SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Conceptual Plan for Achieving Long-term Everglades Water Quality Goals

Technical Oversight Committee

June 3, 2003

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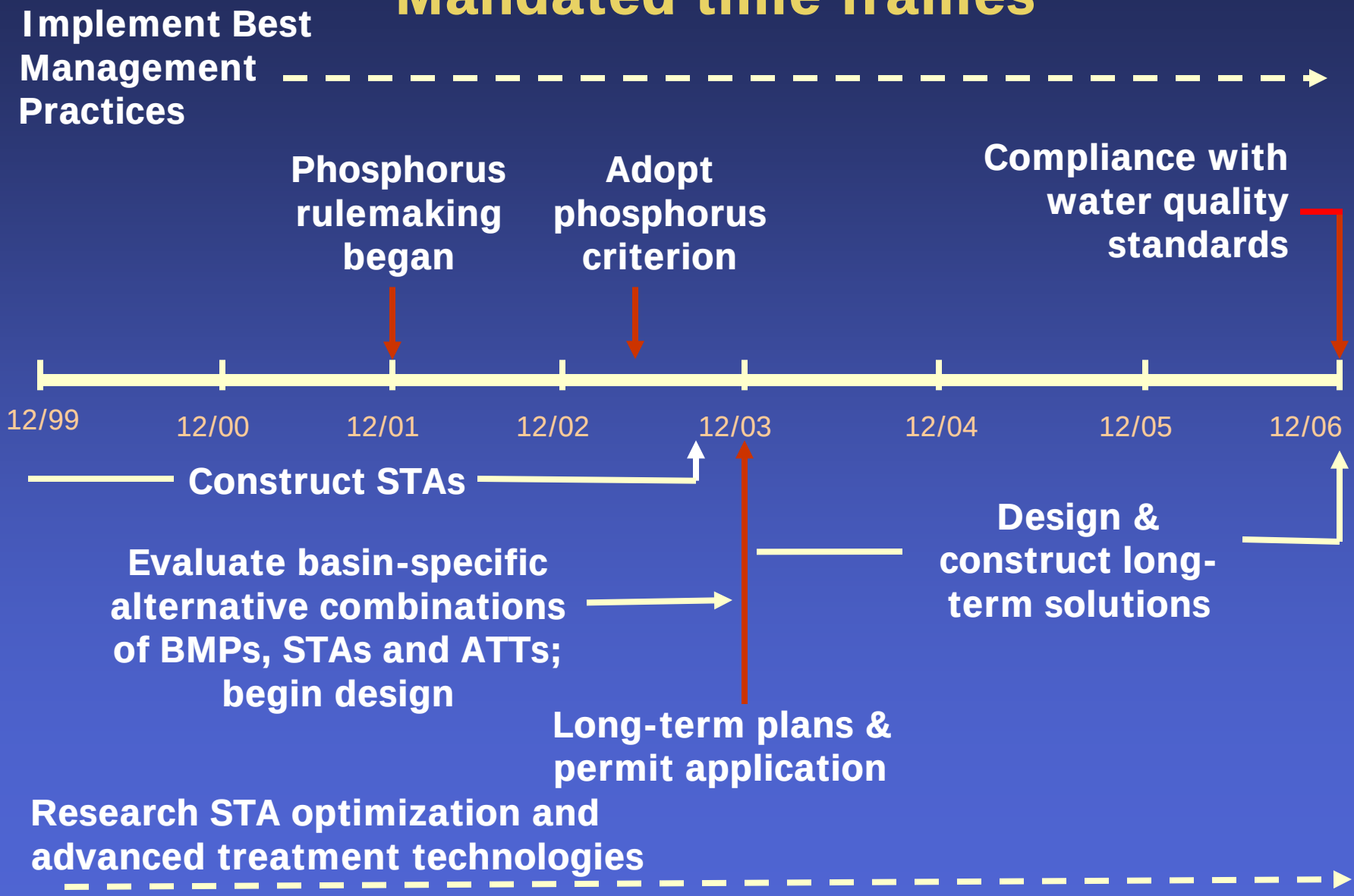
Overview

- Background
  - Everglades Forever Act requirements
  - Considerable progress to date
- Conceptual Plan
  - >3 years in the making
  - Early strategies in *Consolidated Reports*
  - Future actions

Common Abbrev.

