



South Florida Water Management District

RESILIENCY COORDINATION FORUM AGENDA

March 1, 2023
9:00 AM

District Headquarters - B1 Auditorium
3301 Gun Club Road
West Palm Beach, FL 33406

FINAL (Revised)

1. Opening Remarks - Drew Bartlett, Executive Director, SFWMD
2. Statewide Office of Resilience - Wes Brooks, Ph.D., Chief Resilience Officer, State of Florida
3. South Florida Water Management District Resiliency Updates - Carolina Maran, P.E., Ph.D., District Resiliency Officer, SFWMD
4. 2023 Legislative Session Update on Resilience - Phil Flood, Legislative Liaison, Regional Representative, SFWMD
5. Florida Department of Transportation's Resilience Action Plan - Jennifer Z. Carver, AICP, Statewide Resilience Planning Coordinator, FDOT
6. Palm Beach County Flood Vulnerability Assessments, Megan S. Houston, Director of Office of Resilience, Palm Beach County
7. Comprehensive Benefits Evaluation, Erik T. Adamiec, Regional Economist, USACE, Jacksonville District (*Postponed*)
8. Around the Table Updates from Local, Tribal and State Agencies
9. Public Comment

10. Closing Remarks - Carolina Maran, P.E., Ph.D., Chief Resiliency Officer, SFWMD
11. Adjourn

Presentations for agenda items: 1-7, and 10 (Staff contact, Yvette Bonilla)

Agenda Item Background:

[1_7_10_ResiliencyForum_2023_03_01.pdf](#)



Resiliency Coordination Forum

March 1, 2023

1. Opening Remarks



Drew Bartlett

Executive Director

South Florida Water Management District

Housekeeping

Moderator: Yvette Bonilla

2. Statewide Office of Resilience



Wes Brooks, Ph.D.

Chief Resilience Officer

Florida Statewide Office of Resilience



3. Overview of District Resiliency Efforts



Carolina Maran, P.E., Ph.D., District Resiliency Officer

March 1st, 2023

Governor DeSantis' Executive Order 23-06: Achieving Even More Now for Florida's Environment



Exec. Order further advances the protection of Florida's environment and water quality.

Ramps up efforts to accomplish even more by securing \$3.5 billion over four years for:

- Everglades restoration and the protection of water resources
- Continuing to expedite the Comprehensive Everglades Restoration Plan projects
- Strengthening resiliency efforts, through the Resilient Florida Program (Section 3)

Governor's Budget Recommendation

- “Framework for Freedom Budget” proposal to the Florida Legislature for Fiscal Year 2023-2024.
- Follow Executive Order 23-06: over \$3.5 billion in Everglades restoration and Florida’s water resources
- Budget highlights include:
 - **\$610 million for Everglades Restoration.**
 - More than \$475 million for the Comprehensive Everglades Restoration Plan, including the EAA Reservoir and Restoration Strategies.
 - More than \$81 million for the Northern Everglades and Estuaries Protection Plan and dispersed water management.
 - \$50 million for the Lake Okeechobee Watershed Restoration Project.
 - **\$370 million for Targeted Water Quality Improvements.**
 - **\$50 million for Alternative Water Supply.**
 - **\$60.8 million to Combat Harmful Algal Blooms and Red Tide.**
 - **\$80 million in Operational and Maintenance Funding for SFWMD.**
 - **\$406 million for Resilience.**



Resilient Florida Grants Announcement

- Nearly \$20M received in Resilient Florida awards
 - Coastal Structures Enhancement and Self-Preservation Mode
 - Hardening of S-2, S-3, S-4, S-7, S-8 Engine Control Panels - Building Resiliency in Water Management South of Lake Okeechobee
 - L8 FEB / G-539 Pump Resiliency Upgrade
- Palm Beach County - Indian Trail Improvement District - SFWMD Partnership: Corbett Water Management Area Levee Upgrade to Protect ITID from Overtopping and Breaching and Provide Southeast Corbett with Improved Recession Rates

Governor Ron DeSantis Announces Award of More than \$275 Million through the Resilient Florida Grant Program

On February 6, 2023, in News Releases, by Staff

TALLAHASSEE, Fla. — Today, Governor Ron DeSantis announced the award of more than \$275 million immediately available for 75 resilience projects using already-appropriated funding through the Resilient Florida program to help prepare coastal and inland communities for the adverse impacts of flooding and storm surge. A list of awards can be found [here](#).

