

6.0 TENTATIVELY SELECTED PLAN

Based on the limited reevaluation and the review of all existing data and reports concerning the Tamiami Trail Modifications, Alternative 3.2.2a, Raise Canal Stage to 8.5 Feet and Construct a One-Mile Eastern Conveyance Opening, is tentatively recommended for implementation under the MWD authorization (*Figure 6-1*).

As part of the tentatively selected plan (TSP), the federal government would acquire certain real estate rights from FDOT allowing for the conveyance of water as part of the Tamiami Trail project. In order to obtain the perpetual rights to flow water, FDOT would receive compensation. These rights include both a perpetual channel improvement and perpetual flowage easement interests. The channel improvement easement includes conveyance of water for a one-mile-wide stretch of land. Due to the fact that there is an existing roadway at that location, the USACE would construct a one-mile bridge that would act as a replacement to the existing Tamiami Trail roadway. In addition, the flowage easement allows for the legal right to flow higher levels of water through and under the property now occupied by the existing Tamiami Trail for the entire expanse of the project area. Placing higher water levels in the L-29 Canal would adversely impact the existing roadway. As such, portions of the roadway would require reinforcing the road and road base to avoid degradation of the road as a result of the higher water stages. Under Substitute Facilities Doctrine, compensation for these real estate rights is based on the cost of a substitute or replacement of the facility that would be lost. Therefore, the USACE would construct a one-mile long bridge with approaches as compensation for the loss of the existing Tamiami Trail roadway due to the construction of the channel, and compensation would also be provided to preclude potential damages to the remaining highway resulting from increased stages in the L-29 Canal.

Descriptions of the TSP and its features are provided in the paragraphs below.

