USACE SOUTHEAST FLORIDA PROJECT INTEGRATION:

VIRTUAL PUBLIC MEETING

29 August 2023

Tim Gysan – Resilience Sr Project Manager
Amy Thompson – Integration Planner
Jacksonville District
U.S. Army Corps of Engineers

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US Army Corps of Engineers

Virtual Public Meeting Agenda

1. Welcome and Introduction
2. Project Integration
3. Projects Overview and Status Updates
    a) Navigation Projects
        1. Miami Harbor Improvements Study
    b) Coastal Storm Risk Management Projects
        1. Miami-Dade Back Bay CSRM
        2. Key Biscayne CSRM
        3. Dade County CSRM
    c) Flood Risk Management Projects
        1. C&SF Flood Resiliency Study
    d) Ecosystem Restoration Projects
        1. Broward County WPA C-11 Reservoir
        2. Biscayne Bay Coastal Wetlands (BBCW)
        3. BBSEER
4. Resiliency Partners Perspectives
    a) SFWMD Resiliency Efforts
    b) Miami-Dade County
    c) Broward County
5. Comments and Questions
6. Closing Remarks and Adjourn

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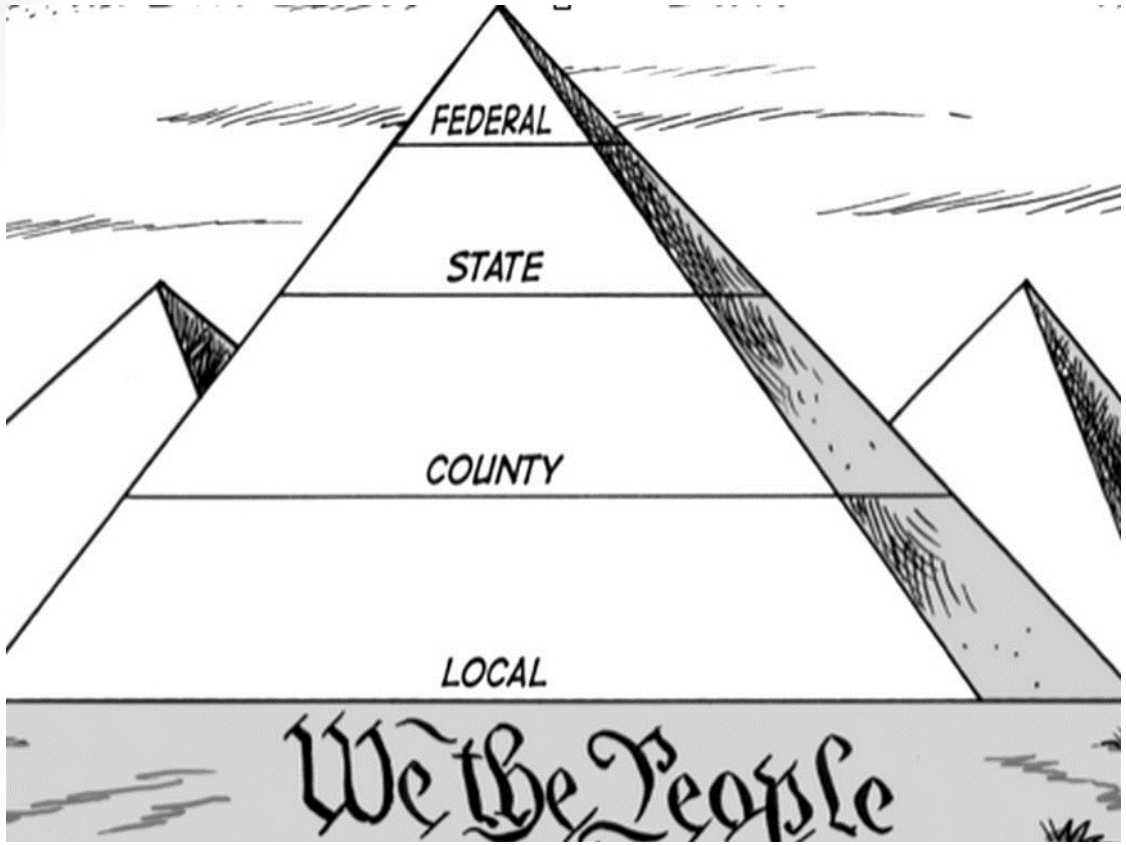
BUILDING COMMUNITY RESILIENCE

A COMPREHENSIVE AND COLLABORATIVE APPROACH



Water Resource infrastructure is the connector

USACE RESILIENCY THROUGH PROJECT INTEGRATION

Coordinating Multiple Lines of Defense

Comprehensive Everglades Restoration Plan (CERP)

Back Bay CSRM Studies

Beach CSRM Reauthorizations

CS&F (216) Flood Resiliency Study (FRM)

PARKS & CONSERVATION LANDS

AGRICULTURE

WESTERN & SOUTHERN SUBURBS

SLOUGHS

THE RIDGE

MAINLAND BAYFRONT

ISLAND BAYFRONT

ISLAND OCEANFRONT

WATER

USACE SOUTHEAST FLORIDA PROJECT INTEGRATION

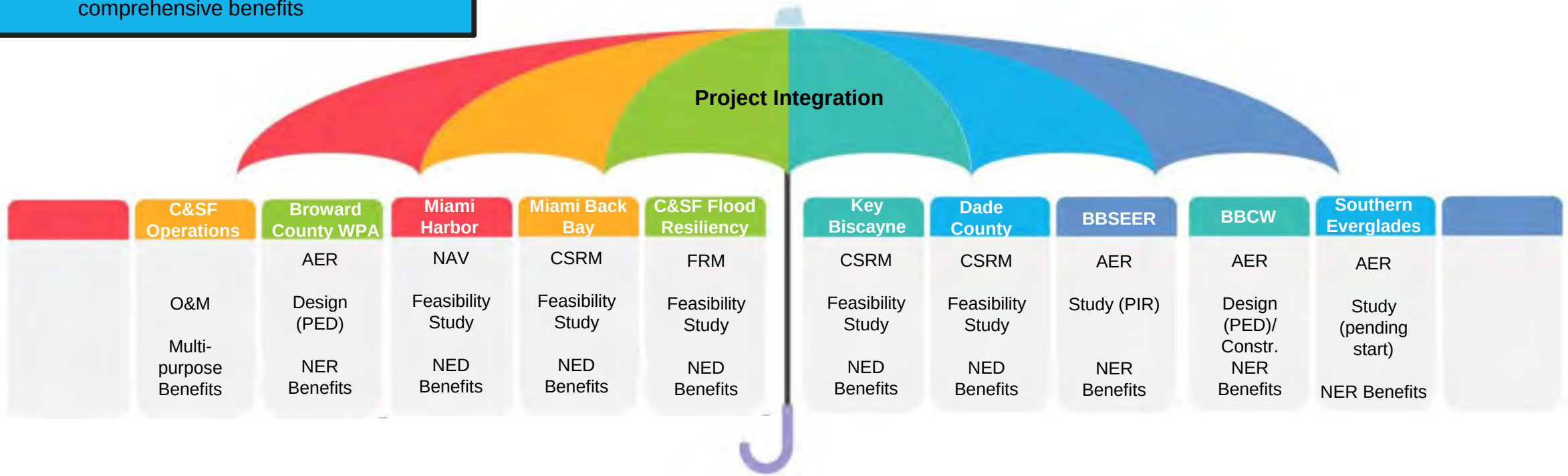
All Projects Under One Umbrella

Integration Themes:

- Communication
  - Internal both between teams and with leadership
  - External with sponsors and stakeholders
- Technical
  - During Formulation including model assumptions and known features
  - After Formulation including comprehensive benefits

SAD & NAD

Program Oversite



USACE SOUTHEAST FLORIDA PROJECT INTEGRATION

What is Integration?

How do we define project integration in southeast Florida?

- **Coordinate the planning of multiple USACE Civil Works projects across multiple mission areas to ensure functionality of all projects.**

What is successful integration?

- **Projects across multiple mission areas can be implemented and work in coordination to achieve each project's objectives and improve the resiliency of southeast Florida.**

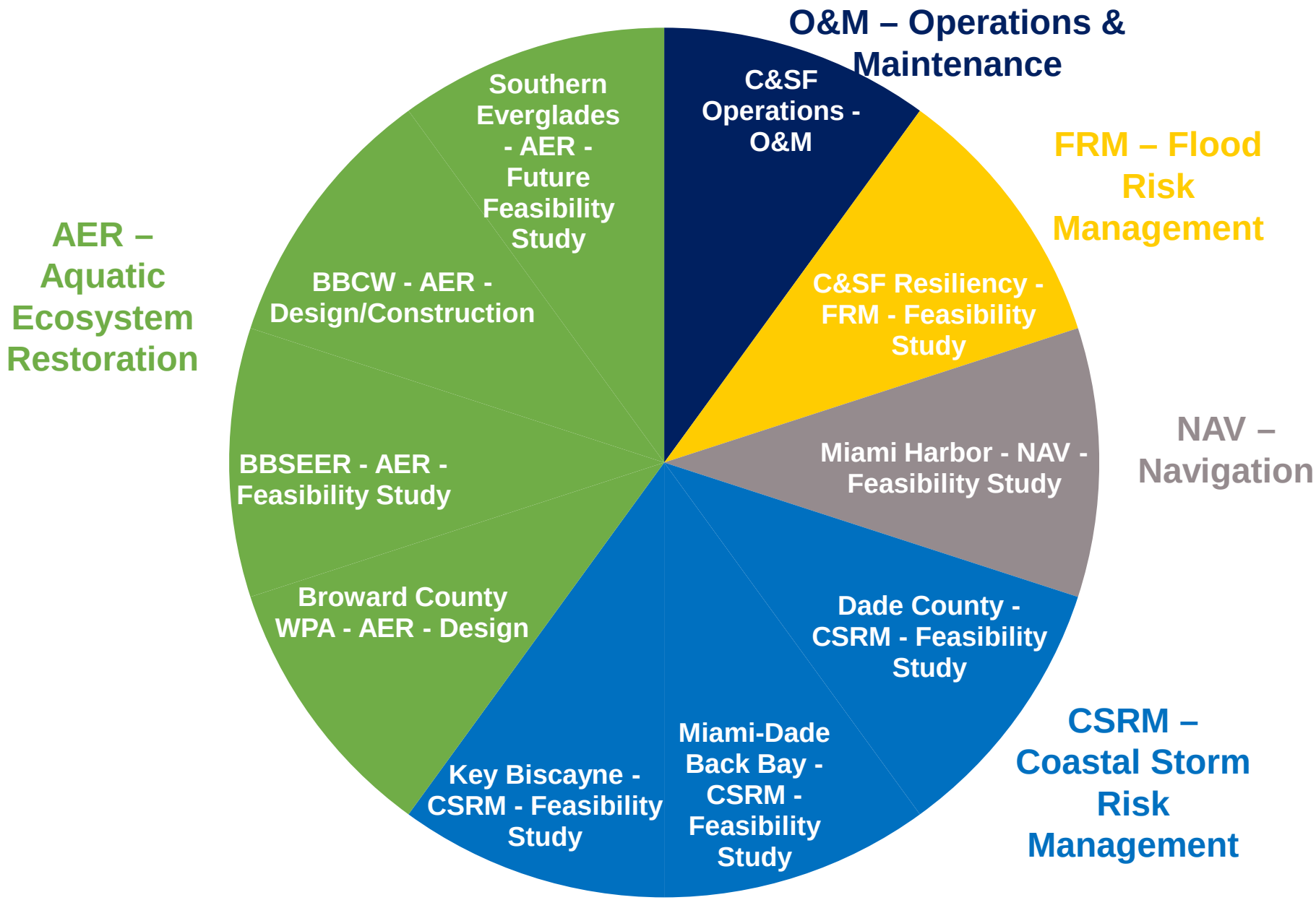
USACE SOUTHEAST FLORIDA PROJECT INTEGRATION

Integration Focus for Studies in Planning Phase Projects Under One Umbrella

- Science Integration/ Adaptive Management
- Sea Level Change
- Future Without Project Conditions
- Sharing Data Across USACE Business Lines
- Biscayne Bay & Southeastern Everglades Ecosystem Restoration
  Miami-Dade Back Bay
  Central & South Florida 216 Resiliency Study
  Miami Harbor Improvements
- Environmental Justice
- Joint Project Modeling Efforts
- Consultation with other Federal Agencies
- Comprehensive Benefits

USACE SOUTHEAST FLORIDA PROJECT INTEGRATION

Business Lines Represented



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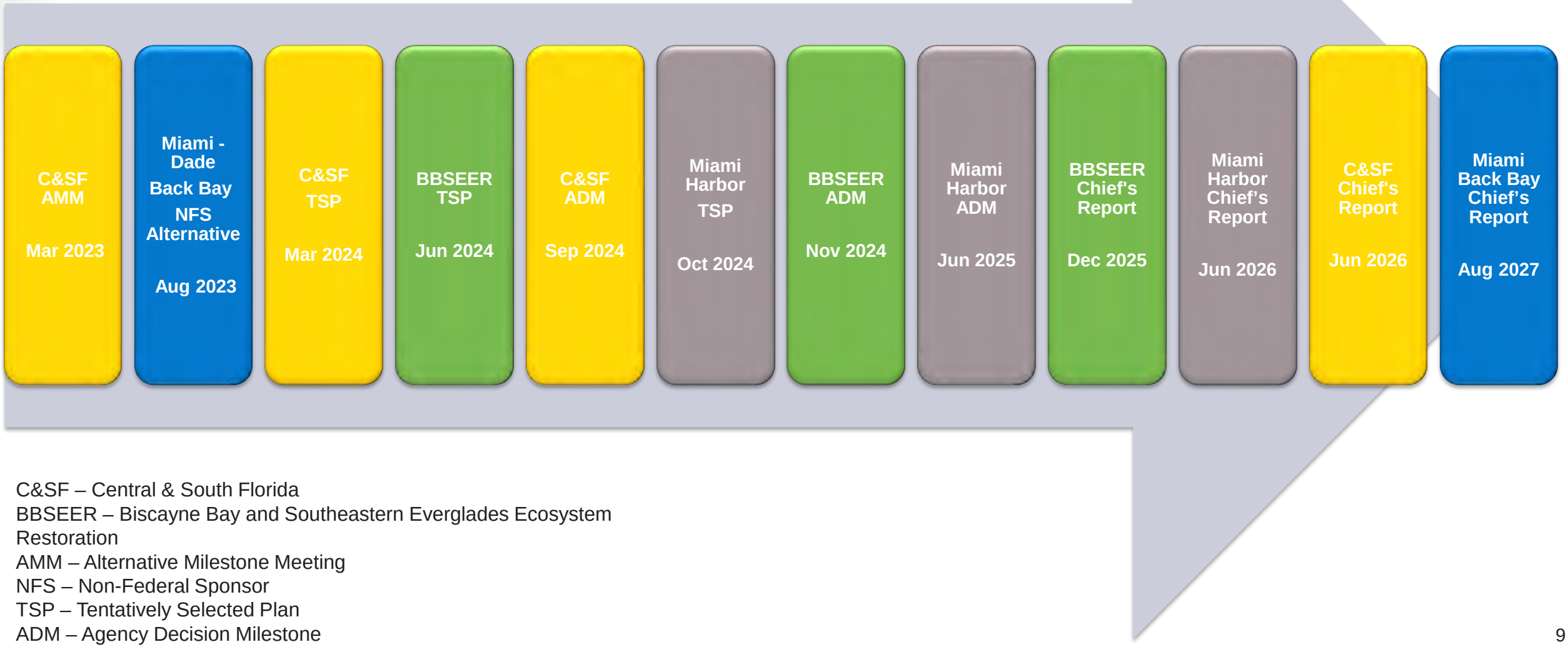
Federal Projects Timeline



C&SF – Central & South Florida
BBSEER – Biscayne Bay and Southeastern Everglades Ecosystem Restoration
AMM – Alternative Milestone Meeting
NFS – Non-Federal Sponsor
TSP – Tentatively Selected Plan
ADM – Agency Decision Milestone

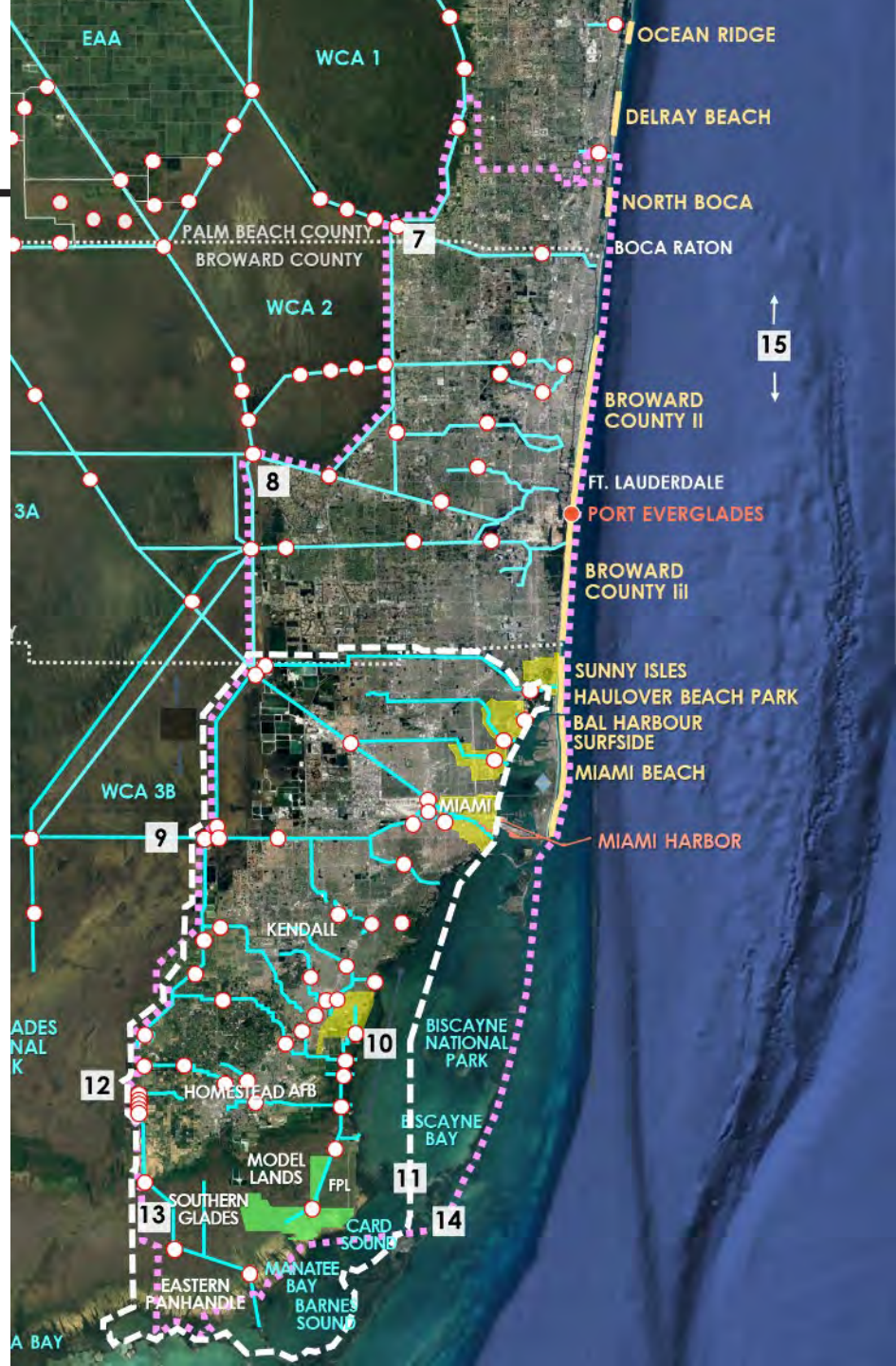
USACE PROJECT INTEGRATION

MIAMI-DADE | BROWARD | PALM BEACH COUNTIES

(Not All Inclusive)

- COASTAL STORM RISK MANAGEMENT (CSRM)
- NAVIGATION
- CSRM | MIAMI BACK BAY STUDY
- CONTINUING AUTHORITIES PROGRAM (CAP) | SECTION 14 (Mt. Sinai)
- FPL MITIGATION BANK
- CENTRAL AND SOUTHERN FLORIDA (C&SF) CANALS
- CENTRAL AND SOUTHERN FLORIDA (C&SF) STRUCTURES
- # SOUTH FLORIDA ECOSYSTEM RESTORATION (SFER) PROJECTS AND STUDIES

7) Site 1 Impoundment
8) Broward County WPAs
9) Tamiami Trail Next Steps – Phase 2
10) Biscayne Bay Coastal Wetlands (BBCW)
11) Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) – STUDY BOUNDARIES
12) S-332 Pump Replacements
13) C-111 Spreader Canal Western Project
14) C&SF Flood Resiliency (Section 216) Study - STUDY BOUNDARIES
15) Melaleuca Eradication



MIAMI HARBOR NAVIGATION IMPROVEMENT STUDY

BUILDING STRONG

- **Purpose:** Achieve transportation cost savings through increased economic efficiencies within Miami Harbor
- **Study Authorization:** Section 216 of the Flood Control Act of 1970

- **Key Features**
  - ❖ Deepening:
    - Outer Entrance Channel (Flare, Cut 1, Cut 2): Up to 60 feet
    - Inner Channel (Cut 3, Fisher Island Turning Basin, Fishermans Channel and Lummus Turning Basin): Up to 55 feet
  - ❖ Widening
    - Start of Entrance Channel through to start of Dodge Island Cut

Hardbottom/Coral Resources

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As of:
POC:

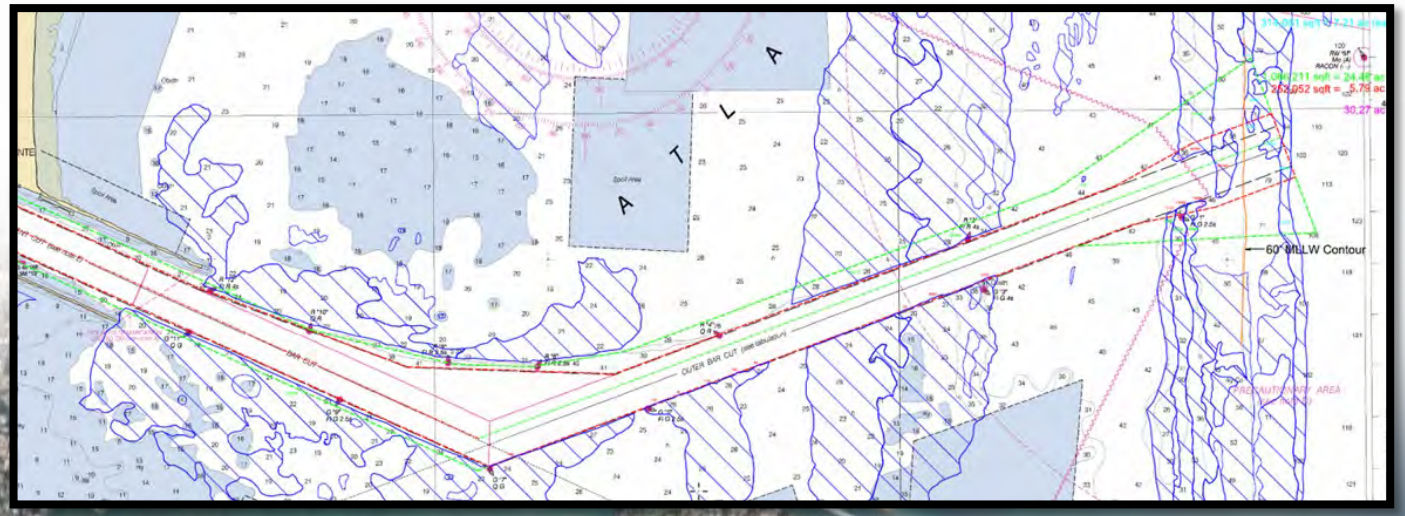
MIAMI HARBOR NAVIGATION IMPROVEMENT STUDY

BUILDING STRONG

- **Schedule:**
  - ❖ Tentatively Selected Plan: 25 Oct 2024
  - ❖ Agency Decision Milestone: 23 Jun 2025
  - ❖ Signed Chief's Report: 16 Jun 2026

- **Challenges / Risks**
  - ❖ Environmental Compliance
    - Reduce Direct and Indirect Impacts to Resources
    - Developed Multiple Alternatives to Test at Ship Simulation (Direct)
    - Use SE FL Morphodynamics Study to Investigate Potential for Reduction in Mitigation Costs (Indirect)
  - ❖ Economically Justified Project (due to very high environmental costs)

Hardbottom/Coral Resources



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STUDY OVERVIEW

BUILDING STRONG

STUDY AUTHORITY: Section 216 of the Flood Control Act of 1970 (33 USC 426 et seq) as amended

PROBLEMS

- Existing navigation restrictions contribute to delays and transportation cost inefficiencies.
- Current channel depths and widths restrict vessels transiting Miami Harbor.

OPPORTUNITIES

- Increase efficiency of vessels
- Reduce transportation costs
- Reduce frequency of operation and maintenance dredging intervals in high shoaling area
- Beneficial Use of Dredged Material

OBJECTIVES

- Reduce navigation transportation costs to/from Miami Harbor & develop an alternative that minimizes impacts to environmental resources, while providing safe, reliable, and efficient navigation for over the 50-year period of analysis, starting in 2036.

CONSTRAINTS:.

- Avoidance and/or minimization of impacts to cultural resources.
- Avoidance and/or minimization of impacts to essential fish habitat.
- Avoidance and/or minimization of impacts to threatened & endangered species and their designated critical habitat.

DESIGN VESSEL:.

- 14K TEU MSC DANIELA

ADDITIONAL VESSEL TESTED:.

