

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

PLAN FORMULATION

Agencies Meeting

22 September 2023

Virtual Meeting

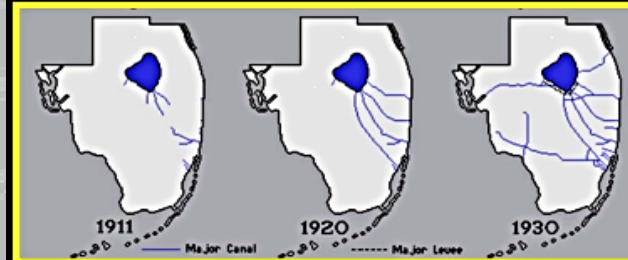
Working Today to Build a Better Tomorrow



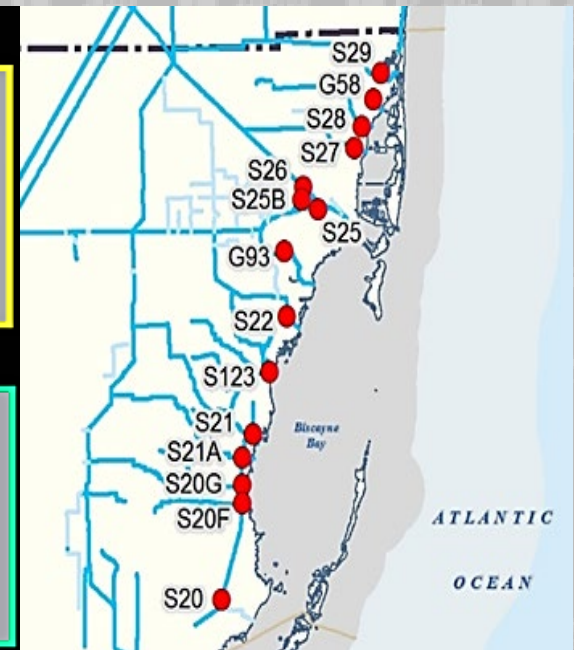
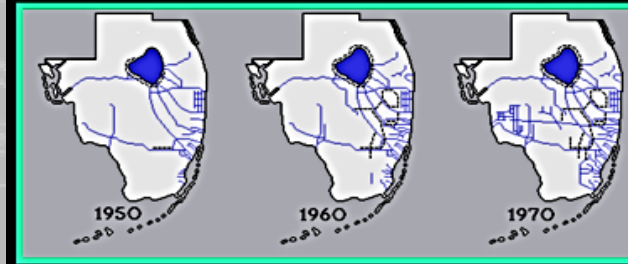
US Army Corps
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Pre-1948 Drainage Projects



Post-1948 C & S Florida Project





LAST CALL FOR INPUT/FEEDBACK



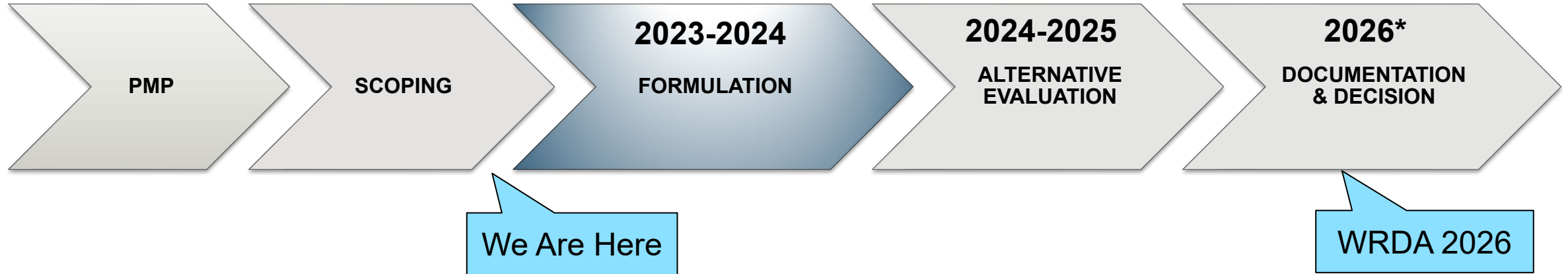
What do we need?

- Projects Input (Due October 6, 2023)
 - Characterizing FWOP condition
- Initial Performance Metrics Input



C&SF FLOOD RESILIENCY STUDY

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, a 3x3x3 policy waiver to extend the schedule and increase the budget has been submitted through the VTAM now at HQUSACE.



