2020 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking	2022 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales
	impairment to hydrology as a result of implementation of Alternative 6e.			
Water Resources, Water Quality	Water quality effects would be directly related to the short-term and long-term effects caused by construction, operations, and maintenance. It is anticipated that the water quality impacts resulting from construction-related activities would be adverse, local, minor, and short-term. No long-term impacts to water quality are anticipated, but stormwater runoff could improve due to water quality treatment features in Alternative 1. No impairment of water quality resources/ values would occur from the implementation of Alternative 1.	Same impacts as Original Plan F(EIS), with Incremental differences due to bridge length. A long-term, beneficial effect on water quality, based on the addition of swales to handle roadway stormwater runoff.	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length. A long-term, beneficial effect on water quality, based on the addition of swales to handle roadway stormwater runoff. Incremental improvements due to the 50% larger size of swales that Alternative 2 due to the necessity of OFW standards.	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length. A long-term, beneficial effect on water quality, based on the addition of swales to handle roadway stormwater runoff. Incremental improvements in water quality due to the 50% larger size of swales to meet OFW standards and decrease in discharges expected as a result of design changes.
Water Resources, Wetlands	Alternative 6e results in approximately 49.2 acres of permanent wetland loss and 40 acres of	Same impacts as Original Plan (FEIS), with Incremental differences due to	Slightly larger area of wetland impacts than in the Original Plan (FEIS), with	Slightly larger area of wetland impacts than in the Original Plan (FEIS), with incremental differences resulting from 1:3 slope for swales. Changing the

<p>Impact Topic</p> <p>(From the 2010 Tamiami Trail Next Steps FEIS)</p>	<p>Original Plan</p> <p>Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind</p>	<p>2018 CPA</p> <p>Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind</p>	<p>2020 CPA</p> <p>Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking</p>	<p>2022 CPA</p> <p>Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales</p>
	<p>temporary wetland loss. Some portion of the permanent loss would be offset by the creation of new wetlands/open water areas from the removal of the old roadway. This translates to moderate, adverse, short-term, localized impacts to wetlands during project construction. There would be moderate, adverse, long-term, localized impacts to wetlands associated with permanent dredging and filling of wetlands in conjunction with raising of the Tamiami Trail roadway. A Long-term, beneficial effect would be expected to result from future CERP improved water flows would substantially improve wetland functions throughout Northeast SRS.</p>	<p>bridge length. Moderate, adverse, short-term, localized impacts to wetlands during project construction. Moderate, adverse, long-term, localized impacts to wetlands associated with raising the Tamiami Trail roadway. A Long-term, beneficial effect would be expected to result from future CERP improved water flows would substantially improve wetland functions throughout Northeast SRS.</p>	<p>incremental differences resulting from differences in bridging and addition of 50% larger swales to improve water quality. The levels of effect are the same as in the Original Plan. Moderate, adverse, short-term, localized impacts to wetlands during project construction. Moderate, adverse, long-term, localized impacts to wetlands associated with raising the Tamiami Trail roadway and addition of stormwater treatment structures. A long-term, beneficial effect would be expected to result from future improved water flows resulting from Everglades Restoration projects, including CERP. These increased flows facilitated by the road base improvement and water quality treatment would substantially improve wetland functions throughout Northeast SRS.</p>	<p>slope of the swales would improve stability of the southern bank of the swales and eliminate the need for riprap armoring along the length of the project. However, these impacts would be fully mitigated within Everglades National Park. The levels of permanent and temporary effects to wetlands are still within those analyzed in the Original Plan. Moderate, adverse, short-term, localized impacts to wetlands during project construction. Moderate, adverse, long-term localized impacts to wetlands associated with raising the Tamiami Trail roadway and modification of stormwater treatment structures. A long-term, beneficial effect would be expected to result from future improved water flows resulting from Everglades Restoration project, including CERP. These increased flows facilitated by the road base improvement and water quality treatment would substantially improve wetland functions throughout Northeast SRS.</p>