- 12K TEU MAERSK GUAYAQUIL

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POC:

STUDY TIMEFRAME

BUILDING STRONG

SCOPING → **ALTERNATIVE FORMULATION & ANALYSIS** → **FEASIBILITY-LEVEL ANALYSIS** → **CHIEFS REPORT**

1. **ALTERNATIVES MILESTONE**
   Vertical Team concurrence on Array of Alternatives
   12/10/2018
2. **3x3x3 Exception**
   06/2022
3. **TENTATIVELY SELECTED PLAN (TSP) MILESTONE**
   10/25/2024

   Release Draft Report for Public & Agency Review
   12/27/2024
4. **AGENCY DECISION MILESTONE (ADM)**
   06/23/2025
5. **SENIOR LEADER REVIEW PANEL**

   FINAL REPORT TRANSMITTAL TO SOUTH ATLANTIC DIVISION
   10/07/2025
6. 06/26/2026

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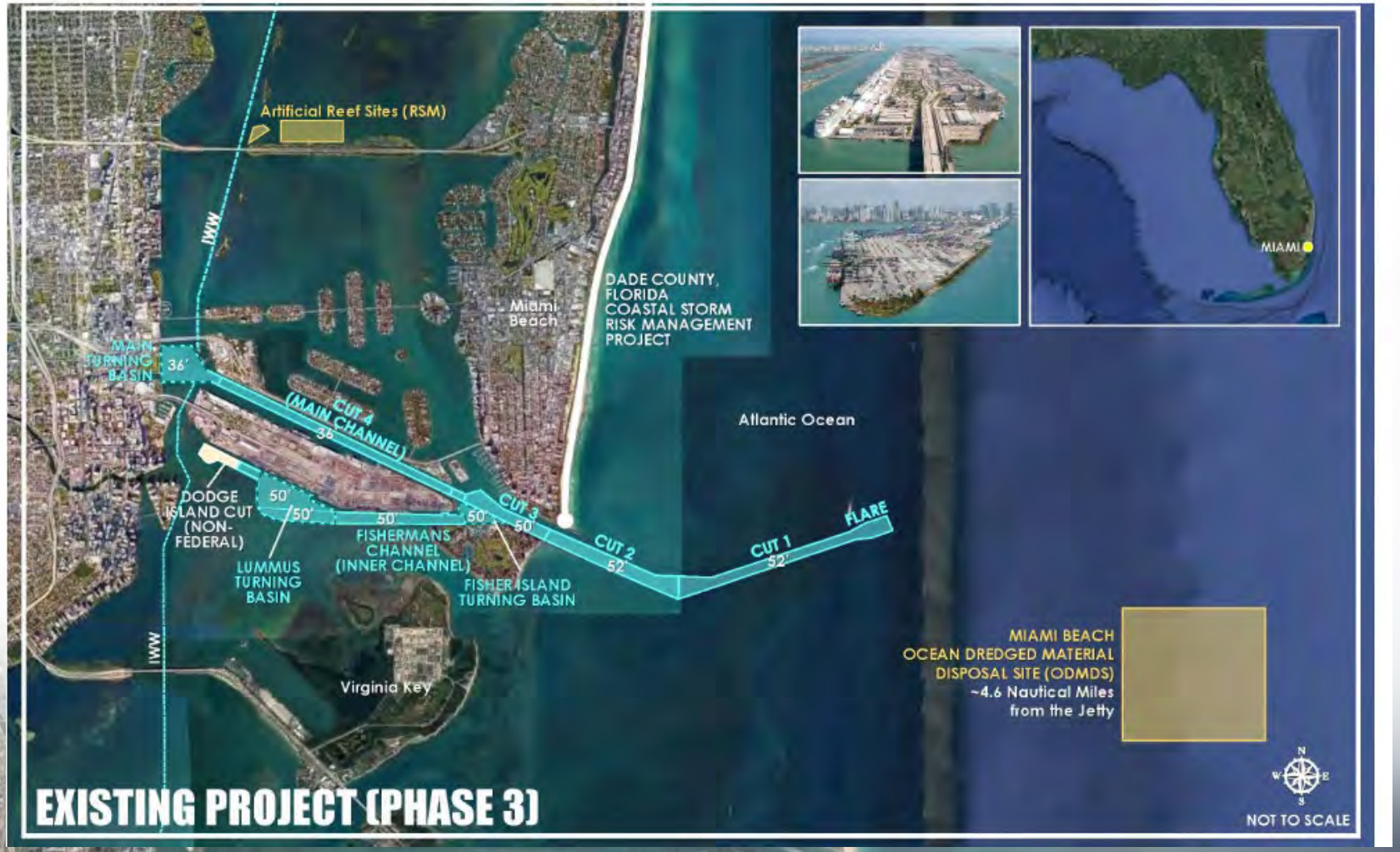
POC:

Existing Project: FWOP

BUILDING STRONG



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CURRENT STUDY EFFORTS

Environmental:

- SAV, Benthic, and ESA survey are occurring through summer and fall of 2023.

Economics:

- Collecting vessel call data and information on current transit guidelines to update existing condition description.

Engineering:

- Ship Simulation occurring last week of August to test alternatives

More Information, Questions, Comments

Website:

https://www.saj.usace.army.mil/MiamiHarborNavigationImprovementStudy/

Email:

CESAJ-MiamiHarbor@usace.army.mil

Project Manager: Mr. Chris McNees

Planning Technical Lead: Mr. Rick Butler

Status update

Re-initiation of the MIAMI-DADE BACK BAY COASTAL STORM RISK MANAGEMENT Feasibility Study

Public Webinar
August 29, 2023

Justine Woodward, Environmental Lead

U.S. Army Corps of Engineers, Norfolk District

U.S.ARMY

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MIAMI-DADE COUNTY

https://www.saj.usace.army.mil/MiamiDadeBackBayCSRMFeasibilityStudy/

How we GO forward in Miami-Dade

Key Successes over the Past Year

We're excited to move forward with a 'GO!'

- Hundreds of residents and stakeholders engaged through expanded collaboration via webinars, charrettes, public meetings and briefings
- Collaboratively developed proposed 'bookend' conceptual alternatives under an expanded study scope
- Identified more natural and nature-based features for further analysis based on stakeholder feedback
- Began internal strategy for centering environmental justice
- Initiated efforts for USACE project/study integration
- Aligned our path forward for this study while considering the broader context of water resource management challenges faced by Miami-Dade County

Study Purpose: To manage **coastal storm risk** through the implementation of coastal storm risk management (CSRM) measures designed to reduce potential damage caused by coastal storms, including preventing loss of human life.

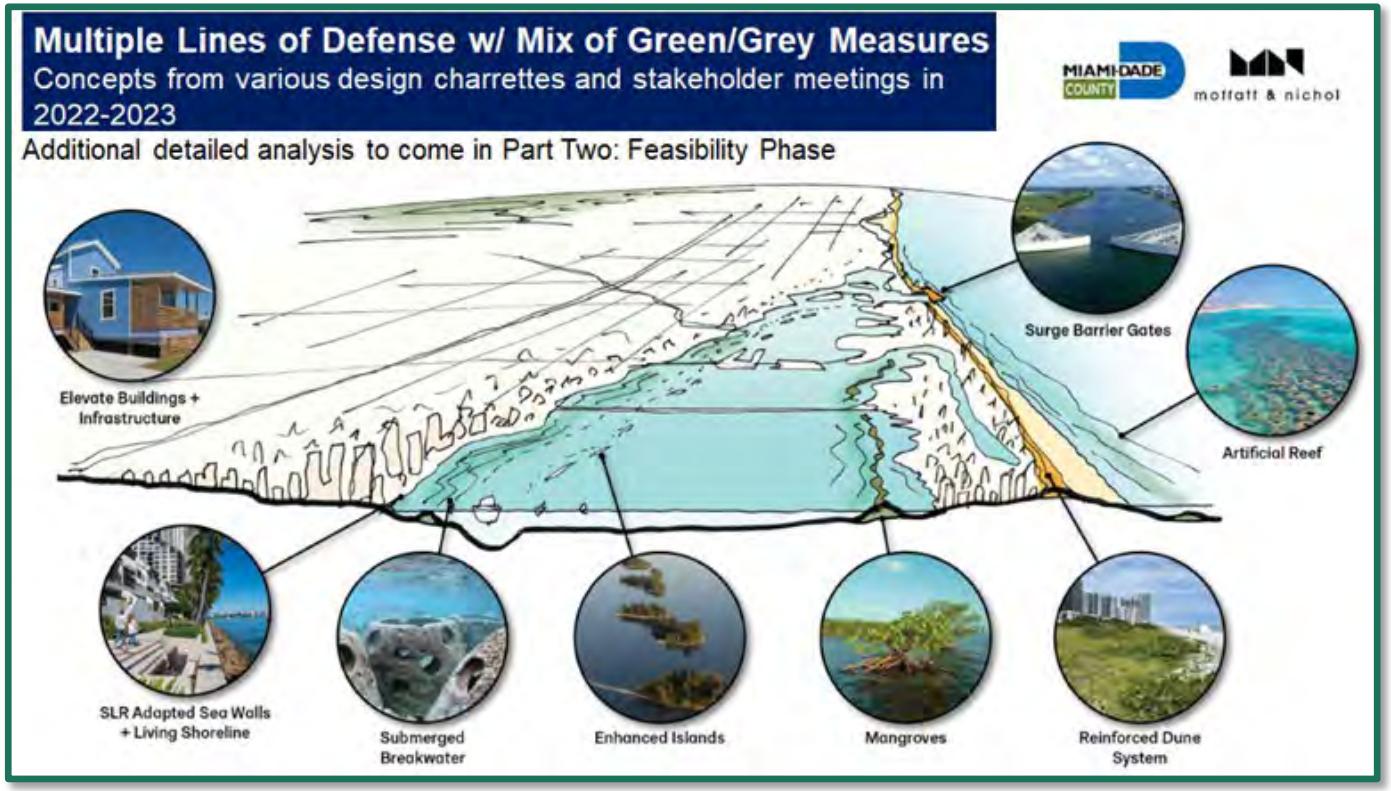
For more information on the history of the study, please visit the project website to view past public webinar recordings and presentations:

https://www.saj.usace.army.mil/MiamiDadeBackBayCSRMFeasibilityStudy/

Study Horizon: The Next Four Years

*During public engagements, **multiple lines of defense** emerged as the guiding principle to address an **expanded geographic scope that is inclusive of vulnerable coastal and environmental justice communities***

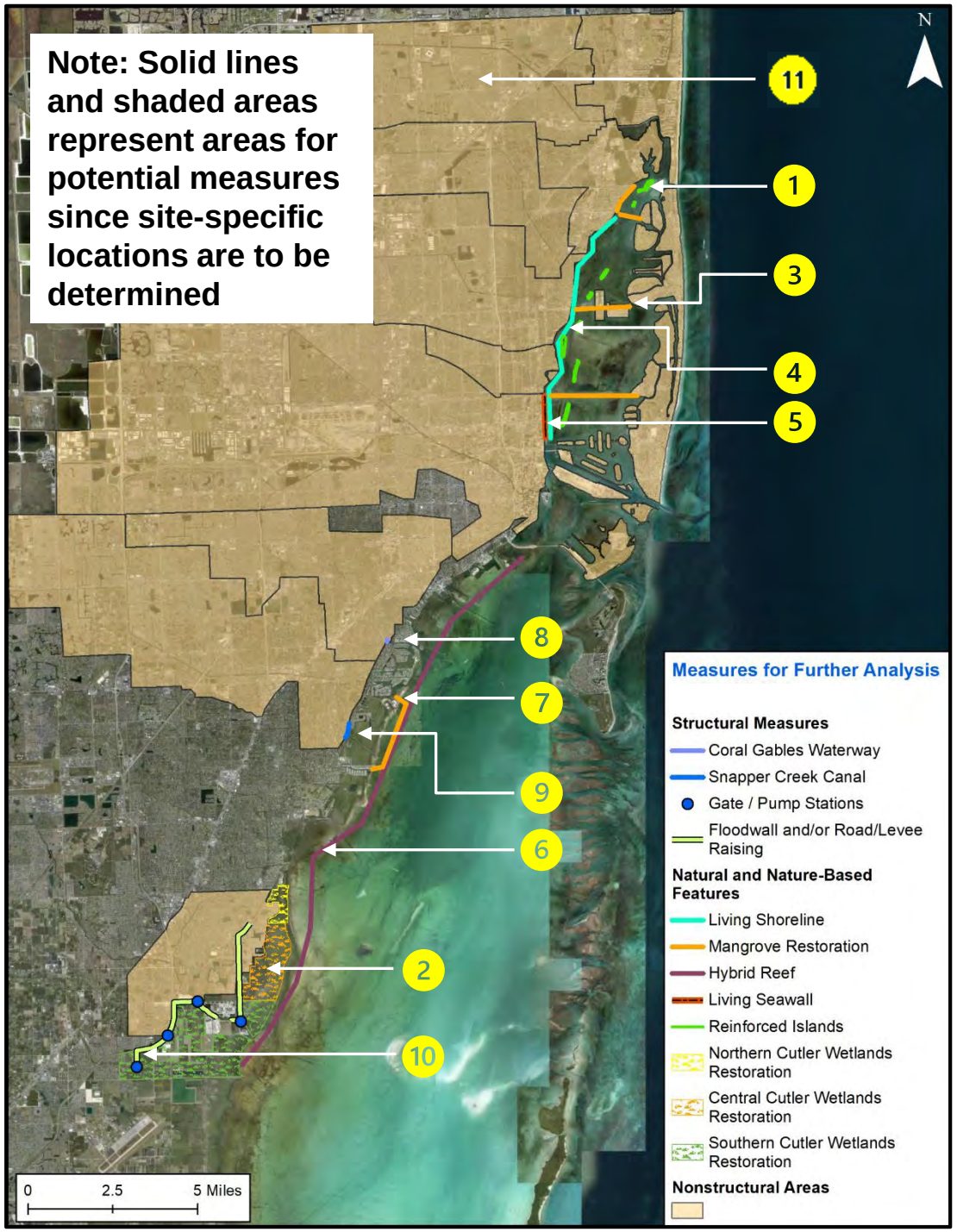
- Analysis, and feasibility design for actionable measures
- Extensive coordination to reach environmental compliance requirements
- Sustained community and public engagement
- Broad evaluation of the Atlantic Coastline Alternative
- Conclusion of the study with a signed Chief's Report in 2027



Miami-Dade County and the U.S. Army Corps of Engineers are committed to working together and support moving forward with an approach that results in a Chief's Report while also progressing toward a more comprehensive and inclusive solution.

~$7.3 M
Part Two Federal Cost

4 years
Part Two Duration



PROPOSED ACTIONABLE MEASURES

Key measures for further analysis and coordination:

Critical Infrastructure (Countywide)

Floodproofing (not shown on map)

Natural and Nature-Based Features*

1. Reinforced Islands in Biscayne Bay
2. Wetland Restoration at Northern, Central, & Southern Cutler Wetlands
3. Mangrove Restoration along Causeways
4. Living Shoreline along Mainland
5. Living Seawall along Edgewater
6. Hybrid Reef Structure
7. Mangrove Restoration

*site-specific locations not yet identified

USACE Study Integration efforts

Potential Structural Measures

8. Surge Barrier System at Coral Gables Waterway
9. Surge Barrier System at Snapper Creek
10. Cutler Bay Floodwall and/or Road/Levee Raising Alignment system

Nonstructural Measures

11. Elevating Residential Buildings and Floodproofing nonresidential buildings which will focus on:
    - Environmental Justice communities
    - High frequency event areas

DRAFT Proposed Measures for USACE 'Back Bay' CSRM Study

Preliminary measures for South Dade

Hybrid & Nature-based features

- Plug & restore mosquito ditches
- Plug & restore old canals
- Rehydrate & restore coastal wetlands (via pumps & spreader canals)

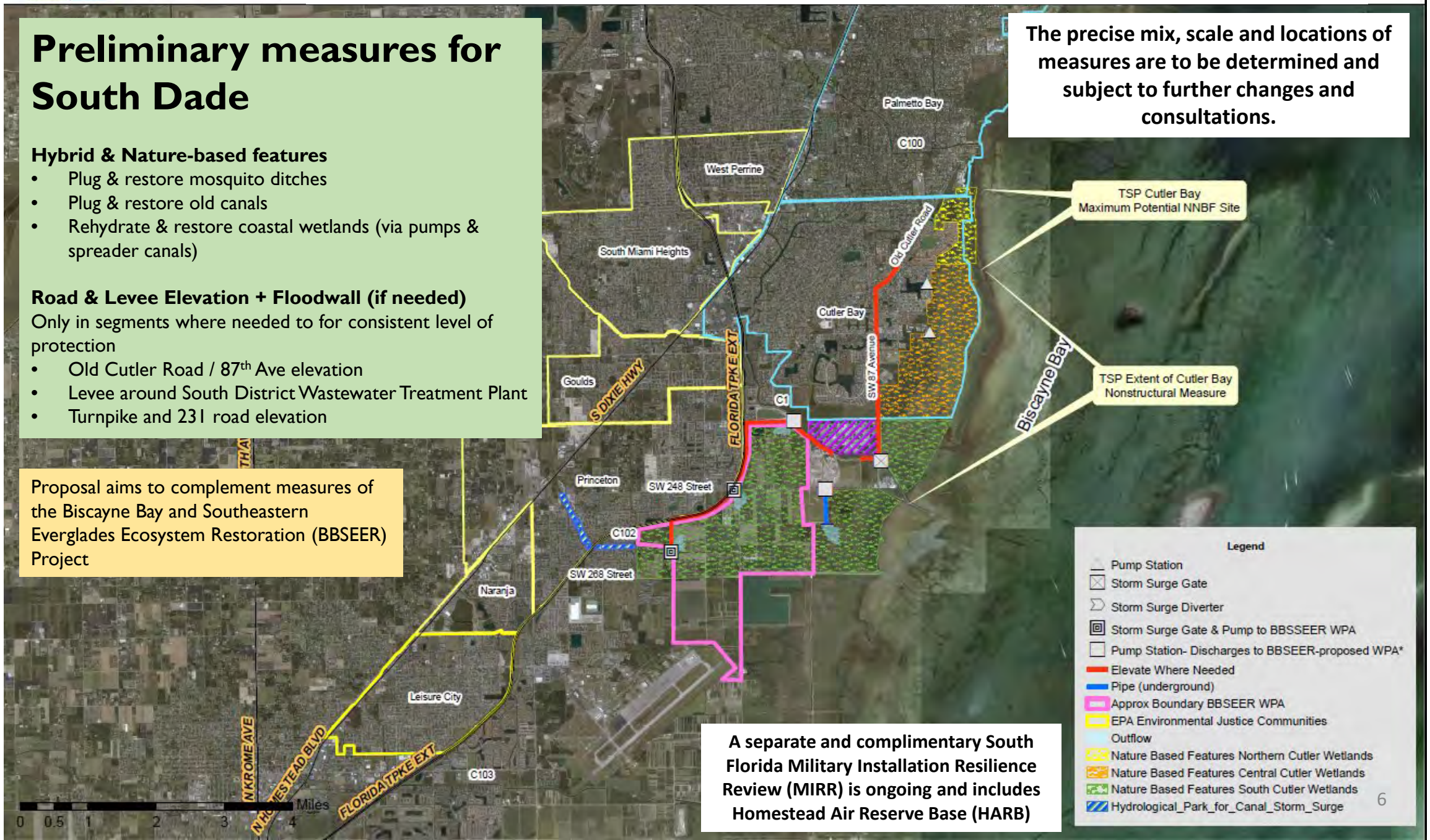
Road & Levee Elevation + Floodwall (if needed)

Only in segments where needed to for consistent level of protection

- Old Cutler Road / 87th Ave elevation
- Levee around South District Wastewater Treatment Plant
- Turnpike and 231 road elevation

Proposal aims to complement measures of the Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) Project

The precise mix, scale and locations of measures are to be determined and subject to further changes and consultations.



A separate and complimentary South Florida Military Installation Resilience Review (MIRR) is ongoing and includes Homestead Air Reserve Base (HARB)

PROPOSED SCHEDULE

4 years

0 – 1 year

Feasibility Study

Authorization

August 2023
GO Meeting

Nov 2025
Tentatively Selected Plan (TSP) Milestone

Oct 2026
Agency Decision Milestone

Aug 2027
Signed Chief's Report

WRDA of 2028

Public engagement opportunities (TBD)

Formal NEPA public comment period

Continued engagement

Identify, analyze, and refine actionable measures → **Integrate & refine based on feedback** →

Coordination & consultation with municipalities, SFWMD + State and Federal resource agencies

Any analysis completed for the Atlantic Coastline Alternative structural measure system would be documented in the 2027 Chief's Report and used to inform the scope and continuation of a follow-on feasibility study

***All timelines are estimated and subject to change**

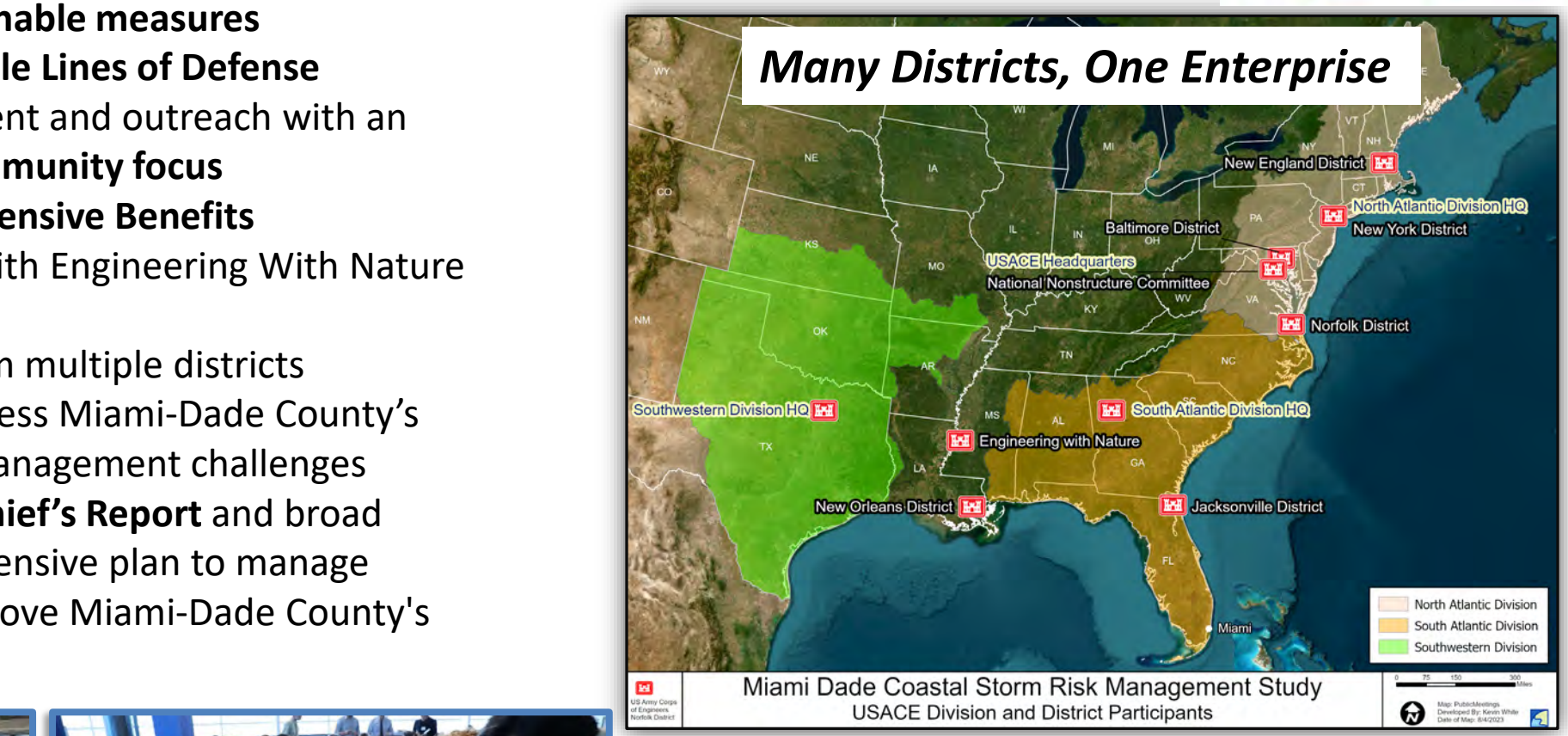
Comprehensive Benefits Evaluation

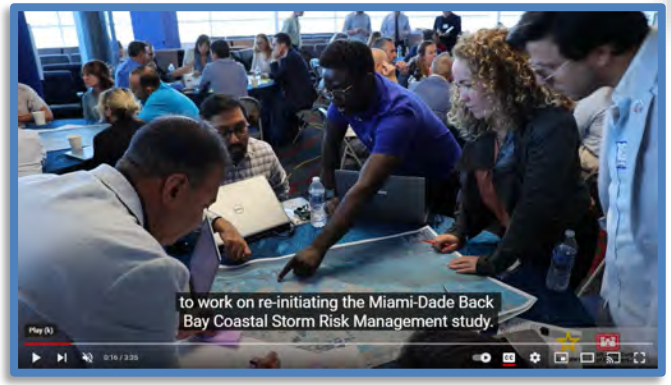
- USACE Policy Directive (January 2021)
  - Requires a comprehensive consideration of total project benefits
- Benefit Categories:
  - Regional economics
  - Other social effects
  - Environment
- Presents community engagement opportunity to develop specific metrics or criteria for each category

Source: https://planning.erdc.dren.mil/toolbox/library/MemosandLetters/ComprehensiveDocumentationofBenefitsinDecisionDocument_5January2021.pdf

Path Forward

- Feasibility analysis of **actionable measures**
- Guiding principle of **Multiple Lines of Defense**
- Sustained public engagement and outreach with an **Environmental Justice community focus**
- Quantification of **Comprehensive Benefits**
- Continued **collaboration** with Engineering With Nature team
- Utilization of expertise from multiple districts
- **Project integration** to address Miami-Dade County's complex water resource management challenges
- Concludes with a **signed Chief's Report** and broad investigation of a comprehensive plan to manage coastal storm risk and improve Miami-Dade County's resilience to coastal storms





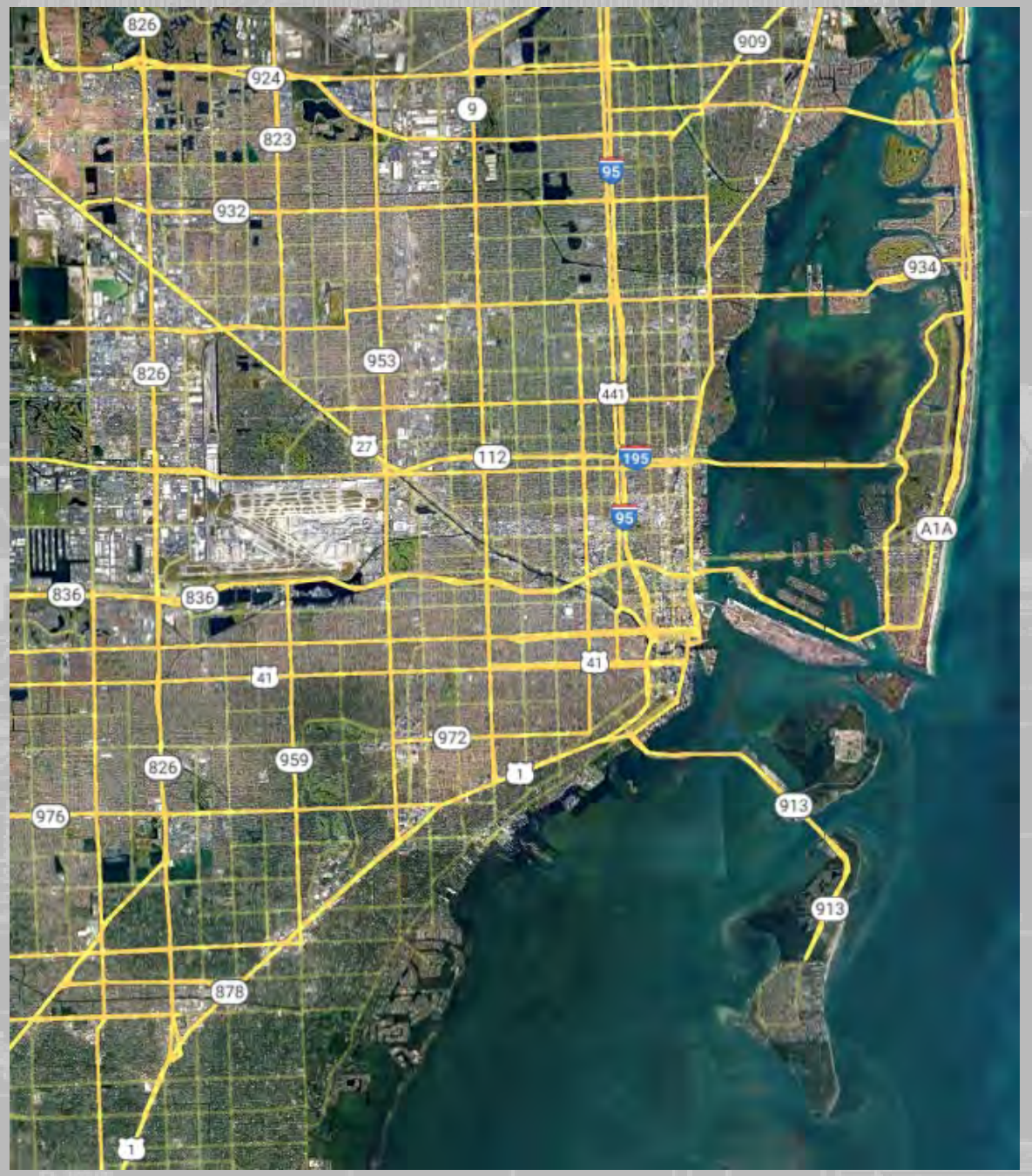
For additional inquires and questions, please email:
MDBB-CSRMStudy@usace.army.mil
or
resilience@miamidade.gov