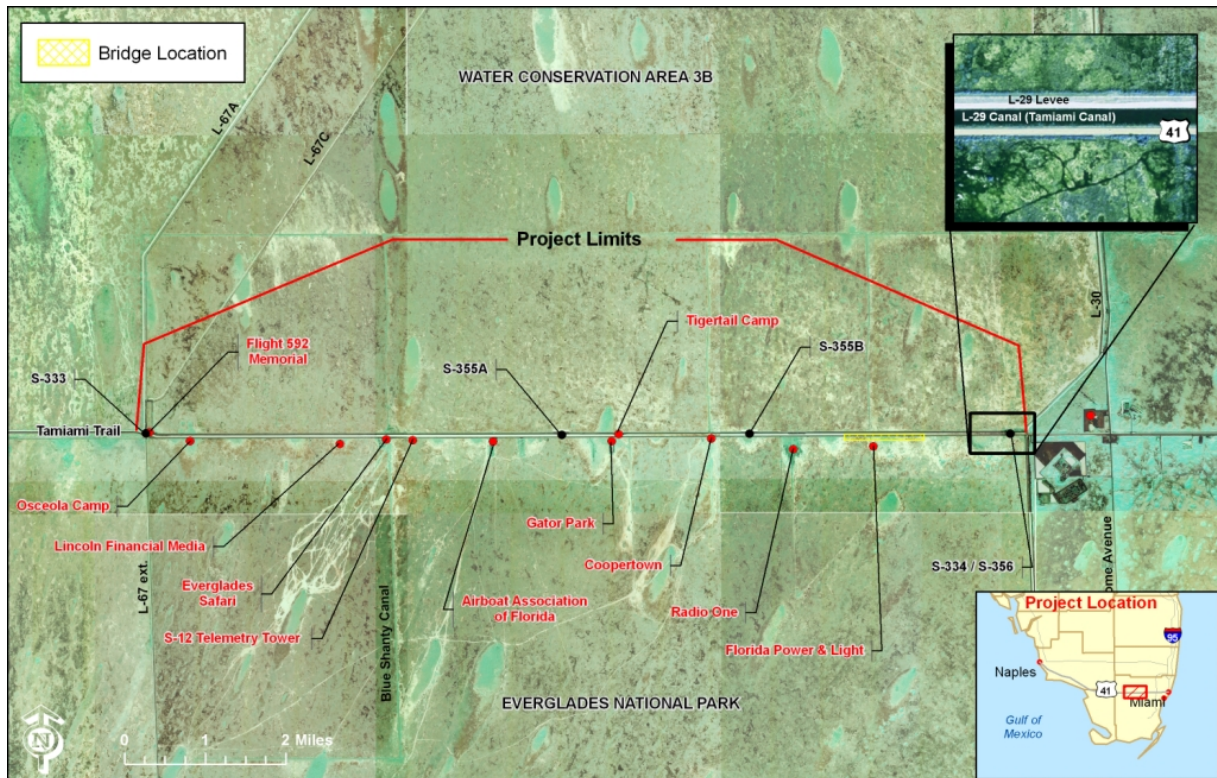


FIGURE 6-1: LOCATION OF THE TENTATIVELY SELECTED PLAN

6.1 Modifications

6.1.1 Conveyance

The TSP would enable hydraulic conveyance through Tamiami Trail by removing one mile of the existing highway, embankment, and associated culverts. This would allow one mile of connectivity between the L-29 Canal and ENP. A one-mile eastern bridge, coupled with an increased stage of 8.5 feet, would increase annual flow volumes by about 92 percent, to 339,703 acre-feet per year; peak flows would increase by about 48 percent, to 1,848 cfs. Additionally, conveyance over the remainder of Tamiami Trail would be provided through the use of the existing and improved culverts.

6.1.2 One-Mile Eastern Bridge (Location, Length, Height, Remove Culverts, Travel Lane Widths)

A one-mile bridge would be constructed as compensation to FDOT for the real estate rights to remove the one-mile of Tamiami Trail and maintain motor vehicle traffic. The bridge would start approximately 3,000 feet east of Radio One and end about one mile west of S-334 (*Figure 6-1*). After completion of bridge construction, the unneeded portion of the highway embankment would be removed. The bridge would provide two 12-foot-wide travel lanes with 10-foot shoulders and outside barriers.

The existing highway would require a transition from the existing alignment to the bridge. The transitions to the bridge would have five feet paved shoulder and five feet of grassed shoulder. Guardrails would be located at the outside edges of these shoulders. The profile would be raised significantly for transitioning to the bridge and would be established per applicable drift, maintenance, and navigation bridge clearances, while minimizing humps in the profile. The low cord of the bridge would be at 14.75 feet NGVD.

6.1.3 Raise Canal Stage to 8.5 feet NGVD

Implementing Alternative 3.2.2.a would include raising the stage constraint in the L-29 canal to 8.5 feet. This is one foot above the existing operating stage. This increase in the stage elevation, coupled with improved hydraulic conveyance under the bridge, would enable the 92 percent increase in average annual flow volume and 48 percent increase of peak flow capacity as mentioned above.

6.1.4 Highway Modification

During their construction of Tamiami Trail, FDOT placed culverts underneath the roadway. The federal government may not have the legal right to flow water under the road in a manner consistent with the needs of this project. Therefore, it is prudent for the federal government to acquire a flowage easement over the full length of the project lands. For this project, it is necessary to increase the water elevation north of Tamiami Trail in order to flow more water to the south underneath the road. This increase of the L-29 Canal stage is expected to adversely affect Tamiami Trail. In a case such as this, the USACE must conduct a facility relocation. This type of transaction is in actuality an acquisition of an interest in real estate. In the present case, the federal government may either purchase a flowage easement whereby the just compensation for this real estate interest would itself be the compensation paid to FDOT to allow them to make the necessary reinforcements to their road. Alternatively, the USACE could make the road reinforcements in exchange for the flowage easement. In the latter situation, no money would be exchanged between the USACE and FDOT. The USACE would construct the road reinforcement according to FDOT standards and turn over the operation and maintenance of the road to FDOT while FDOT would execute a flowage easement document to the USACE. The road, as repaired, then becomes known as the substitute facility.

6.1.5 Access to Existing Facilities/Sites

Access to all facilities and sites along Tamiami Trail would be maintained.

