STATUS UPDATE

RE-INITIATION OF THE MIAMI-DADE BACK BAY COASTAL STORM RISK MANAGEMENT FEASIBILITY STUDY

PUBLIC WEBINAR
23 FEBRUARY 2023

Jim Murley,
Chief Resilience Officer
Miami-Dade County

Michelle Hamor - Chief, Planning and Policy Branch
U.S. Army Corps of Engineers, Norfolk District

U.S.ARMY

US Army Corps of Engineers®

MIAMI-DADE COUNTY

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

Agenda

- Welcome & Introductions
- Setting Context: Related resilience initiatives
- Process and Progress Update
  - How we got here
  - Summary of recent community engagement
- Two draft alternatives
- Process moving forward
- Next steps and how to stay engaged
- Question and Answer Session

ZOOM RULES

WE WANT TO GET TO ALL YOUR QUESTIONS AND COMMENTS!

A few ground rules to help us get to everyone:

- Please remain muted throughout the presentation and the Q+A unless you are called on.
- Please enter all questions and comments into the chat box. The moderators will be monitoring the chat and reading the questions out loud.
- If we don't get to your question during this meeting, we will answer it in the Q+A document that will be mailed out to all participants and will be posted on the project web page.

Welcome!

Miami-Dade County Mayor
Daniella Levine Cava

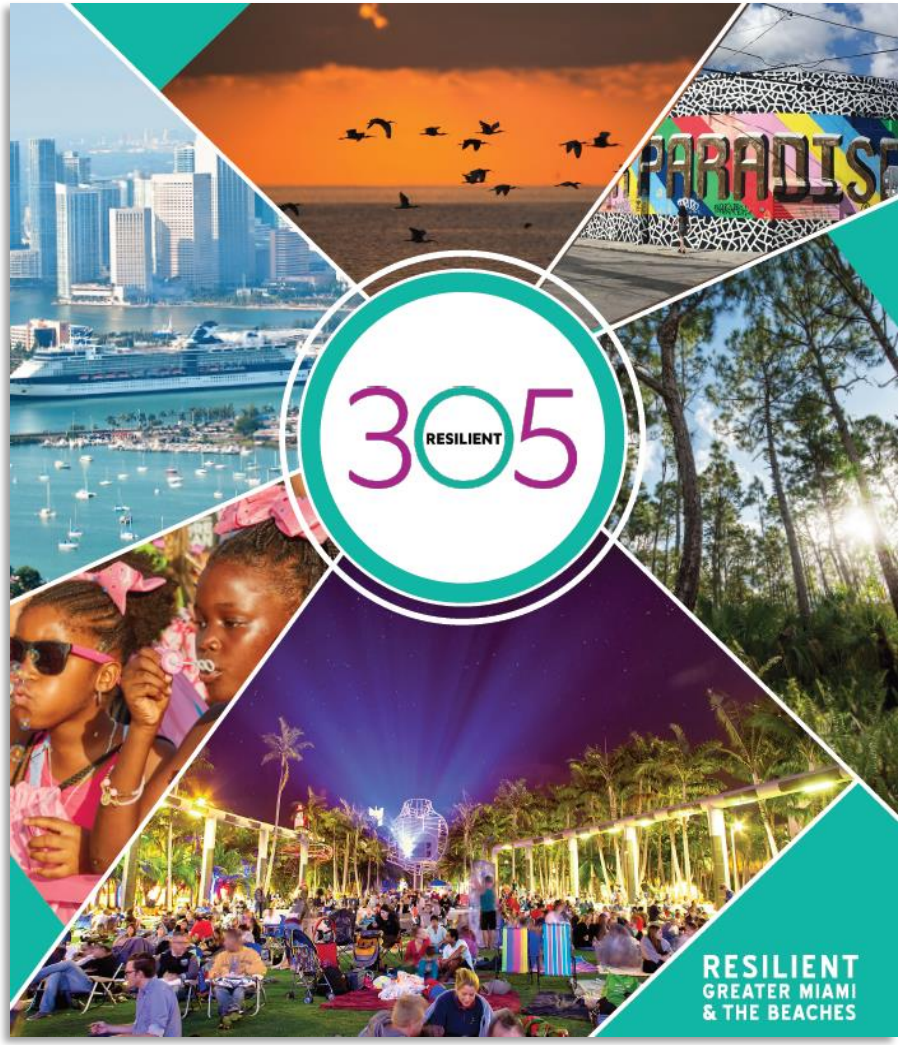
U.S. Army Corps of Engineers
Chief, Planning and Policy Branch, Norfolk District
Michelle Hamor

Miami-Dade County Office of Resilience

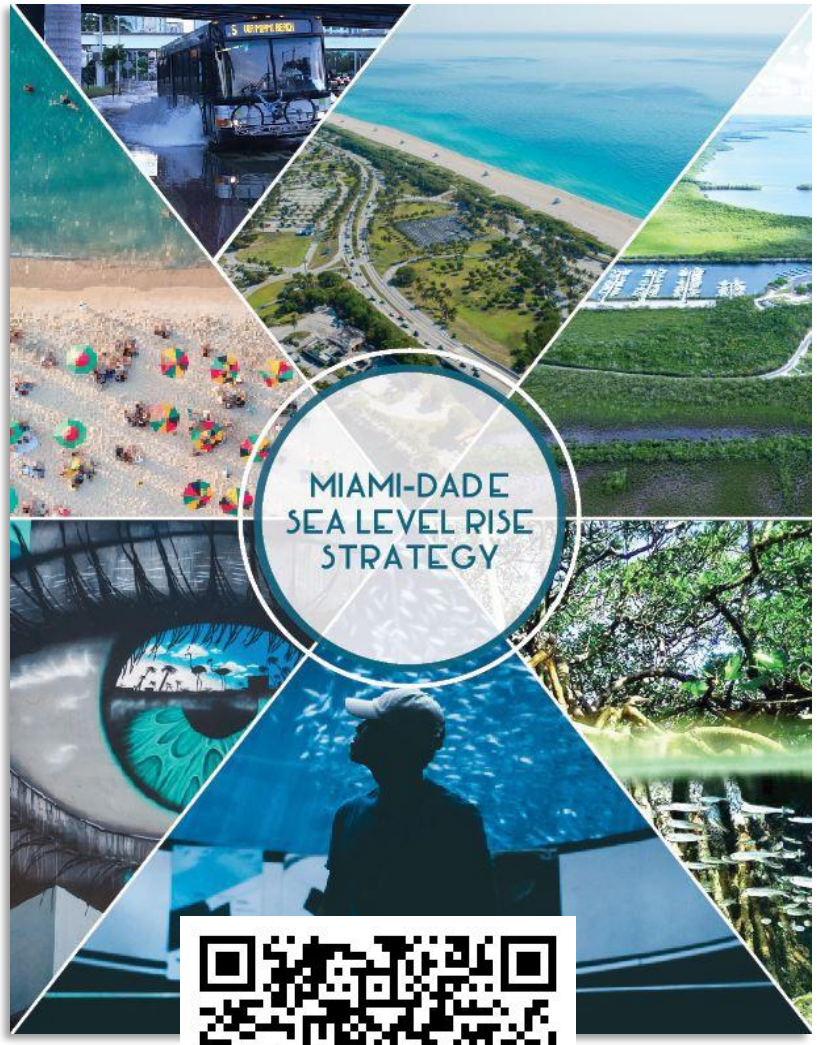
Jim Murley, Chief Resilience Officer

MITIGATION	ADAPTATION	COMMUNICATION	BISCAYNE BAY	EXTREME HEAT	FUTURE READY
reduce sources of climate change	address sea level rise impacts	engage & connect stakeholders	protect & restore	Implement heat risk reduction efforts	Implement and plan
					

From 2009 to date these are all the resilience initiatives in County



Connected Strategies



Scan to view our SLR Strategy

GUIDING PRINCIPLES

ALL ADAPTATION ACTIONS MUST :

1. **Make us safer** over time by helping protect lives and incrementally protecting the community from storms and multiple flood risks. Actions should not increase vulnerability to other hazards.
2. **Be equitable** by recognizing that historic, unjust discriminatory policies. Actions should be driven by inclusive engagement, fair policies, and direct investments and resources to target these disparities.
3. **Reduce environmental pollution** by not adding greenhouse gas emissions or other pollutants to our air and waterways. Actions should not be implemented at the expense of the environment and human health.
4. **Be flexible** and able to respond to changing conditions such as faster rates of sea level rise.
5. **Build with nature** by working with natural processes and natural materials to address long-term flooding hazards.
6. **Align with other initiatives** and plans such as the Miami- Dade County Comprehensive Development Master Plan, the Long-Range Transportation Plan, the Parks and Open Space Systems Master Plan, the Resilient305 Strategy, the Central and Southern Florida Flood Resiliency Study, and others.