Impact Topic (From the 2010 Tamiami Trail Next Steps FEIS)	Original Plan Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind	2018 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind	2020 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking	2022 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales
	implementation of Alternative 6e.			
Wilderness	Minor, short-term, localized, adverse impacts would occur to wilderness and unique ecosystems as a result of noise, vibrations, and dust. Long term, minor, adverse, localized impacts would occur from construction of the bridges associated with all the action alternatives. . The project would negatively impact the untrammeled quality by intentionally altering the biophysical environment but would lead to long term beneficial effects as a result of project implementation.	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length.	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length.	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length.
Wildlife and Vegetation, Habitat	Short-term to long-term, minor to moderate, adverse, localized impacts to wildlife and vegetation/habitats would result from the construction of Alternative 1. Long-term beneficial effects to wildlife and habitat would result from the	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length. Moderate, adverse, short-term, localized impacts to wildlife and habitat during project construction. Moderate, adverse,	Same impacts as Original Plan (FEIS), with incremental differences due to bridge length. Moderate, adverse, short-term, localized impacts to wildlife and habitat during project construction. Moderate, adverse,	Same impacts as Original Plan (FEIS) with incremental differences due to 1:3 slope for swales. Moderate, adverse, short-term, localized impacts to wildlife and habitat during project construction. Moderate, adverse, long-term, localized impacts to wildlife and habitat after construction. A long-term, beneficial effect would be expected to result from future CERP.

Impact Topic (From the 2010 Tamiami Trail Next Steps FEIS)	Original Plan Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind	2018 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind	2020 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking	2022 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales
	increased ecological connectivity provided through the implementation of Alternative 1, in combination with future CERP projects. Consequently, there would be no impairment of wildlife and habitat as a result of Alternative 1.	long-term, localized impacts to wildlife and habitat after construction. A Long-term, beneficial effect would be expected to result from future CERP.	long-term, localized impacts to wildlife and habitat after construction. A Long-term, beneficial effect would be expected to result from future CERP.	
Special Status Species	Short-term to long-term, minor to moderate, adverse, impacts to special status species would result from the construction of Alternative 1. This Alternative may affect but is not likely to adversely affect the Cape Sable seaside sparrow, Everglade snail kite, Eastern black rail, Florida bonneted bat, Everglades bully, West Indian manatee, and Eastern indigo snake. The Alternative is likely to adversely affect the Wood stork, and Florida Panther. Alternative 1 does include construction within the buffer	Same impacts as Original Plan (FEIS), with Incremental differences due to bridge length. Moderate, adverse, short-term, localized impacts to special species and their habitat during project construction. Moderate, adverse, short-term, localized impacts to special species after construction. A long-term, beneficial effect for the Florida panther is expected as a result of the six small pre-fabricated bridges.	Same impacts as Original Plan (FEIS), with Incremental differences due to bridge length changes and installation of stormwater treatment features. Moderate, adverse, short-term, localized impacts to special species and their habitat during project construction. Moderate, adverse, short-term, localized impacts to special status species after construction through changes in habitat suitability. A long-term, beneficial effect for the Florida panther is expected as a result of the six small pre-	Same impacts as Original Plan (FEIS), with Incremental differences due to bridge length changes and installation of stormwater treatment features. Moderate, adverse, short-term, localized impacts to special species and their habitat during project construction. Moderate, adverse, short-term, localized impacts to special status species after construction through changes in habitat suitability. A long-term, beneficial effect for the Florida panther is expected as a result of the six small pre-fabricated bridges, and long-term beneficial effects for wood stork, snail kite, bonneted bat through increased flows and habitat improvements associated with Everglades restoration facilitated by road raising.