6.1.6 Drainage/Treatment of Stormwater Runoff

The grassed shoulders directly adjacent to the existing roadway provide some limited treatment of highway runoff.

The proposed bridge would increase the total impervious surface area (within the bridge footprint), but would have no practicable means of providing grassed shoulders or traditional swales for treatment of stormwater. Therefore, it would be necessary to provide a means to collect and trap contaminants from stormwater runoff (treatment of first flush) from the proposed bridge prior to discharge. There are a number of best management practices sediment removal technologies on the market that would target removal of sediments and gross pollutants from stormwater runoff while minimizing wetland impacts. The USACE, in coordination with FDEP and FDOT, in order to meet state water quality standards and FDOT safety standards, has agreed to incorporate into the bridge design a treatment system that removes sediments and hydrocarbons from stormwater runoff as well as complying with the FDOT standard of routing water off of the traffic lanes. The new bridge deck would include drains that connect to a drainage collection and distribution system that would subsequently connect to separator units. Roadway and bridge specifications would continue to be coordinated with FDEP and FDOT as they are developed to ensure all mandatory requirements of the FDOT and FDEP are met in the final design.

6.1.7 Utilities

The placement of utilities within the highway right-of-way is through permits issued to utility companies by FDOT. Utilities within the corridor that may be affected by the new construction include buried telephone facilities beyond the guardrails north and south of the roadway, fiber optic cables, and a 23 kilovolt overhead electric line about 100 feet south of the guardrail. All utilities within the bridge and transitions would require relocation. The utilities on the roadway may require relocation, depending on the change in the shoulder width. Utility relocations would be coordinated with each utility owner.

6.1.8 Maintenance of Traffic during Construction

Existing traffic flow would be maintained except during paving operations with one lane of travel in each direction. During paving operations, the travel would have to be one lane only with flag men at either end. This would be due to the work being done in the existing foot print of the existing roadway. The overlay of the existing roadway would be accomplished using a moving operation. For the proposed bridge, the existing traffic would be shifted to the northern shoulder to provide the necessary area for construction.

6.1.9 Real Estate

The Federal Government would require real estate rights in order to create a conveyance channel through Tamiami Trail, raise water levels in the L-29 Canal, and flow additional water through and under Tamiami Trail utilizing existing and improved culverts to NESRS.

The Federal Government would obtain real estate rights along the entire 10.7-mile project area from FDOT through a relocation agreement. The agreement would provide real estate rights for: temporary construction easement, perpetual flowage easement, and channel improvement easement. The compensation to the FDOT for these real estate rights would be a substitute facility—the construction of a bridge and payment for or construction of roadway modifications as needed to mitigate for increased water levels.

It would be necessary to acquire real estate interests from FP&L for lands on which the project would be constructed. Efforts are currently under way to obtain an easement for FP&L lands that are needed for the construction of the bridge. Approximately 0.44 acres would be needed for a permanent construction easement and an additional 0.44 acres needed for a temporary construction easement.

Flowage easements are also required from the private parcels located along Tamiami Trail before the higher water stages can be implemented. There are six remaining privately owned parcels located along the Tamiami Trail that are authorized for acquisition by DOI as part of the Everglades National Park Protection and Expansion Act (PL 101-229). Funding and the responsibility for these acquisitions are strictly borne by ENP, hence the costs for those acquisitions are not included in this report. Under the Expansion Act, these properties were included within the ENP boundary map that was established by Congress; therefore, the Park is responsible for acquisition of those properties.

A flowage easement is required for the Airboat Association of Florida. This property was explicitly excluded from acquisition under the Expansion Act. Acquisition of this easement is a Tamiami Trail Modifications project action and cost.

Real estate requirements and issues are discussed in detail in the Real Estate Appendix (Appendix F).