Adaptation approaches

to sea level rise and flooding

Source: Miami-Dade County Sea Level Rise Strategy

https://miami-dade-county-sea-level-rise-strategy-draft-mdc.hub.arcgis.com/

Strengthening Systems Through Related Studies

Everglades (CERP & BBSEER)

'Back Bay' CSRM Study

Central and Southern Florida (C&SF) '216' Resiliency Study
emphasis on canal system

'Beach' CSRM Reauthorized in 2022
renourishment & dune enhancement

Key Biscayne CSRM
Combined ocean front & back bay study


PARKS & CONSERVATION LANDS


AGRICULTURE


WESTERN & SOUTHERN SUBURBS


SLOUGHS


THE RIDGE


MAINLAND BAYFRONT


ISLAND BAYFRONT


ISLAND OCEANFRONT


WATER

Mainland *Islands*

Other Efforts:	SFWMD Level of Service (LOS)	County & Municipal Resilience, Stormwater Master Plans, etc.	Biscayne Bay Reasonable Assurance Plan

USACE PARTNERS INVOLVED IN BACK BAY STUDY

MICHELLE HAMOR

U.S. Army Corps of Engineers (USACE)

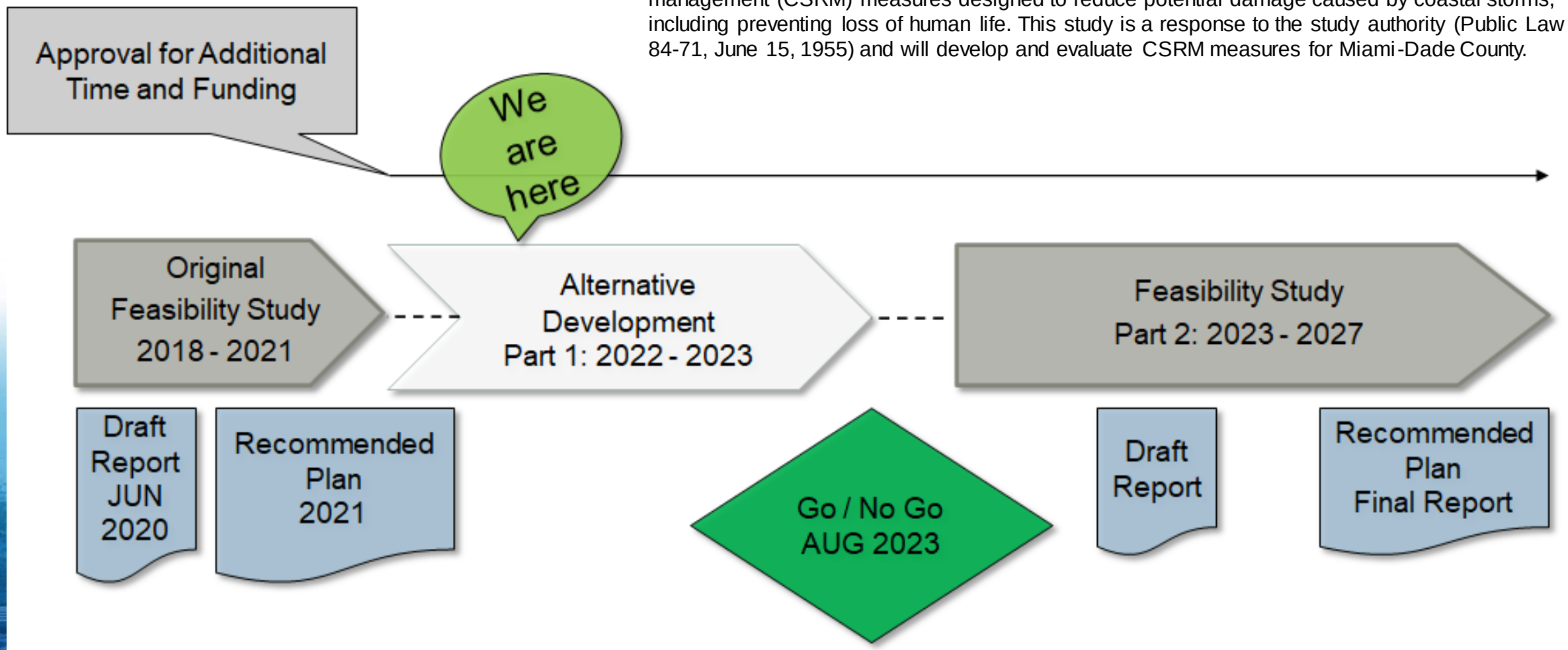
- North Atlantic Division
  - Norfolk District
- South Atlantic Division
  - Jacksonville District

Additional support from:

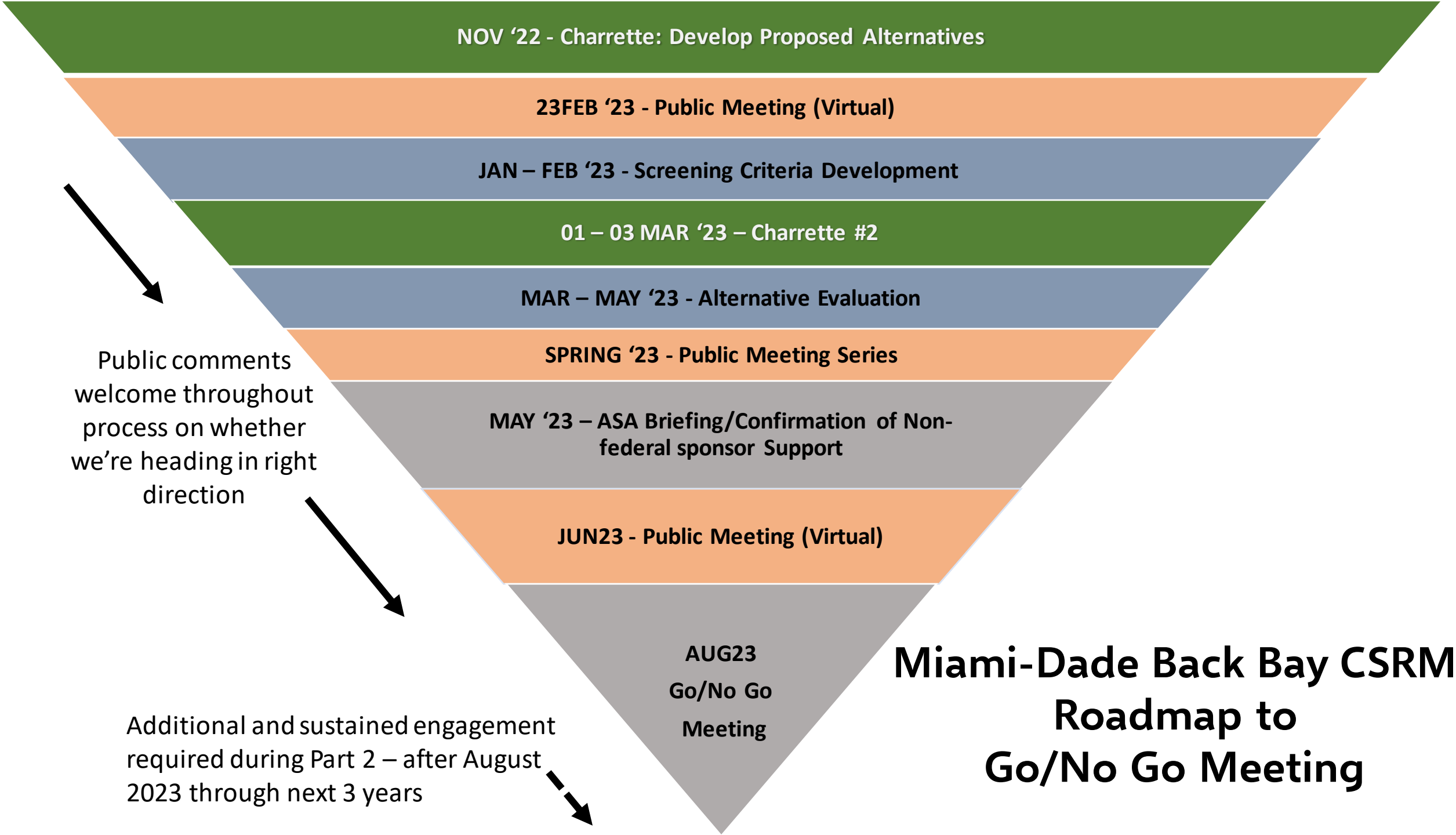
- Engineering with Nature
- National Nonstructural Committee
- Planning Center of Expertise for Coastal Storm Risk Management
- Engineer Research and Development Center (ERDC)

MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: PAST TO PRESENT

Study Purpose: To reduce 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. This study is a response to the study authority (Public Law 84-71, June 15, 1955) and will develop and evaluate CSRM measures for Miami-Dade County.

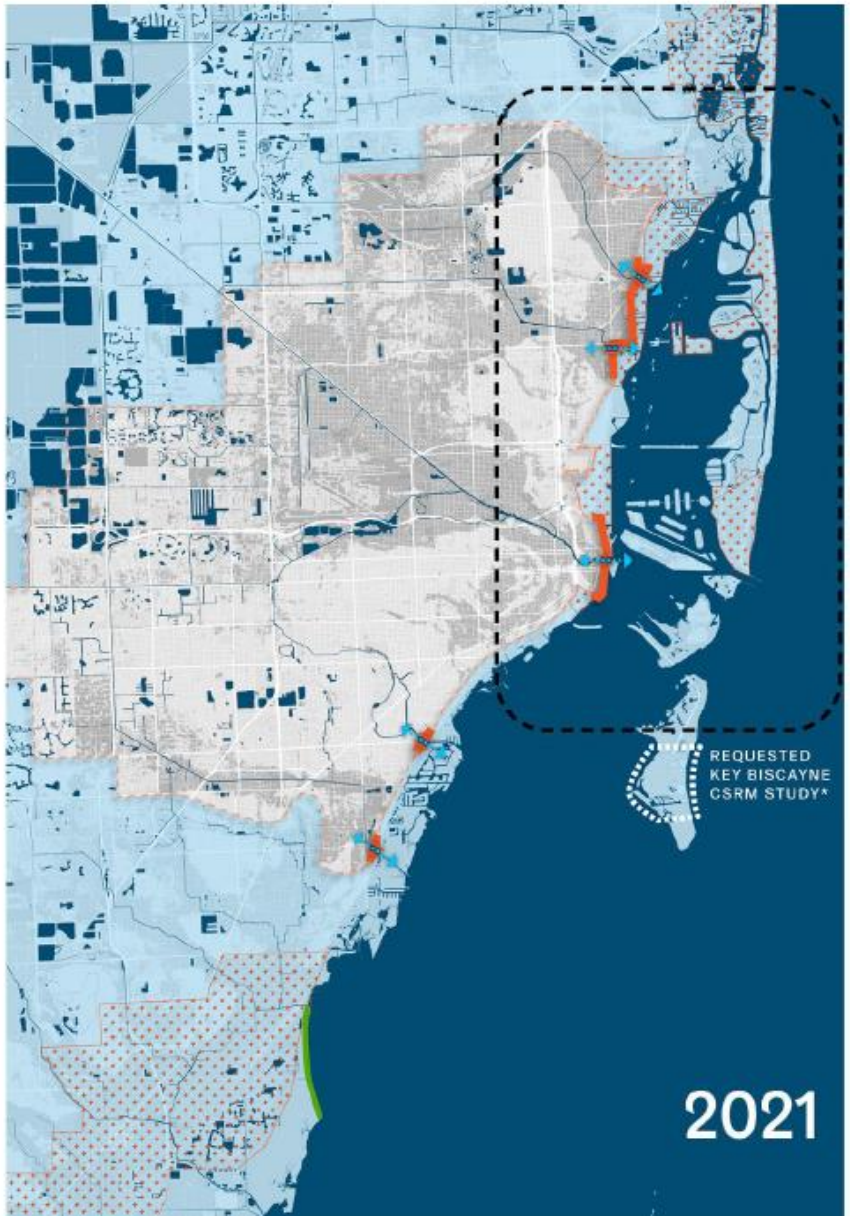


Miami-Dade Back Bay CSRM Roadmap to Go/No Go Meeting



USACE 2021/22 Alternative

Not supported by Miami-Dade County



LEGEND

- USACE Alignment
- Gates or Control Structures
- Outside of Alignment
- Non-Structural Measures
- Proposed Nature Based Solutions
- Miami-Dade County, Florida Main Segment Coastal Storm Risk Management Final Integrated Feasibility Report And Environmental Assessment

*Not included in the Miami-Dade County Back Bay CSRM Study

While some measures were not supported, **the plan did include** widely supported measures including **protecting critical facilities county-wide** and **expanding natural & nature-based features.**

***These supported measures will be included and refined as part of any future plan.**

RE-INITIATING THE MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: TWO PARTS

PART 1: 12 months (Aug 2022 to Aug 2023)

***Objective*:** In coordination with Miami-Dade County, develop an additional alternative that supports the study objectives and sufficiently compares in performance to the USACE's Recommended Plan (2021). The alternative would integrate and refine measures of the Recommended Plan (2021) that received broad support and modify/replace measures that raised local concerns.