“Under my administration, the state of Florida has invested an unprecedented level of funding, totaling more than \$1.1 billion, to create or fortify infrastructure in Florida’s communities,” said **Governor Ron DeSantis**. “The projects announced today will ensure inland and coastal communities are prepared for the impacts of storm surge, hurricanes, and flooding, continuing our aggressive efforts to protect Florida’s natural resources and infrastructure.”

“Key investments in resilient communities help safeguard homes, businesses, and other infrastructure against the damages caused by storm surge and other coastal and inland flooding,” said **Senate President Kathleen Passidomo**. “As my own community continues to recover and rebuild from the damaging storm surge caused by Hurricane Ian, I now have an even greater appreciation for the benefits of the forward-thinking, long-term strategy for resilience planning Governor DeSantis and the Florida Legislature have put in place here in Florida.”

District Resiliency Planning

Goal: Reducing the risks of flooding, sea level rise and other climate impacts on water resources and increasing community and ecosystem resiliency in South Florida

SEA LEVEL RISE AND FLOOD RESILIENCY PLAN

Building Resilience and Mitigating Risks on South Florida Water Resources

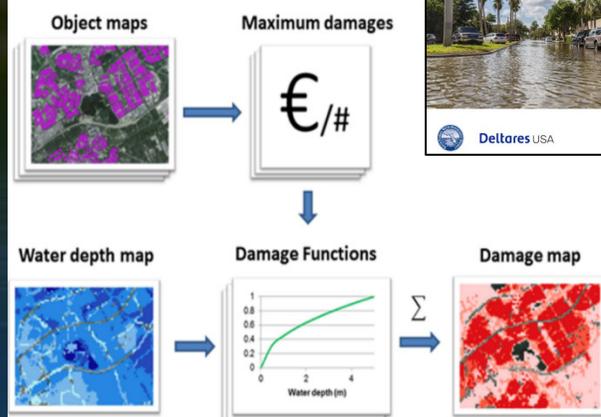
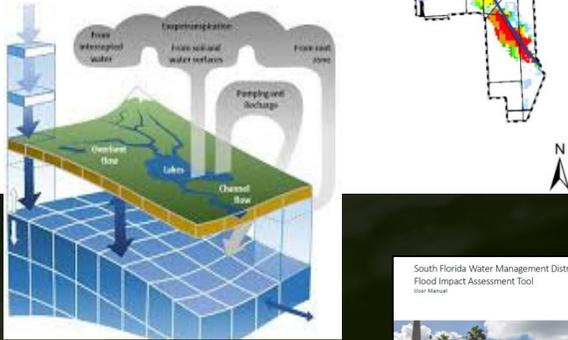
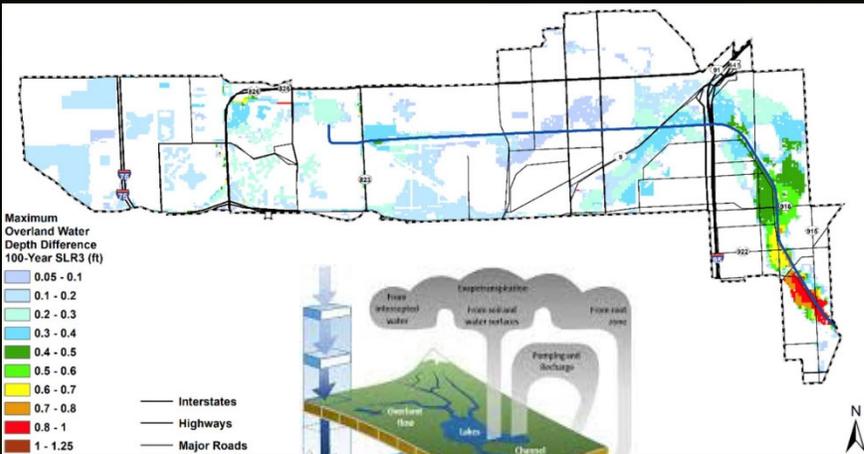