6.2 Implementation

The following steps would take place prior to full implementation of the selected plan:

6.2.1 National Environmental Policy Act Compliance

This LRR incorporates information contained in the November 2005 Revised General Reevaluation Report and Supplemental EIS (RGRR/SEIS) by reference, and is considered to be tiered off the referenced EIS. To comply with the NEPA process, the formal public comment period for the Draft LRR-EA would be 30 days, during which a public meeting would be held. Additionally, the documents would be posted on the Jacksonville District, USACE Environmental website

during the comment period. After the close of the comment period Draft LRR-EA, a Finding of No Significant Impact (FONSI) would be issued. The non-Federal sponsor would present the LRR-EA to the SFWMD Governing Board, which is expected to issue a letter indicating support if the project is accepted.

The ENP is a cooperating agency under NEPA. An official letter inviting SFWMD, FWS, U.S. Environmental Protection Agency (USEPA), ENP, FWC and FDEP to be cooperating agencies (as defined by NEPA) was sent in March 2008. These agencies were chosen because of their special expertise in the area. The selection of these agencies to be invited as cooperating agencies does not exclude any other agencies from full participation in the project. None of these agencies has responded to be a cooperating agency at this time.

6.2.2 Preconstruction Engineering and Design

It is anticipated that the PED of the project would be completed by September 2008.

6.2.3 Land Management Agreement

Prior to SFWMD executing a PCA amendment with USACE, DOI and SFWMD must reach an agreement on how to manage the project features where such features extend into lands owned by the ENP. The executed agreement may be an attachment to the PCA Amendment executed by SFWMD and USACE. SFWMD has also requested that USACE become signatory to this agreement.

6.2.4 Project Cooperation Agreement Amendment

A PCA Amendment would be required between the USACE and the non-federal sponsor, SFWMD. The PCA is a legally binding document between the Federal Government and the non-federal sponsor identifying the sponsor's duties and obligations for this project. The SFWMD is the project sponsor and represents local interests.

6.2.5 Highway Easement Deed

In order to construct the one mile bridge, the project requires one hundred feet of land (50 feet permanent and 50 feet temporarily for construction) south of Tamiami Trail for the one mile width of the site of the bridge from the DOI. One legal mechanism for DOI to convey these parklands is by means of a Highway Easement Deed (HED). The DOI would consent to the deeding of these ENP lands by the Federal Highway Administration (FHWA) to FDOT since these lands are required for the construction, operation, and maintenance of the project. The HED would be negotiated by DOI, FHWA, FDOT, SFWMD and USACE. In addition to conveying the rights necessary for the construction and operation, maintenance, repair, replace and rehabilitation of the highway (i.e., the bridge), this HED would also contain a perpetual channel improvement

easement and perpetual flowage easement. These additional rights would then allow for the construction, operation, maintenance, repair, replace and rehabilitation of a channel underneath the bridge and also allow for the flow of water through the channel. As the only grantee to the HED, all of these rights would then issue only to FDOT at this point. The HED is merely a temporary solution for transferring these lands to the state. It is the overall intention of DOI to seek specific legislation from Congress to convey the lands contained in this HED over to the state in fee.

6.2.6 Relocation Agreement

The USACE, not being a party to the HED conveyance, would not have the legal right to enter upon the property of FDOT. Therefore, the USACE will acquire the real estate interests contained in the HED through a separate agreement with FDOT. This separate document is the relocation agreement. The real estate rights that will be obtained in this agreement include 1.) the right to enter onto FDOT lands to construct features and modify the existing roadway; 2.) a channel improvement easement at the location of the bridge; and 3.) a flowage easement for the entire expanse of the roadway within the project limits. This flowage easement allows the USACE to flow water through/under the Tamiami Trail utilizing the existing and any improved culverts as well as the area underneath the bridge. As part of the project, water levels in L-29 Canal will be raised 1.0 feet to introduce more water into ENP. As compensation for the conveyance of these three real estate rights, FDOT will receive a newly constructed one mile bridge to replace removal of one mile of existing roadway that is required as part of the channel improvement easement. In addition, FDOT will receive the raising of portions of lower lying roadway in order to offset the adverse impacts due to raised water levels in L-29 Canal as part of the USACE' acquisition of 10.7 miles of land covered by the flowage easement. The USACE will not only acquire rights to FDOT-owned lands by this relocation agreement but will also receive rights to those lands that FDOT obtained under the HED from DOI/FHWA cited above.