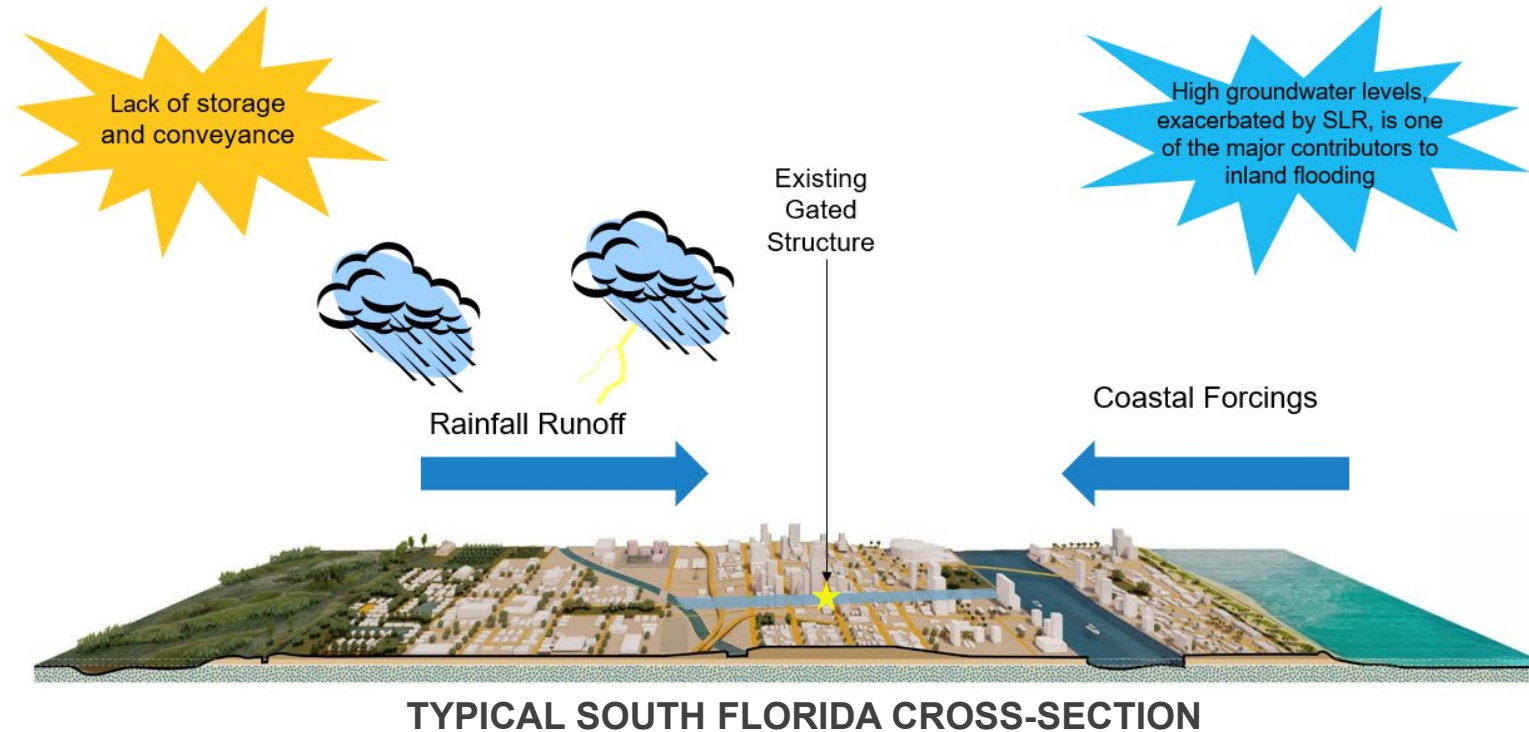
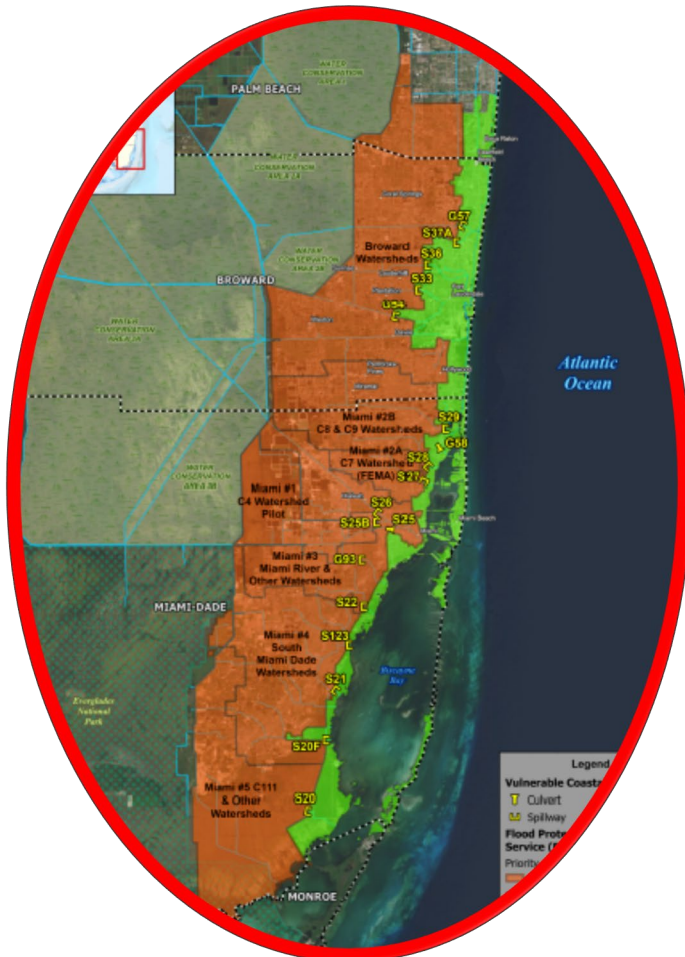
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FOCUSED SCOPE