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October 2022 – January 2023

Engage virtually and in-person (Nov Charrette) to gather concerns and ideas for revised or new concepts

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January/February 2023

- Develop & refine draft alternatives
- Consider criteria to refine alternatives

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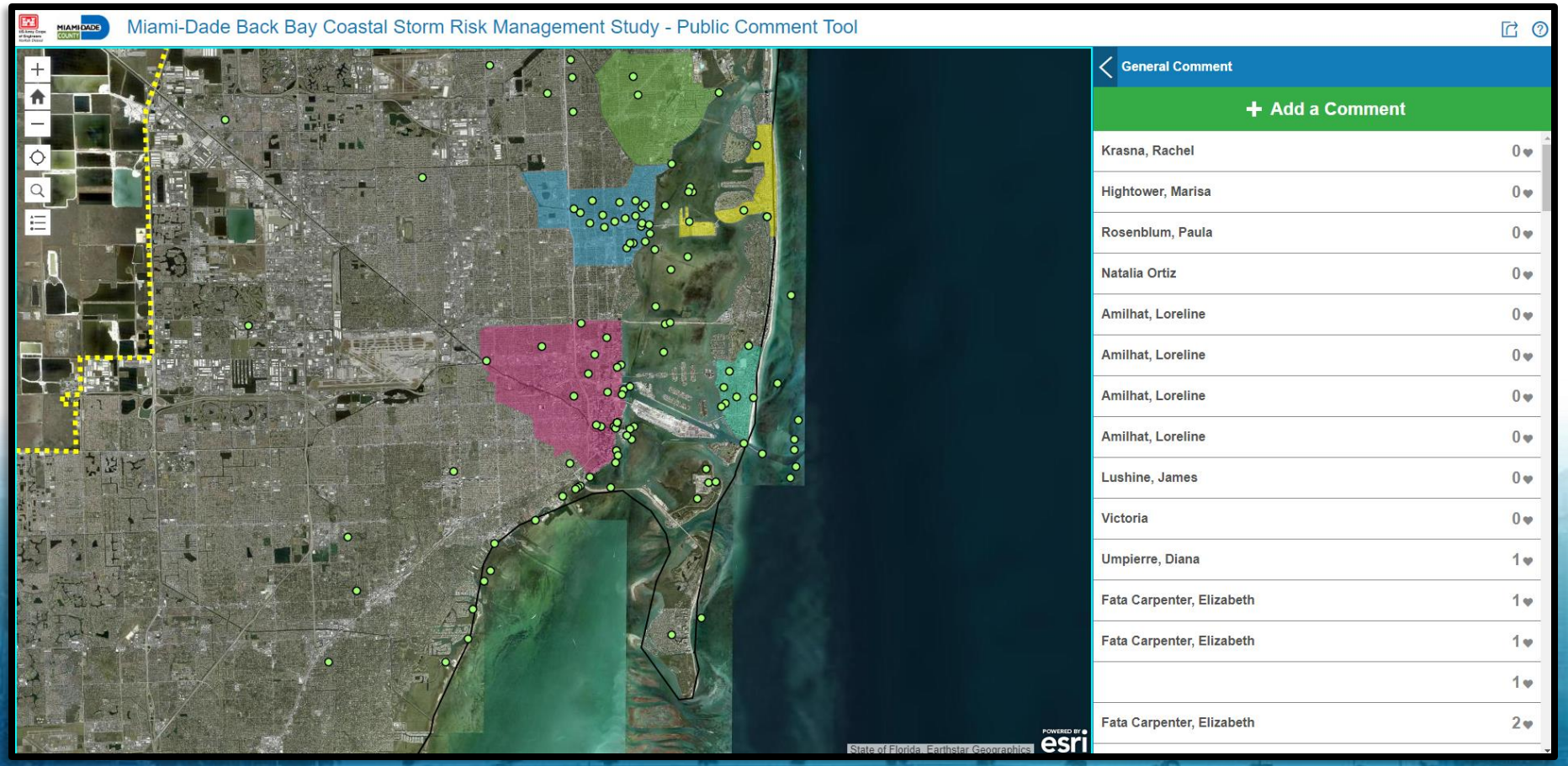
February - June 2023

Engage wider community to gather feedback & refine potential options

PUBLIC CROWDSOURCING MAP TOOL



Thank you!

Total individual comments: 143

•**Public Crowdsource Reporter Tool:** https://arcg.is/0ub0Cf

NOVEMBER 2022 CHARRETTE

Charrette Goal: to begin discussions with stakeholders and state & local agencies to determine feasible, acceptable, and site-specific conceptual ideas that will contribute to a new set of alternatives

Participants: Miami-Dade local governments, resources agencies, environmental advocacy groups, maritime industry, academic, institutions, public

Collaborative Efforts:

- USACE Jacksonville District projects
- Incorporating Engineering With Nature in the Miami-Dade Back Bay Study Design

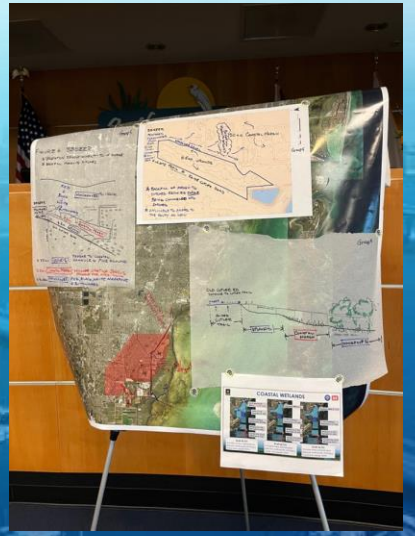
NOVEMBER 2022 CHARRETTE

Summary:

- Working tabletop sessions and site visits conducted each day (Tues-Thurs) with discussion on Mon and Fri
- During working sessions participants worked in groups to develop several concepts by the end of the week
- Numerous concept drawings developed

Scan QR Code

Detailed YouTube video summary of charrette is available on the project website



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

CHARRETTE:
TAKEAWAY THEMES

- System-wide approach to coastal storm risk management with multiple layers of protection and adaptive solutions
- Developing CSRM solutions that address social equity, maintain community cohesion, and provide environmental benefits
- Importance of community engagement throughout the process
  - Need for renderings and conceptual designs for appropriate messaging
- Residual risk – what is acceptable to stakeholders?
- Hybrid solutions comprised of elements of structural, nonstructural, and NNBFs
- Integration with ongoing projects: BBSEER, C&SF Flood Resiliency Study, municipal resilience & stormwater projects

CHARRETTE:
SUMMARY OF CONCEPTS

Table 1 – Choose Your Own Adventure

- Develop **hybrid solutions** such as living shorelines in conjunction with lower wall heights;
- Consider **multiple lines of defense**
- Consideration for 100yr storm instead of a 200yr storm in models
- Potential seawall and public walk at Miami Shores
- Levee in the northern area of Miami
- Co-locate CSRM measures with C&SF structures
- Cutler Bay as an opportunity; raise Old Cutler Road in some areas
- **Phased approach** for construction
- **Improve communication** to the public

- Support for bin wall concept along with levees and stair step structures that allow slow flooding
- New alternative should **consider all existing studies and ongoing projects** in the area
- Acknowledge the importance of viewshed
- Acknowledged need for structural in some areas (except Miami Shores neighborhood); but may need to revisit alignment locations