6.2.7 Real Estate

It would be necessary to acquire real estate interests for lands on which the project would be constructed. In addition to the lands required for construction, it would be necessary to purchase real estate interests in tracts due to increased water levels. DOI, FDOT, and private landowners own or hold interests in lands required for the project.

6.2.8 Construction Duration

Construction is scheduled to begin in October 2008. It is anticipated that construction would be completed in three years.

6.3 Cost

6.3.1 Project Costs

The first costs for the Tamiami Trail items tentatively recommended under the MWD authority are shown in **Table 6-1** and are the 90 percent confidence level cost estimates. This confidence level means that there is a 90 percent chance that the final cost for this project would be equal to **or less than** the cost shown. The risk and uncertainty analysis was calculated for the total construction cost; thus the distribution of risk across the project elements is approximate. The entries in this table assume that the cost savings features are implemented and that the agreements among agencies necessary for these cost savings are signed executed. The savings features are listed below. Inability to implement all of these cost saving options would result in a higher cost of the project.

- a. Per the FDOT Pavement Design Manual, the following road reinforcement plan is estimated for 8.5 feet high water elevation:
 - i. For roadway with crown greater than 11.91 feet NGVD, mill road three inches (3") and replace with three inches (3") of asphalt
 - ii. For roadway with crown elevation between 10.91 feet and 11.91 feet NGVD, mill road three inches (3") and replace with five inches (5") of asphalt
 - iii. For roadway crown elevation less than 10.91 feet NGVD, mill down existing pavement until it is one foot above design high water. Then add asphalt base and structural course according to the FDOT design manual.
- b. Use temporary rights-of-way and staging areas within the ENP property
- c. Design optimizations along the bridge
- d. Use fill from nearby SFWMD storage areas
- e. Accelerate the award of construction contract(s) by one year, with award in late 2008 instead of late 2009

TABLE 6-1: MWD TAMIAMI TRAIL MODIFICATION COSTS

ITEM	Cost Estimate Including Cost Saving Options
Construction	
Bridge	\$133,100,000
Bridge - Transitions	\$13,600,000
Bridge - Remove Old Roadway	\$3,800,000
Road Modifications	\$33,100,000
Other (Maintenance of Traffic, Mobilization)	\$29,800,000
Construction Subtotal	\$154,800,000
Engineering During Construction	\$3,100,000
Contract Administration	\$13,200,000
Lands And Damages	\$5,900,000
TOTAL	\$177,000,000

The risk and uncertainty analysis was calculated for the total construction cost; thus the distribution of risk across the project elements is approximate.

Table 6-1 does not include an entry for Preconstruction Engineering and Design. The Jacksonville District has already been funded for PED costs through September 2008, and PED is expected to be complete by that date. The total estimated first cost is \$177,000,000. The fully funded cost estimate is \$225,100,000, with the escalation to the midpoint of construction based on an award date of October 2008 and 3-year construction duration.

6.3.2 Cost Sharing

Recent cost sharing for the MWD project has been 50/50 USACE/DOI funding. The proposed funding breakdown is shown in *Table 6-2*. The Managers' Report for WRDA 2007 states that arrangements for sharing of costs between Army and Interior be prospective only. Thus this proposed cost sharing between the Federal agencies may be changed with additional budgetary guidance. The State of Florida, through the Florida Department of Transportation, has verbally agreed to provide \$4,500,000 to the project.

TABLE 6-2: MWD TAMIAMMI TRAIL COST-SHARING

ITEM	Cost
USACE	\$86,250,000
DOI	\$86,250,000
FDOT	\$4,500,000
Total	\$177,000,000

Because roadway construction is not a major part of the USACE construction authority, it is suggested that both the USACE and DOI investigate contributions from other partners to reduce the overall project costs.

Actions that may be implemented in the future under CERP would be cost-shared 50/50 USACE/SFWMD.