Project Area

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

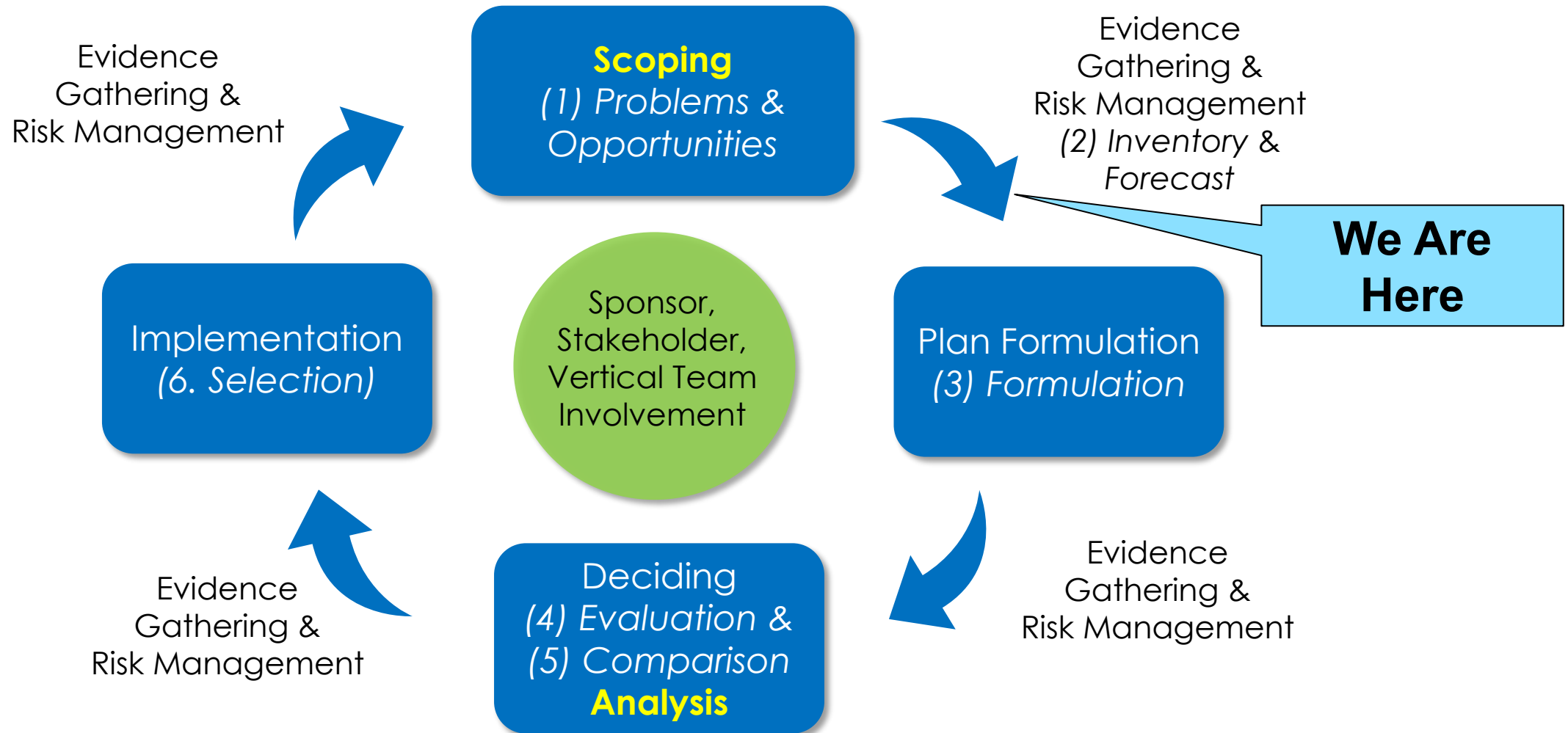


Green = area downstream of coastal C&SF structures

Orange = area upstream of coastal C&SF structures



USACE - Risk-Informed Planning Process



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



USACE -Risk-Informed Planning Process

Planning Assumptions - Forecasting the Future



* Future Without Project (FWOP)