Project website: https://www.saj.usace.army.mil/MiamiDadeBackBayCSRMFeasibilityStudy/

USACE SOUTHEAST FLORIDA PROJECT INTEGRATION VIRTUAL PUBLIC MEETING

AUGUST 29, 2023

Miami-Dade County (MDC) Coastal Storm Risk Management (CSRM) Project



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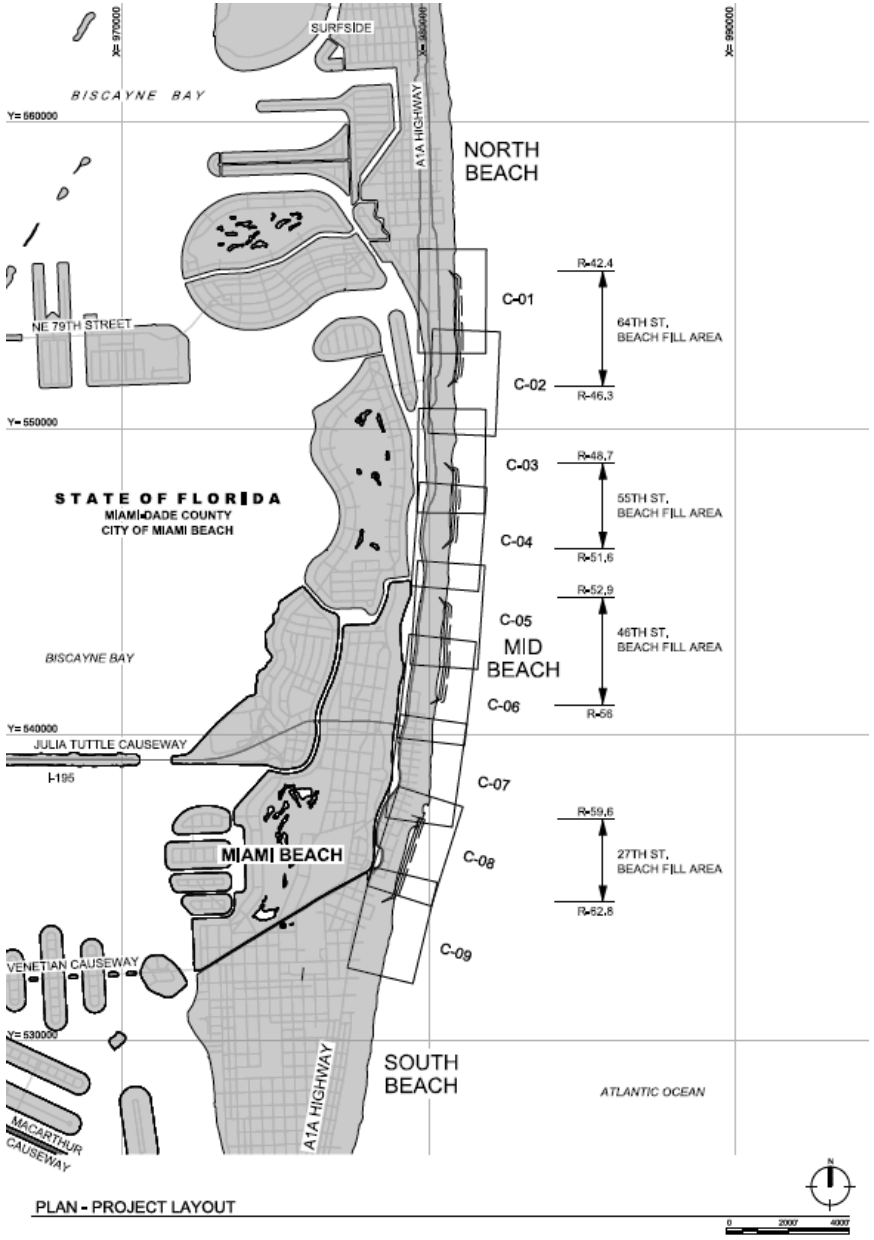
MDC BEACH RENOURISHMENT – CONTRACT E

Contract Overview

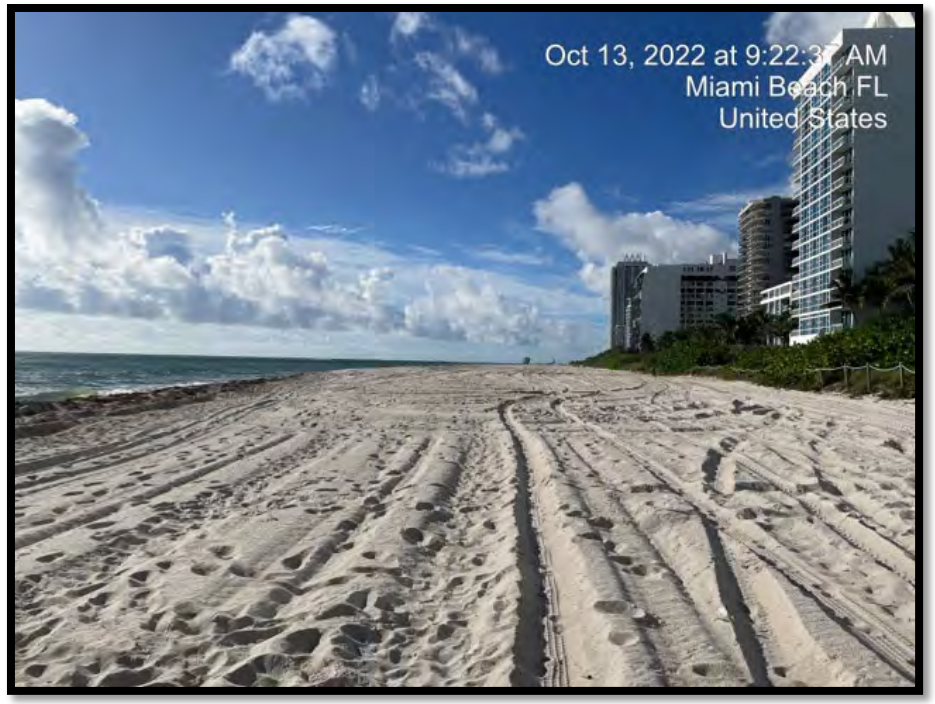
- **Title:** Beach Erosional Control and Hurricane Protection Project, Miami Beach Renourishment 2021, Miami-Dade County, Florida
- **Contract No.:** W912EP21C0013
- **Contractor:** Continental Heavy Civil Corporation
- **Contract Amount:** $40,486,000
- **Award Date:** 30 July 2021
- **Four Segments of Nourishment**
  - ❖ 64th Street Fill Area – R-42.4 to R-46.3
  - ❖ 55th Street Fill Area – R-48.7 to R-51.6
  - ❖ 46th Street Fill Area – R-52.9 to R-56
  - ❖ 27th Street Fill Area – R-59.6 to R-62.8
- Approximately 13,000 linear feet of nourishment
- **Estimated Quantity:** 835,000 cubic yards (cy)
- **Final Quantity:** 857,686 cy

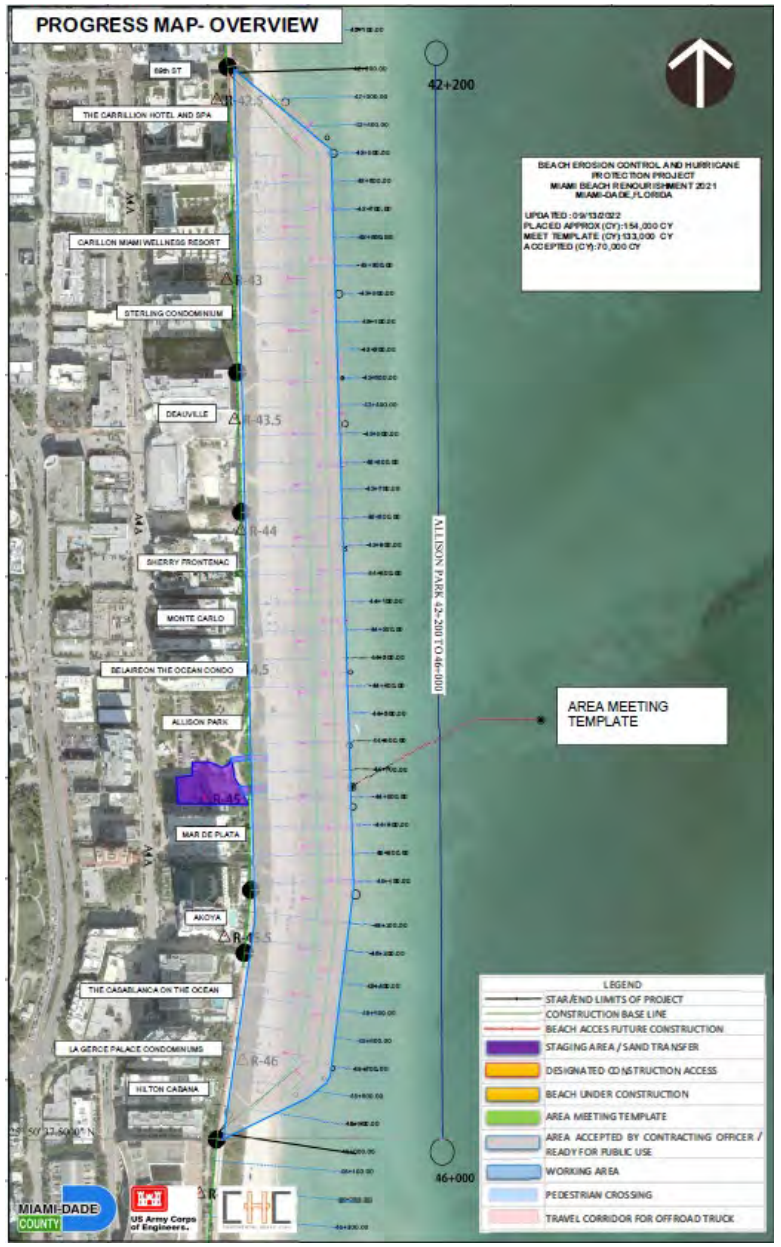


MDC BEACH RENOURISHMENT – CONTRACT E

64th Street Fill Area – R-42.4 to R-46.3

- **Segment 1** - Allison Park – 65th Street
- **Length:** Approximately 3,800 Linear Feet
- **Estimated Quantity:** 210,000 cy
- **Final Quantity:** 206,222 cy
- **Nourishment Activities Completed:** 13 Oct 2022

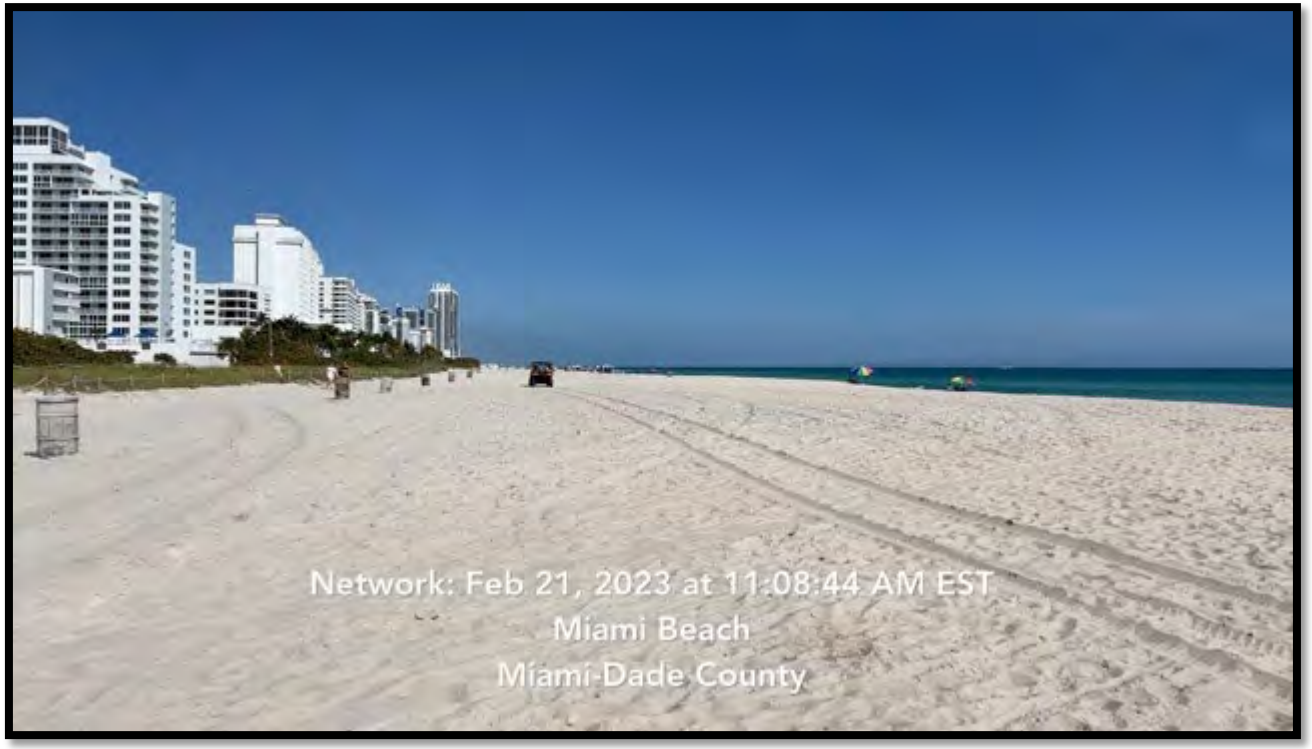




MDC BEACH RENOURISHMENT – CONTRACT E

55th Street Fill Area – R-48.7 to R-51.6

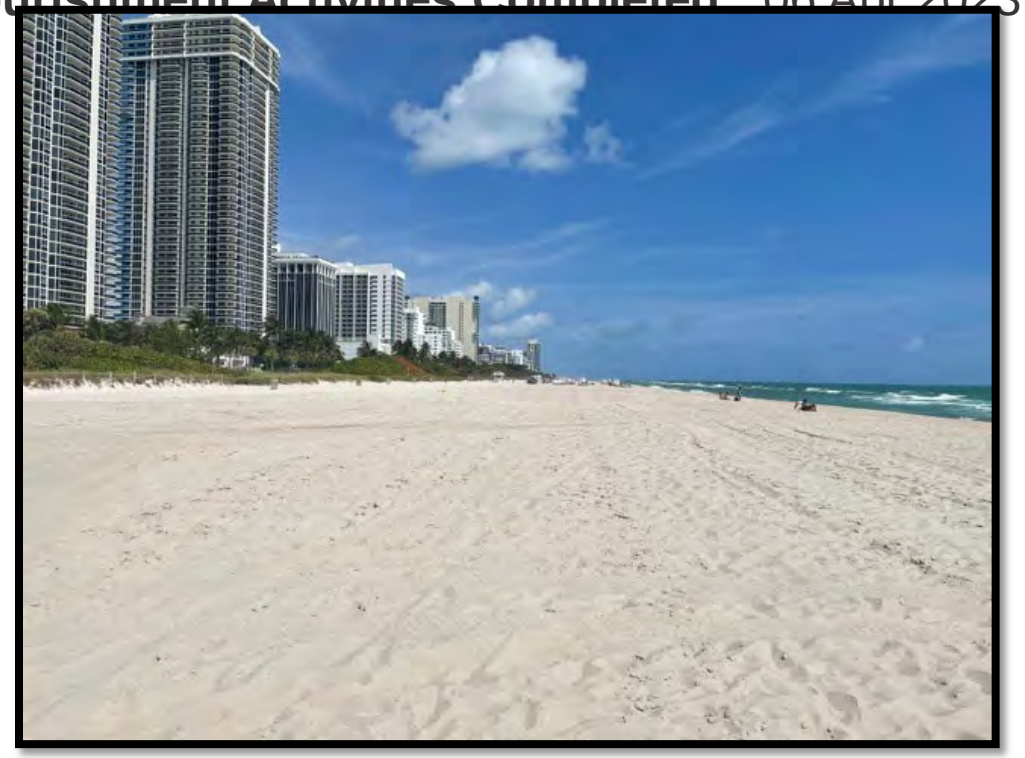
- **Segment 2** - Beach View Park – 53rd Street
- **Length:** Approximately 2,800 Linear Feet
- **Estimated Quantity:** 175,000 cy
- **Final Quantity:** 198,061 cy
- **Nourishment Activities Completed:** 21 Feb 2023



MDC BEACH RENOURISHMENT – CONTRACT E

46th Street Fill Area – R-52.9 to R-56

- **Segment 3** - Indian Beach Park – 46th Street
- **Length:** Approximately 3,500 Linear Feet
- **Estimated Quantity:** 245,000 cy
- **Final Quantity:** 231,222 cy
- **Nourishment Activities Completed:** 06 Apr 2023



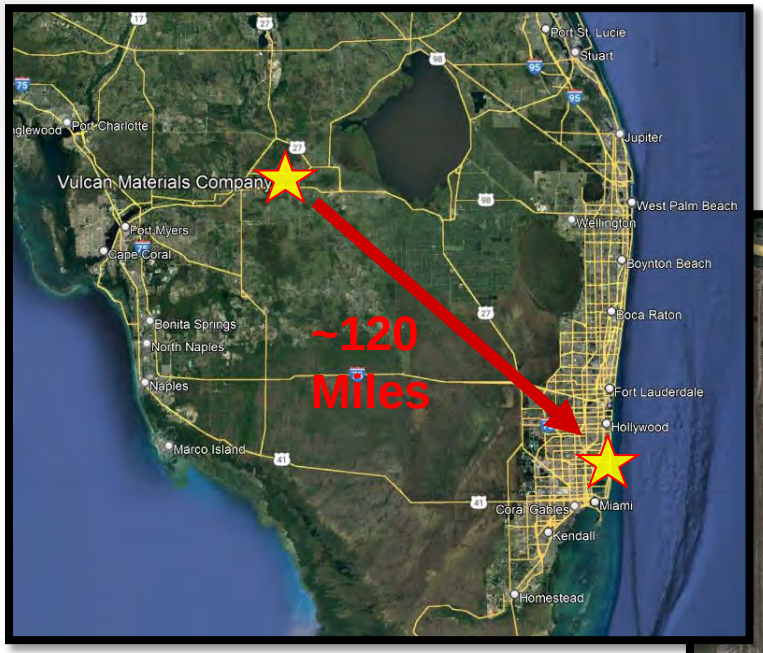
MDC BEACH RENOURISHMENT – CONTRACT E

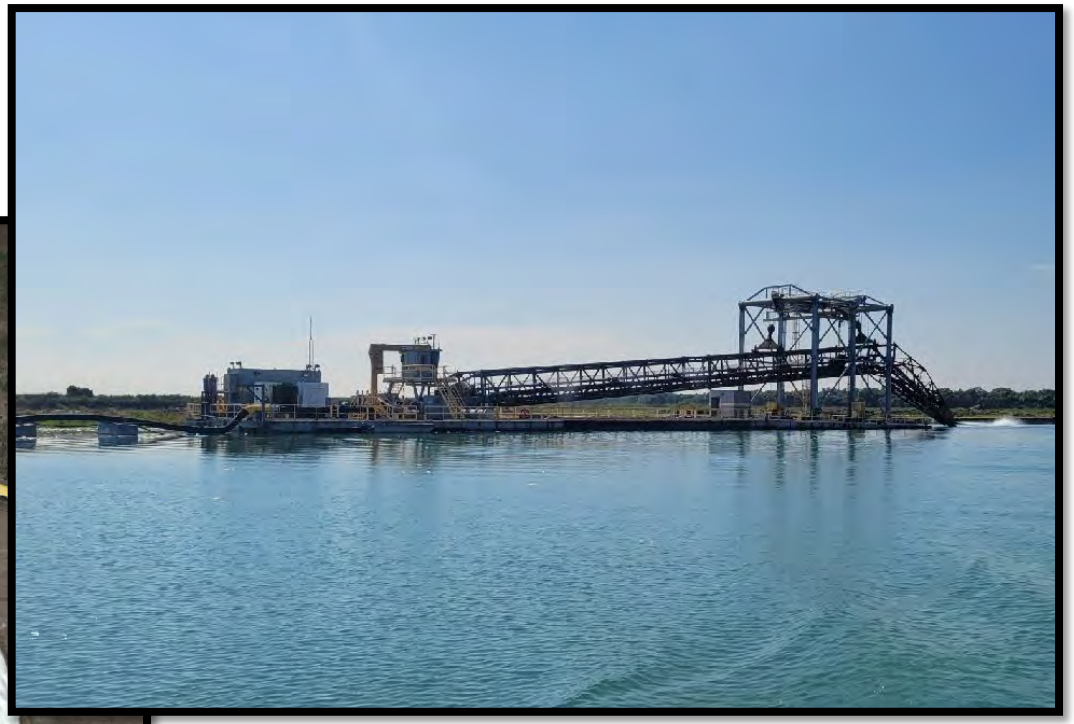
27th Street Fill Area – R-59.6 to R-62.8

- **Segment 4**
- **Length:** Approximately 3,000 Linear Feet
- **Estimated Quantity:** 205,000 cy
- **Final Quantity:** 222,181 cy
- **Nourishment Activities Completed:** 03 Aug 2023

MDC BEACH RENOURISHMENT – CONTRACT E

HOW DID WE DO IT?...SAND IS DREDGED AT THE MINE





MDC BEACH RENOURISHMENT – CONTRACT E

HOW DID WE DO IT?...DREDGED SEDIMENTS/SLURRY PUMPED TO THE PLANT

Dredge Pipeline to Plant

MDC BEACH RENOURISHMENT – CONTRACT E

HOW DID WE DO IT?...PLANT SEGREGATES THE BEACH-QUALITY SAND.

MDC BEACH RENOURISHMENT – CONTRACT E

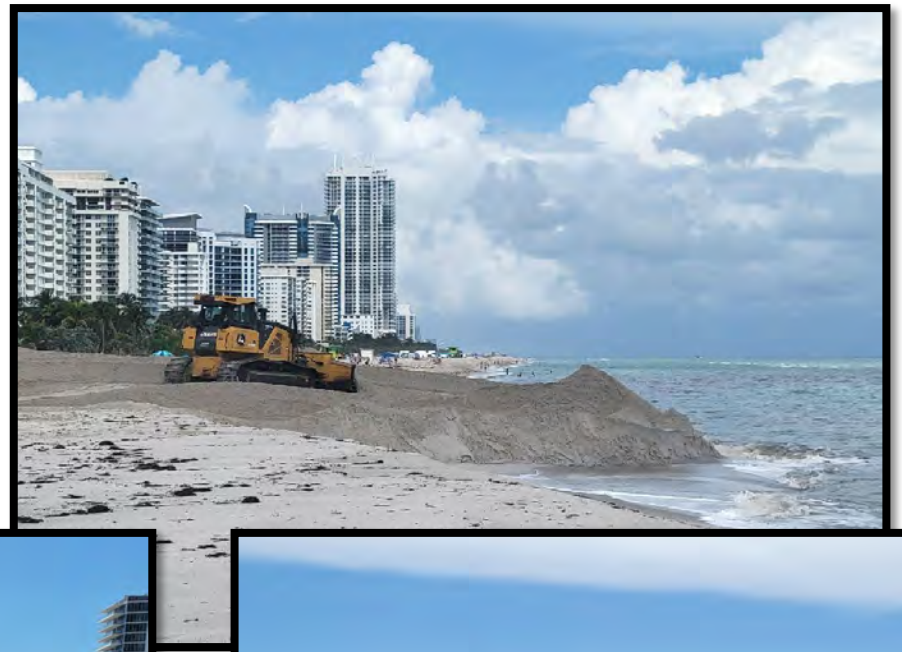
HOW DID WE DO IT?...TRUCKS ARE LOADED…SOUTHBOUND TO MIAMI !

MDC BEACH RENOURISHMENT – CONTRACT E

HOW DID WE DO IT?...SAND IS OFFLOADED AND TRANSFERRED TO OFF-ROAD DUMP TRUCKS.

MDC BEACH RENOURISHMENT – CONTRACT E

HOW DID WE DO IT?...SAND IS PLACED AND BULLDOZERS SHAPE THE BERM'S HEIGHT AND WIDTH.



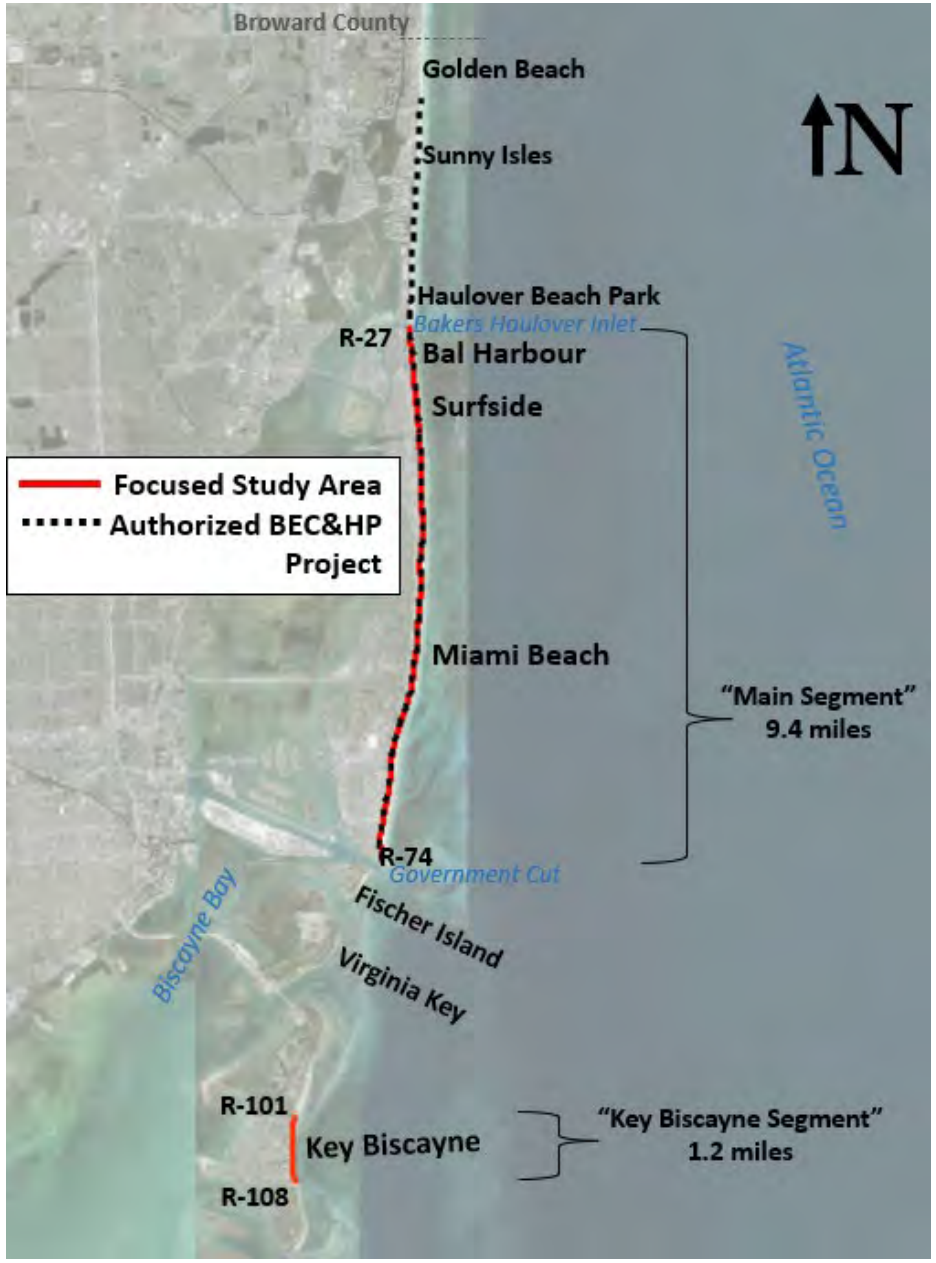
MDC BEACH RENOURISHMENT – CONTRACT E

HOW DID WE DO IT?...VOILA – A RENOURISHED BEACH!

