

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers, and the Department of the Interior, represented by the National Park Service and the U.S. Fish and Wildlife Service, have re-evaluated alternatives to restore Everglades National Park (ENP) by redistributing and providing additional flows of water into the Park through U.S. 41, Tamiami Trail.

After reviewing Congressional directives and targets, all previous reports, and previous and new alternatives and costs, the agencies tentatively recommend a plan consisting of two actions: 1) build a one-mile long bridge in the project area's eastern segment and 2) raise the headwater stage constraint in the L-29 borrow Canal by 1 foot to 8.5 feet; which will require road mitigation on parts of U.S. 41 in the action area, located between S-333 on the west and S-334 on the east. This tentatively selected plan is called Alternative 3.2.2.a.

The tentatively selected plan's cost estimate is **\$225.4 million**. It would allow one-in ten year wet season flows in excess of 1,400 cubic feet per second (cfs), would improve connectivity, reduce sharp flow velocity changes, and improve rainy season depth and duration which are hydrologic conditions needed to sustain slough vegetation in ENP. It would provide nearly double the hydrological and habitat benefits as lower cost plans and could begin construction in late Fiscal Year 2008. Since the bridge segment is part of the 2005 Revised General Reevaluation Report (RGRR) recommended plan, it will be compatible with anticipated Comprehensive Everglades Restoration Plan (CERP) stages of up to 9.7 feet. The Limited Reevaluation Report (LRR) tentatively selected plan also provides compatibility with future changes under CERP, as the bridged segment will not require rebuilding. None of the plans evaluated except the 10.7-mile bridge (Alternative 4.2.4) and the "Blue Shanty" (Alternatives 5.3 and 5.4) plans appeared capable of accommodating flows of 4,000 cfs. Although 4,000 cfs flows are only expected under infrequent, high rainfall events, flows up to 4,000 cfs are important for positive ecological response. These three plans capable of accommodating 4,000 cfs flows were eliminated from consideration due to cost.

Background The Everglades National Park Protection and Expansion Act, December 1989, authorized the Secretary of the Army to improve water deliveries to ENP and to take steps to restore natural hydrologic conditions to the extent practicable. The General Design Memorandum (GDM) called for in the Act was completed in June 1992. The 1992 GDM and Environmental Impact Statement (EIS) recommended transfer of water into the park from WCA 3B to the L-29 Canal, and assumed that the existing culverts under Tamiami Trail (U.S. 41) roadway would be adequate to convey the water. Later hydrologic analyses revealed that the higher stage in L-29 Canal required for the culverts to convey the increased flows

could adversely affect the structure of Tamiami Trail and cause progressive road failure under infrequent storm conditions.