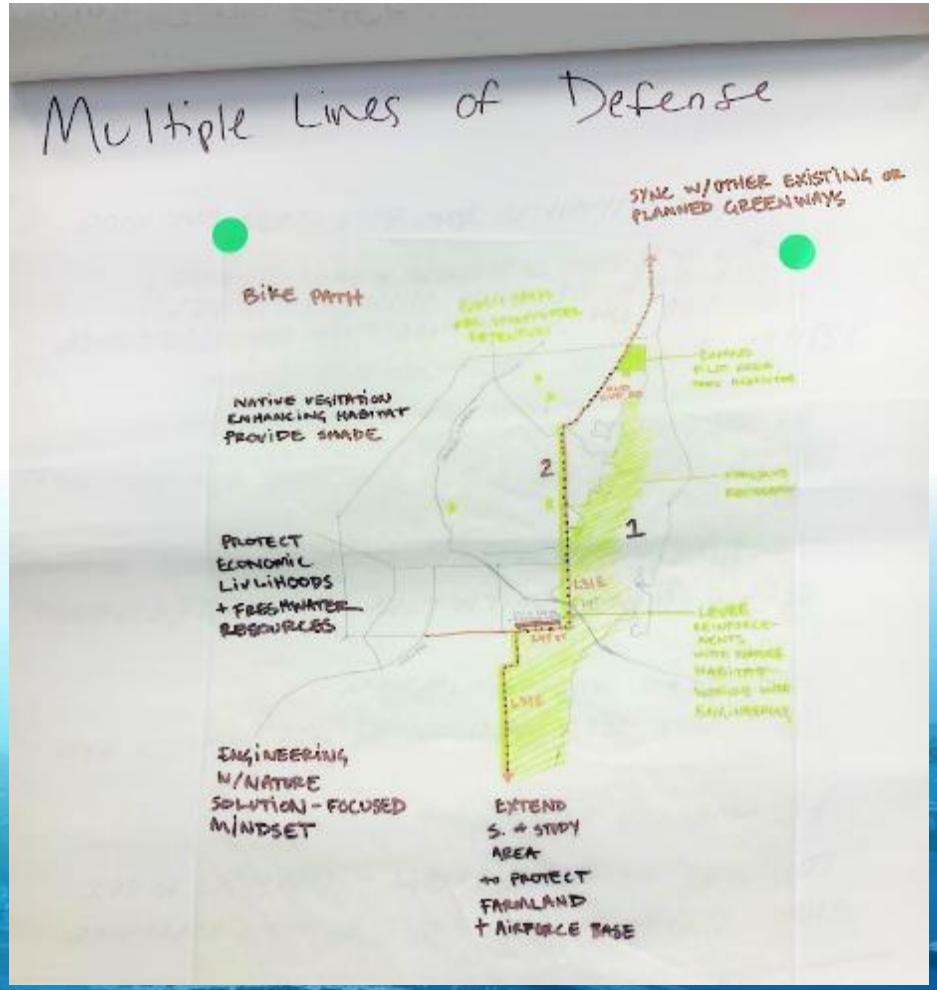
CHARRETTE:
SUMMARY OF CONCEPTS

Table 2 - Restoration, Recreation, Retention, Rehabilitation

- Cutler Bay Area: Include **multiple lines of protection/defense**:
  - First line of defense: mangrove forests and coastal marsh
  - Second line of defense: raised levees (or levee reinforcement, i.e. with riprap); enhance recreational use with pedestrian/bike access; raise low-lying sections of Cutler Road

- Promote education, accept **residual risk**

- **Need for better graphics**, models, and animations



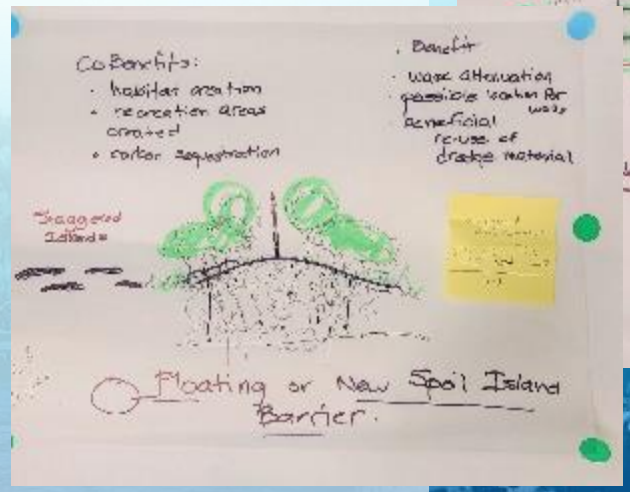
CHARRETTE:
SUMMARY OF CONCEPTS

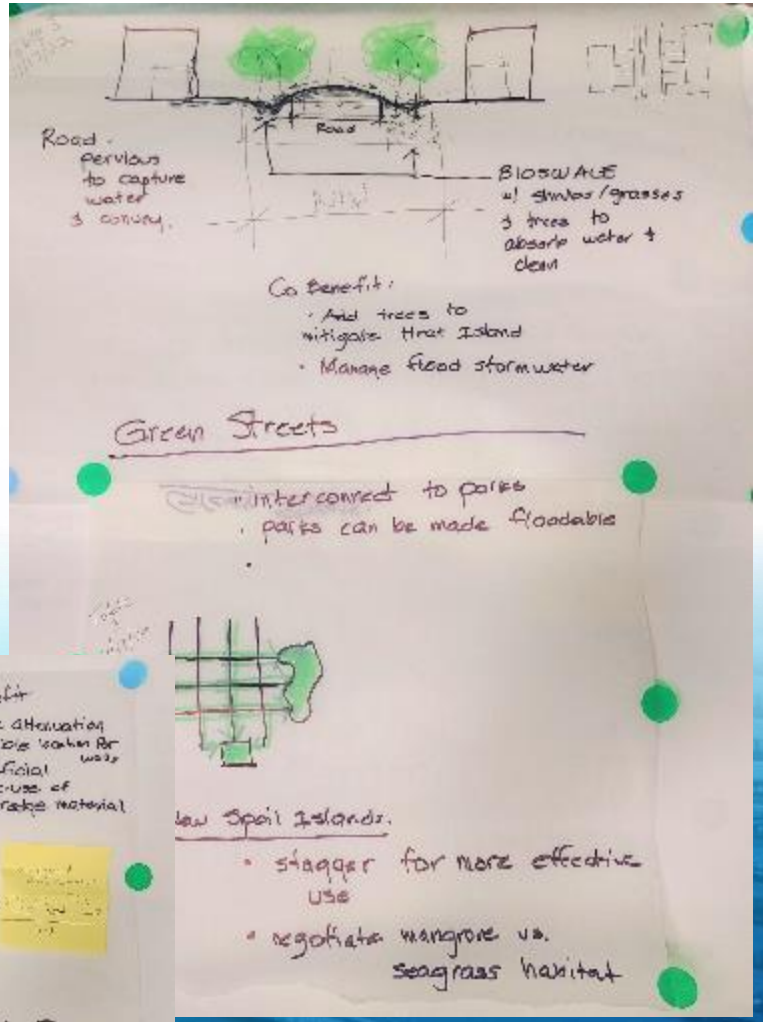
Table 3 – Shorebreak

- NNBFs – green roadways for drainage and protection; interconnection of green streets; bioswales
- **Floating spoil island barriers** (could also include structural feature on the spoil island (i.e. flood barrier)
- **Living breakwaters**
- The incorporation of these NNBFs would result in green spaces, also minimize the urban heat island effect, and sequester carbon
- Project should be carbon neutral

In Miami Shores area:

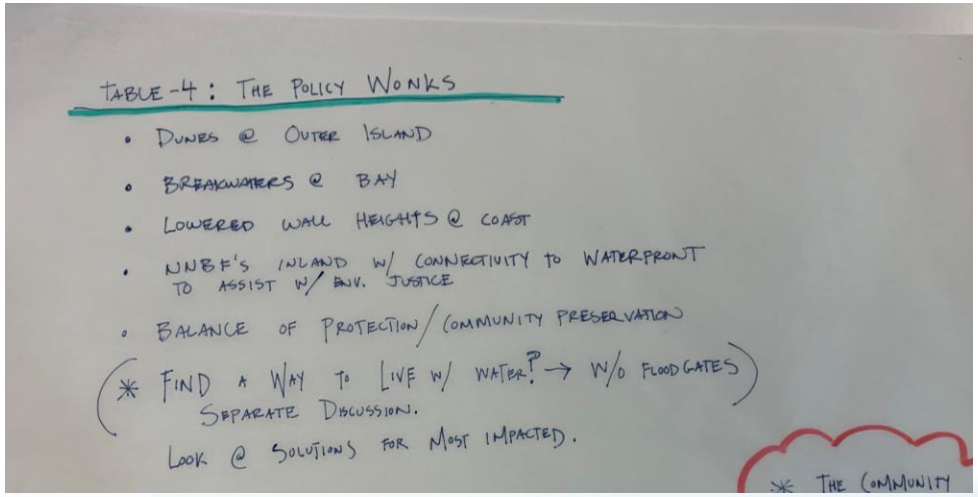
- Linear raised park/levee along corridor in lieu of floodwall (would require acquisition) and creation of green open space
- Recommend structural solution due to extensive impacts of non-structural measures
- Potential implementation of managed retreat to allow room for water storage





CHARRETTE:
SUMMARY OF CONCEPTS

Table 4 – Policy Wonks



- **Multiple lines of defense**
  - Dunes/beaches along the barrier islands
  - Segmented living breakwaters in Biscayne Bay
  - Lowered wall heights at the coast

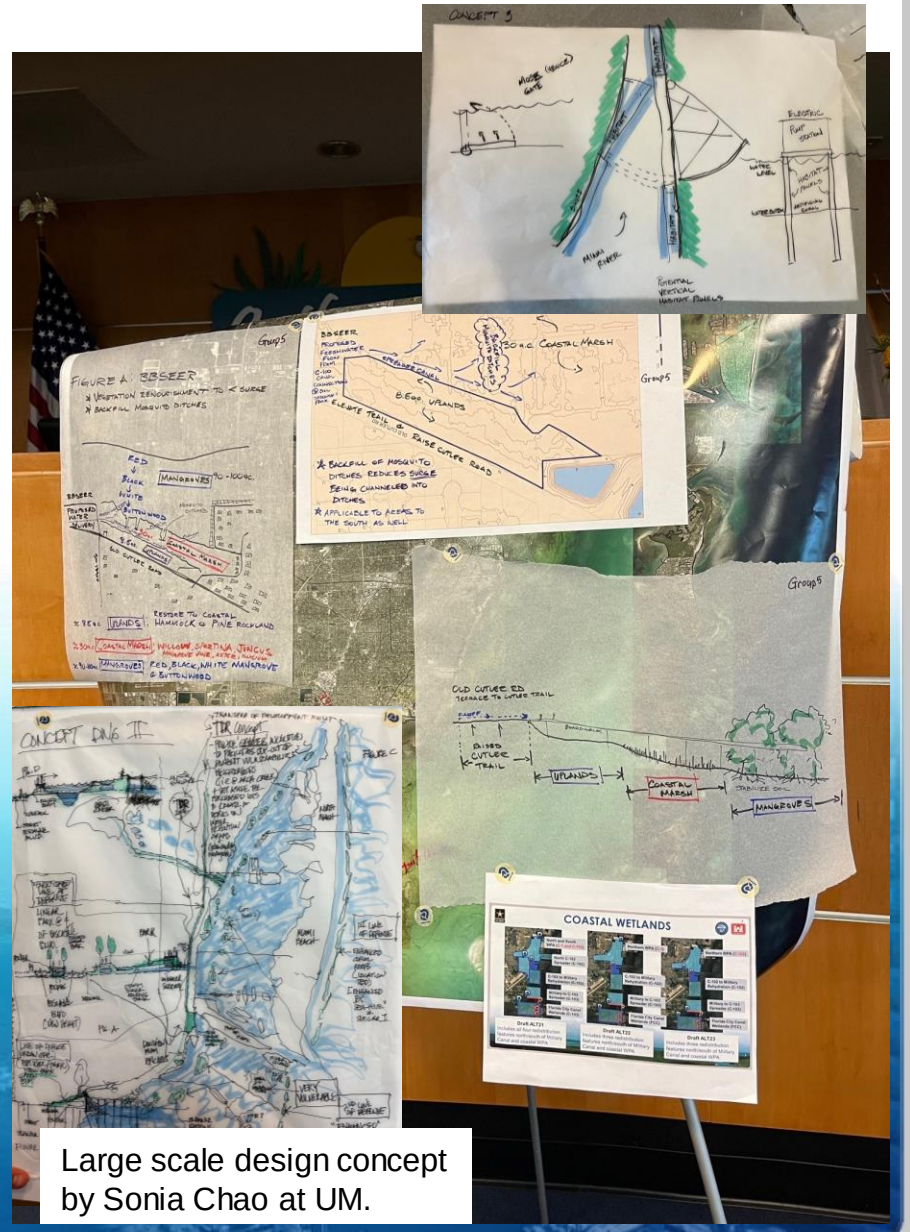
- NNBFs in inland areas with connectivity to the waterfront (i.e. along canals)
- Balance of protection and **community preservation**
- Investigate solutions for areas most highly impacted
- The community wants **renderings** of as much as possible
- Nonstructural – elevation of homes on septic systems
- Find a way to live with water