** Future with Project (FWP)

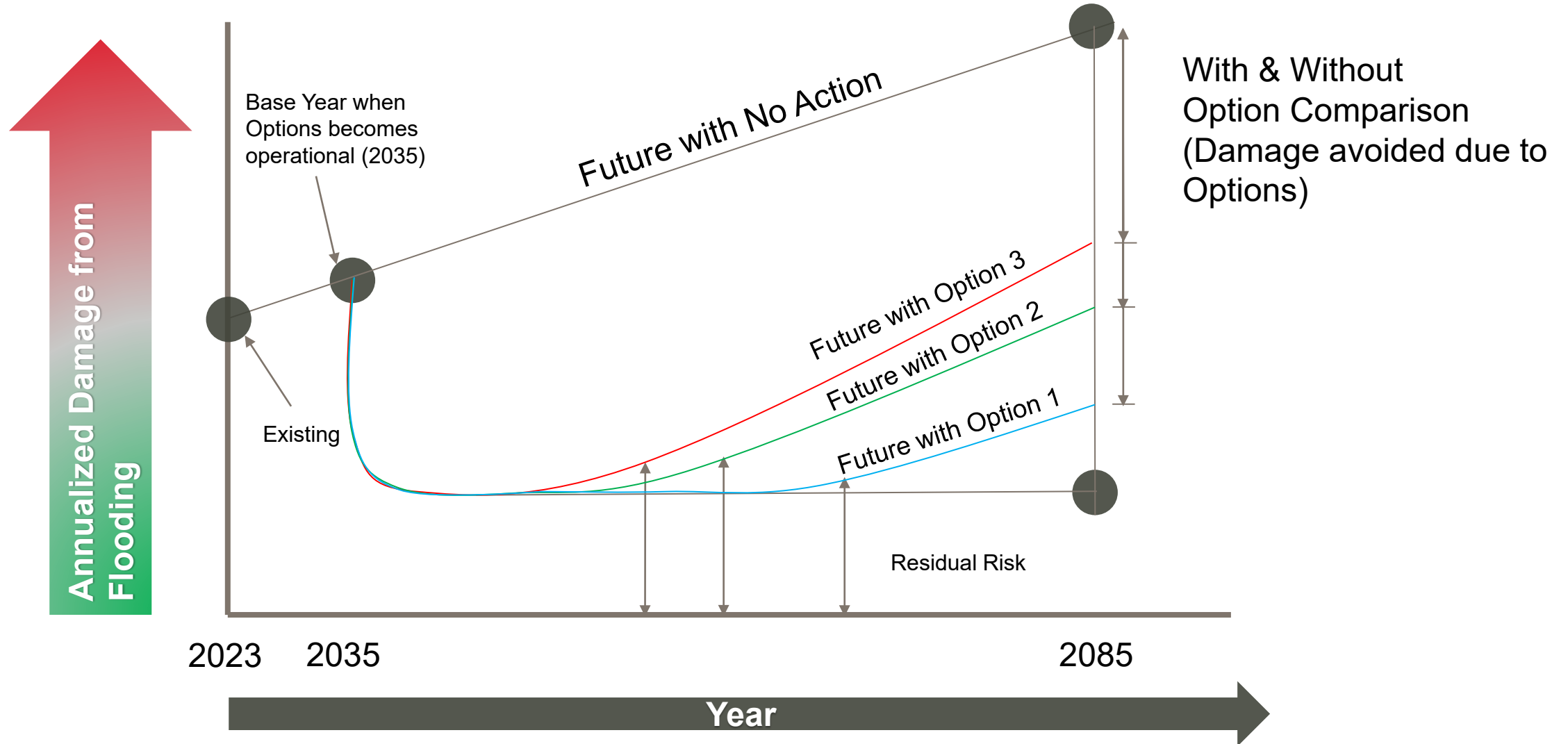
*“Forecasting the future is an essential part of water resources planning. The most important recurring forecasts in the Corps planning process are the **without condition*** and **with condition scenarios****.”*

*“**Assumptions** are one of the most common ways to address **uncertainty** in a planning study. All assumptions that underlay a scenario should be reasonable, **transparent, supported by the available evidence or a compelling rationale**, and they should be explicitly identified and listed with the scenario.”*



USACE - Risk-Informed Planning Process

Comparing Scenarios





Characterizing the FWOP Condition

What Projects will be in Place in 2035 & 2085 ?