- ATT - Advanced treatment technology
- BMP - Best Management Practices
- C-# or L-# refers to Canal or levee
- CERP - Comprehensive Everglades Restoration Plan
- EAA - Everglades Agricultural Area
- ECP - Everglades Construction Project
- EFA - 1994 Everglades Forever Act
- ESP - Everglades Stormwater Program
- PSTA - Periphyton-based STA
- PDT - Project Development Team
- S-# or G-# refers to Structure
- SAV - Submerged Aquatic Vegetation
- STA - Stormwater Treatment Area
- TP - Total Phosphorus

ACHIEVING EVERGLADES WATER QUALITY
Mandated time frames



ECP Basins:

STA-1E

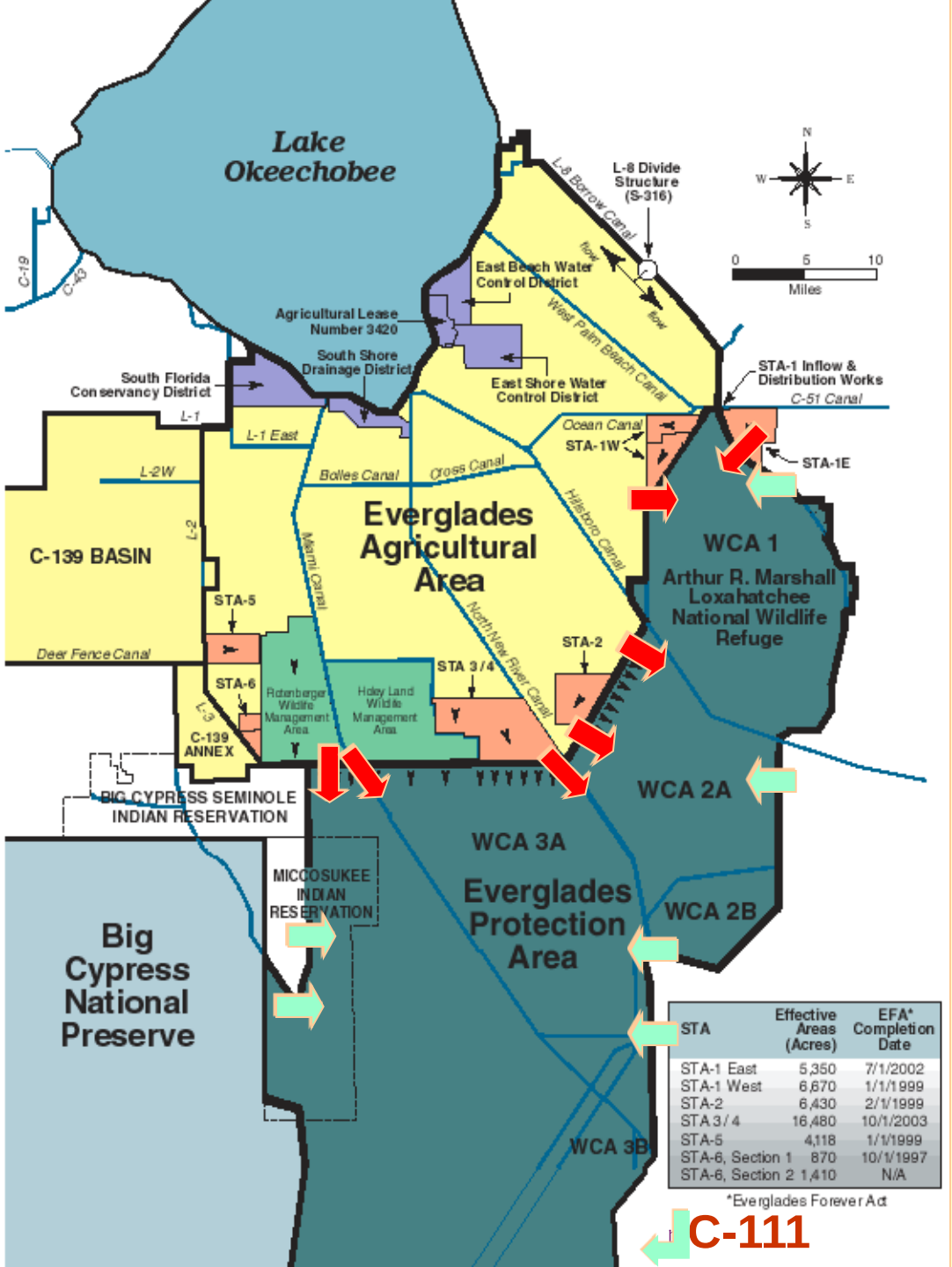
STA-1W

STA-2

STA-3/4

STA-5

STA-6



ESP Basins:

ACME Basin "B"

North Springs Improvement District

North New River Canal

C-11 West

L-28

Feeder Canal

C-111

Progress to Date

- Implemented EAA BMPs
  - Performing better than expected
  - Averaging >50% load reduction
- Stormwater Treatment Areas
  - Four are operational
  - STA-1E and STA-3/4 under construction
  - Average performance better than expected
- Additional measures will be needed to meet water quality goals

Basin-Specific Feasibility Studies

- Evaluated combinations of BMPs, regional treatment works, and integration with CERP
  - Technical, economic and other factors
- Scientific uncertainties remain, however:
  - Models suggest possibility to achieve goals for 80-90% of discharges by Dec. 2006
    - STAs Enhancements
  - Potential for substantial economic benefits by integrating with CERP projects
    - Over $750 million in capital costs, if projects developed independent of CERP

Conceptual Plan

- A Conceptual Plan to achieve compliance with water quality standards - based on years of peer-reviewed investigations and engineering studies
- Developed by technical experts and consultants
  - Same core group that developed the 1994 Conceptual Design
- Will serve as basis for District's long-term permit applications due 12/31/2003

Plan Principles

1. Implement scientifically defensible improvements by December 31, 2006
2. Continue technical investigations to evaluate further improvements
3. Implement additional steps as soon as the need and feasibility are confirmed
4. Integrate with other regional efforts, CERP in particular
5. Accelerate the recovery of impacted areas within the Everglades

Plan Components

- Everglades Construction Project
  - Source controls (BMPs)
  - STA optimization
  - Implementation of additional measures after 2006
- ESP Basins
  - Source controls
  - Integration with CERP
  - Implementation of additional measures after 2006
- Continue science-based investigations
- Accelerate recovery of impacted areas

Everglades Construction Project Basins

- Enhanced source controls in EAA, C-139 and C-51W basins
- STA Enhancements by Dec. 2006
  - Additional compartmentalization
  - Vegetation management
  - Operational refinements
- STA operation, maintenance & monitoring
  - Structure, levee, canal, vegetation
  - Flow and water quality monitoring