- **Considerations**
  Prioritization of **phased implementation** – could inland measures be implemented at the same time as coastal measures?
  Public (negative) perception of mangroves in Miami

CHARRETTE:
SUMMARY OF CONCEPTS

Table 5 – Five Star Plan

- Utilize the aquatic preserve as a nature-based solution; utilize NNBF wherever practicable (e.g., as part of sector gate)
- **Create multiple integrated lines of defense**
- **Elevate communications**; advance/refine landscape architecture drawings and renderings to communicate intent
- **Integrate USACE, City, and County projects** to achieve larger-scale project success (e.g., BBSEER)
- **Hybrid infrastructure** measures offer low hanging fruit due to plentiful existing infrastructure
- Transport of Everglades freshwater from west to east an essential element of project success
- Consider and **embrace a changing landscape**, both from climate and community perspectives
- Center **water quality improvement** considerations

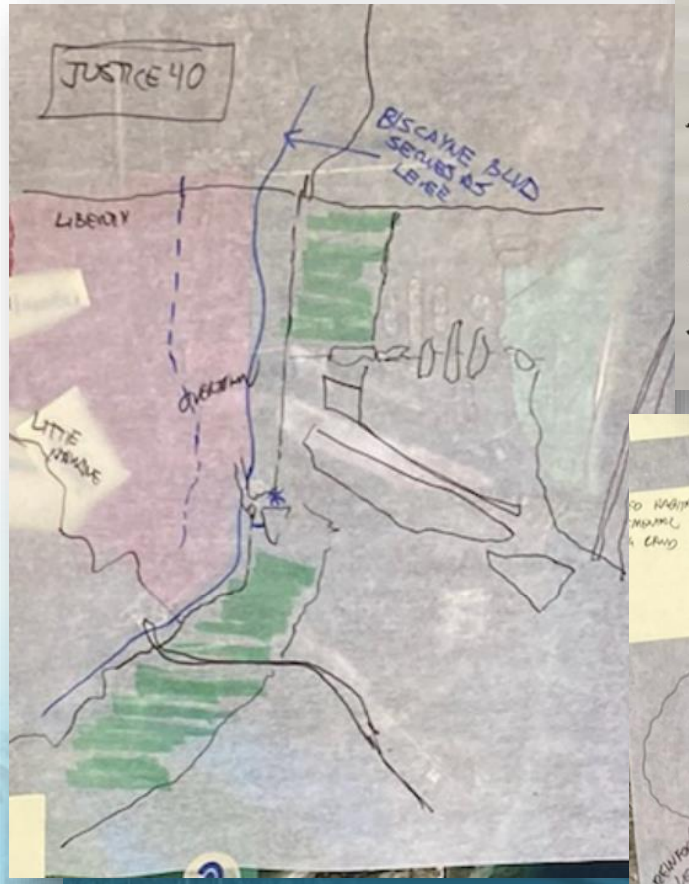


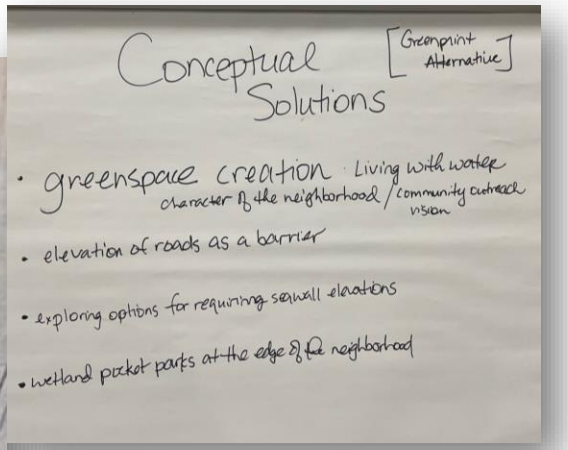
Large scale design concept by Sonia Chao at UM.

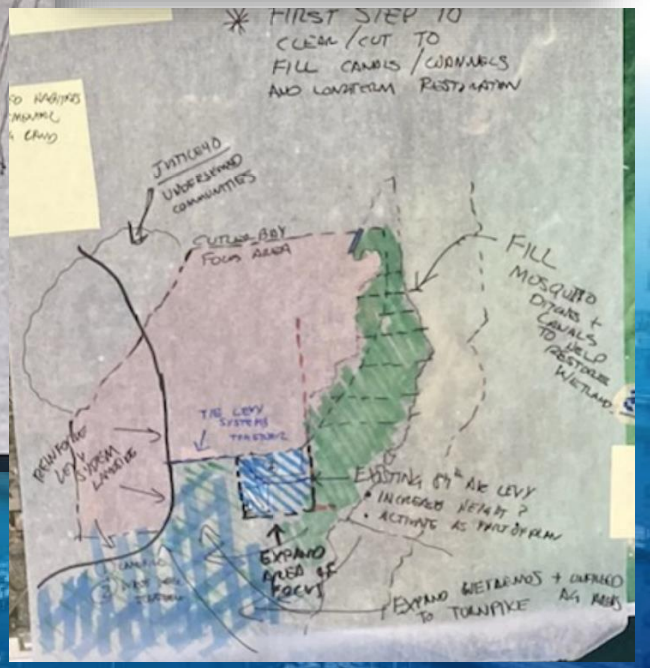
CHARRETTE:
SUMMARY OF CONCEPTS

Table 6 – Greenprint Alternative

- Address coastal storm risk with a multi-faceted, **multi-layered redundant system** which encourages **equitable solutions** through the pairing of NNBFs with structural solutions and incorporates community engagement
  - Multiple layers (or zones) of adaptation strategies
- Dunes along the barrier islands
- Breakwaters in Biscayne Bay
- Lowered wall heights at the coast
- NNBFs in inland areas with connectivity to the waterfront
- Balance of protection and **community preservation**
- Investigate solutions for areas most highly impacted