- Federal Projects (Authorized)
 - USACE/SFWMD- CERP
- State Projects (Funded by 2035)
 - SFWMD
 - FDOT
 - FDEP
 - FDEM
- County Projects
- Municipal Projects
- Local Project

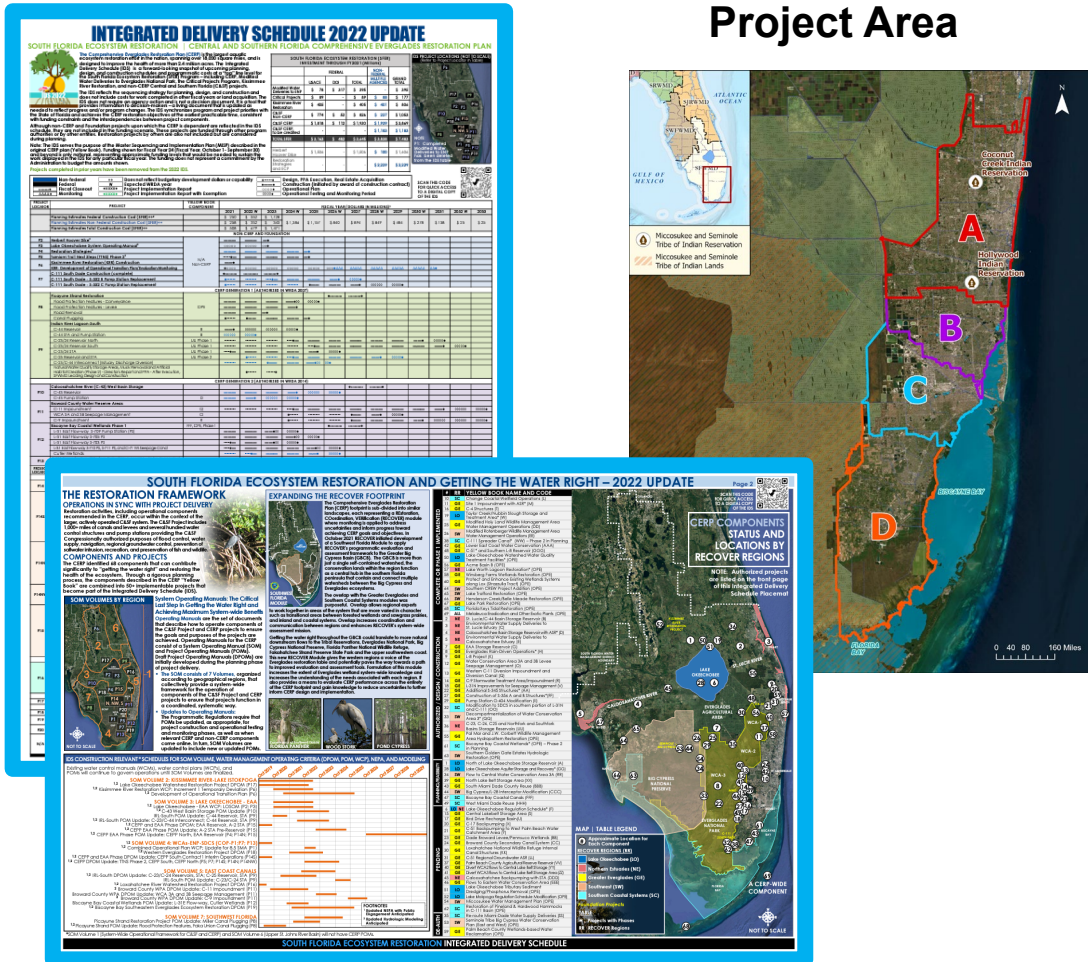




Future Without Project Condition



Project Area



- Biscayne Bay Coastal Wetlands (BBCW) - Authorized in 2014. Phase I, under construction and design. Construction to be completed in 2026.
- Broward County Water Preserve Areas (BCWPA) - Authorized in 2014. Project features are under design. All the project features expected to be completed by 2034.
- Site 1 Impoundment - Authorized in 2007. Phase I construction, completed in 2016. Phase II not completed.
- **Central Everglades Planning Project (CEPP).** - **CEPP components authorized in the Water Resources Development Acts (WRDA) 2016, 2018 and 2020. CEPP features are under construction and design. All the project features expected to be completed by 2032.**