Impact Topic (From the 2010 Tamiami Trail Next Steps FEIS)	Original Plan Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind	2018 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind	2020 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking	2022 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales
	zones of existing wood stork colony sites, and the bridge construction impacts would be adverse, but short term . Alternative 1 would have moderate short-term impacts to Florida panther habitat. No impairment of special status species is expected as a result of implementation of Alternative 1.		fabricated bridges, and long-term beneficial effects for wood stork, snail kite, bonneted bat through increased flows and habitat improvements associated with Everglades restoration facilitated by road raising.	
Cultural Resources	There would be significant, adverse, long-term effects on the historic Tamiami Trail roadway associated with construction of 2.8-miles of additional bridges. There would be minor, adverse, short-term effects associated with construction to improve the entrance roads and parking area at three historic sites.	There would be minor adverse short-term effects on the Tamiami Trail roadway, entrance roads, and parking areas as a result of construction.	There would be minor adverse short-term effects on the Tamiami Trail roadway, entrance roads, parking areas, and historic properties as a result of construction. There would be major, adverse, long-term effects on the historic Tamiami Trail roadway and Coopertown as a result of the project. There would be minor, adverse, long-term effects on the historic properties (Osceola, Airboat Association) as a result of the project.	There would be minor adverse short-term effects on the Tamiami Trail roadway, entrance roads, parking areas, and historic properties as a result of construction. There would be major, adverse, long-term effects on the historic Tamiami Trail roadway and Coopertown as a result of the project. There would be minor, adverse, long-term effects on the historic properties (Osceola, Airboat Association) as a result of the project. The Florida SHPO concurred with ENP that no new adverse effects will result from the latest Phase 2 modifications and the adverse effects will be satisfactorily mitigated through the 2010 MOA (Amended 2016 and 2020) between NPS and the SHPO.

<p>Impact Topic</p> <p>(From the 2010 Tamiami Trail Next Steps FEIS)</p>	<p>Original Plan</p> <p>Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind</p>	<p>2018 CPA</p> <p>Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind</p>	<p>2020 CPA</p> <p>Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking</p>	<p>2022 CPA</p> <p>Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales</p>
			<p>Note: Effects on historic properties, entrance roads, parking areas in this table are made under NEPA, not Sec 106 of the NHPA which are shown in Table 9 above. Adverse impact under NEPA does not necessarily mean adverse effects under Section 106 of NHPA. Consultation for resolution of adverse effects under Section 106 have been addressed through a Memorandum of Agreement with the SHPO.</p>	<p>Note: Effects on historic properties, entrance roads, parking areas in this table are made under NEPA, not Sec 106 of the NHPA. Adverse impact under NEPA does not necessarily mean adverse effects under Section 106 of NHPA. Consultation for resolution of adverse effects under Section 106 have been addressed through a Memorandum of Agreement with the SHPO.</p>
<p>Transportation</p>	<p>Transportation impacts associated with Alternative 1 would be adverse, local, minor, and short term and primarily associated with traffic delays related to construction activities. Mitigation of these effects would be through implementation of a Maintenance of Traffic plan. No long-term impacts associated with increases in traffic</p>	<p>Same or less adverse impacts compared Original Plan (FEIS). Adverse, local, minor, and short-term effects would occur primarily due to traffic delays related to construction activities. Construction duration: 2-3 years, all done at one time.</p>	<p>Same or less adverse impacts compared Original Plan (FEIS). Adverse, local, minor, and short-term effects would occur primarily due to traffic delays related to construction activities. Construction duration: 2-3 years, all done at one time.</p>	<p>Same or less adverse impacts compared Original Plan (FEIS). Adverse, local, minor, and short-term effects would occur primarily due to traffic delays related to construction activities. Construction duration: 2-3 years, all done at one time.</p>

Impact Topic (From the 2010 Tamiami Trail Next Steps FEIS)	Original Plan Alternative 6E from the FEIS, 6.5- Miles of Additional Bridging, and Full Roadway Reconstruction, Culverts Replaced In-Kind	2018 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, Four Smaller Bridges, Culverts Replaced In-Kind	2020 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking	2022 CPA Phase 1 completed. 3.3-Miles of Bridging and 1.5-Miles of Approaches, Full Roadway Reconstruction, 6 Culverts with Slab Bridges, 7 Culverts replaced with 8 ft Diameter Culverts, Left Turn Lanes at Most Entrances, Tigertail Parking, 1:3 slope for swales, changes at Osceola Camp, FPL UPL in Swales
	levels are expected. Construction duration: 3-5 years, most likely done in multiple phases.			