6.3.3 Budgeting

The stage increase and the conveyance increase are both necessary to achieve the restoration benefits of the project. The benefits would not be achieved if only one were completed. It is expected that the funds for the entire estimated cost of the project would not be available at the start of construction, but would be budgeted and appropriated over several years. The cost estimate and construction schedule assume an October 2008 start and further assume that funding in future years would be available so that construction actions would not be delayed.

An adaptive management approach has been developed, in conjunction with the Incremental Adaptive Management concept developed by the NAS in 2006. A monitoring program would be developed to test water deliveries and the vegetation response within Shark River Slough. The results of this monitoring would be used to inform the requirements for CERP implementation.

6.4 Operation, Maintenance, Repair, Rehabilitation and Replacement

The conveyance features system would continue to be operated and maintained as part of the C&SF project by the SFWMD and USACE. The SFWMD would be responsible for the operation, maintenance, repair, replace and rehabilitation (OMRR&R) of the conveyance area and the culverts as part of the project cost-sharing agreement. Other SFWMD responsibilities include cost-sharing, records maintenance, and assisting in managing the project in a manner consistent with applicable Federal and State laws and regulations, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC 9601-9675.

Annual OMRR&R costs for the conveyance are expected to be \$30,000.

FDOT would be responsible for maintaining the pollution abatement system, bridges, and roadway since these substitute facilities are compensation to FDOT for real estate rights rather than project features. OMRR&R of these facilities is not a Tamiami Trail Modifications project cost.

6.5 Additional Considerations

6.5.1 Systems/Watershed Context

The project has been developed in conjunction with the initiatives underway within CERP and the rest of the south Florida ecosystem. The implementation of the MWD plan is a first step in a larger, more robust CERP initiative. However, the TSP does provide the critical conveyance capacity for nearly all the water that is presently in the system, thereby providing short-term benefits even without CERP implementation.

6.5.2 Environmental Operating Principles

The project is consistent with the environmental operating principles and is expected to have a major benefit to the environment.

6.5.3 Independent Technical Review/External Peer Review

A version of the LRR was reviewed by an Independent Technical Review (ITR) team comprised of experts from the USACE offices across the nation. Comments were addressed and the responses were incorporated into the LRR. External peer review (EPR) coordinated by Battelle Institute is scheduled to begin April 2008.

6.5.4 Key Social and Environmental Factors

The TSP above is a first step in overall restoration. It is recognized that by selecting a lower cost plan, additional actions would be required for complete restoration at a later date. These additional actions should keep with landscape changes and adaptive incremental restoration.

6.5.5 Stakeholder Perspectives and Differences

There are considerable differences of opinion on the best solution to the Tamiami Trail, which range from merely adding swales to the construction of the 10.7-mile bridge. The analysis presented in this LRR was designed to look objectively at the full range of values, and implement necessary first steps. However, many stakeholders would prefer a longer-term alternative for implementation. As a result, there may be considerable differences of opinion from stakeholders on the best recommended plan.

6.6 Remaining Modified Water Deliveries Project Features

MWD Project consists of major components:

1. 8.5 SMA Flood Mitigation component,
2. Conveyance and Seepage Control component,
3. Tamiami Trail component and
4. Revised operating plan that incorporates the new components.

The 8.5 SMA component is nearly complete, except for the exotic and debris removal in the areas west and north of the protection levee. For the Conveyance and Seepage Control component, the following features are completed: S-355 A and B gated structures in the L-29 Levee; S-333 modifications; 4 of 9 miles of L-67 Extension Levee degraded; S-356 pump station; and Tigertail Camp elevation raised

Subsequent to the release of the Tamiami Trail LRR, the USACE would address any design modifications for the remaining Conveyance and Seepage Control features in separate a NEPA document and Engineering Documentation Report (EDR). Remaining features include the following:

1. Structures S-345A, B, and C through the L-67A and C levees
2. Structures S-349 A, B, and C in the L-67A Borrow Canal
3. Degradation of 5 miles of L-67 Extension Canal and Levee
4. Structures through the L-29 Levee

Potential flooding of Osceola Camp would be addressed. ENP and representatives for the Osceola Camp are negotiating the details of the mitigation actions that would be performed.

