PROJECT DEFINITION REPORT

CENTRAL EVERGLADES PROJECT

PROJECT PARTNERSHIP AGREEMENT'S (PPA'S) - PARENT

PS ID 101008

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Approvals

The signatures in this section of the project definition report should be revised to represent the various areas providing significant resources to the project.

Jennifer Leeds, Unit Leader, Office of Federal Policy & Coordination	Date: 2/2/2016
Matthew Morrison, Office Chief, Office of Federal Policy & Coordination	Date: 2/3/16
Thomas Teets, Division Director, Office of Everglades Policy & Coordination	Date: 2/3/16

Document prepared by: Leslye Waugh (x6483) and Jennifer Leeds (x6088)

Project Location

The components of the Central Everglades Project (CEP) are organized into four geographic areas: North of the Redline, South of the Redline, the Green/Blue lines and along the Yellowline. The specific feature locations are shown in **Figure 1**.

I. **Everglades Agricultural Area (EAA)** (North of the Redline) includes construction and operations to divert, store and treat Lake Okeechobee regulatory releases.

II. **WCA 2A and Northern WCA 3A** (South of the Redline) includes conveyance features to deliver and distribute existing flows and the redirected Lake Okeechobee water through WCA 3A.

III. **Southern WCA 3A, WCA 3B, and ENP** (Green/Blue Lines) includes conveyance features to deliver and distribute water from WCA3A to WCA 3B and ENP.

IV. **Lower East Coast Protective Levee (Yellowline):** Includes features primarily for seepage management, which are required to mitigate for increased seepage resulting from the additional flows into WCA 3B and ENP.