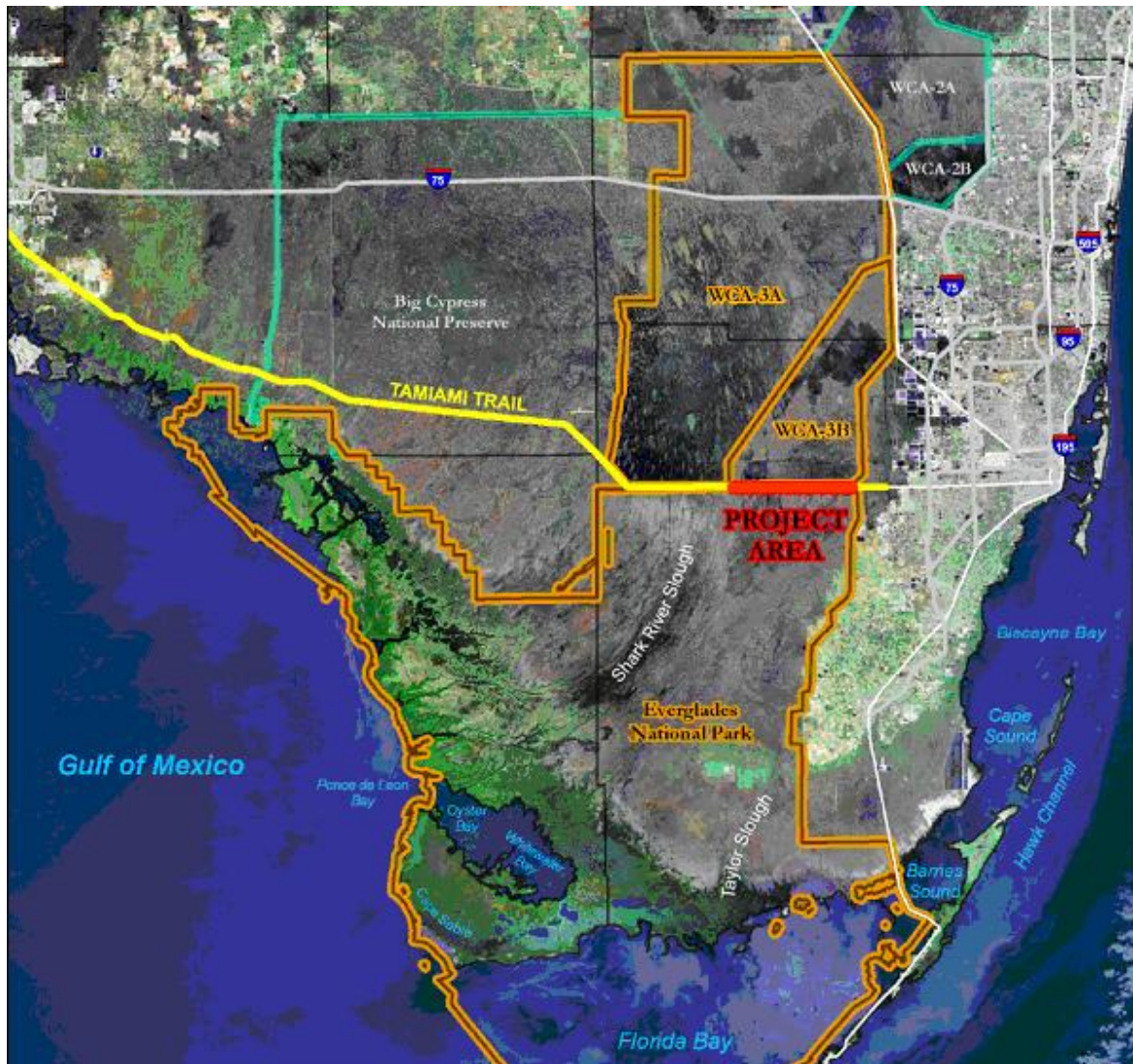


Figure ES-1. Project and Study Area Location

The Project area includes all of Tamiami Trail between S-334 on the east and S-333 on the west.

Alternative means for water conveyance were first evaluated in a General Reevaluation Report and Supplemental Environmental Impact Statement (GRR/SEIS), the final version of which was coordinated with the public in 2003. The 2003 Preferred Plan was a 3,000 foot bridge, raising of the un-bridged roadway segment and a proposed agreement to pay compensation to Florida Department of Transportation for a flowage easement along the unbridged portion of Tamiami Trail. State concerns regarding probable damage to Tamiami Trail were raised prior to, during and subsequent to the public and agency review of the final report, and the Final GRR/SEIS was withdrawn without a signed Record of Decision.

In 2005, a revision of the GRR examined additional alternatives. Nine alternatives and no-action were considered, including the previously considered 3,000 foot long bridge. All alternatives would convey increased flows associated with Modified Water Deliveries. All would involve removal of the roadway in the footprint of the bridges and the reconstruction, with an asphalt overlay, of the unbridged portion of the road.

The 2005 RGRR Alternatives were as follows:

- No-Action
- Alternative 9 3,000 foot long bridge
- Alternative 10 Four Mile long bridge in the central region of the project area
- Alternative 11 Four mile long bridge at the eastern end of the project area.
- Alternative 12 Three mile long bridge.
- Alternative 13 Two mile long bridge.
- Alternative 14 Two mile long bridge at the western region of the project area and a one-mile long bridge at the eastern end.
- Alternative 15. 1.3 mile long bridge at the western region of the project area and a 0.7 mile long bridge at the eastern end.
- Alternative 16 Three 3,000 foot long bridges
- Alternative 17 10.7 mile long elevated roadway within the existing right of way.

All 2005 alternatives incorporated a design high water of 9.7 feet. Alternatives were evaluated by an interdisciplinary team based on their ability to meet targets for hydrologic and ecologic performance measures.