Everglades Stormwater Program Basins

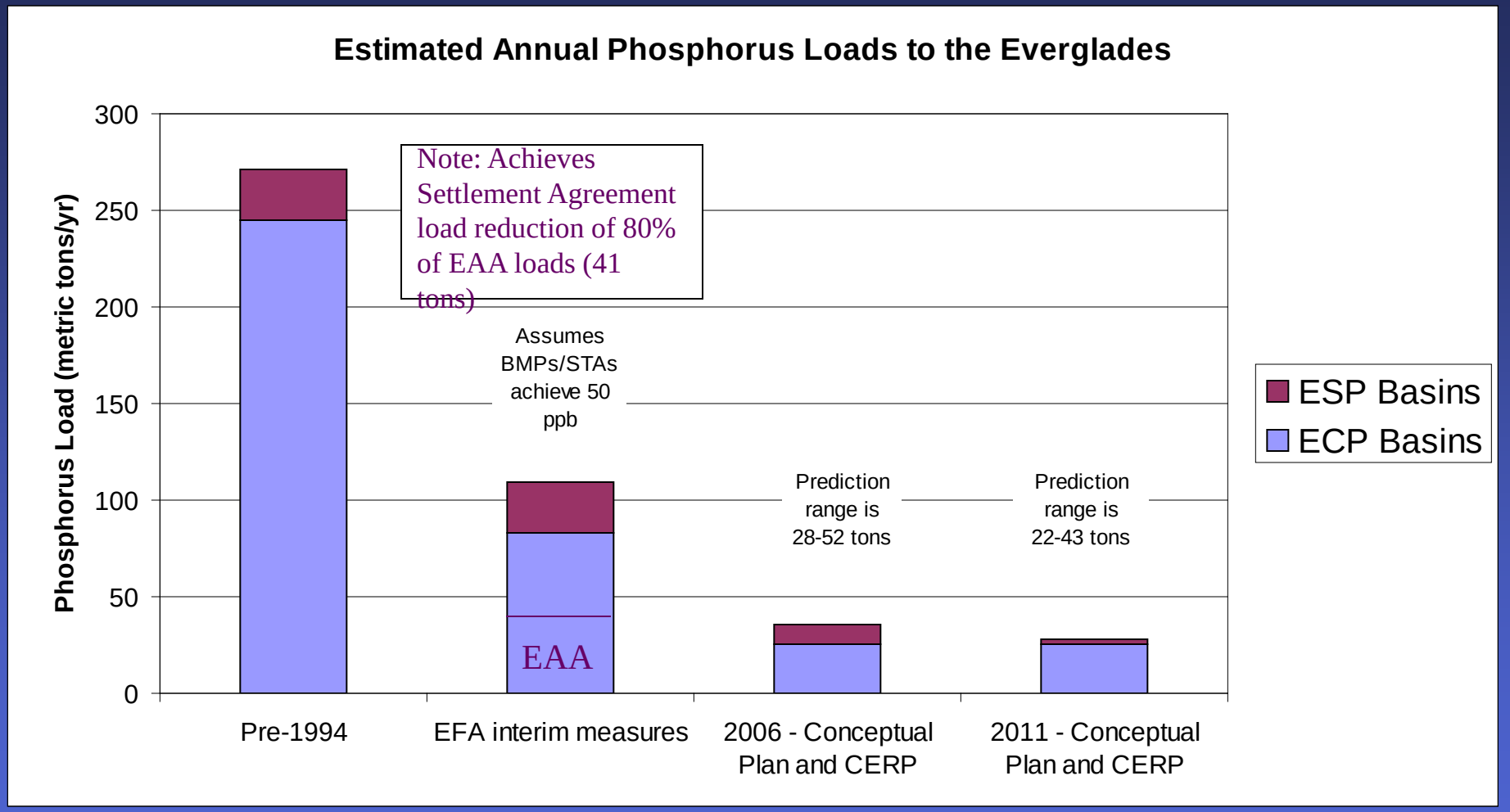
- Source Controls by Dec. 2006
  - Ordinances, landowner agreements & capital projects
  - Hot spot identification and remediation
  - Expanded water quality outreach
- Integrate with CERP
  - Most promising alternatives:
    - Acme Basin B treatment in STA-1E
    - Diversion of C-11 West (S-9), NSID and NNRC
    - Accelerate modification of L-28 Interceptor Canal
    - Accelerate STAs on Tribal lands
  - *CERP process will make final decisions - no change in cost-share relationship*