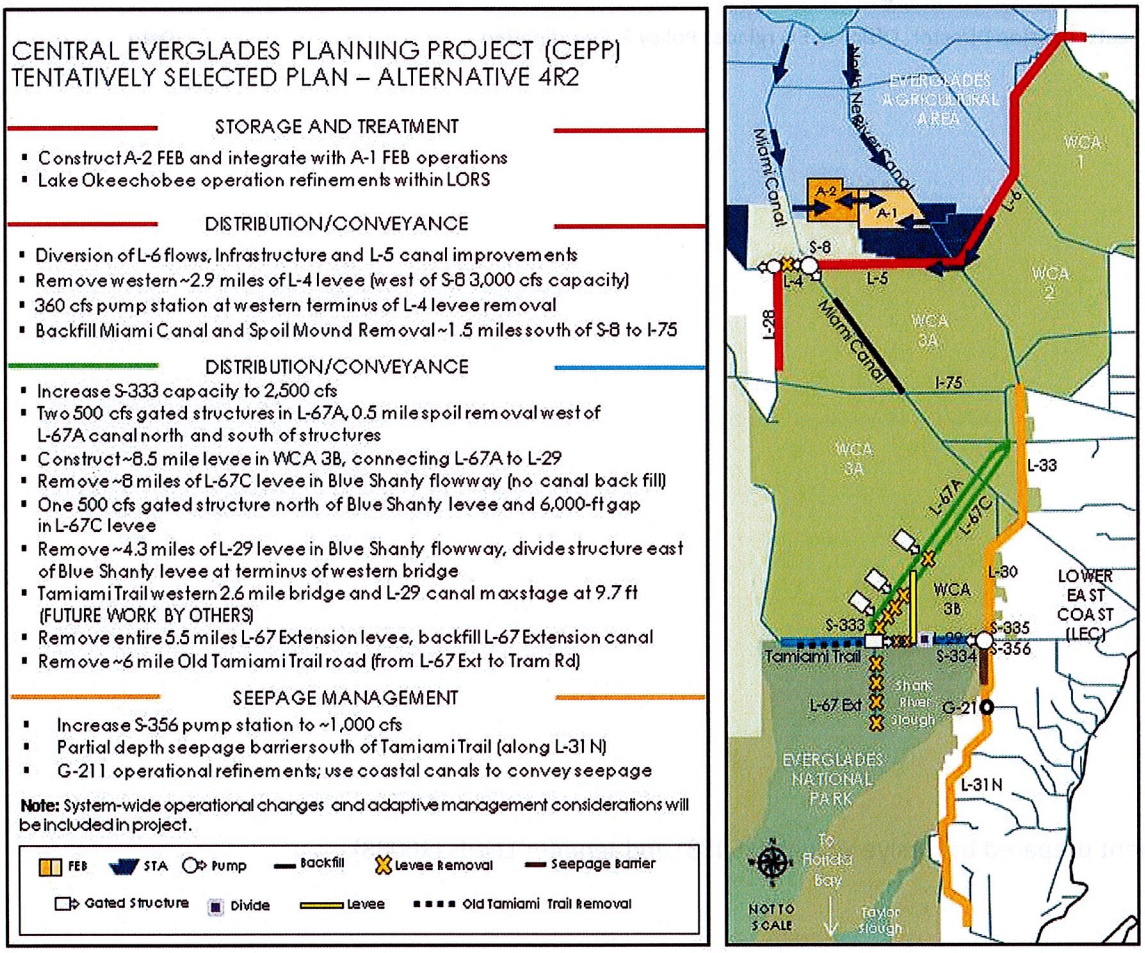

Figure 1: Components of the Central Everglades Planning Project

Project Description

The purpose of the Central Everglades Project (CEP) is to improve the quantity, quality, timing and distribution of water flows to the Northern Estuaries, central Everglades (Water Conservation Area 3 (WCA 3) and Everglades National Park (ENP)), and Florida Bay while increasing water supply for municipal, industrial and agricultural users. The recommended plan would achieve these benefits by reducing the large pulses of regulatory flood control releases sent from Lake Okeechobee by redirecting approximately 210,000 acre-feet of water on an annual basis to the historical southerly flow path. Prior to delivering additional water to existing State-owned and State-operated stormwater treatment areas (STAs), water will be delivered first to the flow equalization basins (FEBs) which will: (1) provide storage capacity, (2) attenuate high flows, and (3) provide incidental water quality benefits. The STAs reduce phosphorus concentrations in the water to meet required water quality constraints. Rerouting this treated water south and redistributing it across spreader canals will facilitate hydropattern restoration in WCA 3A. This, in combination with Miami Canal backfilling and other CERP components, will reestablish a 500,000-acre flowing system through the northern most extent of the remnant Everglades. The treated water will be distributed through WCA 3A to WCA 3B and ENP via structures and creation of the Blue Shanty Flowway. The Blue Shanty Flowway will restore continuous sheetflow and reconnection of a portion of WCA 3B to ENP and Florida Bay. A seepage barrier wall and pump station will manage seepage to maintain levels of flood protection and water supply in the urban and agricultural areas east of the WCAs and ENP. The CEPP recommended plan was chosen based upon detailed estimates of hydrology across the 41-year period of record (January 1965 – December 2005) generated by the Regional Simulation Model for Basins (RSM-BN) for the Northern Estuaries and the RSM for the Glades and Lower East Coast Service Area (RSM-GL) for the Greater Everglades and Florida Bay. The first cost (2014 price level) of the recommended plan is $ 1,900,000,000.

I. **Everglades Agricultural Area (EAA)** (North of the Redline) includes construction and operations to divert, store and treat Lake Okeechobee regulatory releases. Storage and treatment of new water will be possible with the construction of a 14,000 acre FEB and associated distribution features on the A-2 footprint that is operationally integrated with the state-funded and state-constructed A-1 FEB and existing STAs. The FEB will accept EAA runoff and undesirable discharges from Lake Okeechobee to the estuaries would be diverted to the FEB when FEB/STAs and canals have capacity

II. **WCA 2A and Northern WCA 3A** (South of the Redline) includes conveyance features to deliver and distribute existing flows and the redirected Lake Okeechobee water through WCA 3A. Backfilling 13.5 miles of the Miami Canal between I-75 and 1.5 miles south of the S-8 pump station, and converting the L-4 canal into a spreader canal by removing 2.9 miles of the southern L-4 levee are the key features needed to ensure spatial distribution and flow directionality of the water entering WCA 3A.

    Conveyance features to move water into and through the northwest portion of WCA 3A include: a gated culvert to deliver water from the L-6 Canal to the remnant L-5 Canal, a new gated spillway to deliver water from the remnant L-5 canal to the western L-5 canal (during L-6 diversion operations); a new gated spillway to deliver water from STA 3/4 to the S-7 pump station during peak discharge events (eastern flow route is not typically used during normal operations), including L-6 diversion operations; a 360 cfs pump station to maintain Seminole Tribe water supply deliveries west of the L-4 Canal; and new gated culverts to deliver water from the Miami Canal (downstream of S-8, which pulls water from the L-5 Canal) to the L-4 Canal.