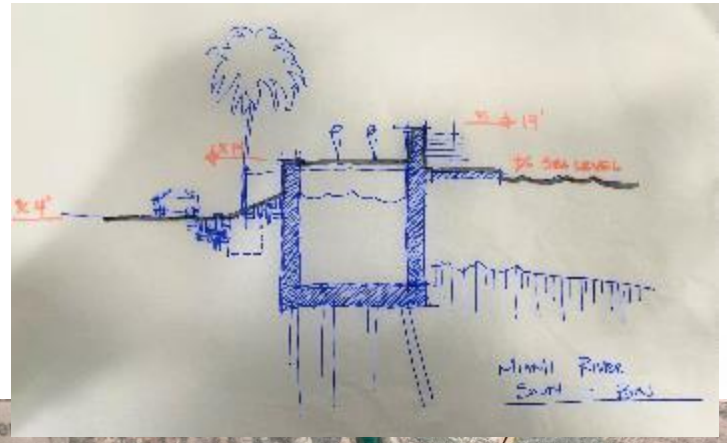


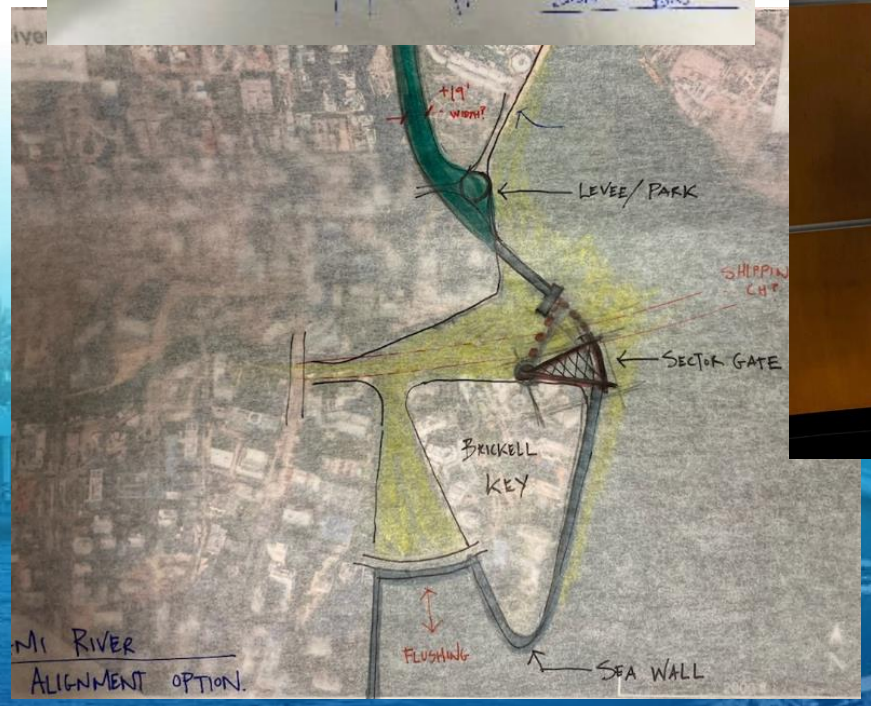


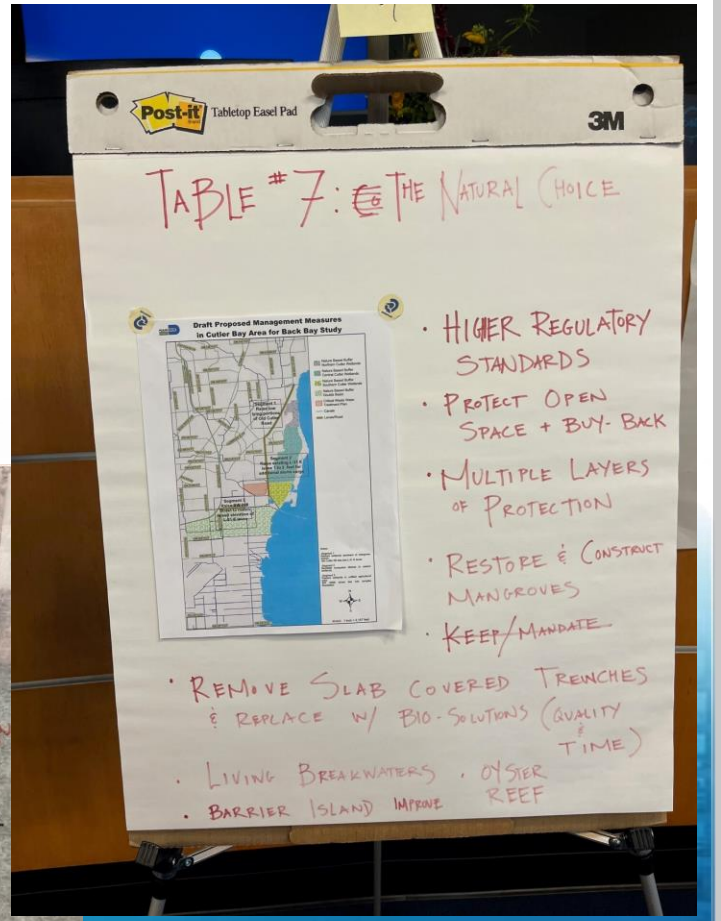
CHARRETTE:
SUMMARY OF CONCEPTS

Table 7 - The Hybrid Barrier / The Natural Choice

- Miami River – structural measures/bin wall/levee
- Gate at Haulover Inlet (and causeway connection north of Government Cut)
- The barrier would protect the upper bay and tie into the Miami River structural measures
- Higher regulatory standards
- Protect open space
- **Multiple layers of protection**
- Mangrove restoration
- Barrier island improvements
- Living breakwaters



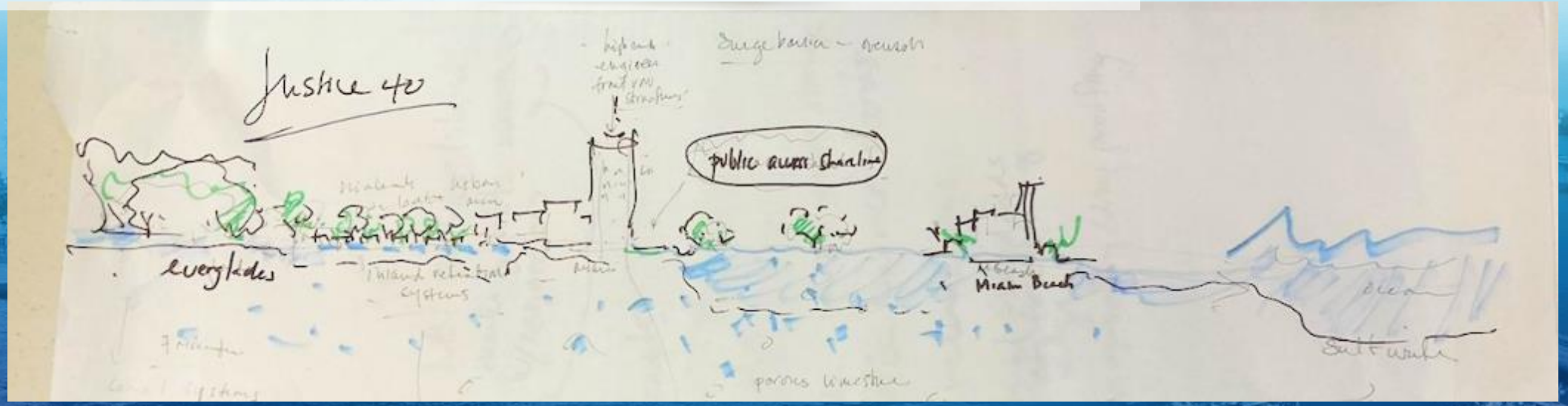




CHARRETTE:
SUMMARY OF CONCEPTS

Table 8 – The Layered Approach

- **Hybrid plan with layered approach**; build redundancies in the system
- Use barrier island as first line of defense
- Restoration/NNBF at spoil islands
- Structural measures at Miami River; consideration give to public access
- NNBFs including mangroves/wetlands in Cutler Bay
- Inland water management/retention systems with NNBFs to temporarily store the water; **integration with other projects**



CHARRETTE:
SUMMARY OF CONCEPTS

Additional concepts presented:

‘Connect and Protect’

- Comprehensive solutions that protect more people, communities, and investments, including all of the waterfront communities in Biscayne Bay, north of the MacArthur Causeway.
- Includes tidal lochs and barriers
- Incorporates Green Infrastructure into surrounding hardened infrastructure, either as a locally preferred plan or while considering the economic benefits of a working ecosystem.
- Infrastructure that can protect from both Storm Surge & Sea Level Rise
- Consider and incorporate existing local projects

Source: Future Vision Studios – Aaron DeMayo

CHARRETTE & PUBLIC COMMENT TOOL

THEMES

- System-wide approach to coastal storm risk management with multiple layers of protection and adaptive solutions
- Developing CSRM solutions that address social equity, maintain community cohesion, and provide environmental benefits
- Importance of community engagement throughout the process
  - Need for renderings and conceptual designs for appropriate messaging
- Residual risk – what is acceptable to stakeholders?
- Hybrid solutions comprised of elements of structural, nonstructural, and Natural or Nature-Based Features (NNBF)
- Integration with ongoing projects: Beach study, BBSEER, C&SF Flood Resiliency Study, municipal resilience & stormwater projects

RE-INITIATING THE MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: TWO PARTS

PART 1: 12 months (Aug 2022 to Aug 2023)