2005 RGRR Recommended Plan. The 2005 Recommended Plan was Alternative 14 (Raised road profile with two mile bridge west and one mile east). Total project cost was estimated at approximately \$144 million dollars. After public coordination of a Draft and Final GRR/SEIS, and consideration of all comments from agencies, stakeholders and the public, a Record of Decision selecting Alternative 14 was signed on January 25, 2006. The proposed project was sent to Congress for consideration in the FY 2007 budget.

Congressional Consideration of 2005 RGRR Plan; 2007 “Managers’ Language” When the 2005 RGRR plan was approved in 2006 by the Assistant Secretary of the Army for Civil Works, early Pre-construction Engineering and Design work led to refinement of the total cost estimates for Alternative 14. By the time Congress considered the Tamiami Trail Modifications for inclusion into the authorizing language in the 2007 Water Resources Development Act in early summer of 2007, revised and more detailed cost estimates for the plan, plus newly

required cost risk analysis, put the cost at **\$305 million**. Congressional “managers” developing WRDA 2007 expressed dismay at the relatively rapid cost increase and high cost of the 2005 RGR plan; and directed proponents in the Department of the Interior and Corps to re-evaluate the 2005 Plan as well as developing less costly alternatives. That direction is the basis for this LRR. The cooperating agencies were directed to:

“Re-examine options to modify the water deliveries to the Park. However, the managers also direct the Chief of Engineers to pursue immediate steps to increase flows to the Park of at least 1,400 cubic feet per second, without significantly increasing the risk of roadbed failure. Flows less than 1,400 cubic feet per second will not produce measurable benefits to the Park...”

“...The managers direct the Chief of Engineers to re-examine the prior reports and environmental documentation associated with modifying water deliveries to the Park prepared under the 1989 Act, and to evaluate the practicable alternatives for increasing the flow of water under the highway and into the Park. The recommendations...shall, to the extent practicable, take steps to restore the natural hydrological conditions within the Park. The managers direct that the flows to the Park have a minimum target of 4,000 cubic feet per second so as to address the restoration envisioned in the 1989 Act.”

This report re-evaluated the most likely cost of Alternative 14, as directed. After applying cost-risk considerations as required by Corps planning guidance implemented beginning in September 2007, the current estimated cost of RGR Alternative 14 (Alt 4.2.3 in the LRR) was **\$452 million** after all reasonable cost saving measures were applied.

The team examined 27 options including no-action and the 2005 RGR plan. The actions included raising the road only (in 6” increments up to 9.7 feet), doubling the number of culverts alone, adding a bridge only (at two different locations), and various combinations of road raising and culverts or road raising and bridges. Alternatives that were more costly than Alternative 14 from the RGR were not re-evaluated, as the team felt that they would be even more expensive than the previously selected plan. Each alternative was examined for hydrologic performance (flow volume and flow velocity) and ecologic performance. They were compared against the targets set by the Managers’ language, and against cost constraints. Finally, they were evaluated in terms of how quickly they could be carried to construction start.

The team’s analysis quickly eliminated road raising only alternatives, as they did not provide better velocity distributions of flow than under no-action. Likewise, culvert-only alternatives were eliminated for similarly poor performance, and were less efficient than bridge alternatives (at each stage constraint) in increasing

average and peak flow delivery to the Park. Four final alternatives and no-action were carried forward for evaluation according to the Corps of Engineers' criteria of completeness, efficiency, effectiveness and acceptability. All plans retained for detailed screening provided significant improvements in both hydrological and ecological performance. The best performing and most cost-effective plan is Alternative 3.2.2.a, which combines a one-mile bridge in the eastern location with raising the stage constraint at L-29 by one foot, to 8.5 feet, and providing road mitigation to this level. Alternative 3.2.2a provides flow benefits to meet the Managers' language, nearly doubles the ecosystem performance outputs compared to no action, and is forward compatible with future CERP improvements. Alternative 3.2.2a could begin construction, if approved by Congress, this year and is expected to be complete by the end of 2011. Cost for 3.2.2a, the tentatively selected plan, is **\$225.4 million**. This estimate includes risk and uncertainties at the 90 percent confidence level, as well as expected cost escalation to the midpoint of construction. This confidence indicates that there is 90 percent chance that the final cost for this project (at FY-08 pricing levels) will be equal to **or less** than this estimate.

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