The Miami Canal will be backfilled to approximately 1.5 feet below the peat surface of the adjacent marsh. Spoil mounds on the east and west side of the Miami Canal from S-8 to I-75 will be used as a source for Miami Canal backfill material. Refuge for fur-bearing animals and other upland species will continue to be provided by the retention of 22 of the highest priority Florida Fish and Wildlife Conservation Commission (FWC) enhanced spoil mounds between S-339 to I-75 and the creation of additional upland landscape (constructed tree islands) approximately every mile along the entire reach of the backfilled Miami canal section (S-8 to I-75) where historic ridges or tree islands once existed. The constructed tree islands will block flow down the backfilled canal due to the tree island having a profile across the landscape that varies, or undulates, in elevation. Miami Canal constructed tree island design details will be determined during CEPP preconstruction, engineering and design (PED) phase. Tree island design, construction/planting will be coordinated with appropriate science team members with expertise in these topics to accomplish the restoration vision and intent of CEPP's canal backfilling and tree island construction. A diverse array of species will be planted, including trees, shrubs, and herbaceous species that are appropriate for these tree islands. Additional details are described in **Appendix A**.

III. **Southern WCA 3A, WCA 3B, and ENP** (Green/Blue Lines) includes conveyance features to deliver and distribute water from WCA3A to WCA 3B and ENP. A new Blue Shanty levee extending from Tamiami Trail northward to the L-67A levee will be constructed. This Blue Shanty levee will divide WCA 3B into two subunits, a large eastern unit (3B-E) and a smaller western unit, the Blue Shanty Flowway (3B-W). A new levee is the most efficient means to restore continuous southerly sheetflow through a practicable section of WCA 3B and alleviates concerns over effects on tree islands by maintaining lower water depths and stages in WCA 3B-E. The width of the 3B-W flow-way is aligned to the width of the downstream 2.6-Mile Tamiami Trail Next Steps bridge, optimizing the effectiveness of both the flow-way and bridge.

In the western unit, construction of two new gated control structures on the L-67A, removal of the L-67C and L-29 Levees within the flowway, and construction of a divide structure in the L-29 Canal will enable continuous sheetflow of water to be delivered from WCA 3A through WCA 3B to ENP. A gated control structure will also be added to the L-67A, outside the flowway, to improve the hydroperiod of the eastern unit of WCA 3B.

Increased outlet capability at the S-333 structure at the terminus of the L-67A canal, removal of approximately 5.5 miles of the L-67 Extension Levee, and removal of approximately 6 miles of Old Tamiami Trail between the ENP Tram Road and the L-67 Extension Levee will facilitate additional deliveries of water from WCA 3A directly to ENP. Detailed design and construction of these features will consider improving recreation access and minimize project footprints due to the nature of these environmentally sensitive areas. Establishment of expanded maintenance easements along the old Tamiami Trail for existing and new infrastructure, to facilitate road modifications, maintenance and water delivery is recommended.

IV. **Lower East Coast Protective Levee (Yellowline):** Includes features primarily for seepage management, which are required to mitigate for increased seepage resulting from the additional flows into WCA 3B and ENP. A newly constructed pump station with a combined capacity of 1,000 cfs will replace the existing temporary S-356 pump station, and a 4.2 mile seepage barrier cutoff wall will be built along the L-31N Levee south of Tamiami Trail.

There is an existing 2-mile seepage cut-off wall in the same vicinity that was constructed by a permittee as mitigation. There is a possibility that the same permittee may construct an additional 5 miles of seepage wall south of the 2-mile seepage wall, if permitted. Since the capability and effectiveness of the existing seepage wall to mitigate seepage losses from ENP remains under investigation, the CEPP TSP conservatively includes an approximately 4.2 mile long, 35 feet deep tapering seepage barrier cutoff wall in the event construction is necessary.

Project Scope

CEP implementation will be broken out into three groups defined by the Project Partnership Agreements (PPA) and the grouping of projects contained within each. These are, CEP PPA South, CEP PPA North and CEP PPA New Waters. As CEP PPA South projects have been identified with several to move forward early they have been further defined.