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2

January/February 2023

- Develop & refine draft alternatives
- Consider revised evaluation criteria

3

February - June 2023

Engage wider community to gather feedback & refine potential options

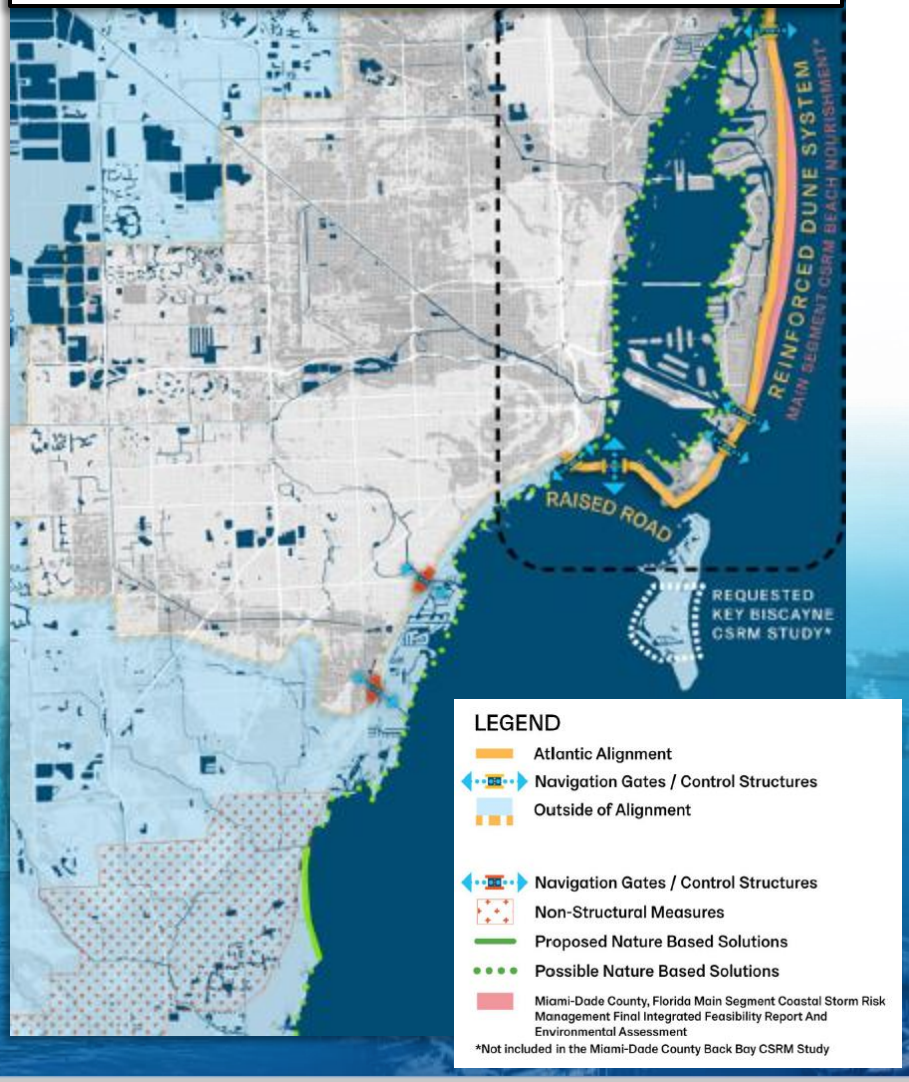
PROPOSED DRAFT ALTERNATIVES

A) Non-Structural Alternative

Residential Elevation & Commercial Floodproofing

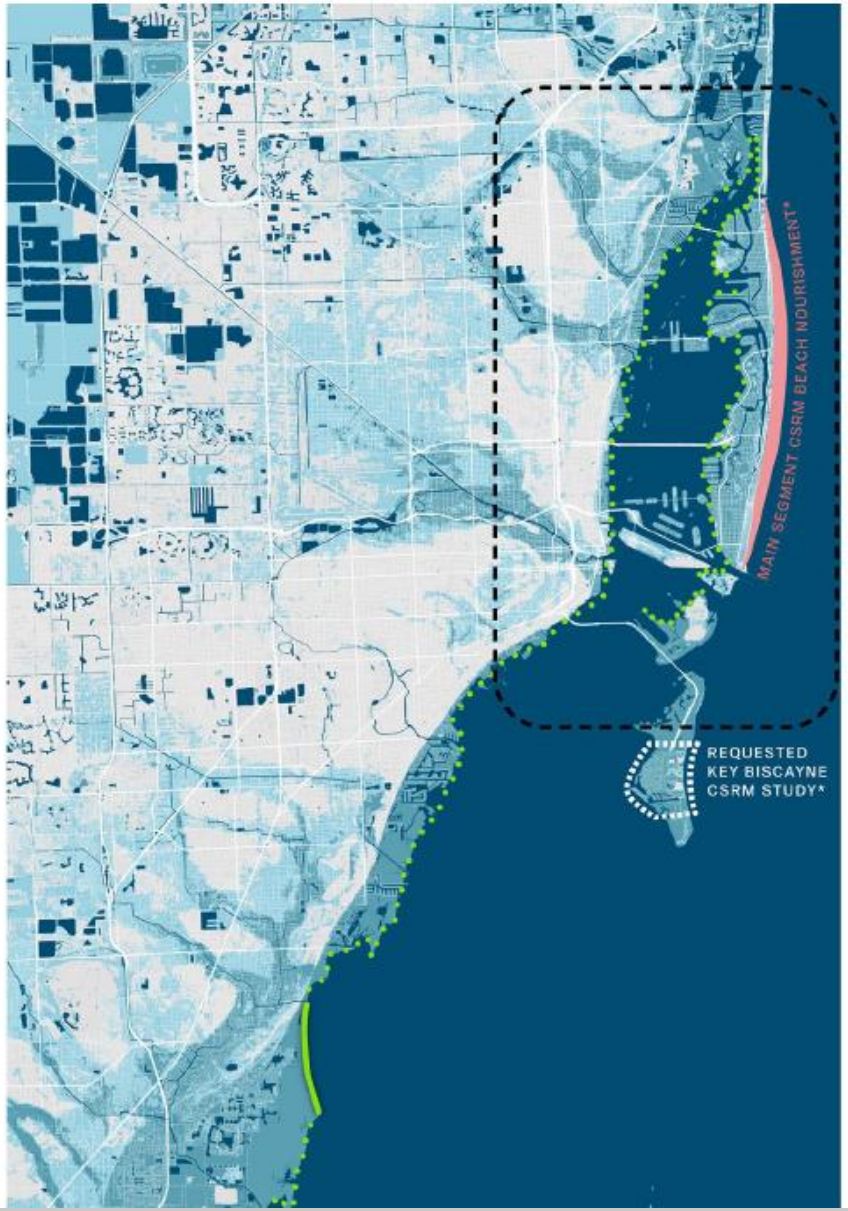
B) Atlantic Coastline Alternative

Illustrative concepts inclusive of Nov 2022 Charrette & January 2023 meeting



Proposed Non-Structural Alternative

Elevation and Floodproofing



LEGEND

Flood Depth (SACS Data)
200 Year Storm + 2.98 ft
Sea Level Rise by 2120

- Shallower than 3 ft
- Deeper than 3 ft
- Non-Structural Measures
- Proposed Nature Based Solutions
- Possible Nature Based Solutions
- Miami-Dade County, Florida Main Segment Coastal Storm Risk Management Final Integrated Feasibility Report And Environmental Assessment

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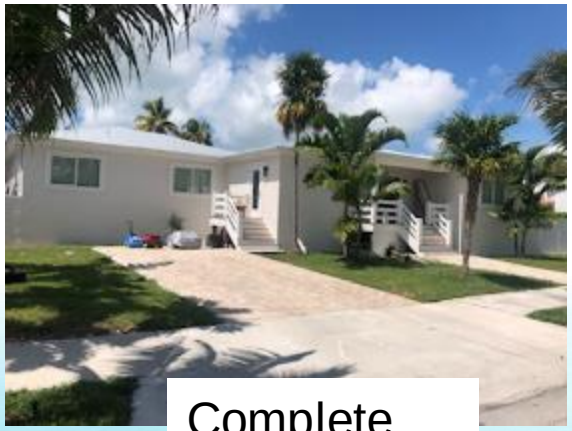
NON-STRUCTURAL EXAMPLES

Elevating residential structures

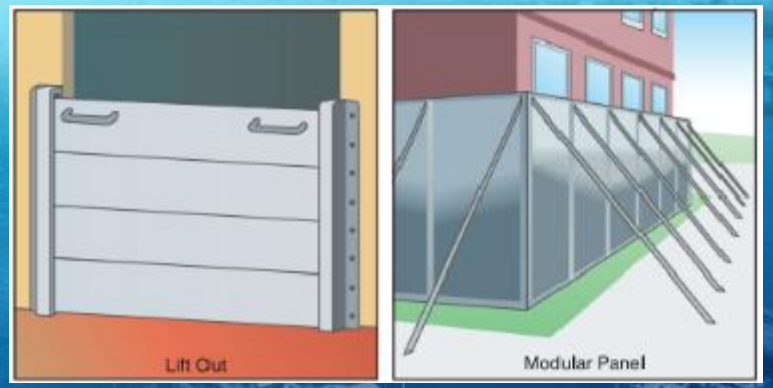
In-progress examples



Complete examples

Floodproofing commercial properties

Removable flood barriers Miami-Dade County

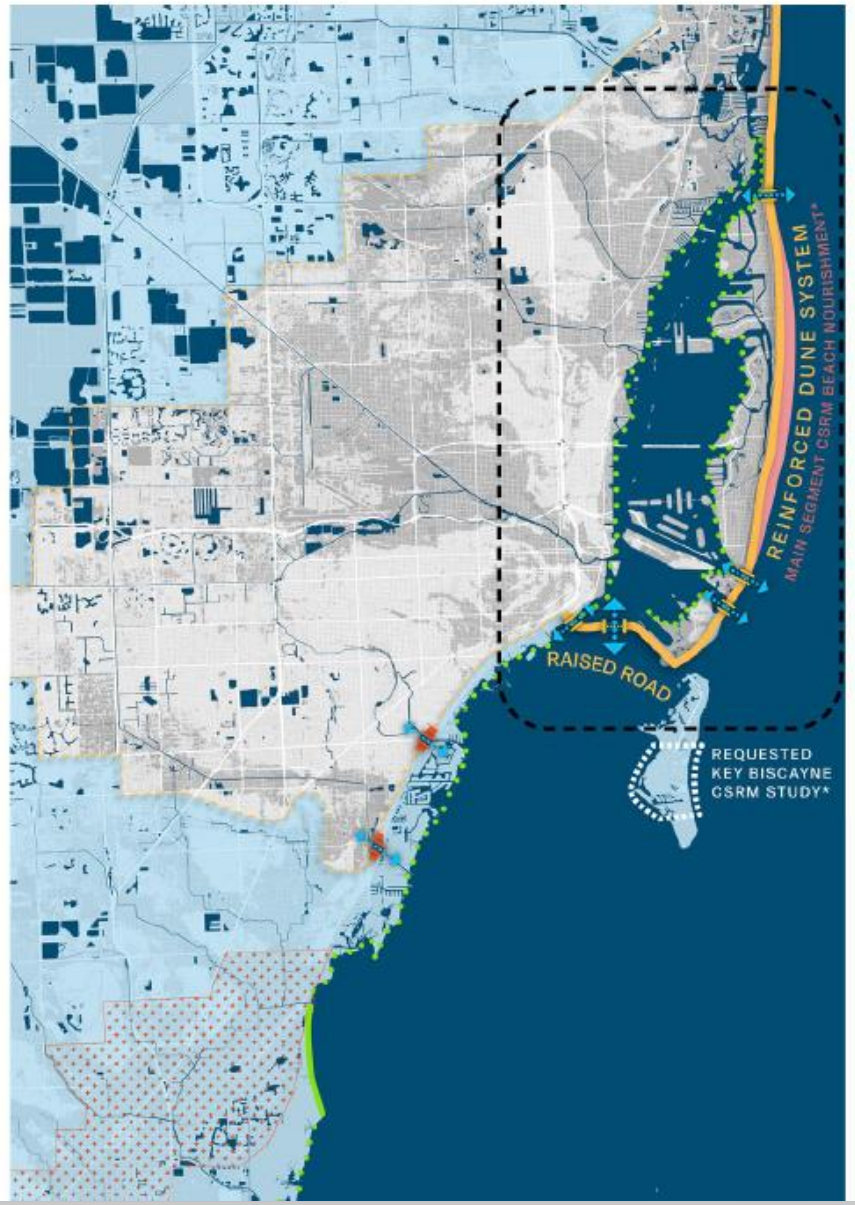


Proposed Atlantic Coastline Alternative

Illustrative concepts inclusive of November 2022 Charrette and January 2023 Meetings

MIAMI-DADE COUNTY

moffatt & nichol



LEGEND

- Atlantic Alignment
- Navigation Gates / Control Structures
- Outside of Alignment