Continue Scientific Investigations

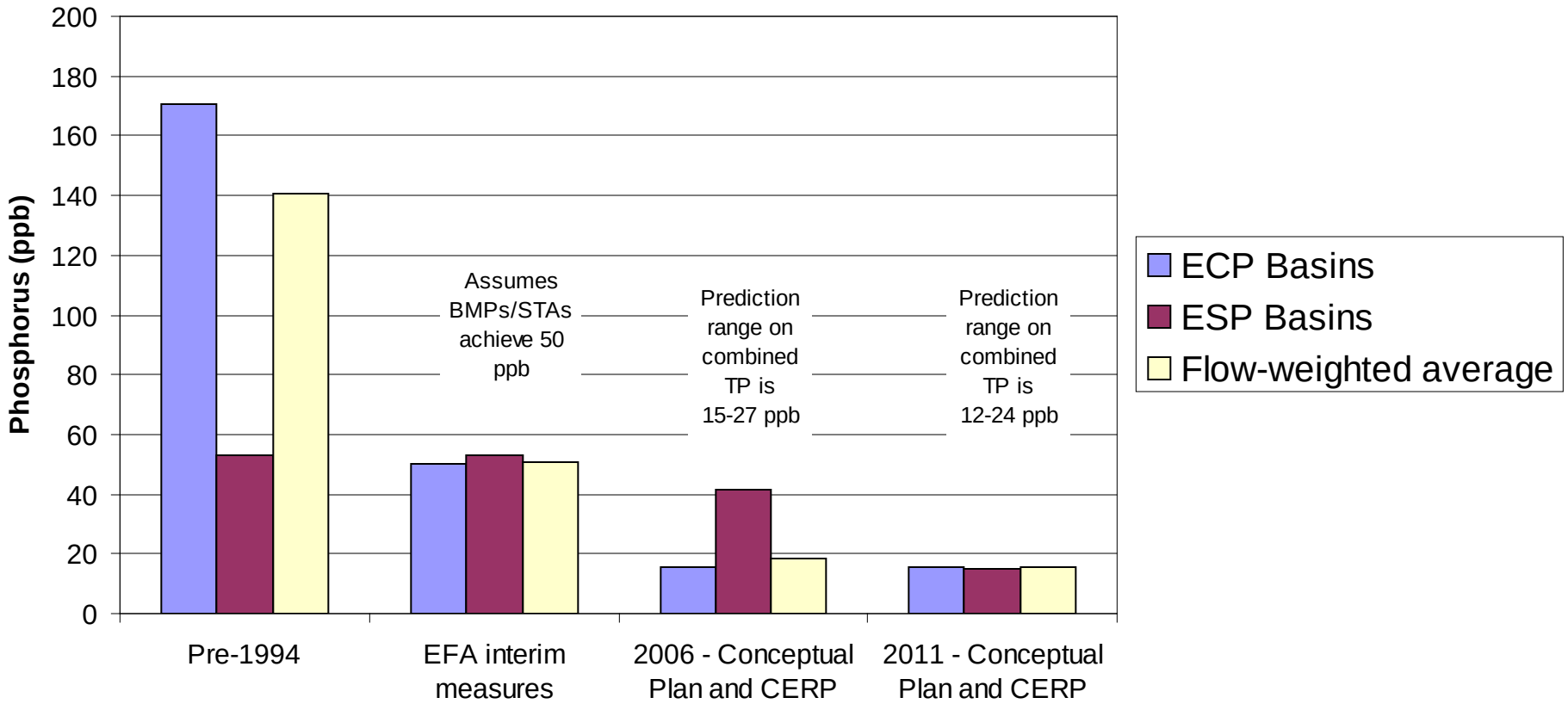
- Referred to as Process Development and Engineering (PDE)
- Improve performance of urban and agricultural BMPs
- Enhance performance of STAs
- Improve forecasting tools and data sets

Adaptive Implementation

- $36 million allocated beginning in 2007
- Objective is to further reduce TP in discharges
- Includes both ECP and ESP basins
- Potential enhancements include:
  - Integration with CERP projects
  - Conversion of additional lands to SAV, PSTA or other vegetative communities
  - Additional structural and operational modifications within existing STAs
  - Implement enhanced BMPs


Estimated Annual Phosphorus Loads to the Everglades
Phosphorus Load (metric tons/yr)
300
250
200
150
100
50
0
Note: Achieves Settlement Agreement load reduction of 80% of EAA loads (41 tons)
Assumes BMPs/STAs achieve 50 ppb
EAA
Prediction range is 28-52 tons
Prediction range is 22-43 tons
ESP Basins
ECP Basins
Pre-1994
EFA interim measures
2006 - Conceptual Plan and CERP
2011 - Conceptual Plan and CERP