MDC BEACH CSRM – AUTHORIZED WRDA 2022

Project Location & Study Area

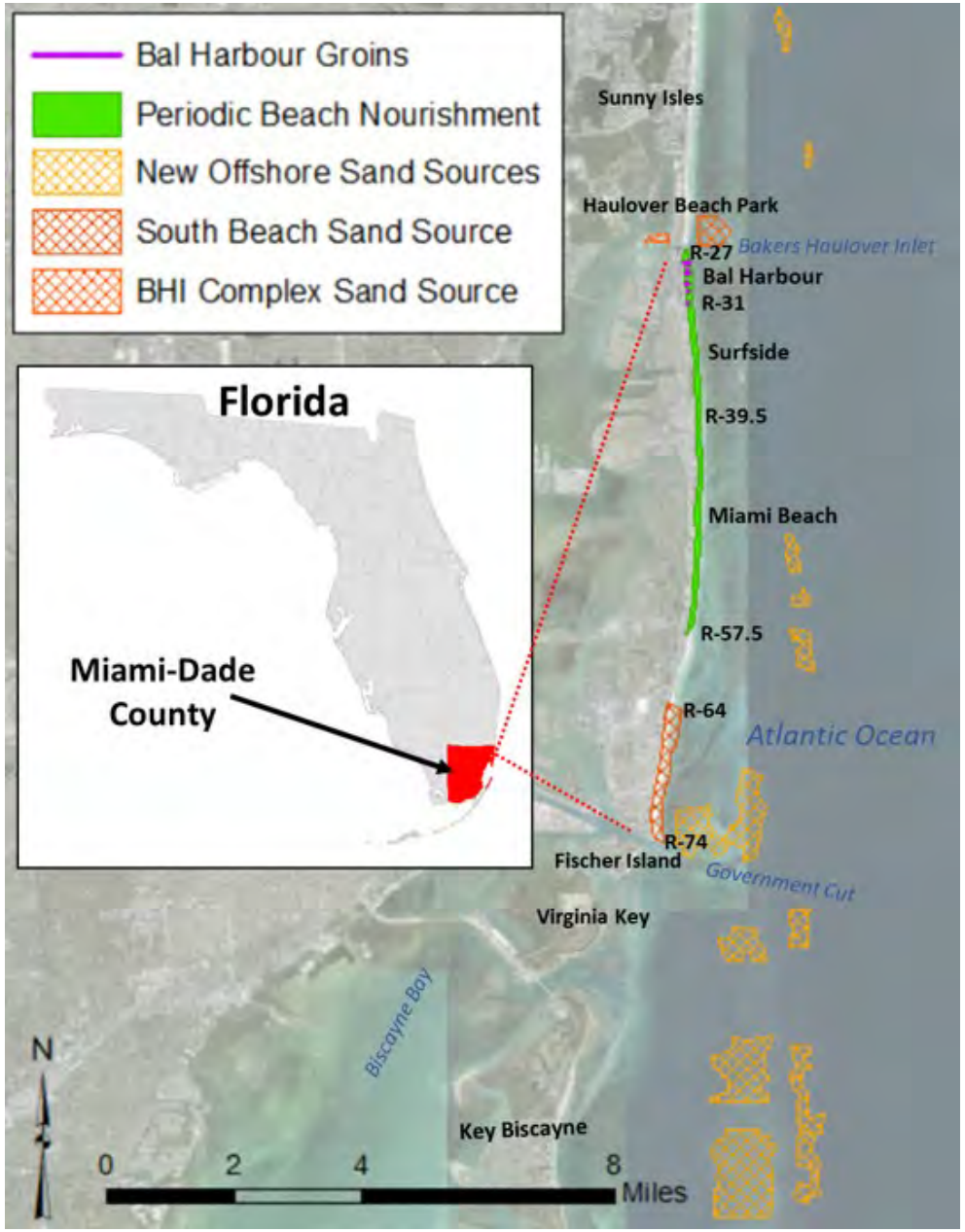
- **Sunny Isles Segment**
  - ❖ 2.5 Miles Long (R-7 to R-19.3)
- **Main Segment**
  - ❖ 10.8 miles long
  - ❖ Reaches
    - Haulover Beach Park (R19.3 to R-26)
    - Bal Harbour (R-27 to R-31)
    - Surfside (R-31 to R-38)
    - Miami Beach (R-38 to R-74)
  - ❖ Focused Study Area
    - 9.4 Miles Long
- **Key Biscayne**
  - ❖ 1.2 Miles Long (R-101 to R-108)



MDC BEACH CSRM – AUTHORIZED WRDA 2022

Authorized Plan

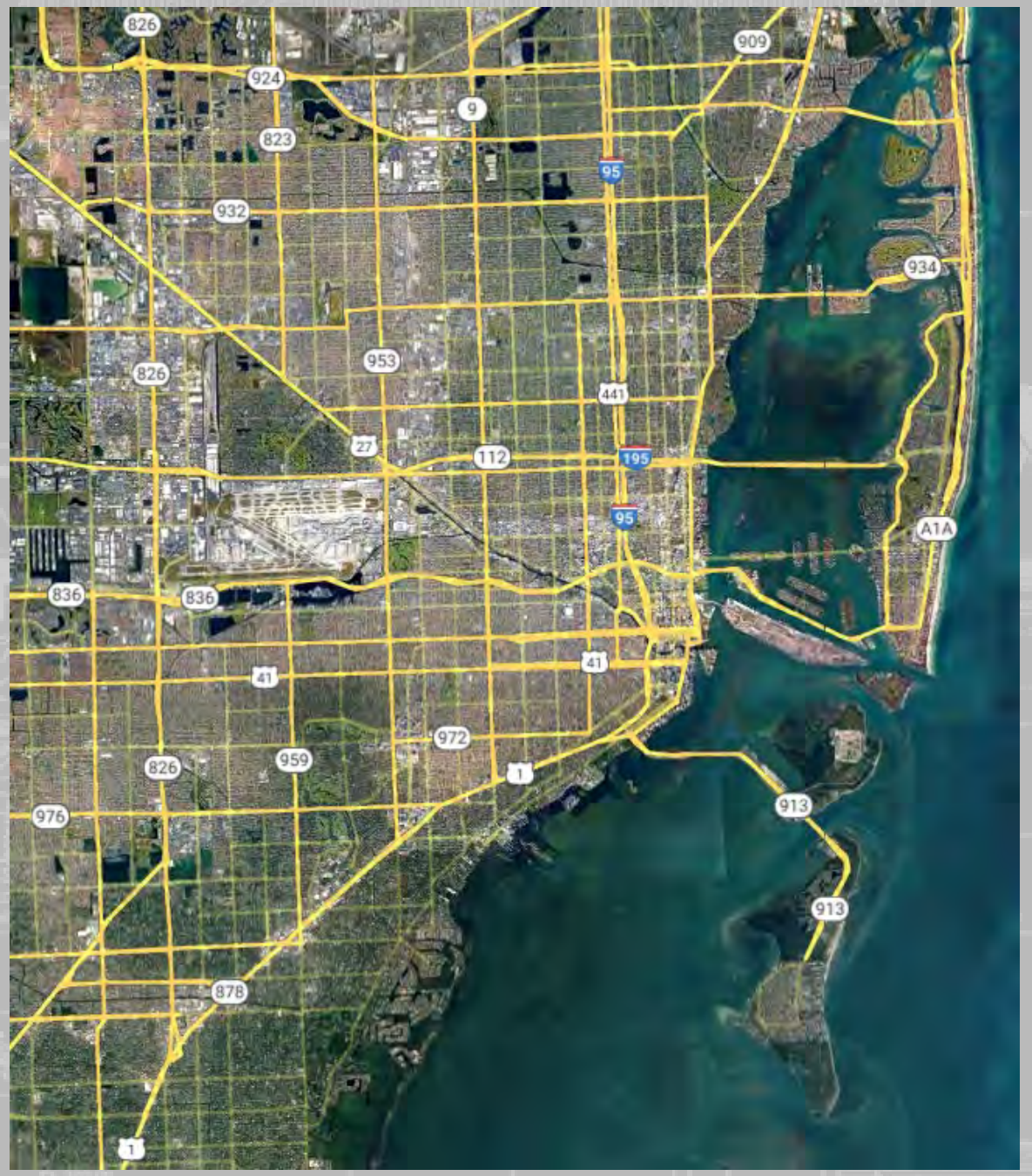
- **Periodic Beach Renourishment (6.1 Miles, includes dunes)**
  - R-27 to R-39.5: 25-ft wide equilibrated berm at elevation 7 feet NAVD88 (6.1 feet MSL)
  - R-39.5 to R-56.5: 50-ft wide equilibrated berm at elevation 7 feet NAVD88 (6.1 feet MSL)
  - Transition from a 25-ft to 50-ft wide berm template between R-39 and R-39.5 and taper from R-56.5 to R-57.5
  - 20-ft wide dune crest at elevation 9.5 feet NAVD88 (8.6 feet MSL)
- **Five Groins**
  - R-28 to 31.5: Bal Harbour Reach
- **Sand Sources**
  - Bakers Haulover Inlet (BHI) Complex Borrow Areas
  - Back-passing from the existing and expanded beach and nearshore areas of South Beach
  - New offshore sites
  - Anticipated reduction, if not elimination, of truck-haul events



USACE SOUTHEAST FLORIDA PROJECT INTEGRATION VIRTUAL PUBLIC MEETING

AUGUST 29, 2023

Village of Key Biscayne CSRM Study



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KEY BISCAYNE CSRM STUDY

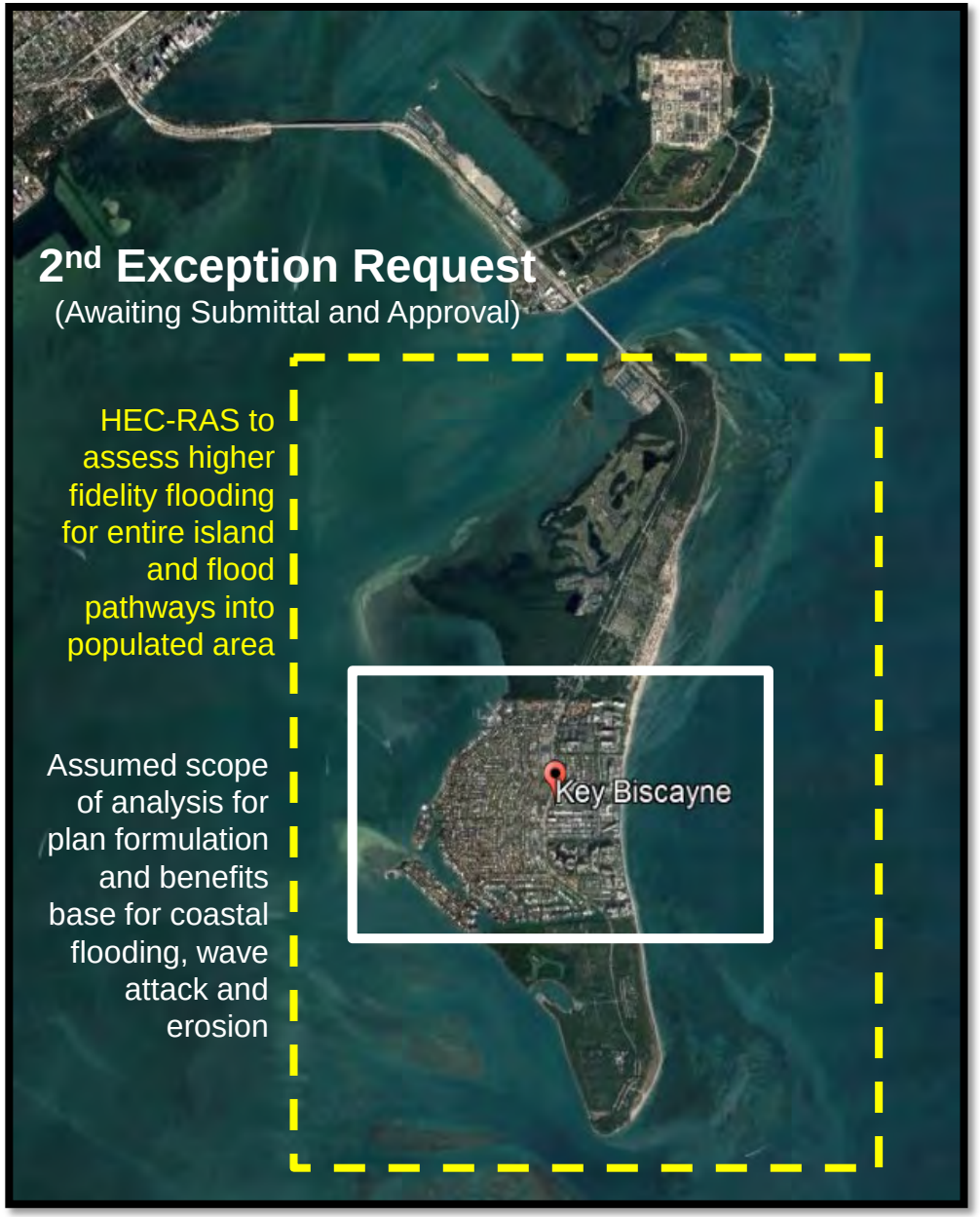
Brief Study History for Key Biscayne (KB)

- **2018**: KB was originally included in Main Segment's study
- **2019**: KB Segment screened from study due to lack of public access
- **2020**: KB re-included in Main Segment study after Village developed policy-compliant public access plan
- **2021**: Study found benefits along ocean shoreline; however, damages from the back bay outweighed the ocean benefits
- **2022**: Corps concluded the KB Segment needed its own new start study to evaluate CSRM from the ocean and back bay sides of the island
- **2023**: Initial appropriations provided in the FY23 Work Plan to initiate the KB Segment's study
- **Oct 31, 2023**: Scheduled execution date of the Feasibility Cost Share Agreement between the Corps and Miami-Dade County

KEY BISCAYNE CSRM STUDY

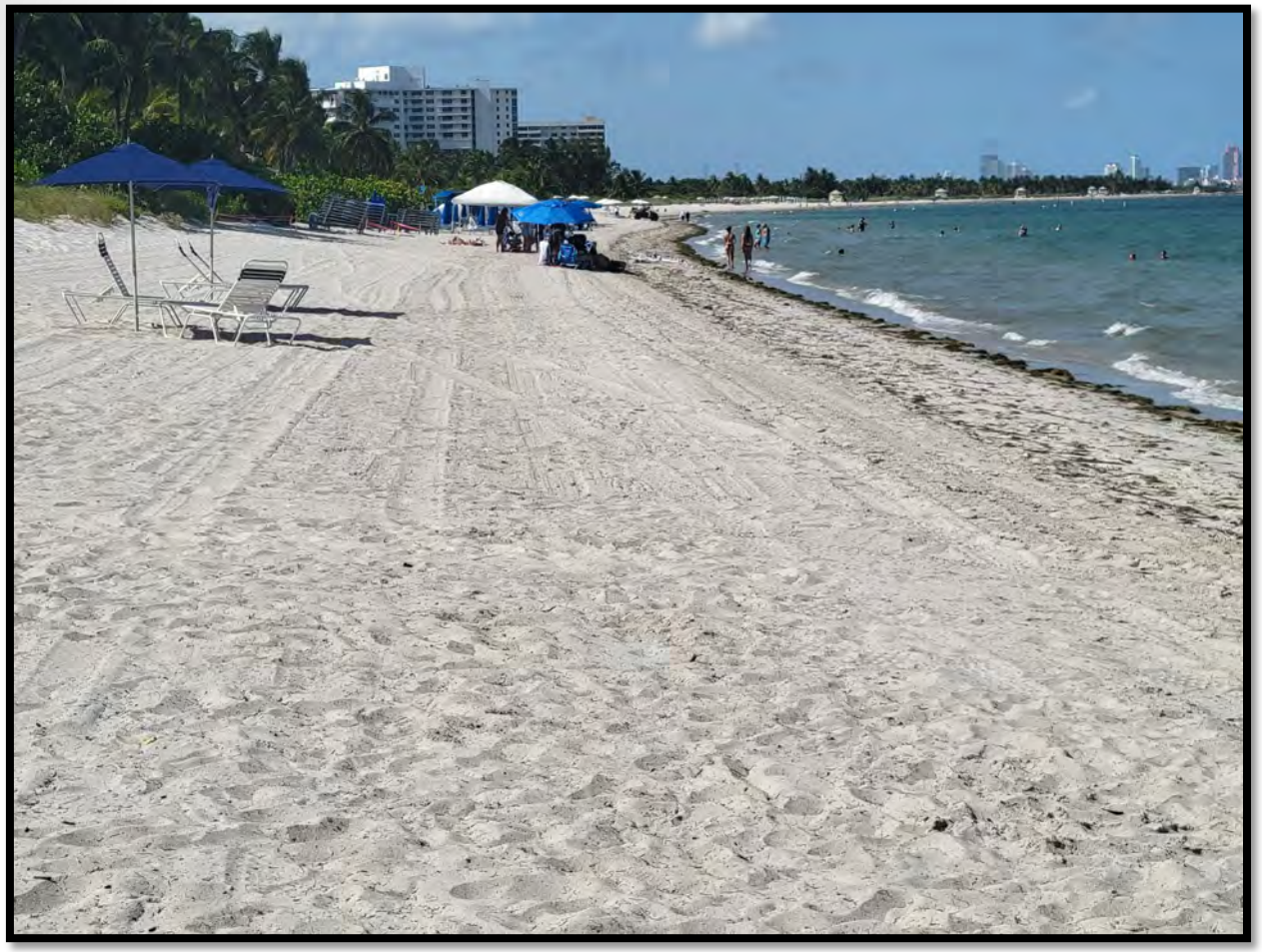
Anticipated Study Analysis and Surveys

- Hydrologic Engineering Center-River Analysis System (HEC-RAS) modeling to assess higher fidelity flooding for entire island and flood pathways
- Generation 2 Coastal Risk Model (G2CRM) modeling of the Back Bay
- Environmental and Cultural Surveys
- Geotechnical Surveys
- Depreciation less replacement value sampling
- Expanded Structural Inventory
  - Yellow dots: Structural Inventory previously completed
  - Red dots: Additional Structures to be analyzed



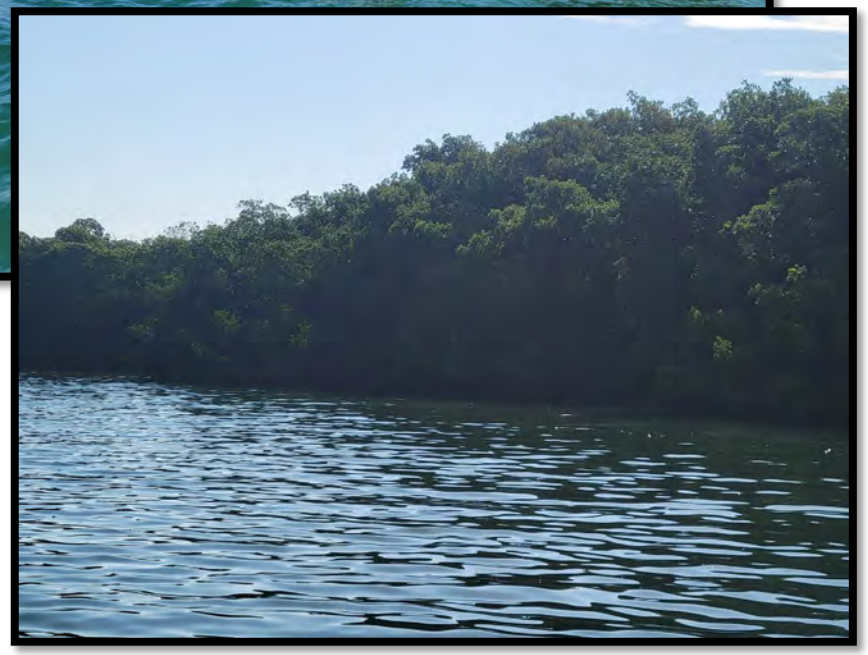
KEY BISCAYNE CSRM STUDY

COASTAL SIDE OF KEY BISCAYNE



KEY BISCAYNE CSRM STUDY

BACK BAY SIDE OF KEY BISCAYNE



CENTRAL AND SOUTHERN FLORIDA (C&SF) FLOOD RESILIENCY STUDY

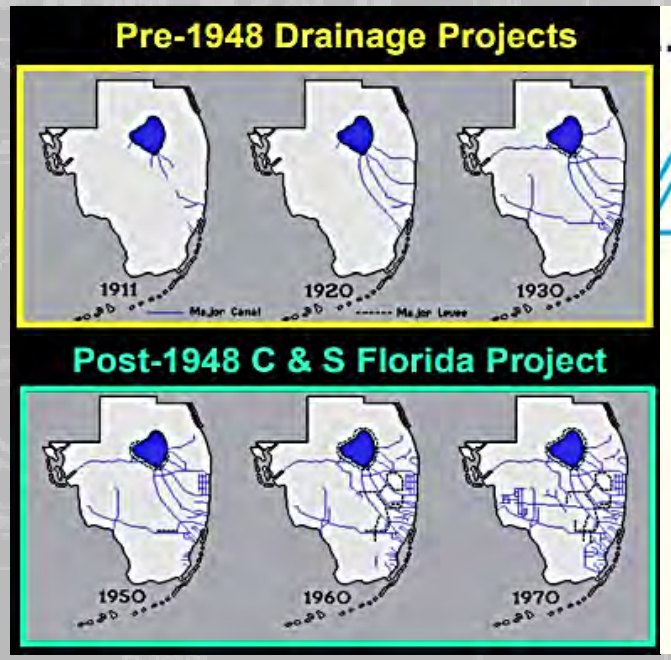
Southeast Florida Projects Integration

29 August 2023

Virtual Meeting

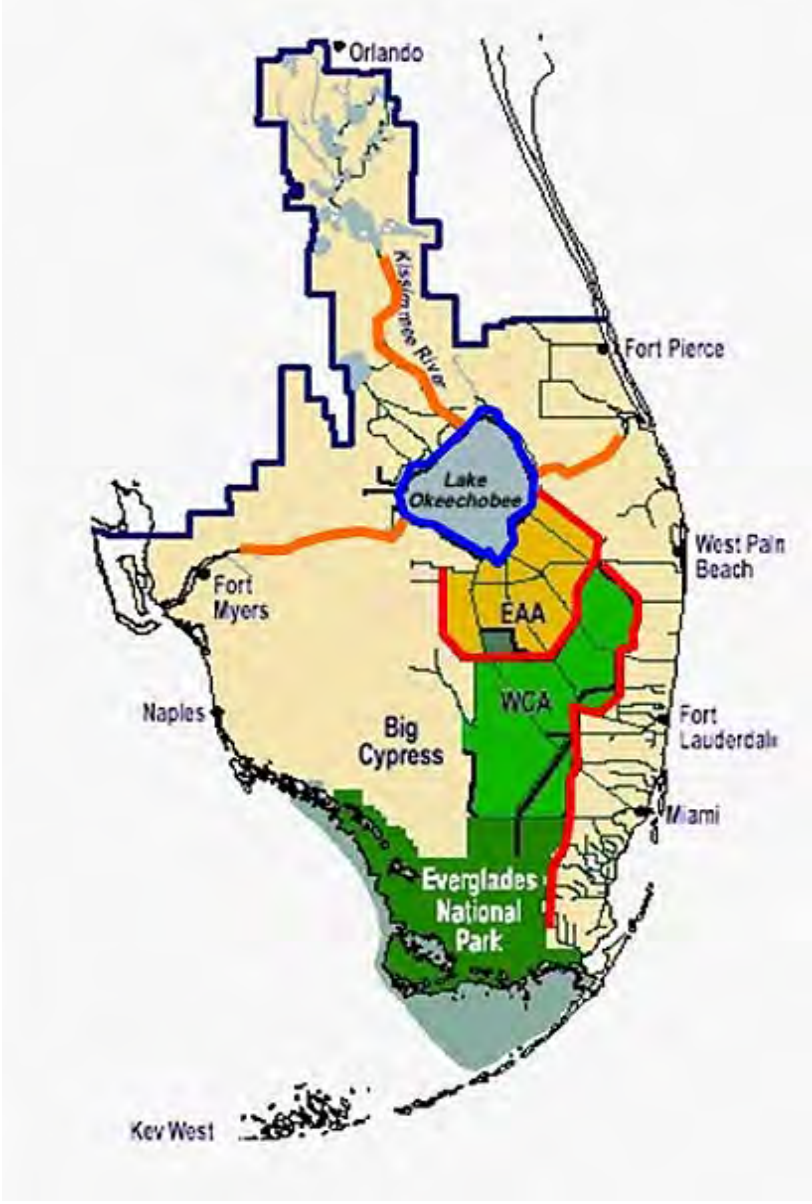
Working Today to Build a Better Tomorrow

US Army Corps of Engineers®

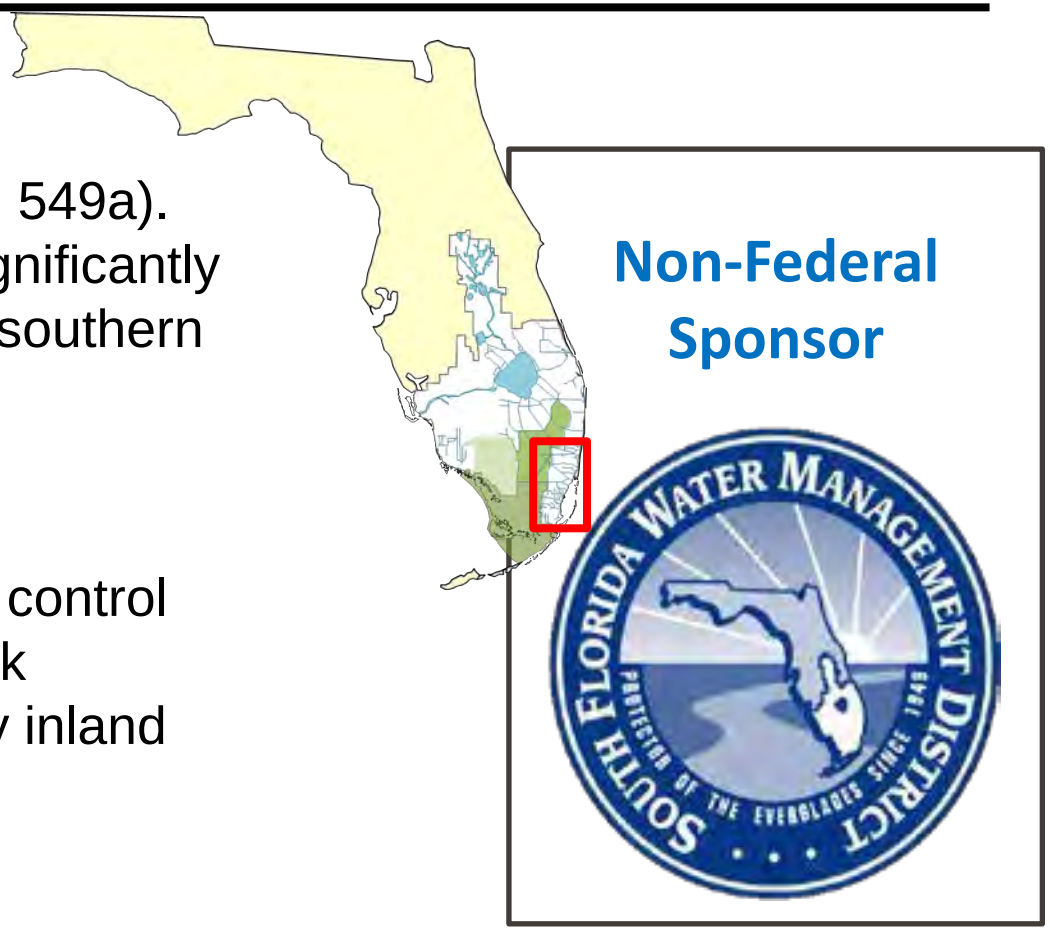


C&SF MAJOR FEATURES AND PURPOSES

- Congressionally-authorized by the Flood Control Acts of 1948 and 1954
- Large multi-purpose water resources project
- System includes canals, levees/berms, pump stations and water control structures



C&SF FLOOD RESILIENCY STUDY OVERVIEW



Authority

- Section 216 of the Flood Control Act of 1970 (33 U.S.C. 549a).
- Review of the existing C&SF infrastructure that have significantly changed due to physical or economic conditions within southern Palm Beach, Broward and Miami-Dade .

