

Appendix E

Floodplains Statement of Findings



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National Park Service
U.S. Department of the Interior



Everglades National Park

Florida

**STATEMENT OF FINDINGS FOR EXECUTIVE ORDER 11988
(FLOODPLAIN MANAGEMENT)**

**TAMIAMI TRAIL MODIFICATIONS: NEXT STEPS
EVERGLADES NATIONAL PARK
OCTOBER 2010**

Recommended:

Dan Kimball, Superintendant, Everglades National Park

Date

Certified for Technical Accuracy and Servicewide Consistency:

Bill Jackson, Chief, Water Resources Division

Date

Approved:

David Vela, Southeast Regional Director

Date

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1.0 INTRODUCTION

Executive Order 11988, “Floodplain Management”, directs federal agencies to evaluate the impacts of federal actions within floodplains. The Order was issued “to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.” In addition it is National Park Service (NPS) policy, as described in Section 4.6.4 of the NPS *Management Policies 2006*, to manage floodplains for the preservation of floodplain values, to minimize potentially hazardous conditions associated with flooding, and to comply with the NPS Organic Act and all other federal laws and Executive Orders relating to management of floodplains. This Statement of Findings (SOF) is prepared in accordance with the guidelines found in NPS *Director’s Order #77-2 (Floodplain Management)* and serves to document the rationale for the proposed Tamiami Trail Modifications: Next Steps project and the anticipated effect the project will have on floodplain value and functions.

Everglades National Park (ENP) has prepared and made available an Environmental Impact Statement (EIS) for the proposed Tamiami Trail Modifications: Next Steps project. The project involves the bridging and roadway raising of approximately 10.7 miles of Tamiami Trail to allow increased surface flow water deliveries to central portions of ENP.

Modifications to Tamiami Trail are being proposed with the intent of meeting the following objectives:

- Restore more natural water flow to ENP
 - Construct additional bridging and road raising of the Tamiami Trail to provide for unconstrained flows to Northeast Shark River Slough and Florida Bay
- Restore ecological connectivity
 - Improve ecological connectivity by removing obstructions to sheet flow
 - Enhance unobstructed movement of animals between the north and south of Tamiami Trail
- Restore habitat within ENP
 - Restore slough vegetation and the deep water sloughs
 - Restore processes that produce and maintain ridge and slough communities in ENP east of the L-67 Extension

The project area is located in the 100-year regulatory floodplain (Base Floodplain) (See **Figure 1** at the end of this document) and is classified as a Class I Action pursuant to DO #77-2. Avoidance of impacts to floodplains is not possible because the entire project area is located within the 100-year floodplain.

2.0 SITE DESCRIPTION

The project area is a broad, low-lying, flat, floodplain with a variety of freshwater wetland habitat types. The natural floodplain values and functions in this area have been significantly altered by the construction of Tamiami Trail and water management features such as Water Conservation Area (WCA) 3A and 3B, and the L-29 Canal. Construction of these features within the floodplain have disrupted the distribution of natural flows of water to areas to the south and have caused shifts in the ecosystem towards habitats that tolerate less saturated conditions.

Wetlands found within the project area include mixed wetland hardwood – mixed shrubs, freshwater marsh-sawgrass, and freshwater marsh. Specific wetland habitats include:



- At several locations, flow from the Tamiami Trail culverts has formed ponds or open water (palustrine open water/emergent) wetlands (freshwater marsh).
- South of the ponds are palustrine forested or scrub-shrub wetland communities dominated by Carolina willow (*Salix caroliniana*) and pond apple (*Anona glabra*) (mixed wetland hardwoods – mixed shrub) also associated with flows from the culverts.
- Beyond the wetland forest vegetation is an expanse of palustrine emergent wetlands, dominated by sawgrass (*Cladium jamaicense*) and patches of cattails (*Typha latifolia*) on the northern edge of the sawgrass (freshwater marsh – sawgrass).

3.0 PROPOSED ACTION

Of the six alternatives analyzed in the Tamiami Trail Modifications: Next Steps EIS, Alternative 6e was identified as the Preferred Alternative as it provided for the maximum amount of bridging, thus maximizing potential water flows to the ENP while maintaining access to existing business and recreational facilities located along the project corridor. Under the Preferred Alternative, approximately 5.5 miles of bridges would be constructed and the remaining roadway within the project area would be elevated (See **Figure 2** at the end of this document) to allow for increased sheet flow of water to Northeast Shark River Slough and ENP with the expectation that increased water deliveries would enhance degraded wetland habitats south of Tamiami Trail.