7. Conclusions

The general conclusion from this 2022 Confirmation of Previous Analyses (CPA) is that the Phase 2 recommended modifications will meet the purpose and need of the TTNS project and result in improvements to the natural resource conditions within Everglades National Park that are generally consistent with the Original Plan (Alt. 6e in the 2010 FEIS):

- a. This 2022 re-analysis confirms that the Phase 2 final design modifications would complete the requirements of the Tamiami Trail Next Steps project and is consistent with the benefit analyses and impact determinations included in the 2010 FEIS.
- b. The 2018 re-evaluation of the hydrologic benefits of Tamiami Trail bridging determined that the existing 3.3 miles of bridging (the combination of the MWD/LRR and TTNS Phase 1) represents an optimal bridging plan and would provide sufficient water conveyance capacity to pass future CERP restoration flows.
- c. While the existing bridging has been determined to be optimal, reconstructing/raising the remaining 6.7 miles of the Tamiami Trail roadway is imperative to allow increases in the L-29 canal stage and ensure future restoration benefits in both the upstream Water Conservation Areas and ENP.
- d. Redesign of CERP projects resulted in reevaluation of benefits and features of the TTNS project. Incorporating smaller bridges and changes to other hydrologic features in the design maintained many (78%) of the benefits from the FEIS, including reconnecting historic sloughs, project objectives for unconstrained flows, marsh connectivity, restoring sheetflow, and recreating marsh flow velocities. The design changes lowered the total project cost by more than \$118 million.
- e. The Phase 2 final design plan would have a projected 7.63 additional acres of permanent wetland impacts compared to the 2010 Original Plan, including an increase of 3.0 acres over the 2020 CPA. The additional wetland impacts are a result of the inclusion of stormwater treatment swales which are required by FDEP. The stormwater treatment swales would substantially decrease the runoff of pollutants and nutrients from the roadway into Everglades National Park along the entire ten miles of the project footprint. The change in slope to the southern bank of the swales would provide better slope stability without the use of rip-rap. The additional wetland impacts would be fully mitigated within Everglades National Park either at the Hole-In-The-Donut mitigation bank or by proposed onsite mitigation. The impacts are also anticipated to be offset by the improvements to the quality and quantity of water entering the northern boundary of the park. The current assessment of wetland impacts is consistent with the Wetlands Statement of Findings prepared for the 2010 FEIS.
- f. Eighteen threatened and endangered (T&E) species were evaluated in this analysis, with eleven that were newly listed and/or not evaluated in the 2010 FEIS. Only two of these previously evaluated species, the Wood stork (*Mycteria americana*) and the Florida panther (*Puma concolor coryi*) had *Likely to Adversely Affect* determinations. Since the wetland impacts under the Phase 2 final design are only slightly larger than the Original Plan, losses to T&E species habitat would be minimal, and this did not change the effect determinations.

- g. The cultural resource impacts to the Tamiami Trail roadway under the Phase 2 would be less than the Original Plan, since 2.8-miles of additional bridging would not occur. The proposed changes to the project will result in no new adverse effects to cultural resources. Adverse Effects for the project have been addressed in a Memorandum of Agreement to mitigate said adverse effects.
- h. Coordination with the Miccosukee Tribe has resulted in changes to the design at Osceola Camp, including removal of the left turn lane, the incorporation of a barrier wall to hold the roadway to the north, the addition of a second driveway, and raising the elevation of the camp's informal parking area. Ongoing coordination with the Tigertail Camp has resulted in no changes to the design analyzed in the 2020 CPA.
- i. The reconstructed roadway in the Phase 2 modified plan will improve roadway stability throughout its 100-year lifespan, can better withstand high water events, and the impacts of climate change. The Phase 2 project ensures a higher quality of life for rural and tribal communities, by providing long-term reliable access to economically and culturally important sites and improving the reliability of utility services to the Miccosukee Tribe and commercial and recreational sites along the Tamiami Trail

8. References

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