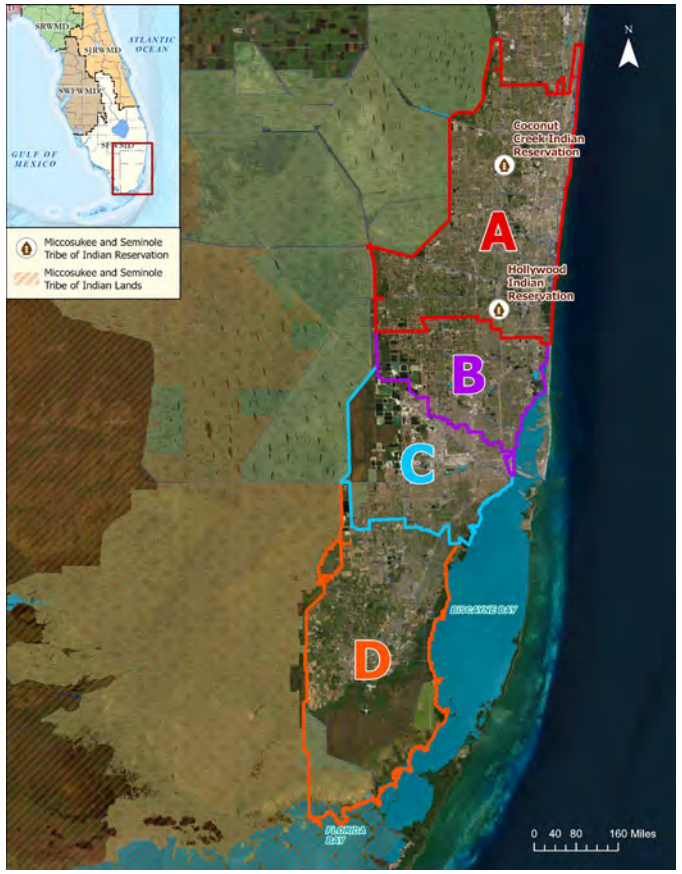
Objective

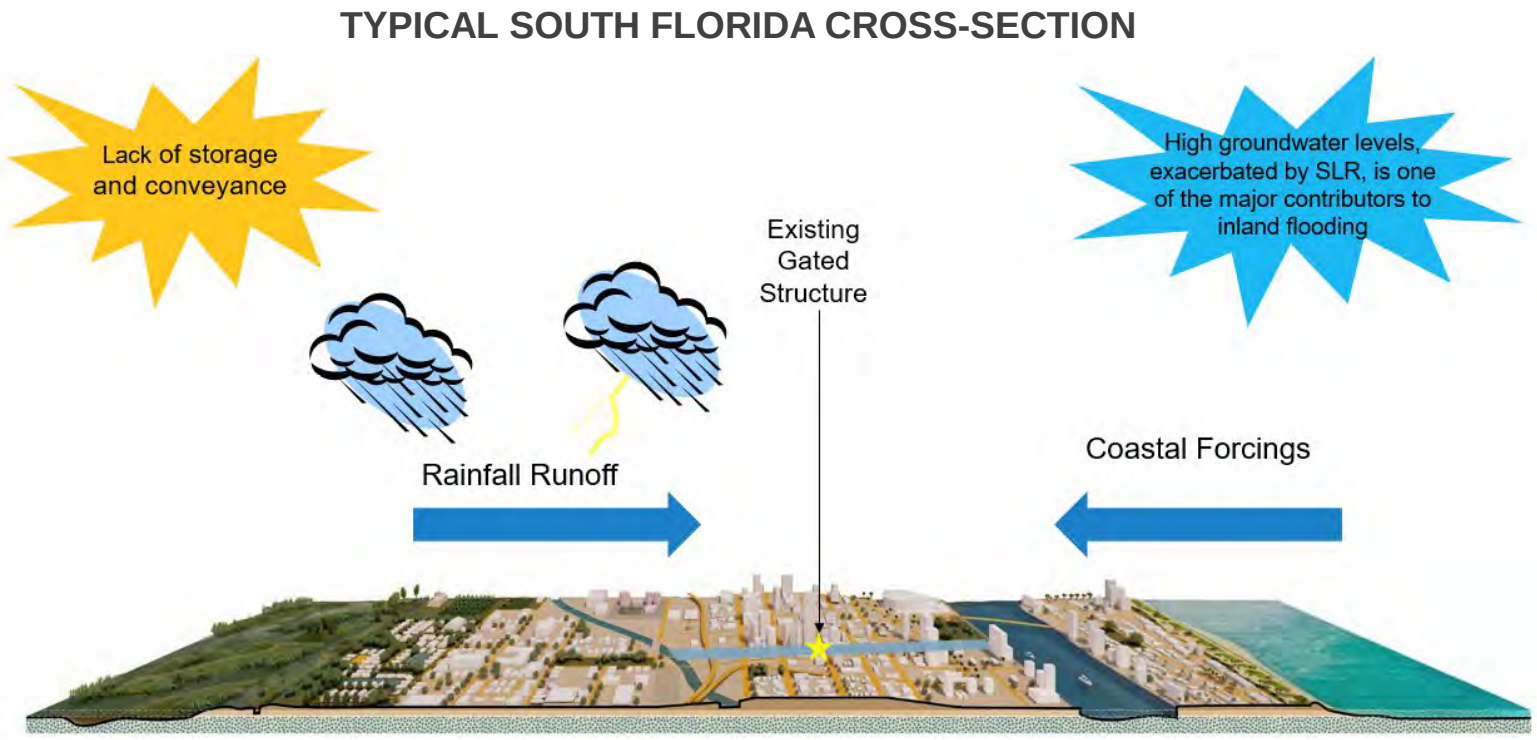
- Enhance aging C&SF system water control and salinity control structure's functionality and capacity to provide flood risk management benefits and improve resiliency caused by inland inundation and changed conditions.

C&SF FLOOD RESILIENCY STUDY
PROJECT AREA

Project Area

- Focus on the **highly vulnerable infrastructure** that can reduce the most immediate flood risks
- Lower East Coast – Southern Palm Beach, Broward and Miami-Dade counties.





C&SF FLOOD RESILIENCY AND COMPREHENSIVE C&SF

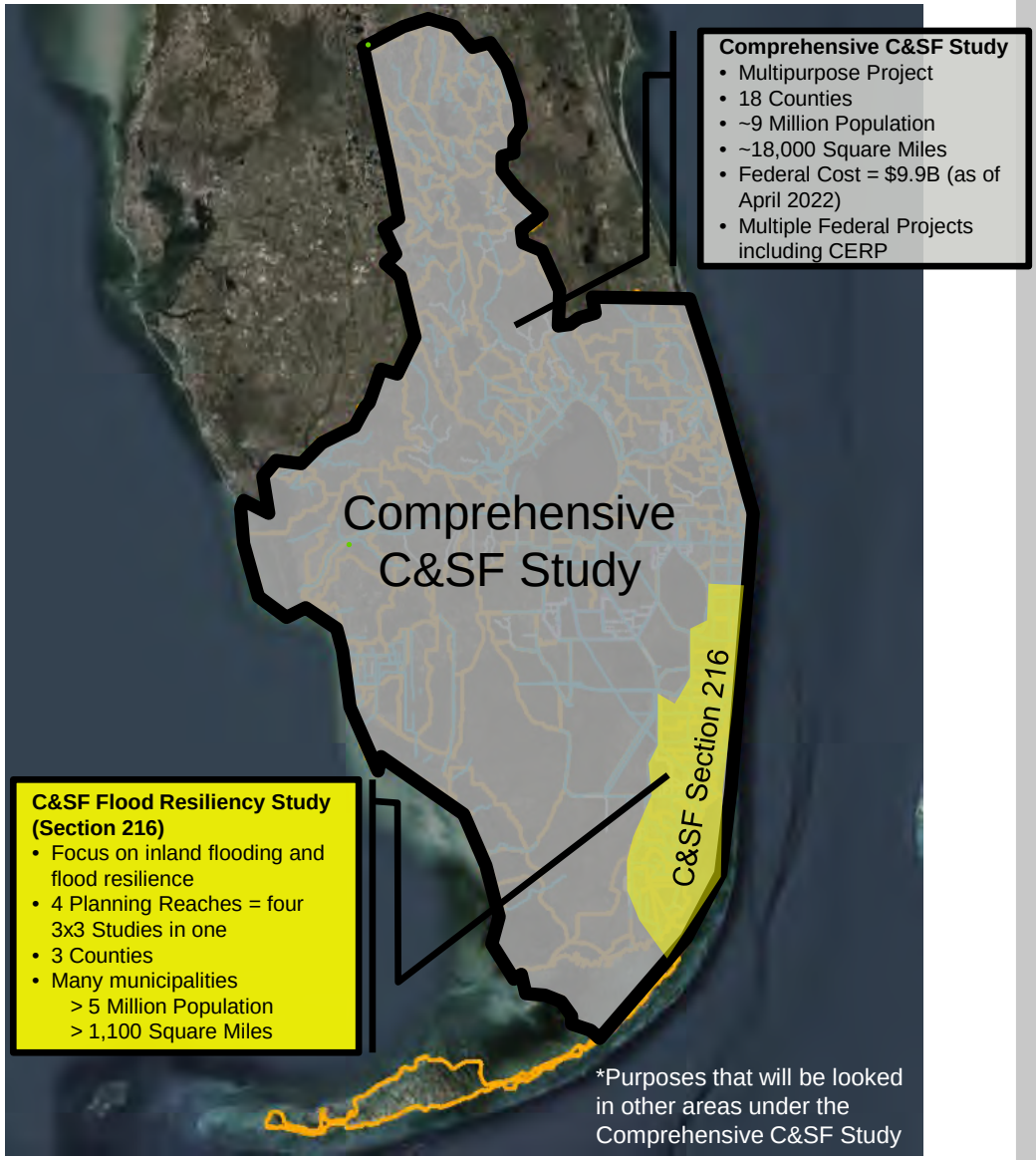
The purpose of the C&SF Flood Resiliency Study is to evaluate the performance of the existing C&SF water management system based on change conditions and increase flood resiliency.

Primary Focus of 216 Study

- Flood Control (Flood Risk Management)
- Drainage and Water Control
- Prevention of Saltwater Intrusion

Future Comprehensive C&SF Study

- Flood Control (flood risk management)*
- Drainage and Water Control*
- Prevention of Saltwater Intrusion*
- Water Supply for:
  - Agricultural
  - Municipal
  - Industrial
  - Everglades National Park
- Groundwater Recharge
- Preservation of Fish and Wildlife
- Preservation of Everglades National Park
- Navigation
- Recreation



FLOOD RISK MANAGEMENT (FRM) AND MEASURES

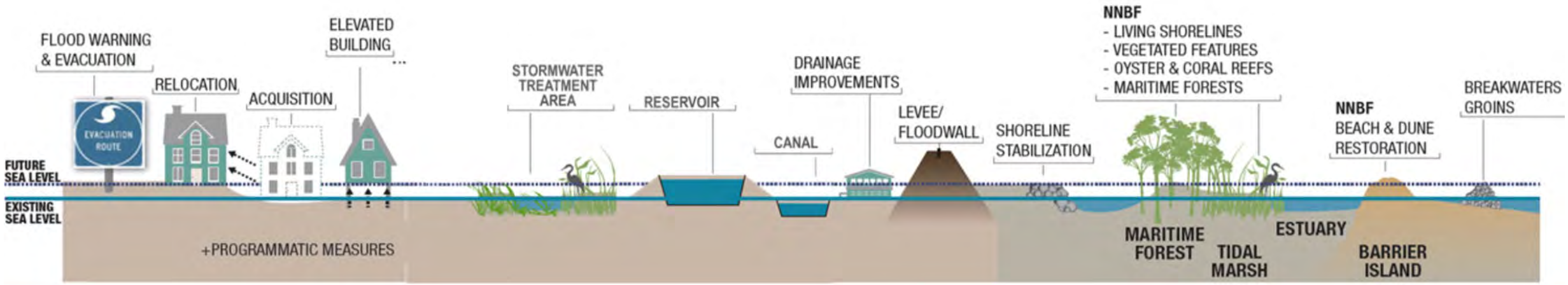
Flood Risk = Flood Probability x Flood Consequences

Type of measures:

- Structural
- **Non-Structural***
- Natural and Nature-Based Features (NNBF)*

** Potential Opportunity*

POTENTIAL MEASURES TO IMPROVE RESILIENCE AND SUSTAINABILITY



Graphic modified from https://ewn.el.erdc.dren.mil/nnbf/other/5_ERDC-NNBF_Brochure.pdf

PRELIMINARY ALTERNATIVES

Input from the Workshops

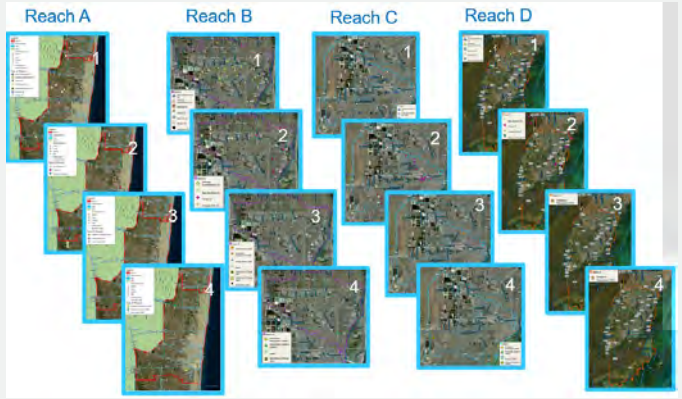
Preliminary Alternatives as a result of Workshops

1: Structural – Storage & Conveyance

2: Structural – Structures Only

3: Nonstructural

4: Natural and nature-based features



+ No Action

Preliminary Alternatives as a result of Current Scope

1: Structural – Structures Only & Conveyance

2: Nonstructural (Limited Evaluation)

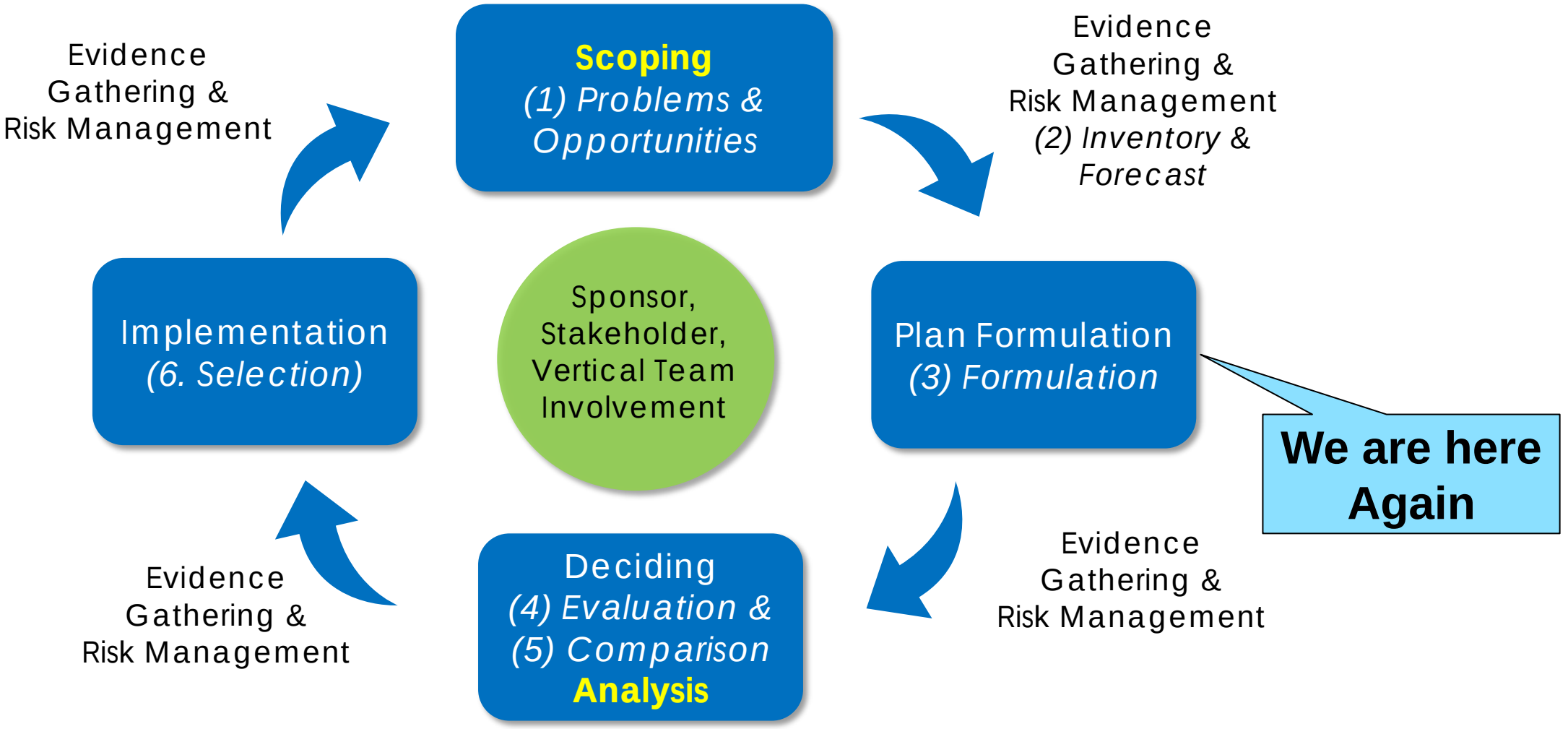
3: Natural and nature-based features (Limited Evaluation)

Will require additional input from the PDT, stakeholders and public moving forward

+ No Action

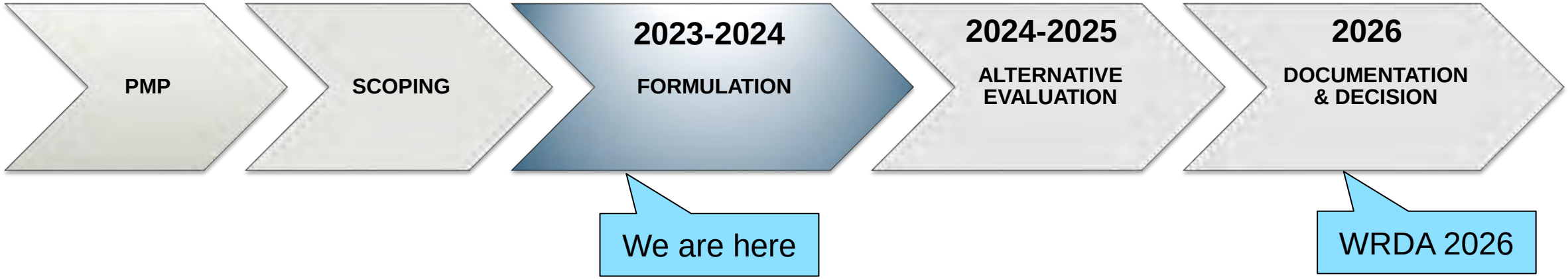
Initial Array of Alternatives

USACE -Risk-Informed Planning Process



(#) Shows the planning steps within the risk-informed planning process

PROJECT MILESTONES



Milestone	Date
Signing of Feasibility Cost Share Agreement	September 21, 2022 [A]
Alternatives Milestone	June 20, 2023 [A]
Tentatively Selected Plan Milestone	April 2025 (S)
Draft Report Submittal to HQ	June 2025 (S)
Public Release of Draft	June 2025 (S)
Agency Decision Milestone	March 2026 (S)
Submit Final Report Package to Vertical Team	May 2026 (S)
Signed Chief's Report	September 2026 (S)

[A]=Actual/Completed (S) = scheduled

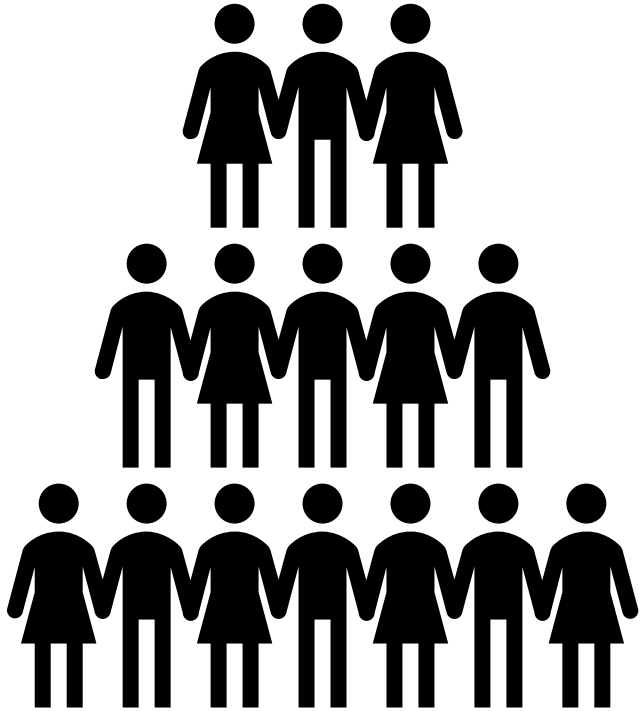
The schedule follows the USACE SMART (*Specific Measurable Attainable Risk-informed Timely*) planning process an 3x3x3 policy, and any extension will require a formal waiver request.

COMMENTS TO BE RECEIVED BY EMAIL AT CSFFRSCOMMENTS@USACE.ARMY.MIL

VISIT OUR WEBSITES FOR MORE UPDATES AND STUDY DETAILS

USACE:
WWW.SAJ.USACE.ARMY.MIL/CSFFRS

SFWMD:
WWW.SFWMD.GOV/C&SF



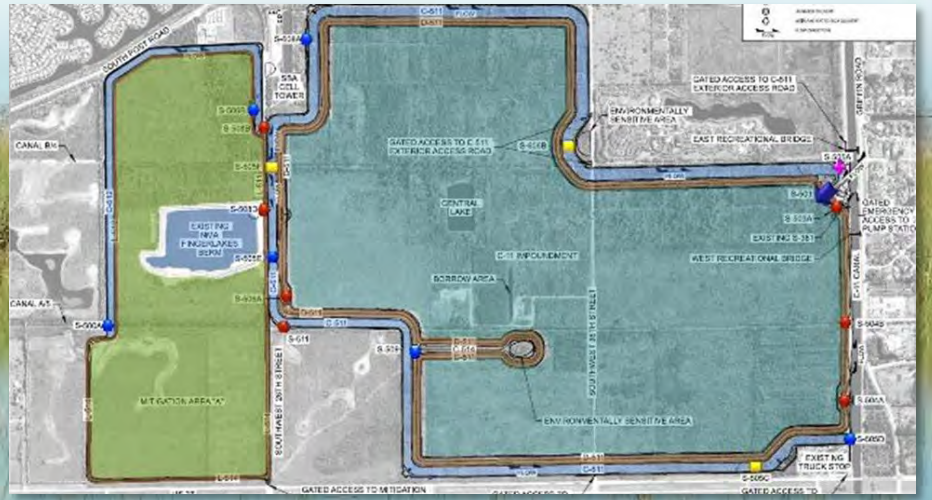
COLLABORATION!

COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)

BROWARD COUNTY WATER PRESERVE AREAS PROJECT

South Florida Project Integration

Date: August 29, 2023



US Army Corps of Engineers ®

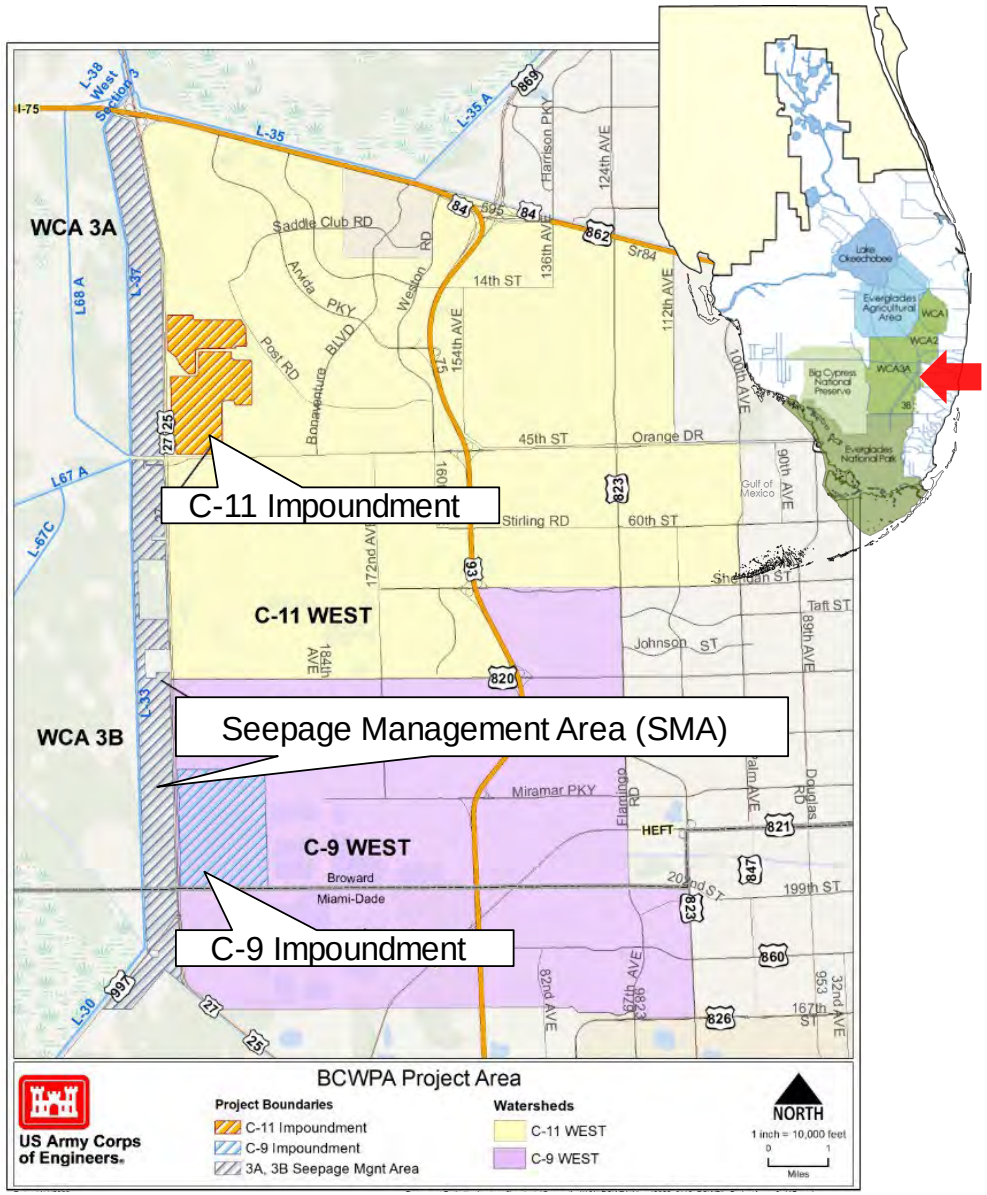
"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

BROWARD COUNTY WATER PRESERVE AREAS
DESIGN AND CONSTRUCTION

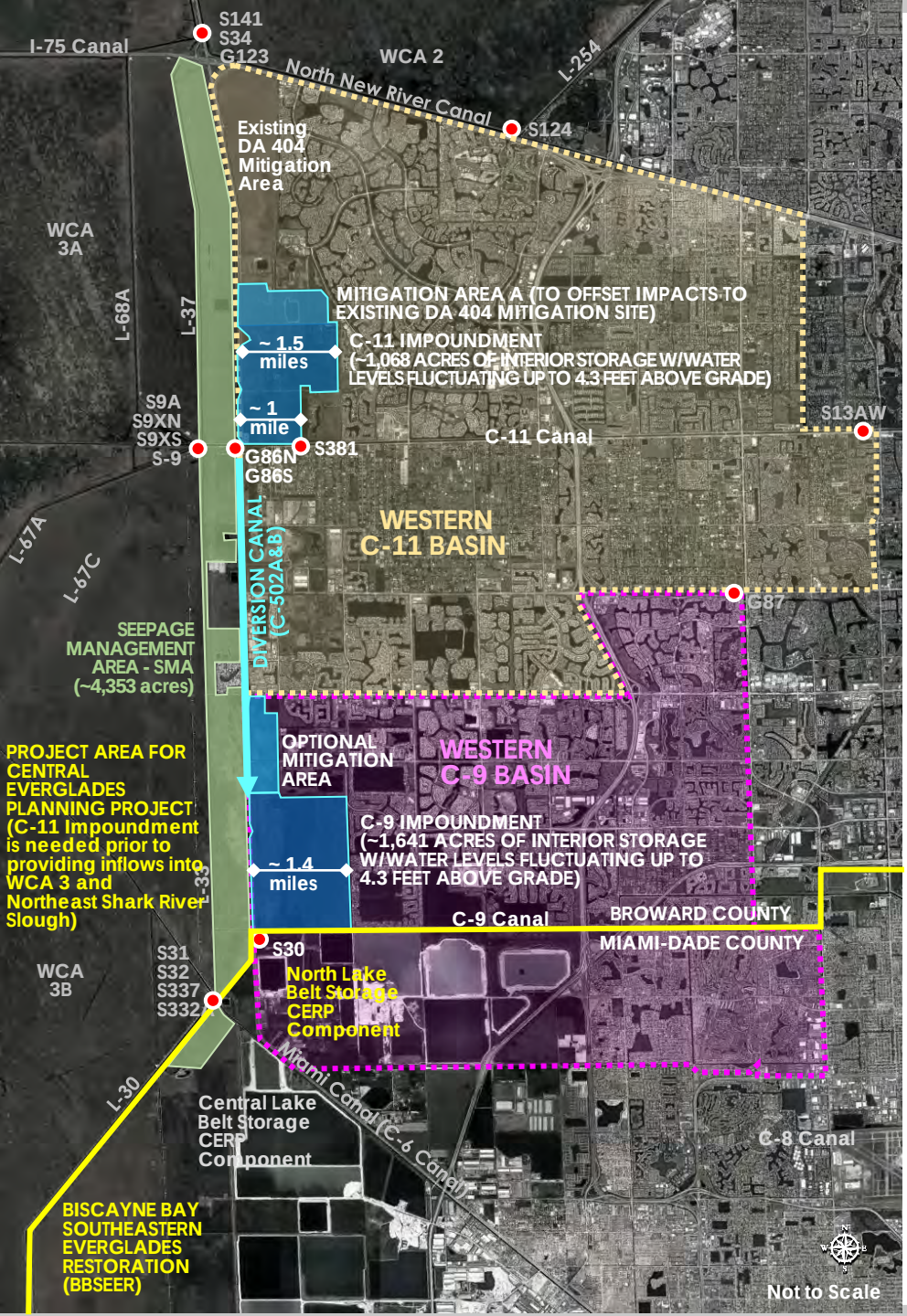
Schedule

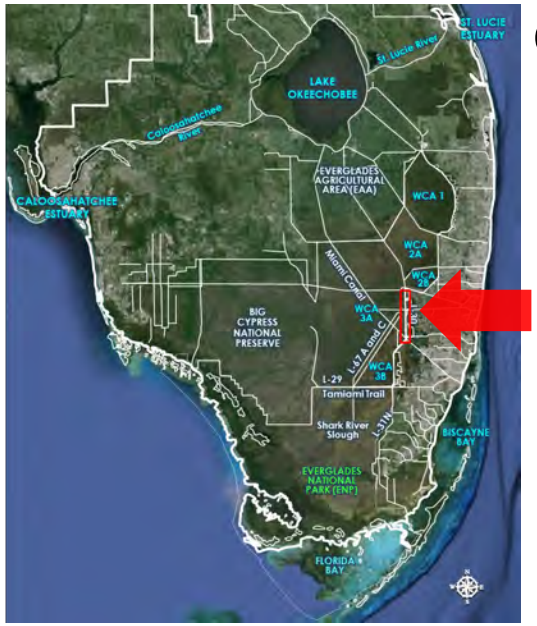
- Contract 1: Mitigation Area A Berm
- Contract 2: C-11 Impoundment
  - Funded by the Bipartisan Infrastructure Law (BIL)
  - Advertisement – Spring 2024
  - Construction Contract Award – Late Summer 2024
- Contract 3: C-11 Impoundment Pump Station S-503
  - Currently in Final Design
  - Construction Contract Award – Late Summer FY25*
- Contract 4: Seepage Management Area
  - Design start – 2024*
- Contract 5: C-9 Impoundment
  - Design Start – 2025*

*Pending Funds availability



BROWARD COUNTY WATER PRESERVE AREAS



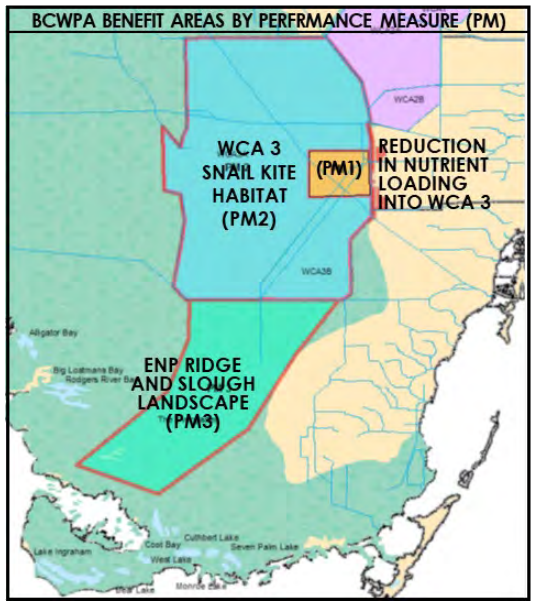


One Everglades System

- As CERP decompartmentalizes the Everglades, projects like the BCWPA provide needed buffers between natural and urbanized areas.
- The BCWPA project is a key connector in CERP-wide project implementation and realization of benefits (refer to project map). Operation of the BCWPA project directly affects several structural and operational components of CERP and the capability to move water south, including among others, components of the Central Everglades Planning Project (CEPP) phases, Biscayne Bay Southeastern Everglades Restoration (BBSEER), and the future Southern Everglades study.

CEPP South depends on BCWPA C-11 storage prior to increasing flow through S-333 or implementation of WCA 3B inflow structures along the L-67A&C levees to ensure adequate water inflows to WCA 3B and Northeast Shark River Slough.

Ref: CEPP Chief's Report



Project Benefits

The BCWPA project is designed to achieve regional benefits:
~563,000 acres in WCA 3 and
~200,000 acres in the Greater Everglades, including Everglades National Park (ENP).

BISCAYNE BAY COASTAL WETLANDS

29 August 2023

Amy Thompson – Integration Planner
Jacksonville District
U.S. Army Corps of Engineers

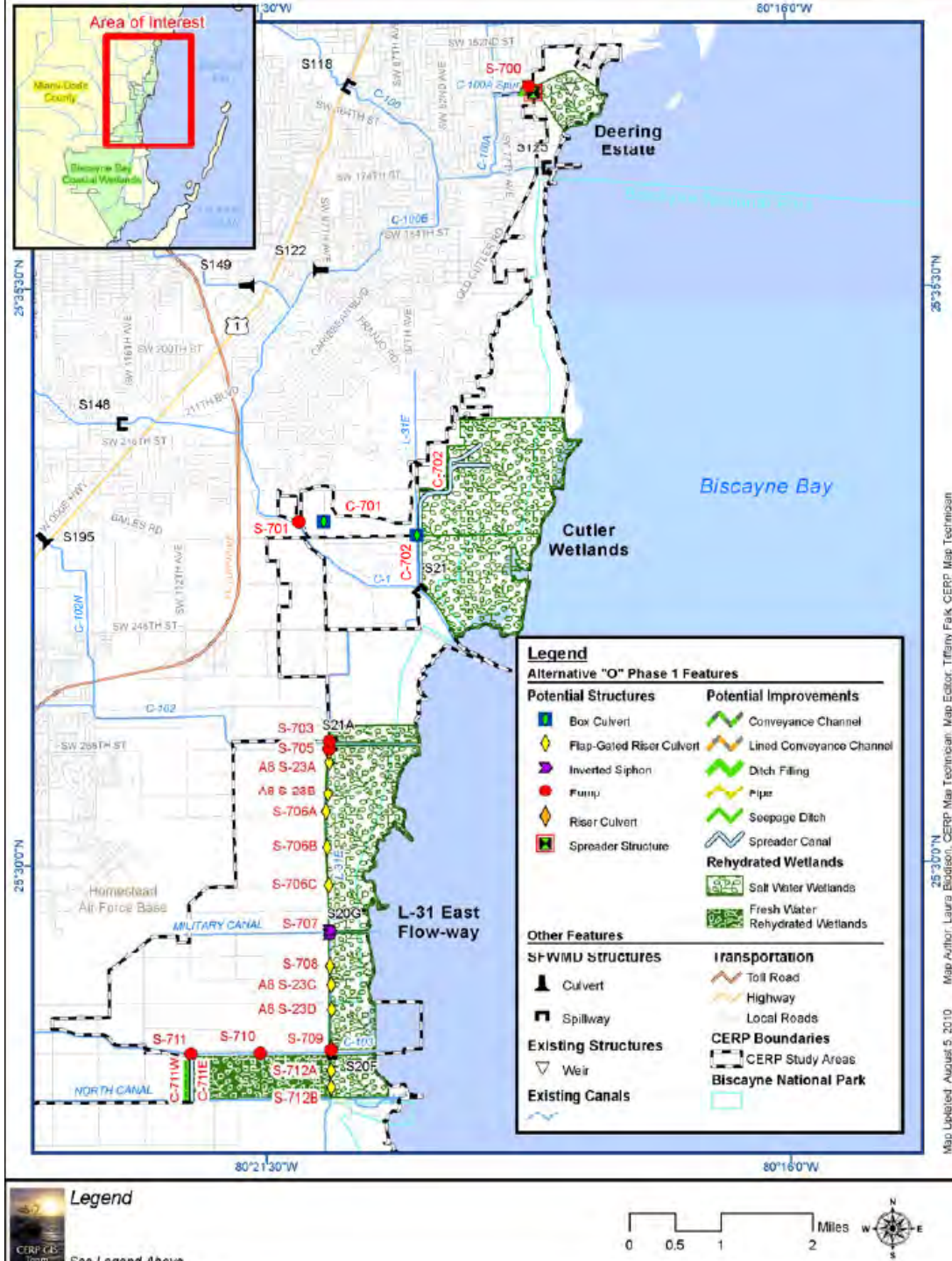
U.S. ARMY

US Army Corps of Engineers

BISCAYNE BAY COASTAL WETLANDS

Project Purpose

To rehydrate coastal wetlands and reduce damaging point-source freshwater discharge to Biscayne Bay and Biscayne National Park. The BBCW project will restore wetland and estuarine habitats, and divert an average of 59 percent of the annual coastal structure discharge into freshwater and saltwater wetlands instead of direct discharges to Biscayne Bay and Biscayne National Park.



BISCAYNE BAY COASTAL WETLANDS

Project Goals

The goal of the Biscayne Coastal Wetlands (BBCW) project is to restore or enhance freshwater wetlands, tidal wetlands, and nearshore bay habitat. The objectives of this project are to:

- Reestablish productive nursery habitat along the shoreline.
- Redistribute freshwater flow to minimize point source discharges to improve freshwater and estuarine habitat.
- Restore and improve quantity, quality, timing, and distribution of freshwater to the Bay, including Biscayne National Park.
- Preserve and restore spatial extent of natural coastal glades habitat.
- Reestablish connectivity between Biscayne Coastal Wetlands, C-111 Basin, Model Lands, and adjacent basins.

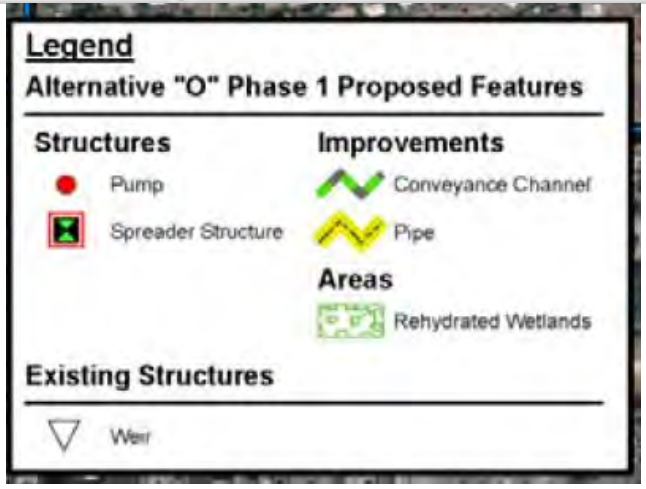
BISCAYNE BAY COASTAL WETLANDS

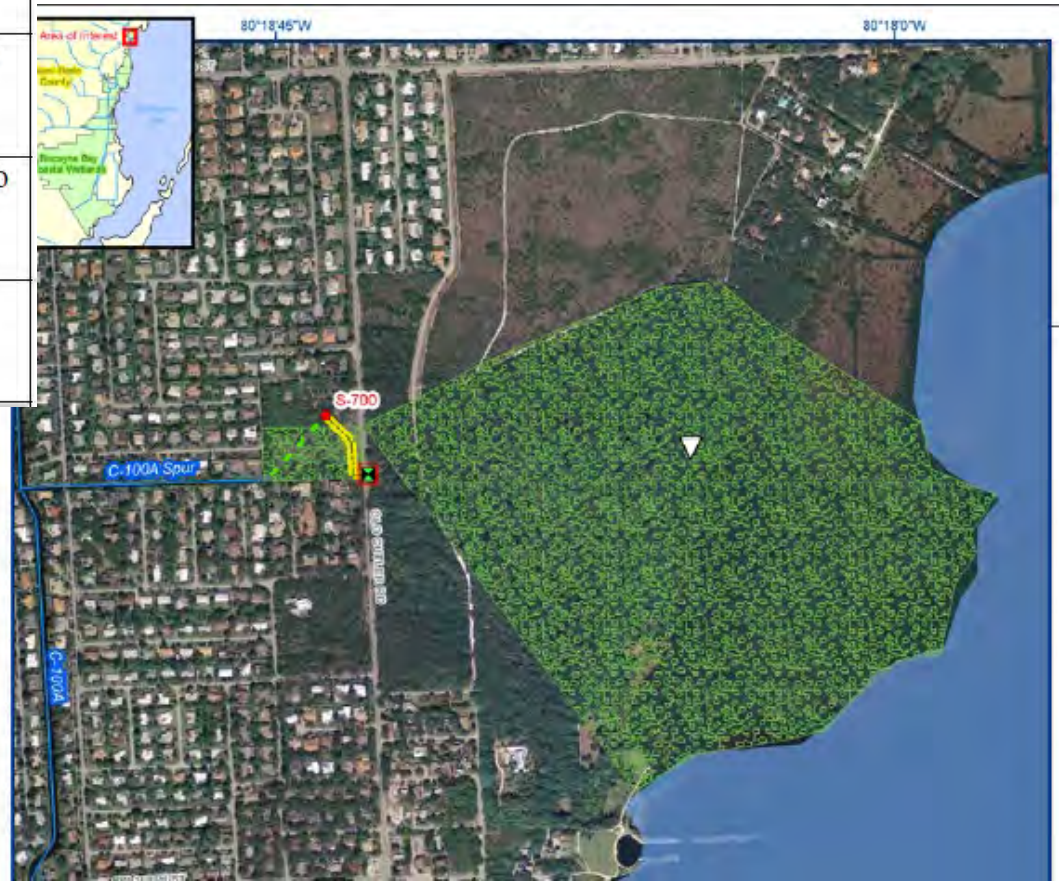
Project Benefits

- Rehydrate 190 acres of freshwater
- Increase hydroperiods in target freshwater wetlands from approximately 70 to 200 days per year.
- Improve oyster bars, submerged aquatic vegetation, wetland vegetation, and associated biota.
- Increase abundance of fish and abundance and diversity of seagrasses.
- Improve habitat for alligators and juvenile crocodiles.
- Produce high-functioning grassy wetlands that serve as critical habitat to prey fish and wading birds.
- Increase saltwater wetland function from 1,002 habitat units to 7,398 habitat units (net of 6,396 acres of functionality) out of the total available 22,500 acres of saltwater wetlands,

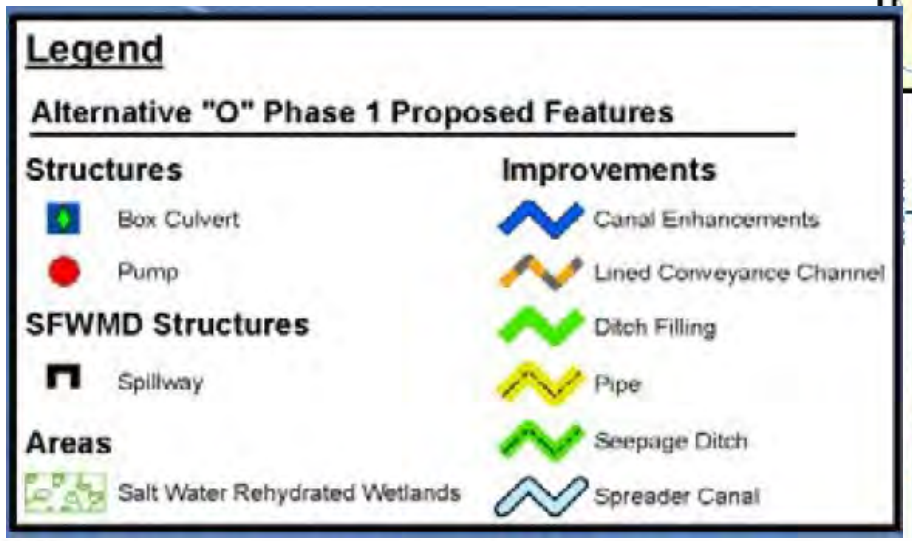
BISCAYNE BAY COASTAL WETLANDS
Deering Estate

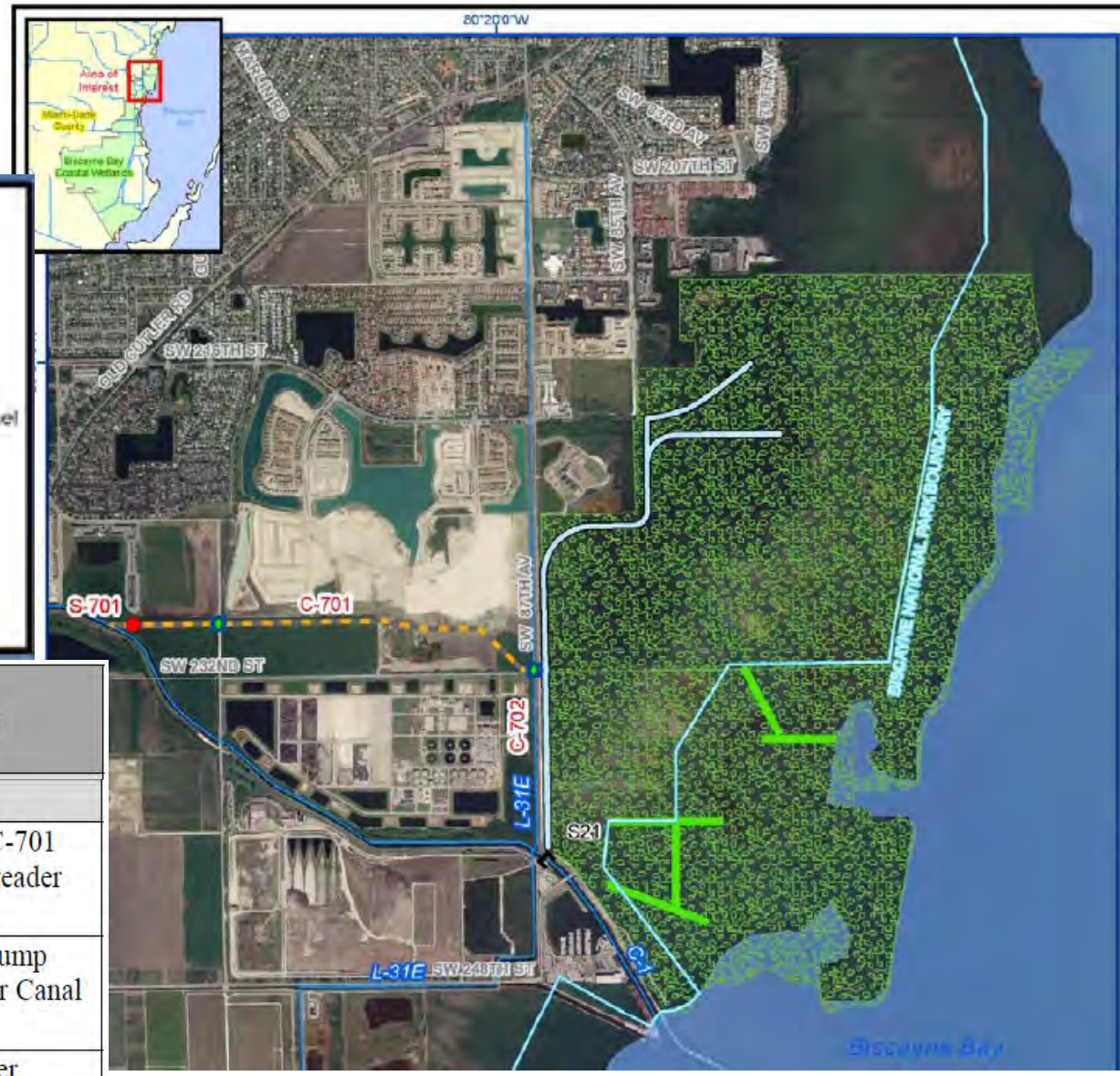
Structure Number	Structure Type	Design Capacity (cfs)	Location	Tech Specs & Notes
DEERING ESTATE				
S-700	Pump Station	100	East of C-100A Spur Canal, Power's Addition Parcel	Delivers water from C-100A Spur Canal to historic flow way on Deering Estate, Culvert from pump station under Old Cutler road, including outlet spreader structure
C-100A	Canal Extension	100	Extension of Existing C-100A Spur Canal Power's Addition Parcel	Delivers water to historic flow way on Deering Estate
Pipe	60" pipe	100	South of new pump station running under Old Cutler Road to Outlet	Delivers water from pump station to Spreader canal
Deering Estate Spreader Structure	Spreader Canal	100	East side of Old Cutler Road	Delivers water to coastal wetlands in Deering Estate