CERP Projects	CSFFRS Baseline 2035	CSFFRS FWO 2085	Relationship to CSFFRS
Biscayne Bay Coastal Wetlands (BBCW)	Phase I, features operational.	Phase I, features operational.	The project is in Reach D. The BBCW project will 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 Bay Park.
Authorized in 2014.			BBCW Phase I includes extension of the C-100A Spur Canal and delivery of fresh water to Cutler Creek and coastal wetlands along Biscayne Bay.
Phase I, under construction and design.			Phase I, also includes the L-31E Flow-way/North Canal Flow-way features. This includes pumps, spreader canals, and several culvert structures to manage flow between the C-102 Canal, the L-31E Canal, Military Canal, the C-103 Canal.
Construction to be completed in 2026.			Full Biscayne Bay Coastal Wetlands Phase 1 project as authorized:
Phase II under feasibility.			<ul style="list-style-type: none">• Deering Estate Flow-way including a 100-cfs inflow pump from C-100A canal triggered by S-123HW• L-31E Flow-way includes 10 culverts between C-102 and C-103 and 2 culverts south of C-103
			Project features will likely influence structures S-21A, S-20G and S-20F and canals C-101, C-102 and C-103. These features were included in the preliminary alternatives of the C&SF flood resiliency study as possible measures for conveyance improvement and structure enhancement in Reach D.

Example of Project Assumption Table (Provided for Input)

IDS – Integrated Delivery Schedule



Study Objective



The study objective is to:

“Enhance existing C&SF water control system and salinity control structure’s functionality and capacity to ***improve flood risk management*** and ***resiliency*** which has been degraded by inland inundation and changed conditions within southern Palm Beach, Broward and Miami Dade Counties over **50-year period of analysis from 2035-2085.**”



Formulation Strategies



- ☒ Study will be focused on reducing inland flooding but will look at residual risk from inland and coastal forcing (limited)

- Maximize resiliency
- Environmentally friendly
- NED focused
- Minimize transferred risks

- ☒ A total of three categories were identified for the initial grouping of measures into alternatives:
 - ☐ Structural – Structure modification and Conveyance
 - ☐ Nonstructural (Limited)
 - ☐ Natural and nature-based features (Limited)



Metrics

How to Measure whether the Objective is been met?



- Improve flood risk management
 - Reducing flood damages
 - Structure & Content Damage (\$)
 - Vehicle Damage(\$)
 - Clean up and Evacuation cost (\$)
 - Traffic relocation cost (\$)
 - Recreation benefits (\$) [Incidental]