The proposed modification of Tamiami Trail within the 100-year regulatory floodplain is classified as a Class I Action, according to Director's Order #77-2. Avoidance of impacts to floodplains is not possible because the entire project area and surrounding areas are located within the 100-year floodplain. Minimization of floodplain impacts are accomplished through the removal of 5.5 miles of roadway and the replacement with bridging, which will restore natural surface water flows and restore some natural floodplain functions that were lost with the original construction of the roadway.

4.0 JUSTIFICATION FOR THE USE OF FLOODPLAINS

The main purpose of the project is to increase surface water flows to Northeast Shark River Slough and Florida Bay. Deep water slough and freshwater marsh ecosystems within ENP have been negatively impacted by the restriction of natural water flow into the Park, in part because of the flow impediment presented by the construction of Tamiami Trail and upstream water management systems. Currently, water flow to ENP and the Northeast Shark River Slough system passes under Tamiami Trail through a series of culverts located along the 10.7-mile project corridor. Exacerbating the low flow conditions is the water operating levels within the C-29 Canal, which is kept at a level as to avoid damaging or overtopping Tamiami Trail. Construction of the proposed project will provide for bridging of portions of the roadway allowing for restored surface water flows to ENP, while raising of the unbridged roadbed will allow for implementation of an operational plan for increased water levels in the L-29 Canal which will allow for increased water delivery flows to ENP. Construction of the proposed project will also restore some floodplain values and functions that were lost with the original construction of Tamiami Trail.

5.0 INVESTIGATION OF ALTERNATE SITES

Investigation of alternate sites was not possible for this project. The project area is located in a large floodplain with no alternate sites available that would allow construction outside of the 100-year regulatory floodplain. Alternative analysis for this project focused on combinations of different lengths of bridging and construction access to private property along the 10.7-mile



project corridor. The Preferred Alternative, Alternative 6e, is the maximum bridging alternative and allows for 5.5 miles of the project corridor to be bridged.

No Action Alternative

The No-Action Alternative is authorized by the 2008 Limited Reevaluation Report (LRR) / Environmental Assessment (EA) and consists of a 1-mile eastern bridge and elevation of the remaining roadway to allow for 8.5 feet stages in the L-29 Canal.

Action Alternatives

All of the following action alternatives assume the 1-mile eastern bridge (2008 LRR/EA) has been constructed. The lengths of the bridges, transition areas between the bridges and the roadway, and the roadway are separated in the descriptions.

Alternative 1

This alternative includes 4 bridges (for a total of 2.2 miles of bridges): a 0.56-mile bridge (Bridge A1) located between the Osceola Camp and the Lincoln Financial Radio Tower; a 0.45-mile (Bridge B1) located between the Lincoln Financial Radio Tower and Everglades Safari Park facility; a 0.51-mile bridge (Bridge C1) located between the Everglades Safari Park facility and Frog City; a 0.38-mile bridge (Bridge E1) located between Frog City and Gator Park; and a 0.26 ConSpan (ConSpan H1) located just west of Coopertown, at control structure S-355B. The bridges and ConSpan would create a conveyance opening through Tamiami Trail by removing the sections of the existing highway and embankment. Bridges would be constructed approximately 50 feet south of the existing roadway right-of-way to maintain motor vehicle traffic during bridge construction. The remaining highway embankment (approximately 4.99 miles) would be reconstructed to raise the crown elevation to 13.13 feet.

Alternative 2a

The bridge configurations include: (1) a 0.56 mile bridge located between the Osceola Camp and the Lincoln Financial Radio Tower, (2) a 0.45 mile bridge located between the Lincoln Financial Radio Tower and Everglades Safari Park, (3) a 0.51 mile bridge located between Everglades Safari Park and the Airboat Association, (4) a 0.38 mile bridge located the Airboat Association and the Tiger Tail Camp, (5) a 0.26 mile ConSpan located between the Coopertown facility and the Salem Communications radio tower, (6) a 0.53 bridge located between the Salem Communications radio tower and the existing one-mile bridge and , (7) a 0.66 mile bridge located between the existing 1-mile bridge and the S-334 structure.