BISCAYNE BAY COASTAL WETLANDS
Cutler Wetlands

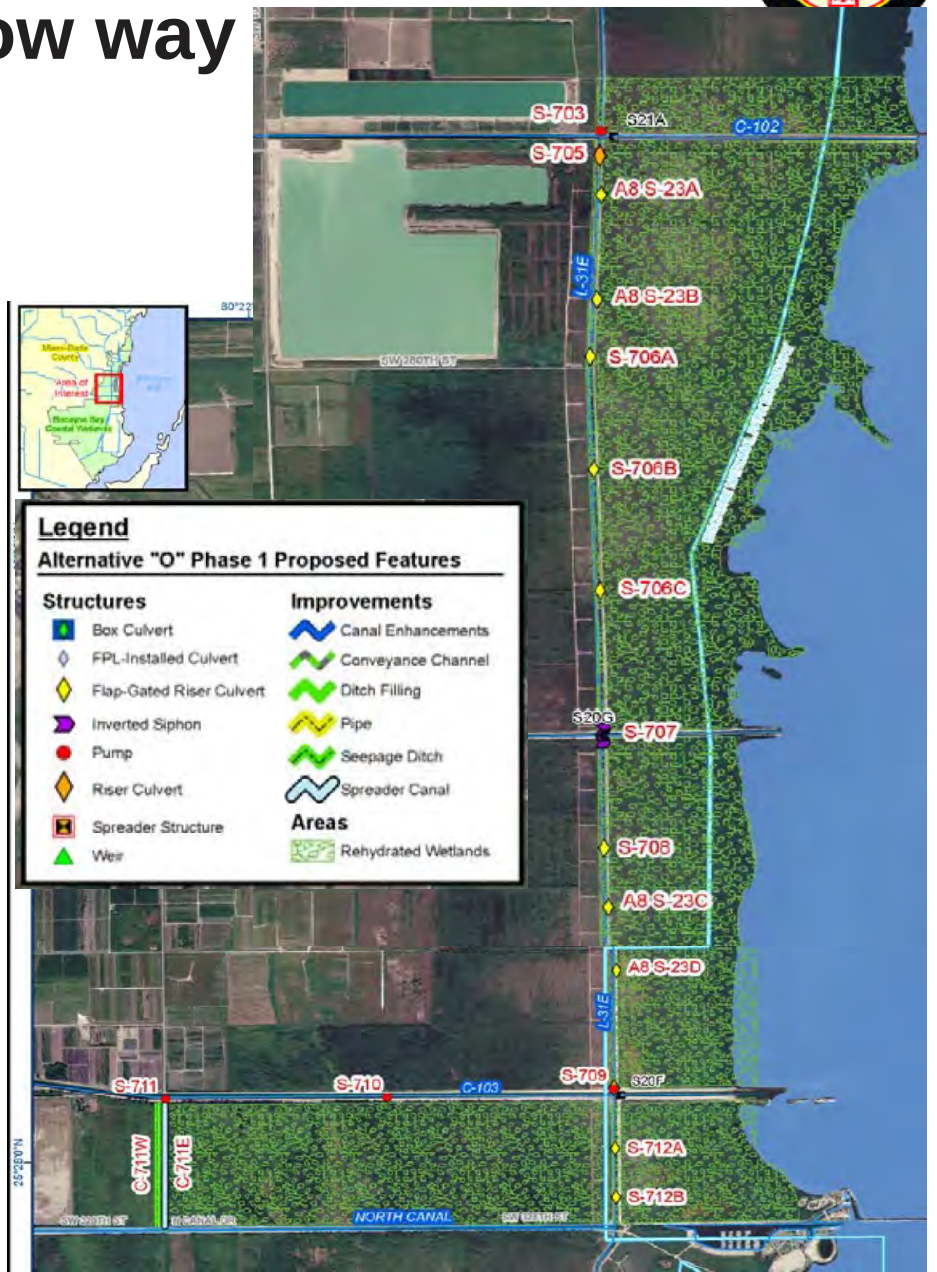




Structure Number	Structure Type	Design Capacity (cfs)	Location	Tech Specs & Notes
CUTLER WETLANDS				
S-701	Pump Station	400	On C-1 Canal	Delivers water from C-1 to C-701 and eventually to C-702 (Spreader Canal)
C-701	Lined Canal	400	Lennar Property	Delivers water from S-701 Pump Station to the Cutler Spreader Canal (C-702)
C-702	Spreader Canal	400	Cutler Wetlands	Delivers water to the saltwater wetlands via overland sheetflow

BISCAYNE BAY COASTAL WETLAND
L-31E Flow way

Structure Number	Structure Type	Design Capacity (cfs)	Location	Tech Specs & Notes
L-31 EAST				
S-703	Pump Station	50	On L-31 E Canal, just north of C-102	Delivers water to the saltwater wetlands, utilizes an outlet spreader structure
S-705	Pump Station	100	On L-31 E Canal, just south of C-102 intersection	Delivers water from C-102 to southern reach of L-31 E Borrow Canal
S-706A, B, C	Culvert	Varies	L-31E Levee	Delivers water from L-31 E Canal to saltwater wetlands to the east
S-708	Culvert	Varies	L-31 E Levee	Delivers water from L-31 E Canal to saltwater wetlands to the east
S-23 A, B, C, D	Culvert	Varies	L-31 E Levee	Delivers water from L-31 E Canal to saltwater wetlands to the east
S-707	Inverted Siphon	Varies	Intersection of L-31 E Canal and Military Canal	Will connect L-31 E Canal on the north and south sides of Military Canal while isolating flows from Military Canal
S-709	Pump Station	40	On L-31 E Canal, just north of C-103 intersection	Delivers water from C-103 north to L-31 E Canal
S-710	Pump Station	40	Approximately 0.7 miles west of L-31 E Canal on south bank of C-103	Delivers water from C-103 to the freshwater wetland (between C-103 and North Canal, west of L-31 E Canal) via a spreader structure
S-711	Pump Station	40	Approximately 1.4 miles west of L-31 E Canal on south bank of C-103	Delivers water from C-103 to the freshwater wetland (between C-103 and North Canal, west of L-31 E Canal) via a spreader canal (C-711)
C-711E	Spreader Canal	40	Approximately 1.4 miles west of L-31 E Canal, between C-103 and North Canal	Delivers water from S-711 Pump Station to the freshwater wetland via overland sheetflow
C-711W	Seepage Collection Ditch	Varies	Approximately 1.4 miles west of L-31 E Canal, between C-103 and North Canal	Collects seepage from C-711E spreader canal and delivers it back to C-103
S-712A&B	Culvert	Varies	L-31 E Levee	Delivers water from L-31 E Canal to saltwater wetlands to the east



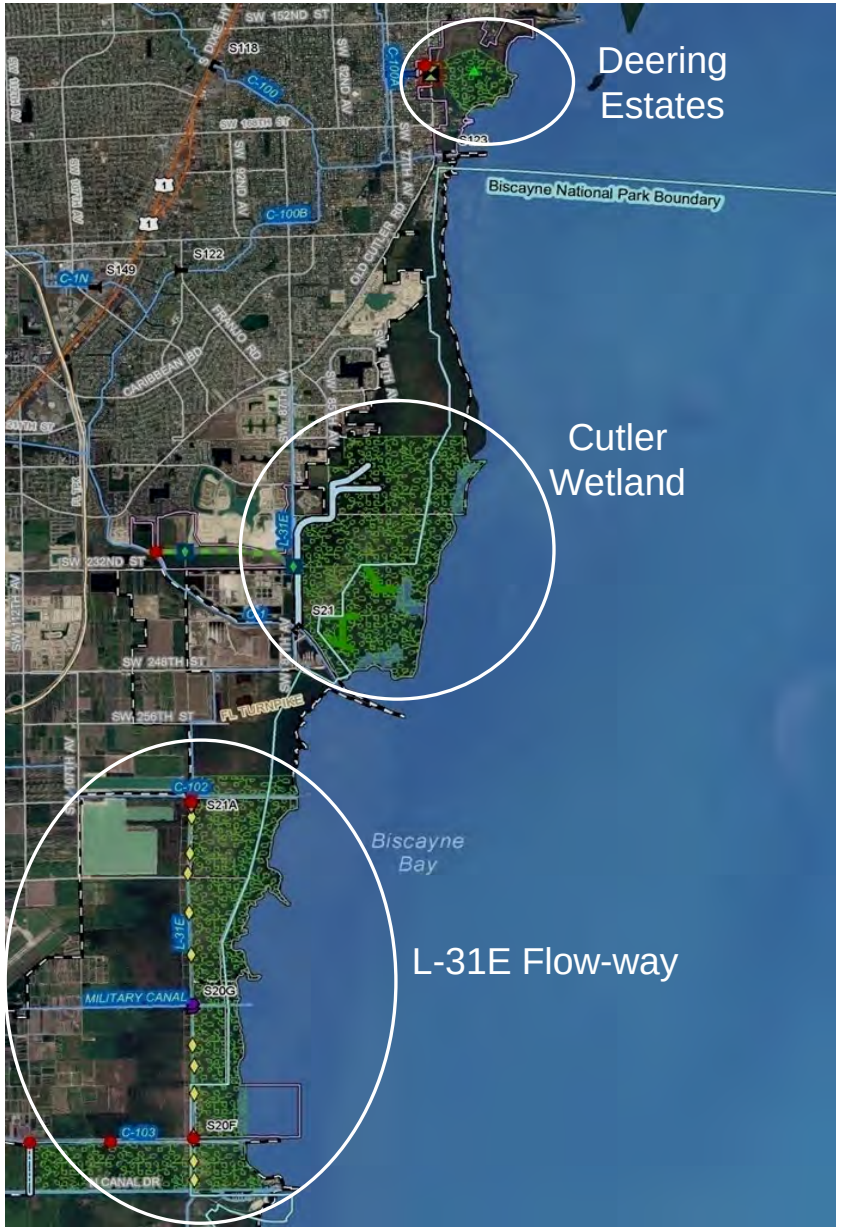
BISCAYNE BAY COASTAL WETLANDS
Design and Construction Progress

Deering Estate
- Contract 1 (SFWMD); completed

L-31E Flow-way
- Contract 2 (SFWMD); completed
- Contract 3 (USACE); completed
- Contract 4 (SFWMD); completed
- Contract 4 (USACE); in Operational Testing and Monitoring Period (OTMP)
- Contract 5A (USACE); in construction
- Contract 5B (USACE); in construction
- Contract 5C (USACE); in construction

Cutler Wetlands
- Contract 6A (SFWMD); in construction
- Contract 6B (SFWMD); in design

Construction Complete – Tracking Jan 2028



BISCAYNE BAY AND SOUTHEASTERN EVERGLADES ECOSYSTEM RESTORATION (BBSEER)

South Florida Project Integration

Project Status, Goals, Objectives, Alternatives Analysis

August 29, 2023

https://www.saj.usace.army.mil/BBSEER

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

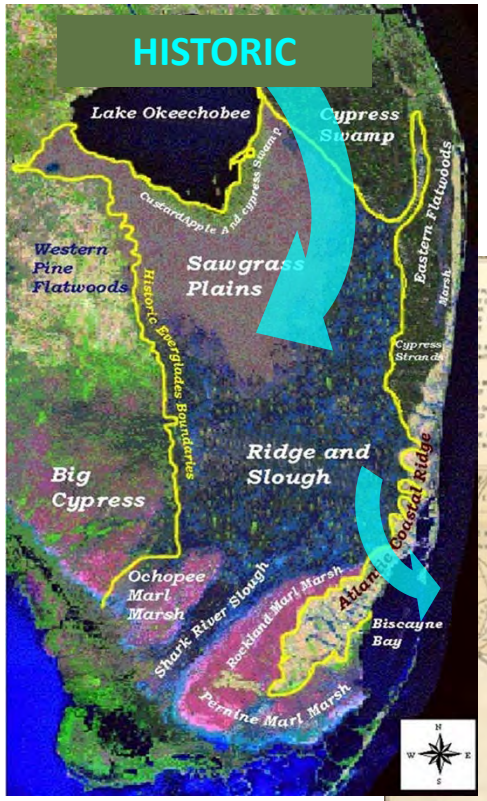
BISCAYNE BAY AND SOUTHERN EVERGLADES

- Everglades Big Picture
- Objectives
- Phasing and Progress
- Existing and Future Conditions
- Objectives and Constraints
- Formulation Strategy
- Overview of Round 2 Alternatives
- Schedule

THE CASE FOR RESTORATION

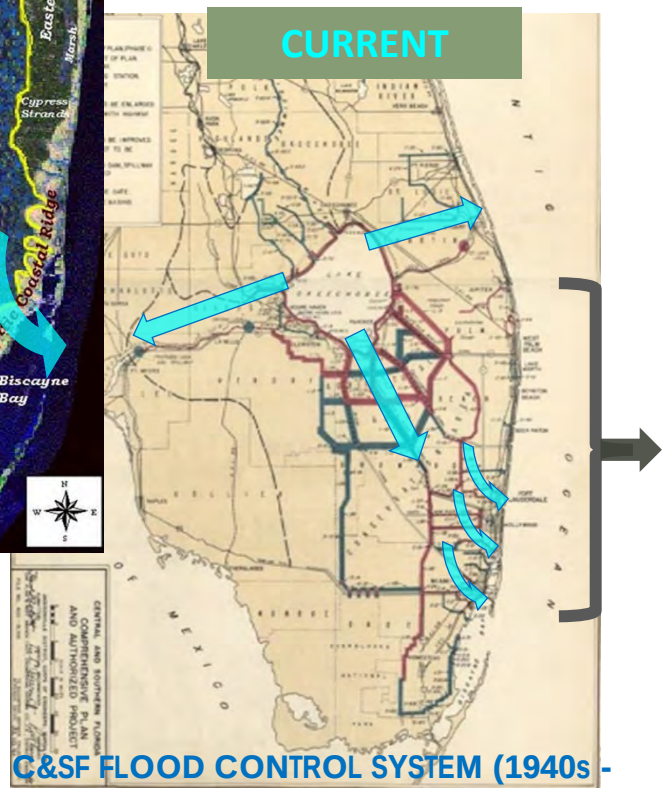
U.S. ARMY

■ MAJOR DRAINAGE AND LAND USE CHANGES TO OVERCOME ■ EXPOSURE TO SEA LEVEL RISE ■ ALMOST FLAT TOPOGRAPHY ■ POROUS SUBSTRATE ■ GRADIENT OF HABITATS NEED UNIQUE WATER LEVELS ■ FLOOD PROTECTION LEVEL OF SERVICE REQUIREMENTS FOR URBAN AREAS ■ WATER QUALITY REQUIREMENTS ■ COMPLEX FWOP ASSUMPTIONS ■ REAL ESTATE NON-STANDARD ESTATES//MITIGATION BANKS■ *ALL MUST BE IN ONE COHESIVE PLAN.*

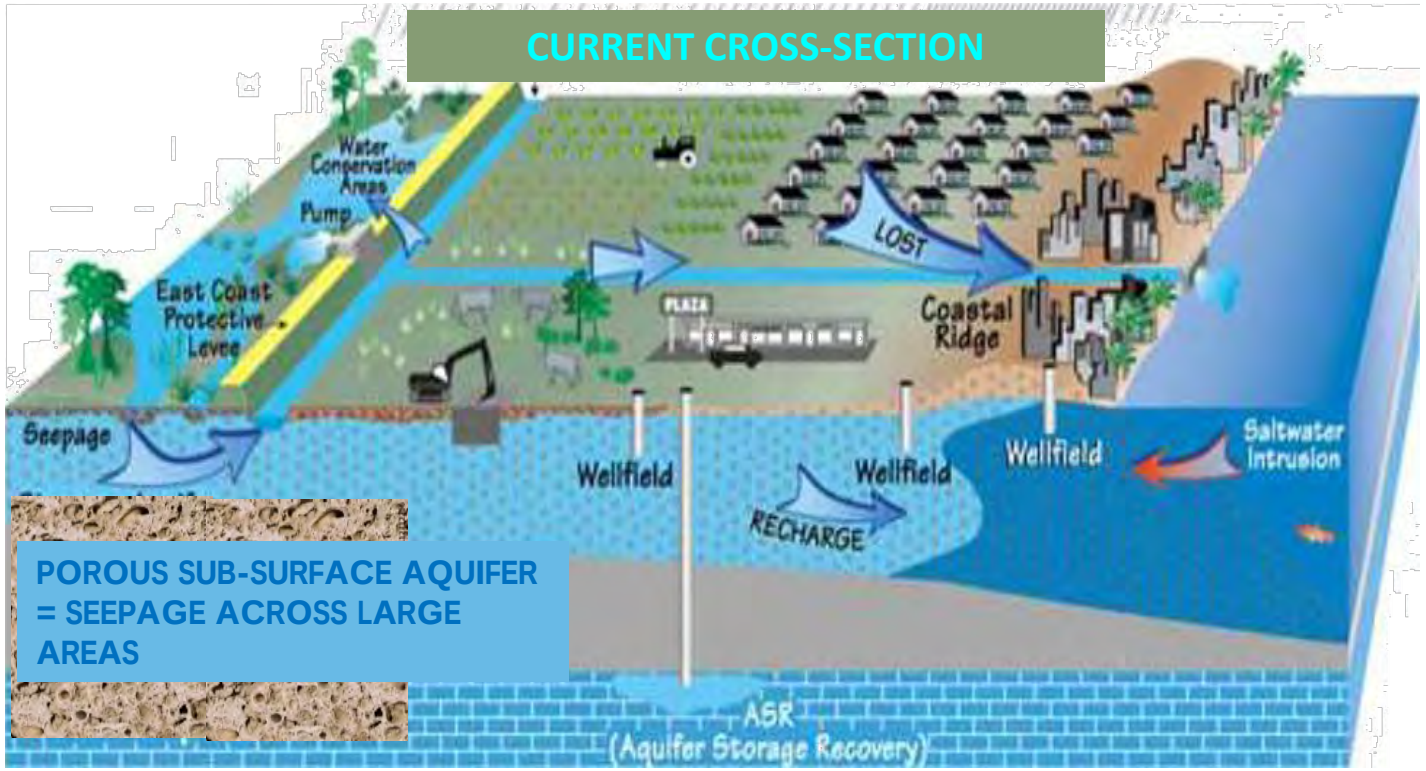


HISTORIC FLOW OF FRESHWATER ACROSS SOUTH FL LANDSCAPE.

Not to scale



C&SF FLOOD CONTROL SYSTEM (1940s - 1950s). MAJOR HYDROLOGY CHANGES AND HABITAT LOSS.



FLOOD PROTECTION CANALS THROUGH DENSELY POPULATED AREAS, MIXED LAND USES, SUSCEPTIBILE TO SEA LEVEL CHANGE, COMPOUNDED BY POROUS LIMESTONE AND FLAT TOPOGRAPHY.

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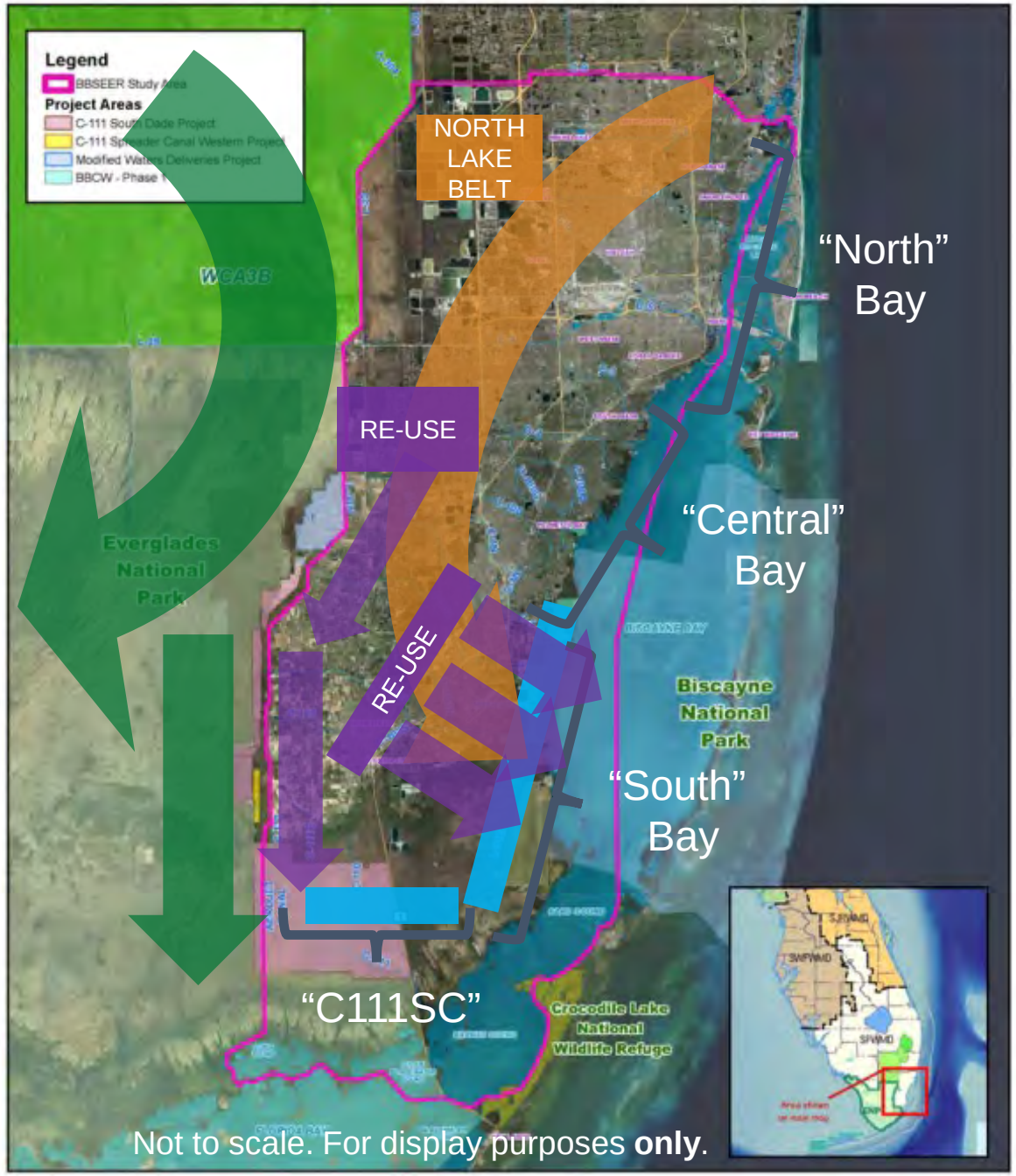
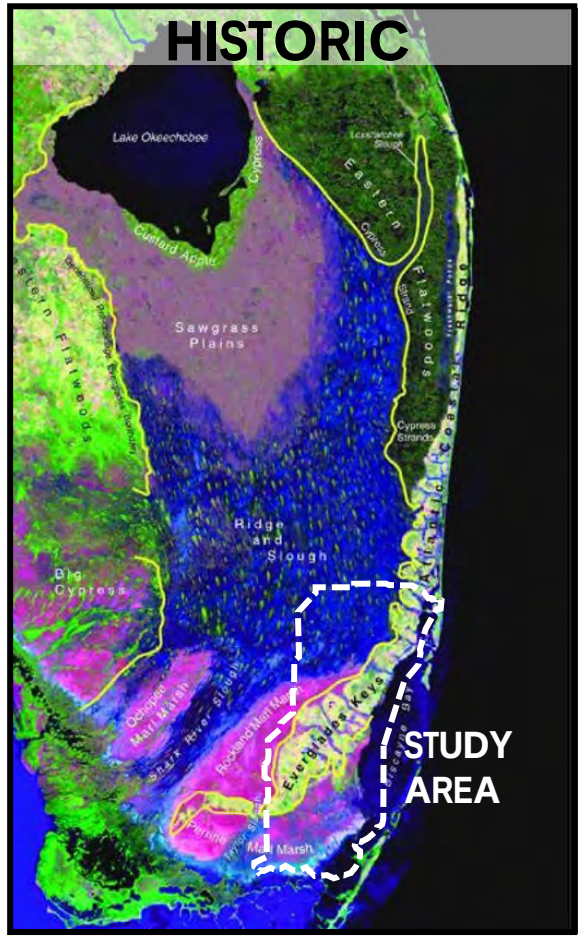
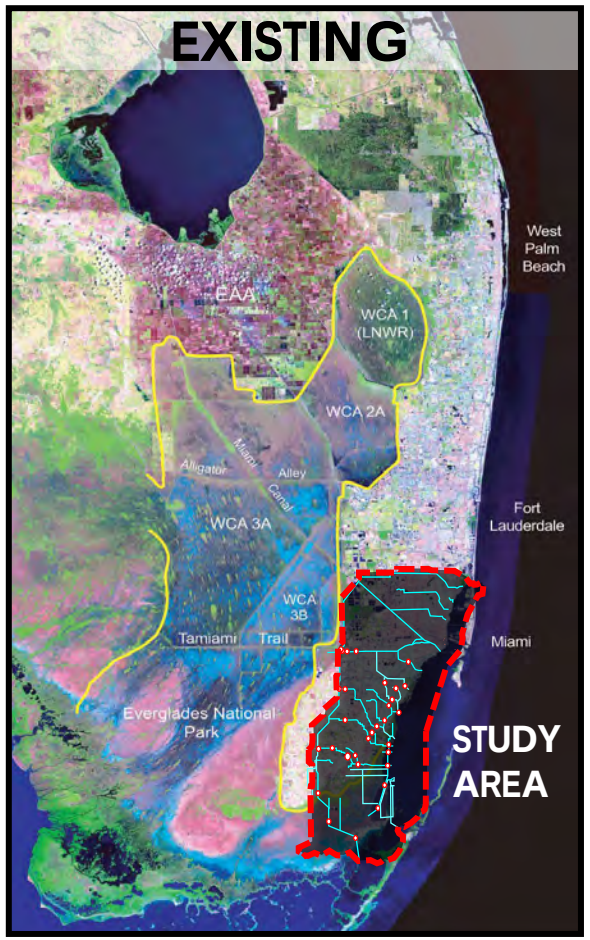
CERP'S VISION & BBSEER

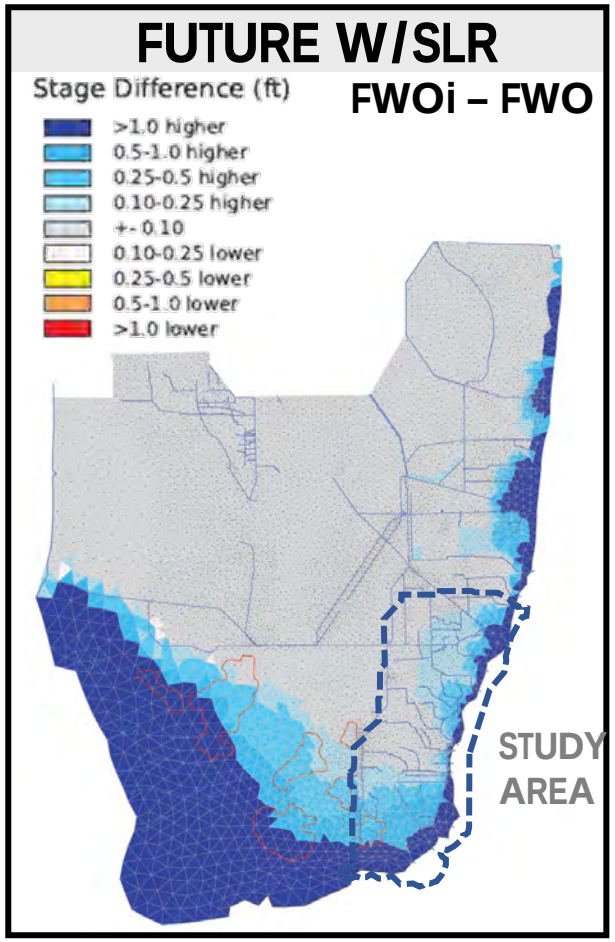
- **Keep Everglades Water in the Everglades**
- **Improve Sheet Flow to Freshwater and Coastal Wetlands and the Nearshore Estuary Ecosystem**
- **Store Water in North and Move It South to Bay**
- **Supplement Regional Water Budget with Wastewater Re-use**



CONDITIONS
HISTORIC, EXISTING, FUTURE WITHOUT PROJECT

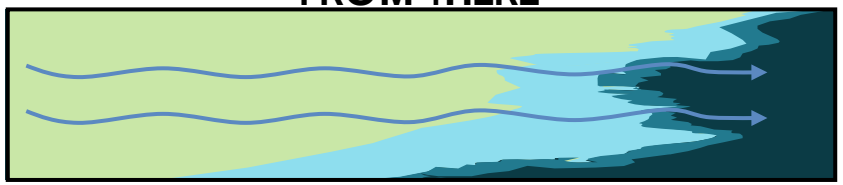






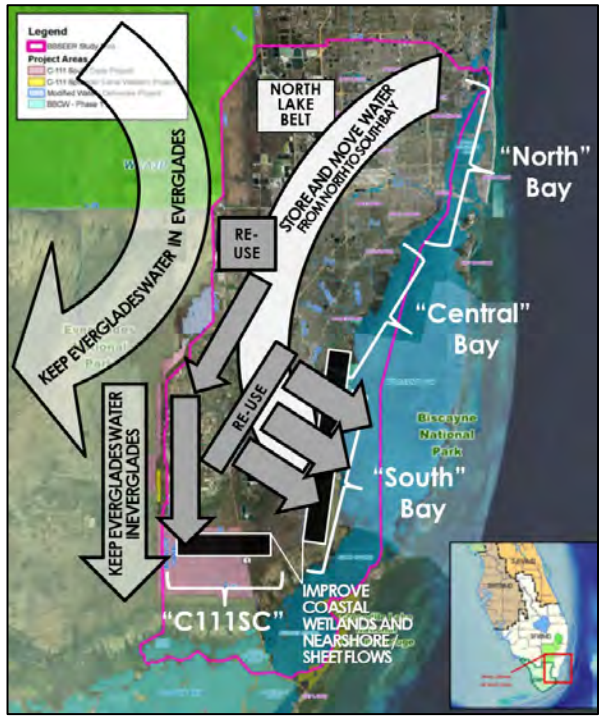
MODIFED FLOWS

Freshwater Wetlands
Coastal Wetlands
Nearshore



MEETING PURPOSE

UPDATE | WHAT HAVE WE DONE SO FAR



ANALYZING HYDROLOGY NORTH TO EAST TO SOUTH

ROUNDS OF INTEGRATED MODELING: FROM BASELINE TO TSP

ROUND 1 WITHOUT ADDITIONAL SLC: ✓
- EXISTING CONDITION BASELINE IN 2023
- FWO
- CURSORY MEASURES (FROM NORTH TO EAST TO SOUTH - WHAT HAS A CHANCE TO WORK?)