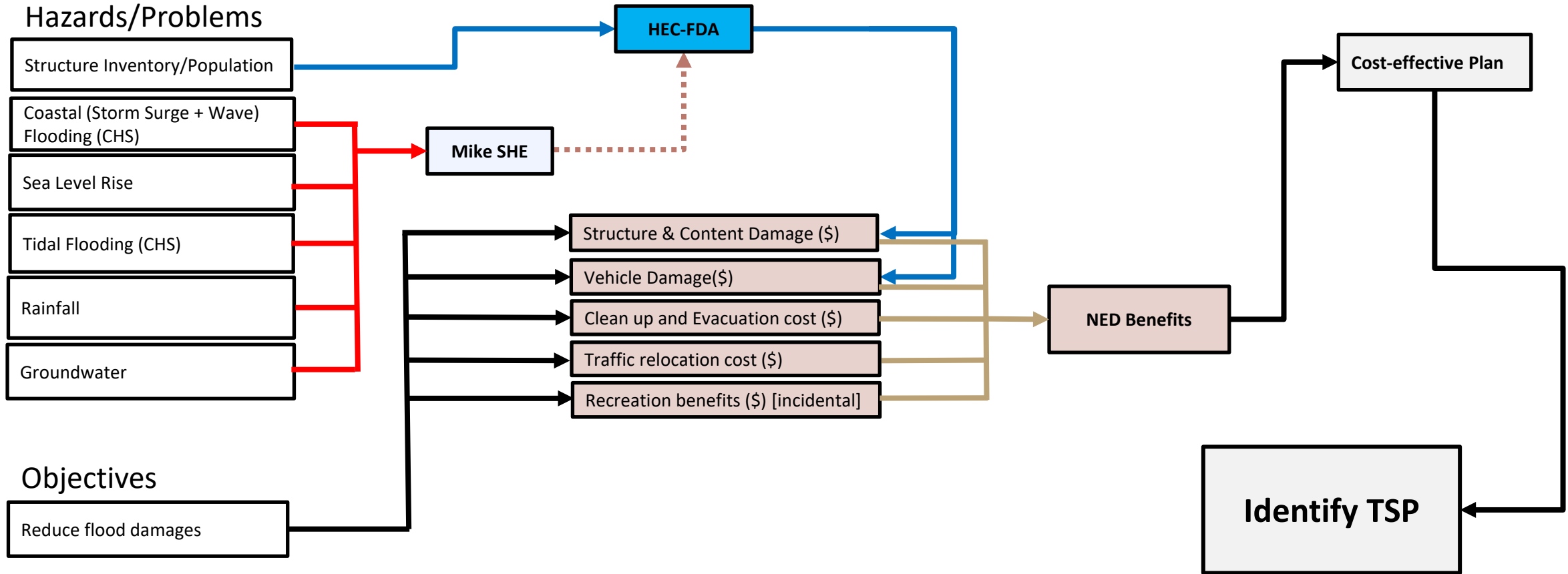
Performance Metrics - Draft



Metric
PM1 – Overland Inundation Area
PM2 – Flood Duration
PM3 – Peak Canal Stages / Discharge Capacity
PM4 – Property Damages (or flood damage reduction)
PM9 – Cost Benefit Analysis (cost factor added here – not alone)
PM5 – Environmental benefits, e.g. Water Quality in Biscayne Bay / total areas with Associated NBS or GI, associated storage/filtration capacity
PM6 – Water Supply / Salinity Intrusion Protection
PM7 – EJ community benefits
PM8 - Property value increase / insurance discounts / quality of life
PM9 – Business disruption
PM10 – Critical Assets / Lifelines



PATH FORWARD: EVALUATION STRATEGY



- ✓ **Total Benefits (Quantitative/Qualitative)**
- ✓ **Sponsor & Local Input through the process**
- ✓ **Iterative process through multiple rounds of evaluation**



USACE Planning Guidelines (P&G)

Evaluation Criteria



- **Completeness** is the extent to which the alternative plans provide and account for all necessary investments or other actions to ensure the realization of the planning objectives, including actions by other Federal and non-Federal entities.
- **Effectiveness** is the extent to which the alternative plans contribute to achieve the planning objectives.
- **Efficiency** is the extent to which an alternative plan is the most cost-effective means of achieving the objectives.
- **Acceptability** is the extent to which the alternative plans are acceptable in terms of applicable laws, regulations and public policies. Appropriate mitigation of adverse effects shall be an integral component of each alternative plan.



USACE Planning Accounts



- **National Economic Development (NED)** - Displays changes in the monetary value of the damages prevented with a project.
- **Environmental Quality (EQ)** - Displays nonmonetary effects on significant natural and cultural resources.
- **Other Social Effects (OSE)** - Registers plan effects from perspectives that are relevant to the planning process but are not relevant in the other three accounts.
- **Regional Economic Development (RED)** - Registers changes in the distribution of regional economic activity.



LAST CALL FOR INPUT/FEEDBACK



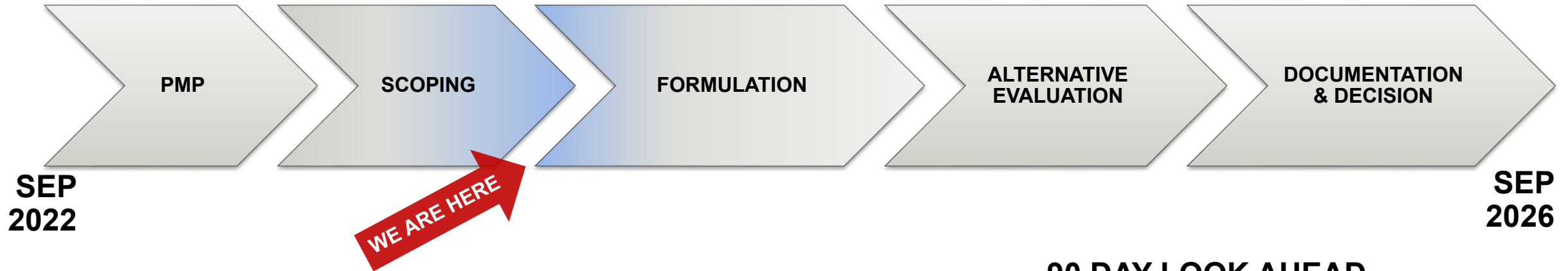
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 - Initial Performance Metrics (PM) Input