Alternative 2a would involve creating conveyance openings through Tamiami Trail by removing 3.3 miles of the existing highway and embankment. Bridges would be constructed approximately 50 feet south of the existing roadway right-of-way to maintain motor vehicle traffic during bridge construction. The remaining highway embankment would be reconstructed to raise the crown elevation to 13.13 feet.

Alternative 4

This alternative includes 2 bridges: A1 and B1 (for a total of 1.0 mile), as described for Alternative 1. The bridges would create a conveyance opening through Tamiami Trail by removing the sections of the existing highway and embankment. Bridges would be constructed approximately 50 feet south of the existing roadway right-of-way to maintain motor vehicle traffic during bridge construction. The remaining highway embankment (approximately 7.80 miles) would be reconstructed to raise the crown elevation to 13.13 feet.



Alternative 5

Alternative 5 consists of 3 bridges; bridges A1, B1, and C1 (for a total of 1.5 miles) as described for Alternative 1. The bridges would create a conveyance opening through Tamiami Trail by removing the sections of the existing highway and embankment. Bridges would be constructed approximately 50 feet south of the existing roadway right-of-way to maintain motor vehicle traffic during bridge construction. The remaining highway embankment (approximately 6.57 miles) would be reconstructed to raise the crown elevation to 13.13 feet.

Alternative 6e (Preferred Alternative)

Alternative 6e is the maximum bridging option and consist of 5.5 miles of bridges and elevating the remaining roadway. The bridge configurations include: (1) a 2.60 mile bridge located between the Osceola Camp and the Airboat Association, (2) a 0.4 mile bridge located between the Airboat Association and the Tiger Tail Camp, (3) a 1.8 mile bridge located between the Tiger Tail Camp and the existing one-mile bridge, and (4) a 0.7 mile bridge located between the existing 1-mile bridge and the S-334 structure. Bridges would be constructed approximately 50 feet south of the existing roadway right-of-way to maintain motor vehicle traffic during bridge construction and avoid impacts to infrastructure north of the project area. The remaining highway embankment would be reconstructed to raise the crown elevation to 13.13 feet.

6.0 IMPACTS TO FLOODPLAINS VALUES AND FUNCTIONS

Construction of Preferred Alternative 6e would result in short-term impacts to the 100-year floodplain. Impacts would include excavation of wetlands, filling within wetlands, and piling driving of bridge footers. Total wetland impacts within the 100-year floodplain associated with the Preferred Alternative are 89.2 acres, including 49.2 acres of permanent impacts and 40.0 acres of temporary impacts. Compared with the No-Action alternative, approximately 5.5 miles of additional bridge opening would be created along the 10.7-mile project corridor, thus providing an overall benefit to floodplain value and function by providing additional capacity for the floodplain to convey storm and flood flows. The proposed project is self-mitigating in that it is correcting detrimental impacts that the construction of the existing Tamiami Trail had to floodplain values and functions. Short-term impacts to floodplain functions and values associated with project construction will be adverse, moderate, and localized. However, long-term benefits associated with the proposed project will be beneficial, moderate, and regional.

7.0 MINIMIZATION OF HARM OR RISKS TO LIFE AND PROPERTY

Mitigation would be provided by incorporating methods for protecting human safety and protection of investment. Minimization of harm or risk to life and property is accomplished by raising the roadbed to account for future increases in the operating levels of the C-29 Canal. When accounting for future water level operations the possibility of storm flows and flood levels is also taken into account when calculating the new base road height. The South Florida Water Management District (SFWMD) operates water control structures adjacent to the project area and controls water levels to avoid flooding. Prior to anticipated large rainfall events such as tropical storms and hurricanes SFWMD will release water from their system to avoid widespread flooding. Additionally, the new bridge heights will be calculated as to not impede 100-year storm flows. The new road and bridges will be constructed to Federal Highway Administration and Florida Department of Transportation safety standards.

8.0 CONCLUSION

There is no practical alternative to the construction of the proposed project within the 100-year regulatory floodplain. The Preferred Alternative would mitigate past negative impacts to floodplain values and functions and allow for increased conveyance of storm and flood events.