ROUND 2 WITH ADDITIONAL SLC: ✓
- FWOi 2085
- FEASIBLE MEASURES/ ALTERNATIVES

ROUND 3 WITH ADDITIONAL SLC:
- FWOi 2085
- PRE-TSP ARRAY

PDT comments

TSP WITH ADDITIONAL SLC:
THROUGH SAVINGS CLAUSE/ ASSURANCES

All SLC Curves: Low, Intermediate, and High

NON-MODEL RESEARCH TO INFORM SELECTION OF MEASURES AND ALTERNATIVES

BBSEER MODELS FULLY DEVELOPED AND IN ACTION:

RSM GLADES (RSMGL)

Illustrates Hydrology (e.g.; durations/depths)

Answers how we can best capture excess water and get it to where it is needed

FEEDS

BISECT

How changes in hydrology affects salinity in the rootzone of wetland habitats

BISCAYNE BAY SIMULATION MODEL

How changes in hydrology affect nearshore salinity levels and habitat

MD RSM

Provides assurances that we are maintaining savings clause levels of water supply & flood protection

MEETING PURPOSE

UPDATE | ROUND 2 ECOLOGICAL PERFORMANCE

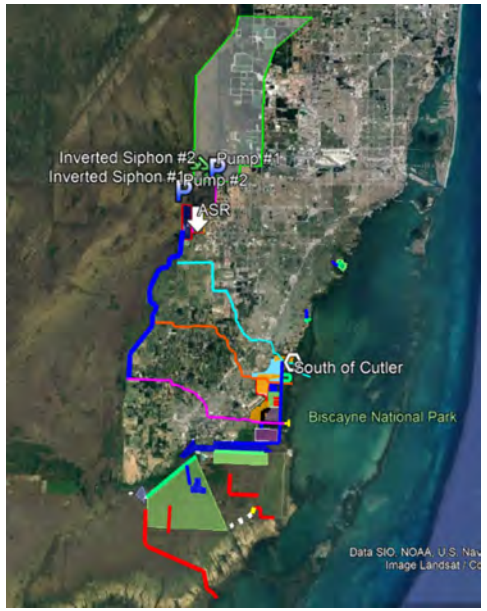
WE ARE HERE

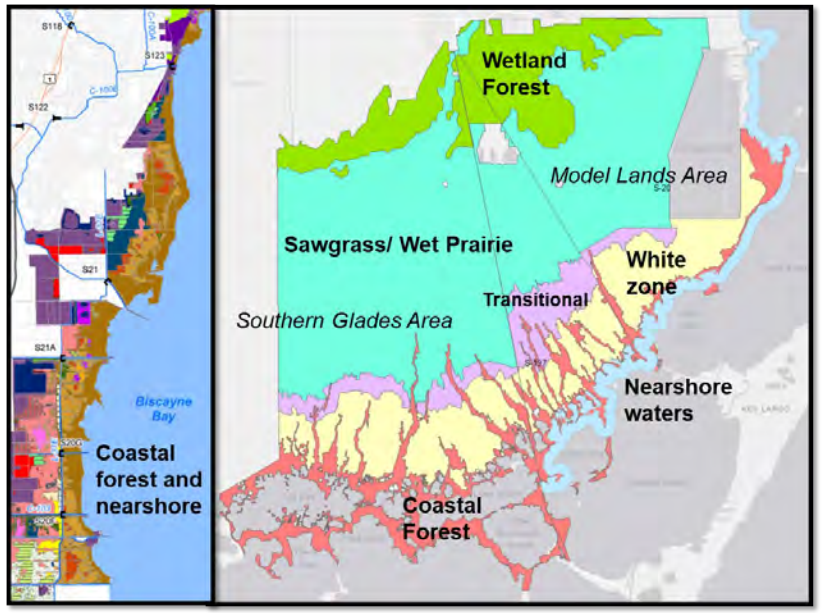
Develop Project Ecological PM's with targets/scoring rubric enabling ecological evaluation of ALT conditions

Identify Hydrologic Model Alternatives

Use PMs to Evaluate Performance
Round 1: Test and refine PMs
Round 2: Eco Sub Team will summarize findings from 8 Performance Measures
Round 3: Calculate HU's

Evaluate Additional Environmental Effects and System wide Analysis – JEM Models summer 2023





STEPS TO TSP

- ***Environmental Effects***
- Water Supply
- Flood Protection
- Real Estate
- Economics

} Savings Clause

Habitat Units: One Piece of the Puzzle

EXISTING CONDITIONS: HABITAT AT RISK

DESCRIPTIONS AND OPTIMAL SURFACE SALINITIES (PSU)

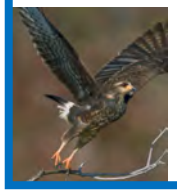
TERRESTRIAL Freshwater Wetlands	INTERTIDAL Coastal Wetlands	SUB-TIDAL Waterward of Low Tide Line
- Sawgrass – - Muhly Grass -	- Mangrove - (Red, Black, White)	- Seagrasses – (Shoal, Turtle, Widgeon)

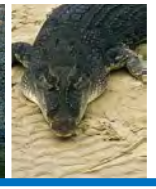
UPLAND

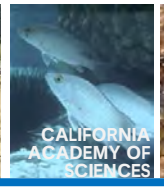
INSET MAP **Southern Glades and Model Lands** (includes the "triangle")

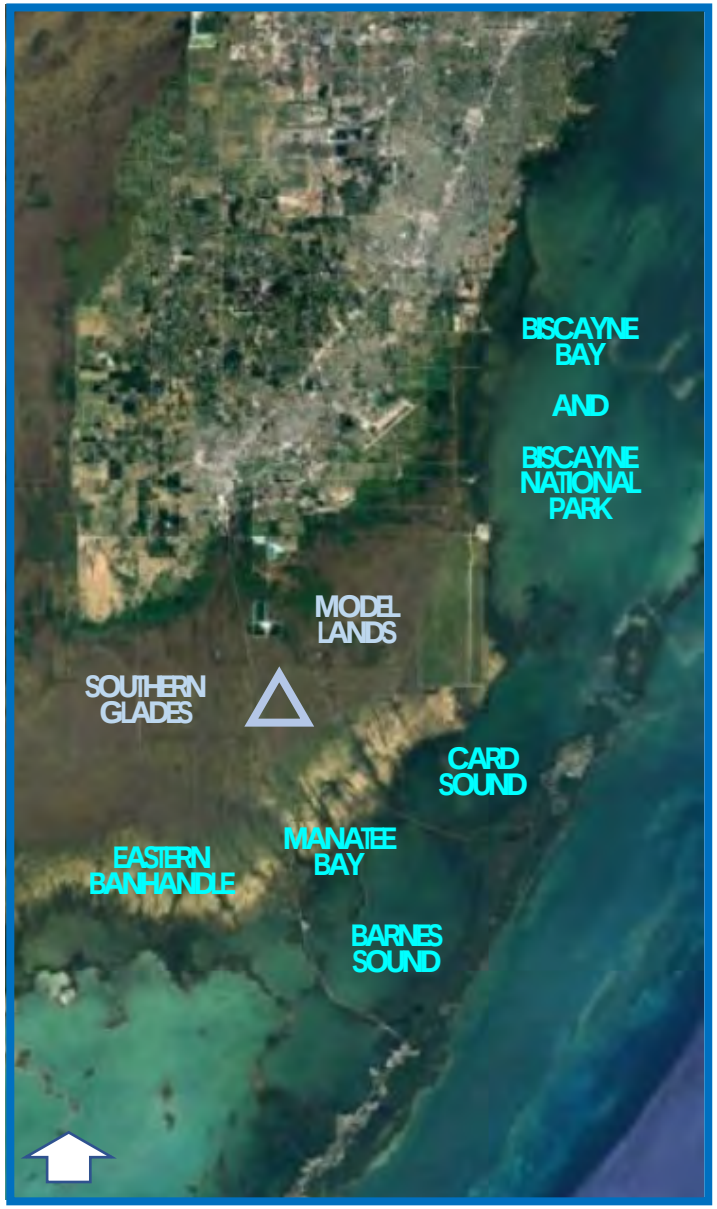
NEARSHORE (WATERWARD TO DEPTH OF 10 METERS)

INSET MAP **Biscayne Bay, Biscayne National Park, Manatee Bay, Card Sound, Barnes Sound, Eastern Panhandle**









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PROJECT OBJECTIVES

1) RESTORE SALINITY REGIMES, MINIMIZE UNNATURAL CANAL RELEASES:

Improve quantity, timing, and distribution of freshwater to estuarine and nearshore subtidal areas, including mangrove and seagrass areas (500-meter zone).

2) FRESHWATER WETLAND WATER DEPTH, PONDING DURATION AND FLOW TIMING:

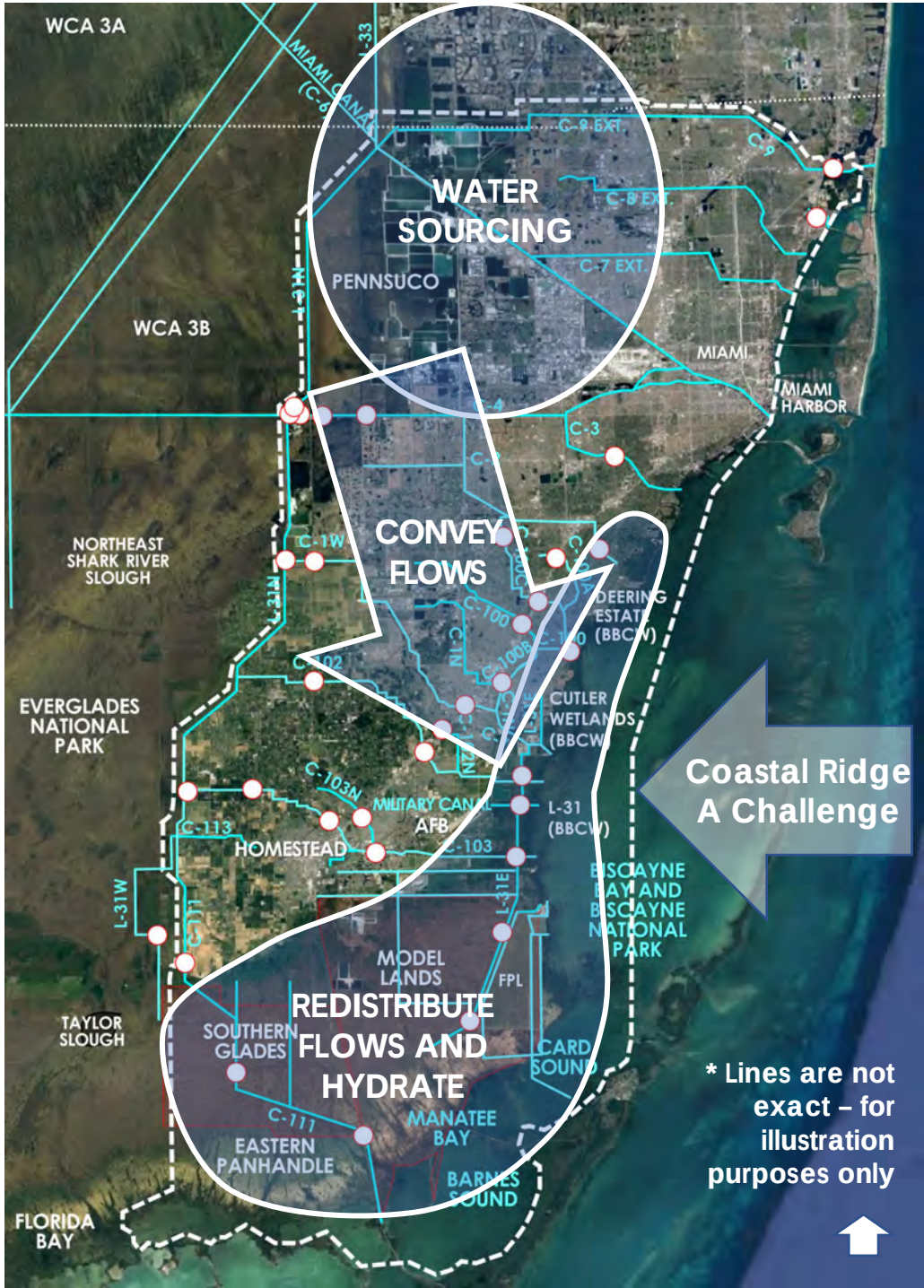
Restore freshwater depths, hydroperiods, and flows, for dry and wet seasons in terrestrial wetlands.

3) RESTORE NATURAL ECOLOGICAL AND HYDROLOGICAL CONNECTIVITY:

Restore connectivity and habitat gradients in areas compartmentalized by federal and state canal systems in Southern Everglades, Model Lands, Biscayne Bay Coastal Wetlands.

4) SEA LEVEL CHANGE RESILIENCY:

Increase and restore ecological resilience in coastal habitats in southeastern Miami-Dade County.



BBSEER PLAN FORMULATION

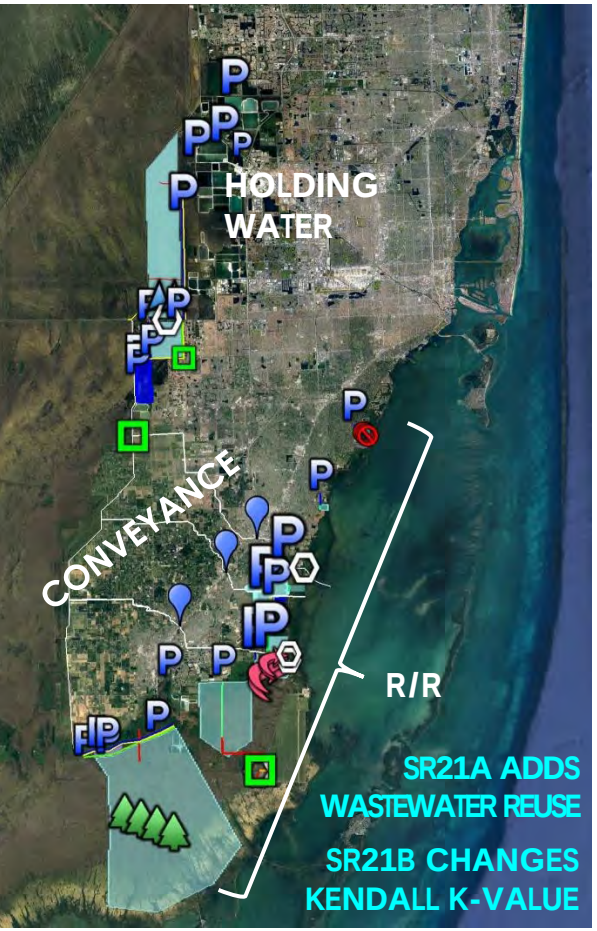
The BBSEER Study is focused on formulating plans to restore parts of the south Florida ecosystem in:

Freshwater wetlands (terrestrial areas)
of Southern Glades and Model Lands

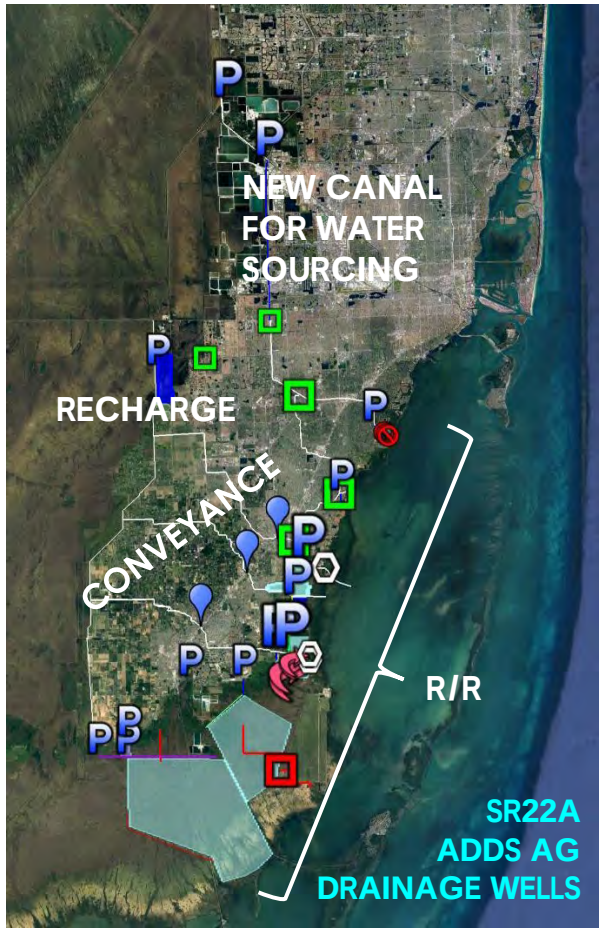
Coastal wetlands (inter-tidal areas)
of Southern Glades, Model Lands, Biscayne Bay Coastal Wetlands and Eastern Panhandle

Nearshore (subtidal areas including mangrove and seagrass areas)
of Biscayne Bay, Biscayne National Park, Manatee Bay, Card Sound, Barnes Sound

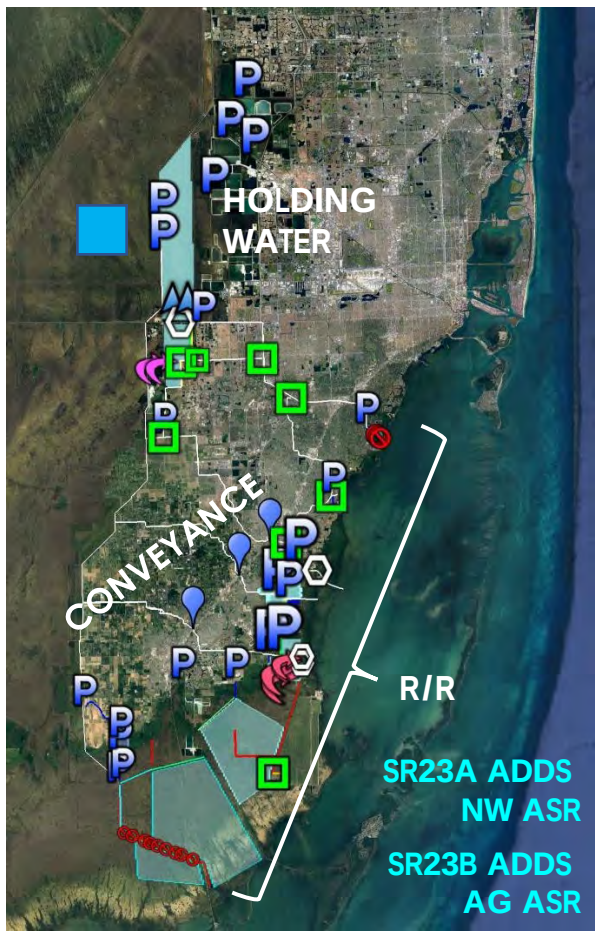
ALTERNATIVES



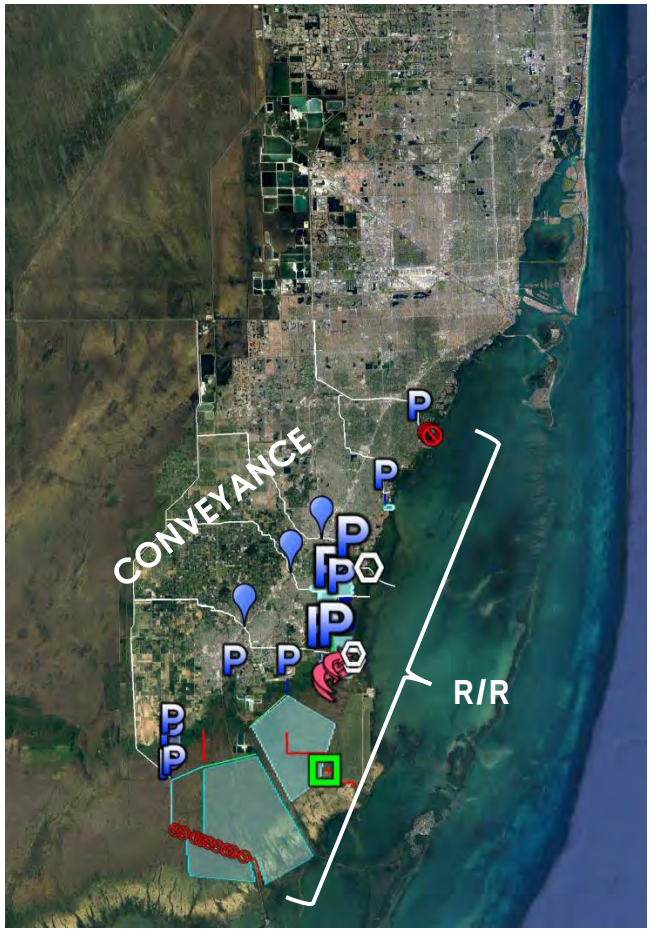
ALTERNATIVE 21



ALTERNATIVE 22



ALTERNATIVE 23



ALTERNATIVE 24

PRIMARY MEASURES/THEMES

HOLDING WATER: NORTHWESTERN WETLANDS AND STORAGE

NEW CANAL FOR WATER SOURCING

CONVEYANCE CANALS (EXISTING) + OPERATIONAL CHANGES

REDISTRIBUTION AND REHYDRATION (INCLUDING PUMPS)

PLANNING PROCESS TIMELINE

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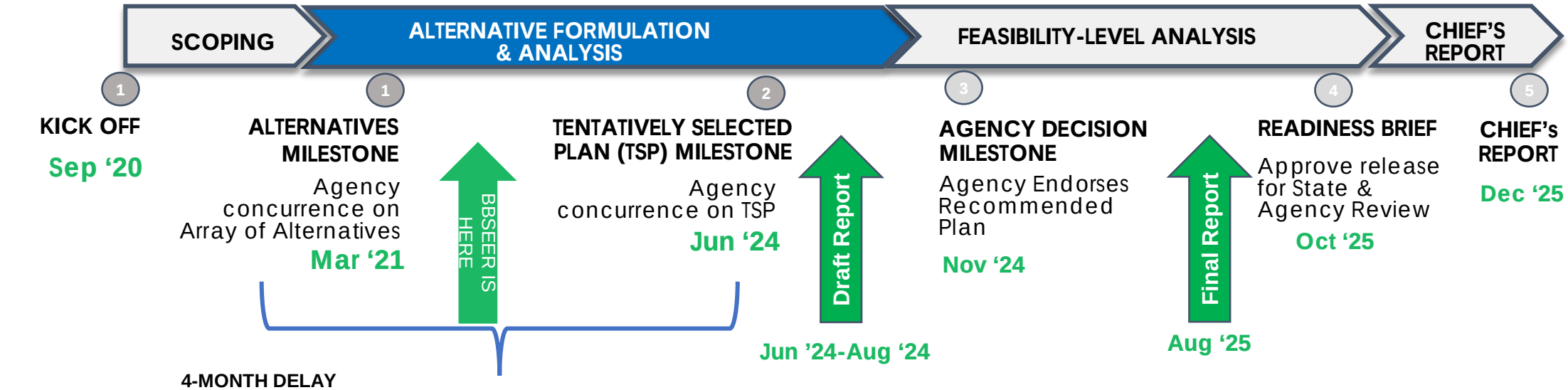
SMART PLANNING PROCESS



Jan '21 – Oct '21	Jan '22 – Sep '22	Oct '22 – Jan '23	Nov '22 – Jun '23	Jul – Oct '23	Nov '23-Mar '24	Oct '23-Jan '24	Jan - Apr '24
INITIAL ALT SCREENING TOOL DEVELOPMENT PERFORMANCE METRIC DEVELOPMENT	ROUND 1 ALTS EVALUATION WITHOUT Intermediate SLC	REBASELINE FWO W/SLC	ROUND 2 ALTS WITH Intermediate SLC	ROUND 3 ALTS WITH Intermediate SLC	TSP EVALUATION/ ASSURANCES WITH ALL SLCs	REAL ESTATE ANALYSIS	GROSS APPRAISAL

NON-MODEL RESEARCH TO INFORM SELECTION OF MEASURES AND ALTERNATIVES

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BBSEER PDT and Public:

Thank you for Supporting BBSEER Study Efforts!

Sincerely, BBSEER Core Team

BBSEER Project Information:
https://www.saj.usace.army.mil/BBSEER

Virtual Public Meeting Agenda

1. Welcome and Introduction
2. Project Integration
3. Projects Overview and Status Updates
    a) Navigation Projects
        1. Miami Harbor Improvements Study
    b) Coastal Storm Risk Management Projects
        1. Miami-Dade Back Bay CSRM
        2. Key Biscayne CSRM
        3. Dade County CSRM
    c) Flood Risk Management Projects
        1. C&SF Flood Resiliency Study
    d) Ecosystem Restoration Projects
        1. Broward County WPA C-11 Reservoir
        2. Biscayne Bay Coastal Wetlands (BBCW)
        3. BBSEER
4. Resiliency Partners Perspectives
    a) SFWMD Resiliency Efforts
    b) Miami-Dade County
    c) Broward County
5. Comments and Questions
6. Closing Remarks and Adjourn

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