CEP PPA South: The Project Partnership Agreement (PPA) for the South project components of CEP include the following features in **Southern WCA 3A, WCA 3B, and ENP:**

- Construct a new Blue Shanty levee extending from Tamiami Trail northward to the L-67A levee to divide WCA 3B into two subunits, a large eastern unit (3B-E) and a smaller western unit, the Blue Shanty Flowway (3B-W)
- Construct two new gated control structures on the L-67A levee
- Removal of the L-67C and L-29 Levees within the flowway
- Construct a divide structure in the L-29 Canal to enable continuous sheetflow of water to be delivered from WCA 3A through WCA 3B to ENP
- A gated control structure in L-67A, outside the flowway, to improve the hydroperiod of the eastern unit of WCA 3B
- Increased outlet capability at the S-333 structure at the terminus of the L-67A canal
- Removal of approximately 5.5 miles of the L-67 Extension Levee
- Removal of approximately 6 miles of Old Tamiami Trail between the ENP Tram Road and the L-67 Extension Levee

CEP PPA North: The Project Partnership Agreement (PPA) for the North project components of CEP include the following features in **Everglades Agricultural Area (EAA) WCA 2A and WCA 3A:**

- L-6 Diversion
- S-8 Pump Modifications
- L-4 Levee Degrade and Pump Station
- L-5 Canal Improvements
- Miami Canal Backfill

CEP PPA New Water: The Project Partnership Agreement (PPA) for New Water project components of CEP include the following features in **Everglades Agricultural Area (EAA) and the East Coast Protection Levee:**

- Seepage Barrier L-31 N
- A-2 FEB

Background

The Central Everglades Project (CEP) will begin to reverse over 100 years of human induced environmental degradation within the central portion of the globally significant Everglades ecosystem. Restored water depth, duration and distribution in Water Conservation Area (WCA) 3A, WCA 3B and Everglades National Park (ENP) will serve to recreate a landscape characteristic of a pre-drained system that will support a healthy mosaic of plant and animal life. The restored hydrology of the Everglades ecosystem will more closely resemble a natural occurring rainfall driven system with wet and dry cycles essential to flora and fauna propagation. Improved water depth and sheet-flowing distribution will begin to re-establish the unique ridge, slough and tree island micro-topography that once provided sustenance to the vast diversity of the species inhabiting the Everglades.

Additionally, CEP will benefit the St. Lucie and Caloosahatchee Estuaries by decreasing the number and severity of high-volume regulatory flood control releases sent from Lake Okeechobee. This will be accomplished by redirecting approximately 210,000 acre feet of additional water to the historical southerly flow path south through flowage equalization basins (FEBs) and existing stormwater treatment areas (STAs). The STAs reduce phosphorus concentrations in the water to meet required water quality standards. Rerouting this treated water south and redistributing it across the degraded L-4 Levee will facilitate hydropattern restoration in WCA3A. This, in combination with Miami Canal backfilling and other CEPP components, is paramount to re-establishing a 500,000-acre flowing system through the northern most extent of the remnant Everglades. The treated water will be distributed through WCA 3A to WCA 3B and ENP via new gated control structures and creation of the Blue Shanty Flowway. The Blue Shanty Flowway will restore continuous sheet-flow and re-connection of a portion of WCA 3B to ENP.

Permitting

The proposed work will require State of Florida and U.S. Army Corps of Engineers Permits based on specific child project features and locations. All permitting will be done in each of the CEP PPA Child Projects.

Right of Way

Coordination with the Right-of-Way Section will be required and done in each of the CEP PPA Child Projects.

Real Estate

Coordination with the Real Estate Section will take place prior to initiation of any child projects.

Public Use/ Outreach

N/A

Stakeholder Considerations

Stakeholders include Everglades Nation Park, the U.S. Fish & Wildlife Service, the Miccosukee Tribe of Indians of Florida, Florida Department of Environmental Protection, the U.S. Army Corps of Engineers, the Florida Fish & Wildlife Conservation Commission, Florida Power & Light, and others who support the CEP.

Operations and Modeling

Coordination with Operations Support and modeling will occur in each of the CEP PPA Child Projects.

Operations and Maintenance

Coordination with Operations Support and modeling will occur in each of the CEP PPA Child Projects.

SCADA, Instrumentation, Telemetry, Information Technology

Coordination with Operations Support and modeling will occur in each of the CEP PPA Child Projects.

Security and Safety

Site security may be needed during construction but would be the responsibility of the contractor.

Environmental

Environmental coordination will occur in each of the CEP PPA Child Projects.

Monitoring

Coordination for project specific and regional monitoring will occur in each of the CEP PPA Child Projects.

Commissioning

N/A

Lessons Learned

N/A

Conceptual Alternative Options

N/A

Cost Estimates

The first cost from the PIR (2014 price level) of the recommended plan is $ 1,900,000,000.

Recommendations

Project Milestones

Project milestones will be developed during planning process for each child project.

Resource Requirements

Multiple resource requirements agency wide will be determined according to each child project.

Project Deliverable and Schedule

The project specific deliverables and schedules will be developed during planning and detailed design.

Project Funding Sources

Dependent upon District Budget development and Federal appropriations.