The Tamiami Trail component (this LRR) has not been constructed.

To complete the MWD project, a revised operations plan would be developed in conjunction with C-111 South Dade project efforts.

6.7 Funding Requirements to Complete the Modified Water Deliveries Project

Based on Alternative 3.2.2a for the Tamiami Trail component and completion of the remaining MWD features, the estimated balance to complete the MWD Program from FY09 forward is \$200.6M (based on FY08 escalated/fully funded dollars). The funding allocations in **Table 6-3** are based on 3-year construction duration for the Tamiami Trail Modifications and completion of the remaining features. The estimates are based on engineering information and that may need to be re-examined if the project were to encounter a schedule slip. Because the Administration has not released budgetary guidance, costs beyond FY09 have not been determined between DOI and USACE. The State of Florida has verbally committed to contribute approximately \$4.5M towards the Tamiami Trail modifications. These monies would normally have been spent on their maintenance of the roadway.

TABLE 6-3: MWD REMAINING BUDGET REQUIREMENTS

Modified Water Deliveries Project Funding Allocations to Complete Alternative 3.2.2a 1 Mile Eastern Bridge/Road Mitigation (\$ in millions) Dollars Reflected are Oct 07 Price Level (inflated/fully funded dollars)					
	Through FY07	FY08 Enacted	FY09 Pres Bud	Remaining After FY09	Total Project
Costs					
8.5 Square Mile Area	170.4				170.4
Conveyance & Seepage	30.0		0.2	21.0	51.2
Tamiami Trail Modifications	45.5	18.4	54.6	107.0	225.5
Tamiami Trail Design *	11.0	5.7			16.7
Project Implementation Support	41.5	0.0	5.2	12.6	59.4
Mod Water Total TOTAL:	298.4	24.1	60.0	140.6	523.1
Funding					
Department of the Interior	230.7	14.3	10.0		255.0
Corps of Engineers	67.7	9.8	50.0		127.5
State of Florida				4.5	4.5
To Be Determined				136.1	136.1
Mod Water Total TOTAL:	298.4	24.1	60.0	140.6	523.1
* Includes sunk costs for planning, pre-construction, engineering and design.					

Under a separate NEPA process from the Tamiami Trail LRR, a pilot project is being considered that would determine the actual effects of spreader swales. The ENP would lead the NEPA action for the pilot. If the pilot project demonstrates that the swales are successful, the USACE and ENP would consider incorporating the swales as a part of the remaining Conveyance and Seepage Control component.

6.8 Restoration Beyond the Modified Water Deliveries Project

The TSP of the Tamiami Trail LRR increases water flows to the Park along 10.7 miles of the 20-mile stretch of Tamiami Trail from Krome Avenue to the eastern boundary of Big Cypress National Preserve. This action is consistent with the MWD authority which directs the Secretary of the Army to construct modifications to the C&SF Project to improve water deliveries into the Park and, to the extent practicable, take steps to restore the natural hydrological conditions in the Park.

The LRR tentatively selected plan would provide significant benefits by:

- allowing the L-29 Canal to be operated at stages up to 8.5 feet NGVD;
- increasing conveyance capacity under Tamiami Trail from 1250 to 1848 cfs; and
- increasing flow volumes to the Park by 92%.

The remaining activities discussed earlier in this report for the 8.5 SMA will be completed using prior appropriations. Implementation of a plan recommended in the Final Limited Reevaluation Report for Tamiami Trail is contingent upon sufficient appropriations necessary for the completion of the design, engineering, and construction of the features in the plan, to include conveyance and seepage features within Water Conservation Areas 3A and 3B, and the update to the operations and water control plans necessary to account for new project features. The accomplishment of all of these features and updates are in accord with the Modified Water Deliveries project, as authorized in the Everglades National Park Protection and Expansion Act of 1989, Public Law 101-229, and the first stage of restoring more natural deliveries into Everglades National Park. Future restoration features intended to improve the efficacy of this work and build upon it will be evaluated under appropriate statutory authority.