Additionally, if an anticipated operational plan for increase water levels within the L-29 Canal is implemented, the project will allow for enhancement of wetland habitats within Northeast Shark River Slough and ENP. Mitigation and compliance with regulations and policies to prevent negative impacts to floodplains and other environmental values as well as loss of property or human life would be strictly adhered to during construction. Individual permits with other federal and cooperating state and local agencies would be obtained prior to commencing construction. No long-term adverse impacts to floodplains would occur from implementing the Preferred Alternative. Therefore, the National Park Service finds the Preferred Alternative to be acceptable under Executive Order 11988 for the protection of floodplains.



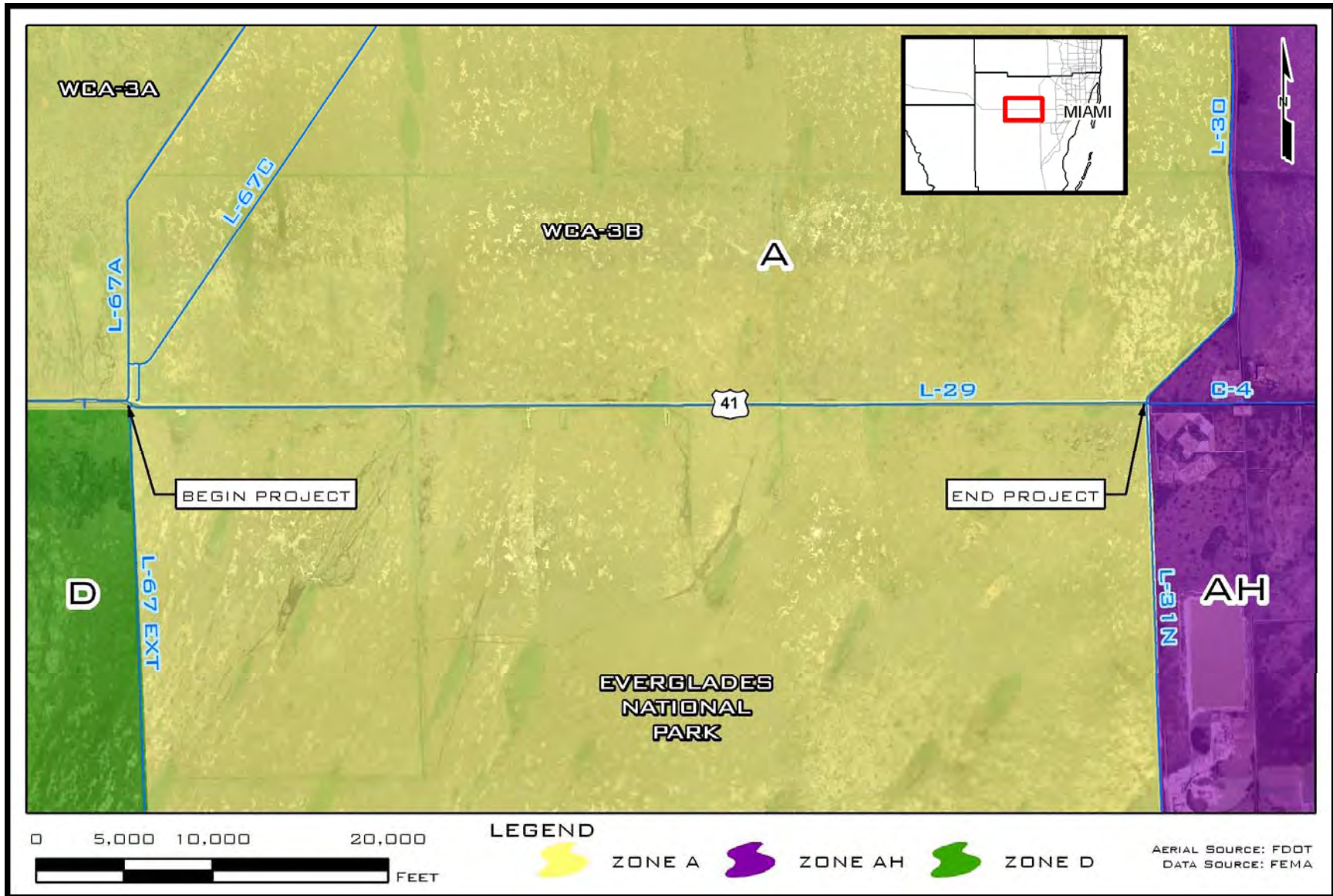


Figure 1 – Floodplain Map



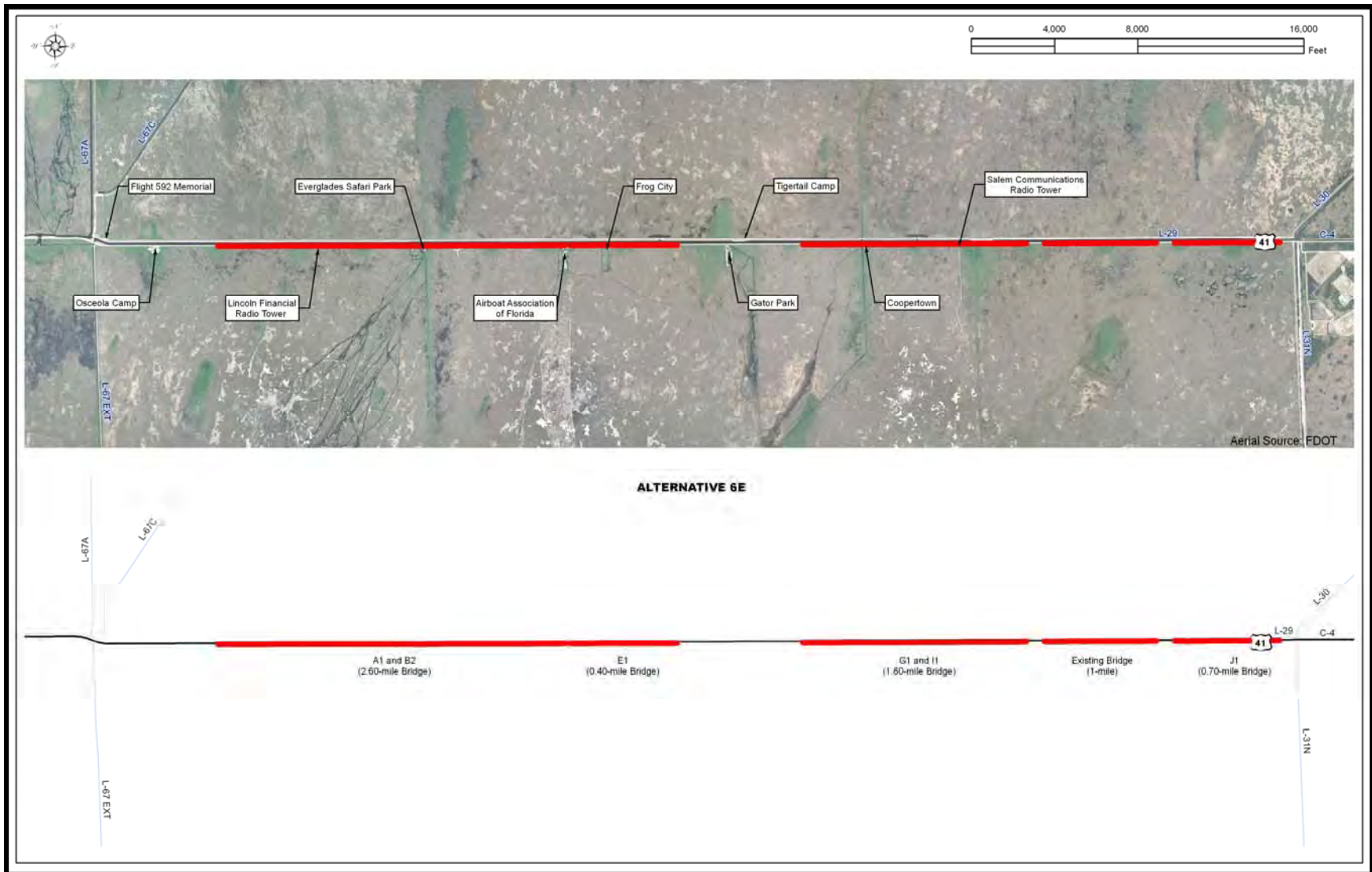


Figure 2 – Preferred Alternative 6e





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

NPS October 2008