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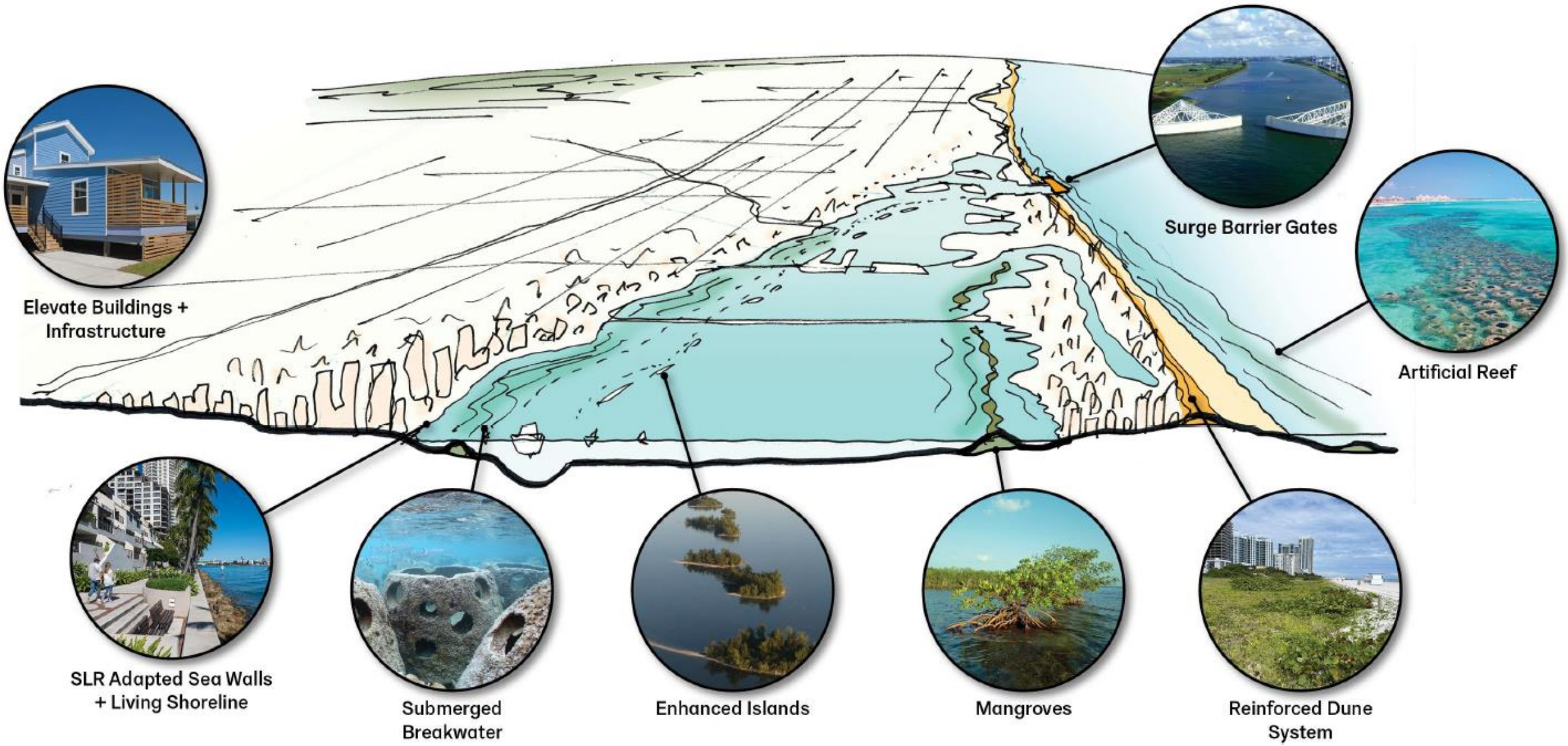

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DRAFT CRITERIA TO REFINE OPTIONS

** The draft screening criteria reflect Miami-Dade County's objectives for the study*

Community Well-being, Social Equity and Resilience

- Manage risks to **human and environmental health** and **safety** resulting from stormwater, drinking water, wastewater failures
- Protect **low-income families, minorities, children, disabled, and elderly** with CSRM measures
- Promote **community cohesion**, **complimentary land uses**, and CSRM measures and designs preferred by local stakeholders
- Provide resiliency for and **adaptability to future conditions such as sea level rise** with CSRM measures

Economic Health

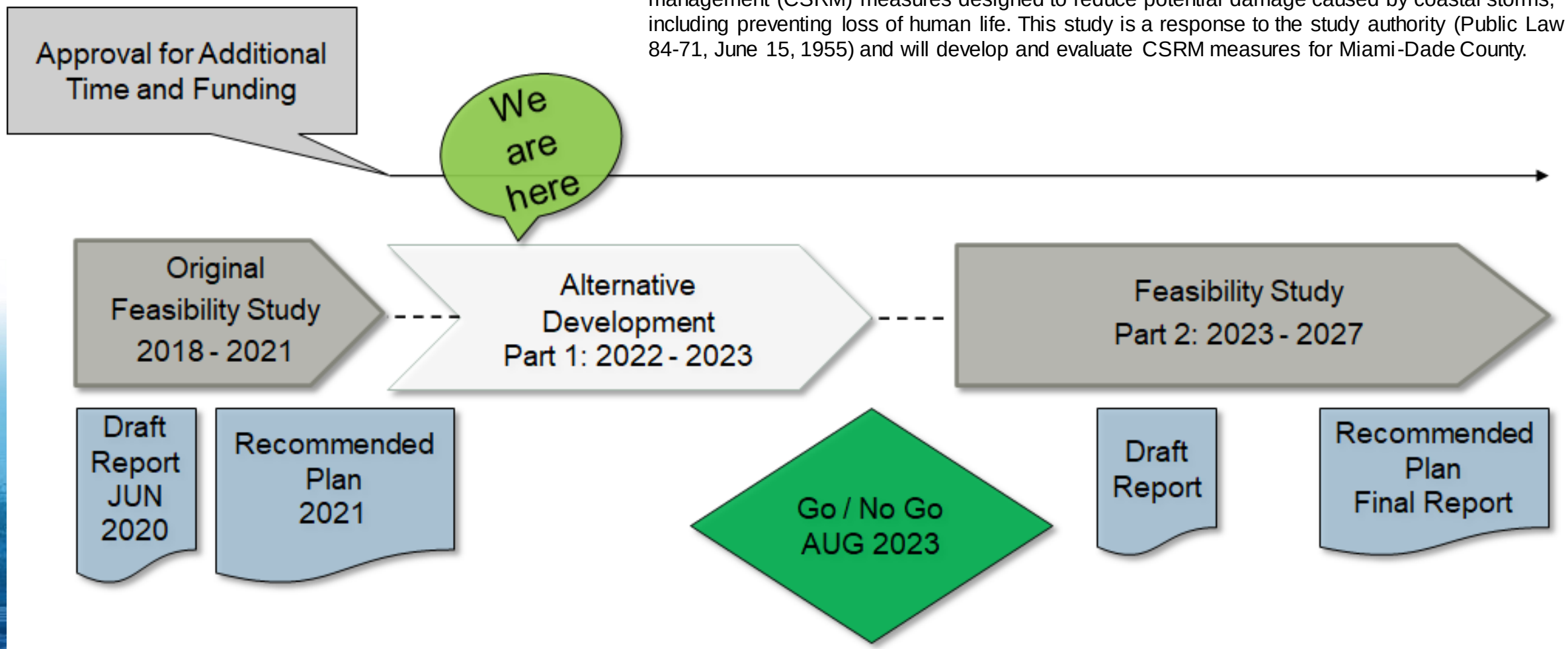
- Reduce economic flooding damages to property, emergency operation costs, and mortality risk
- Reduce **recovery time and clean-up and restoration costs**
- **Minimize energy use and operation and maintenance costs** with CSRM measures
- Reduce negative impacts on and **disruption to the regional economy** such as sales output, income, jobs, and tax revenues
- Reduce impacts to **critical facilities**
- Reduce negative impacts and disruption to **transportation systems**

Natural Environment, Ecosystems, and Recreation

- Enhance **tidal wetlands, mangrove and other habitats** that contribute to ecosystem services with CSRM measures
- Use CSRM measures that **improve recreational opportunities and aesthetics**
- **Increase green space, natural areas, and open spaces** with CSRM measures

MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: PAST TO PRESENT

Study Purpose: To reduce 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. This study is a response to the study authority (Public Law 84-71, June 15, 1955) and will develop and evaluate CSRM measures for Miami-Dade County.



RE-INITIATING THE MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: TWO PARTS

PART 1: 12 months (Aug 2022 to Aug 2023)

***Objective*:** In coordination with Miami-Dade County, develop an additional alternative that supports the study objectives and sufficiently compares in performance to the USACE's Recommended Plan (2021). The alternative would integrate and refine measures of the Recommended Plan (2021) that received broad support and modify/replace measures that raised local concerns.

1

October 2022 – January 2023

Engage virtually and in-person (Nov Charrette) to gather concerns and ideas for revised or new concepts

2

January/February 2023

- Develop & refine draft alternatives
- Consider revised evaluation criteria

3

February – June 2023

Engage wider community to gather feedback & refine potential options

RE-INITIATING THE MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: THE FIRST 12 MONTHS

Planned Public Engagement Opportunities	Date
Virtual Public Meeting	Oct 12, 2022
In Person Public Meeting (during week of Nov 2022 Charrette)	Nov 12, 2022
Virtual Public Meeting	Feb 23, 2023
Charrette in Miami-Dade County	Mar 1-3, 2023
In-person Public Meeting	Spring 2023
Virtual Public Meeting	June 2023
12-month check-in with ASA(CW)	Aug 3, 2023
Virtual Public Meeting	August 2023

PART 1

RE-INITIATING THE MIAMI-DADE BACK BAY CSRM FEASIBILITY STUDY: PART 2 2023-2027

Milestones	Date
12-month check-in with ASA(CW) – Go/No Go Meeting	Aug 3, 2023
Feasibility Study Kick-off, additional analysis, public scoping, etc.	TBD
Tentatively Selected Plan	TBD
Published Draft Report	TBD
Agency Decision Milestone	TBD
Published Final Report	TBD
Chiefs Report	Aug 3, 2027

PART 2

Dates will be identified and shared with public when available

PUBLIC COMMENT OPTIONS

- **Email:** MDBB-CSRMStudy@usace.army.mil
- **Public Crowdsource Reporter Tool:** https://arcg.is/0ub0Cf
- **Written Comments:**

  Environmental Analysis Section, Norfolk District
  803 Front Street
  Norfolk, Virginia 23510
- **For any accessibility issues that prevent written comments,** please call (757) 201-7728.
- **Project Website:**

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

Charrette #2 | March 1-3, 2023 @PortMiami

Please reach out to the Miami-Dade County Office of Resilience at resilience@miamidade.gov for more information on how to register.

ZOOM RULES

WE WANT TO GET TO ALL YOUR QUESTIONS AND COMMENTS!

A few ground rules to help us get to everyone:

- Please remain muted throughout the presentation and the Q+A unless you are called on.
- Please enter all questions and comments into the chat box. The moderators will be monitoring the chat and reading the questions out loud.
- If we don't get to your question during this meeting, we will answer it in the Q+A document that will be e-mailed out to all participants and will be posted on the project web page.