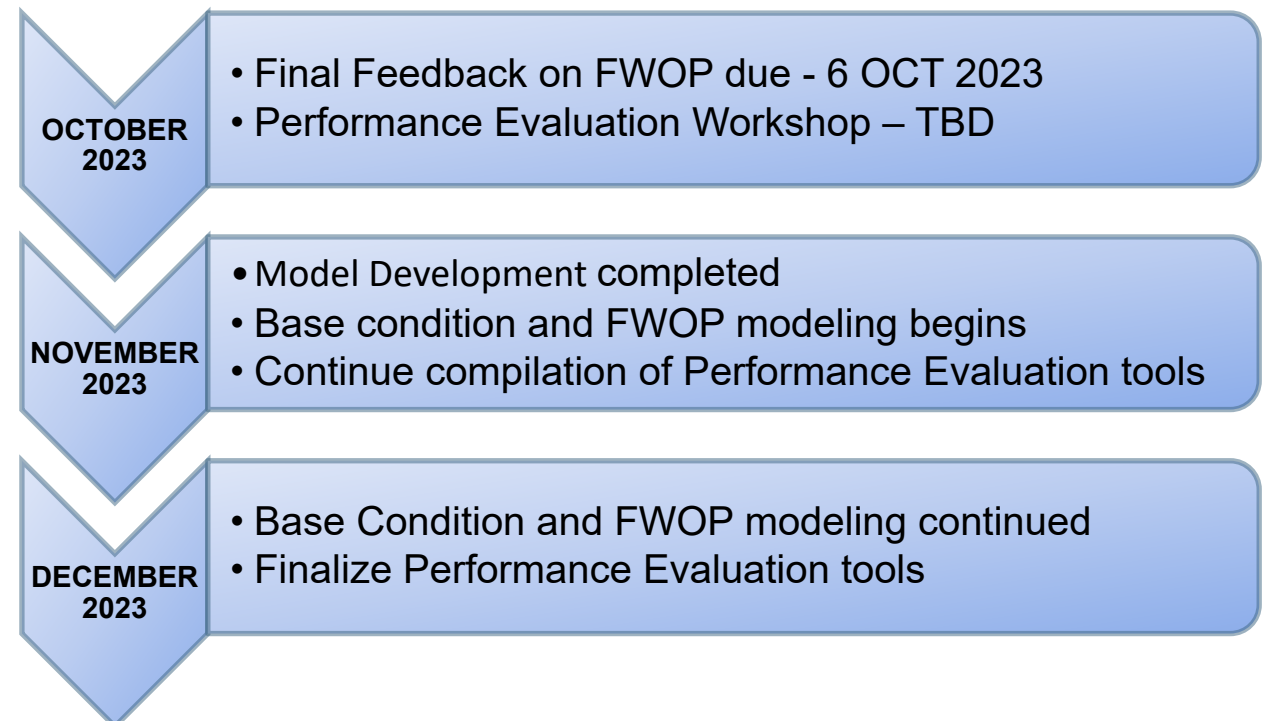
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SCHEDULE AND NEXT STEPS



MILESTONE		DATE
Scoping Meetings	✓	January 2023
Alternatives Milestone Meeting (AMM)	✓	June 2023
Tentatively Selected Plan (TSP)		April 2025
Draft Integrated Report Release		June 2025
Agency Decision Milestone (ADM)		
Final Integrated Report Release		July 2026
Chief's Report		September 2026

90 DAY LOOK AHEAD





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

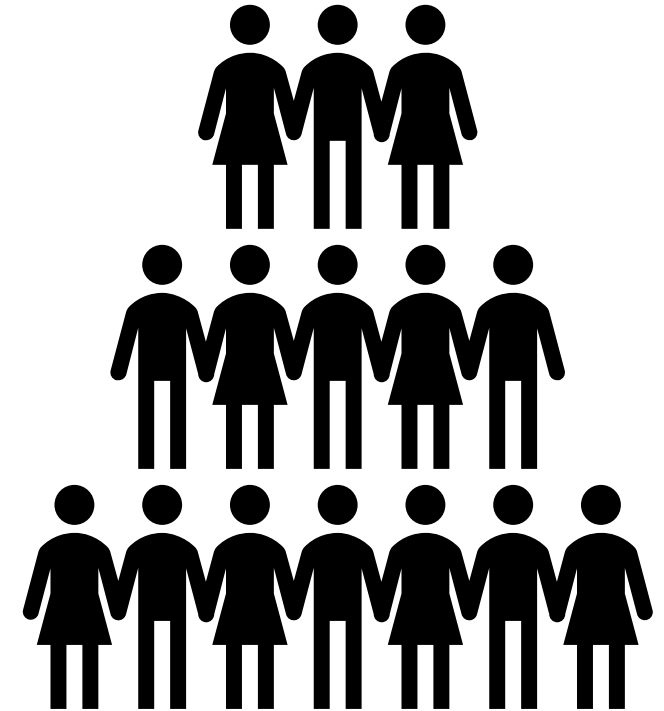
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COLLABORATION!