Estimated Annual Phosphorus Concentrations

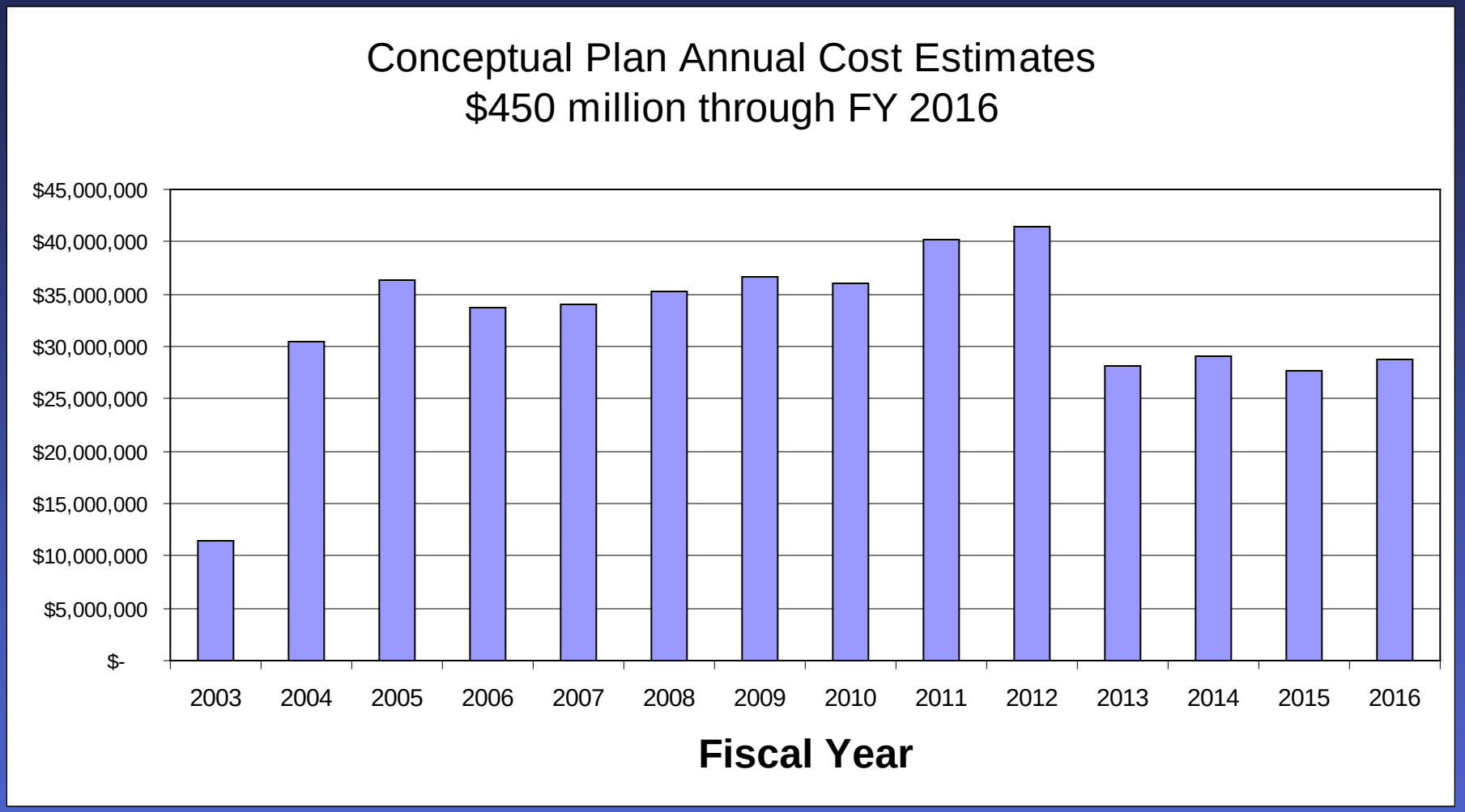


Recovery of Impacted Areas

- Before Dec. 2006
  - Investigate measures to accelerate recovery
  - Improve forecasting models
- After Dec. 2006
  - Hydropattern restoration works
    - Distribution, volume and timing
    - Integrate with CERP hydropattern restoration
  - Active management within the water conservation areas

Preliminary Costs Through 2016

- Everglades Construction Project
  - STA optimization: $52.4 million
  - Existing O&M: $189.5 million
  - Performance support: $91.5 million
- Everglades Stormwater Program: $1.4 million
  - Other local, state and federal funds
- Science-based investigations: $32 million
- Adaptive implementation: $36 million
- Recovery of impacted areas: $47.7 million



May be additional costs for further integrating with CERP projects

Plan Summary

- Reduce phosphorus levels to Everglades
- Accelerate recovery of impacted areas
- Integrate with CERP projects
- Provide basis for SFWMD long-term permit applications

Future Steps

- Plan has been under review for >60 days
- Public - solicited review from 100s of individuals
- Federal agencies
  - Corps of Engineers - STA-1E & CERP process
  - Dept. of Interior, U.S.E.P.A.
- District: $ estimates, schedules, constraints
- Legislative and ERC actions
- Anticipate presenting revised plan to Governing Board in October/November as part of long-term permit application