SEPTEMBER 2022



Open for Public Comments at the Upcoming Forum in May

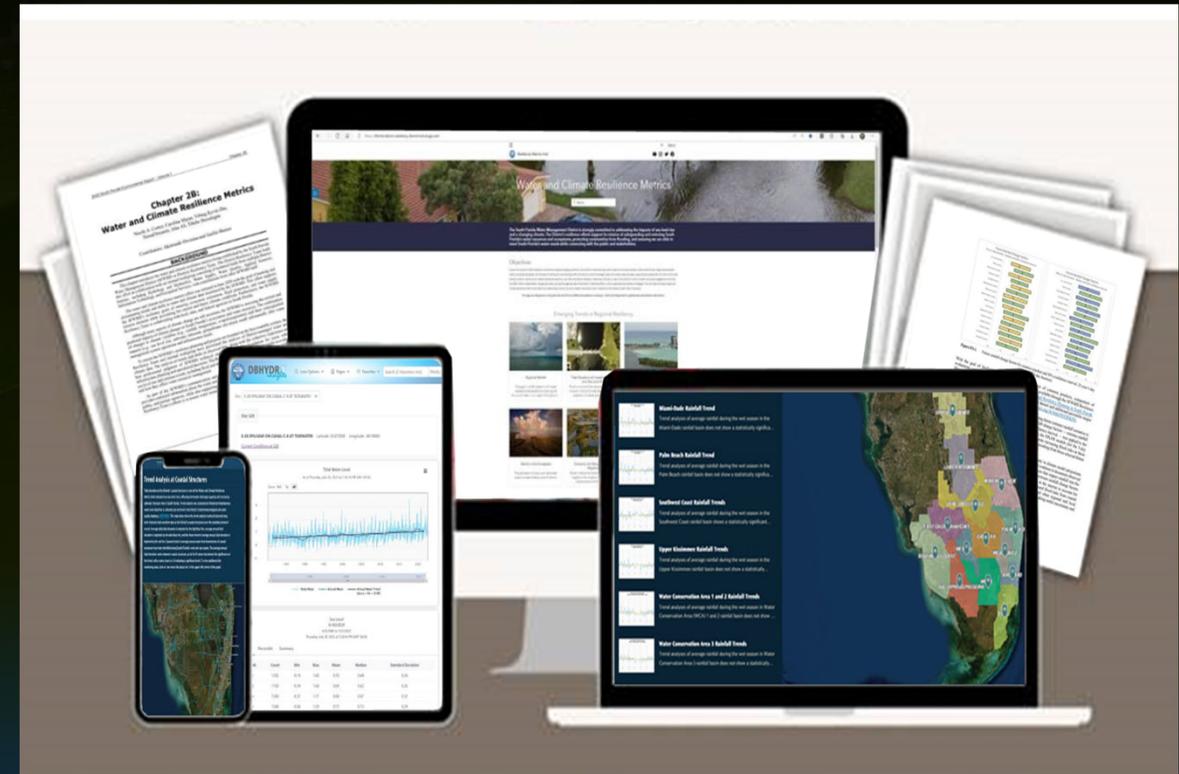
<https://www.sfwmd.gov/our-work/sea-level-rise-and-flood-resiliency-plan>



Water and Climate Resilience Metrics

- Track and document shifts and trends in District managed water and climate observed data
- Support the assessment of current and future climate condition scenarios, operational decisions, and District resiliency priority projects
- Inform stakeholders, the public, and partner agencies to support local resiliency strategies

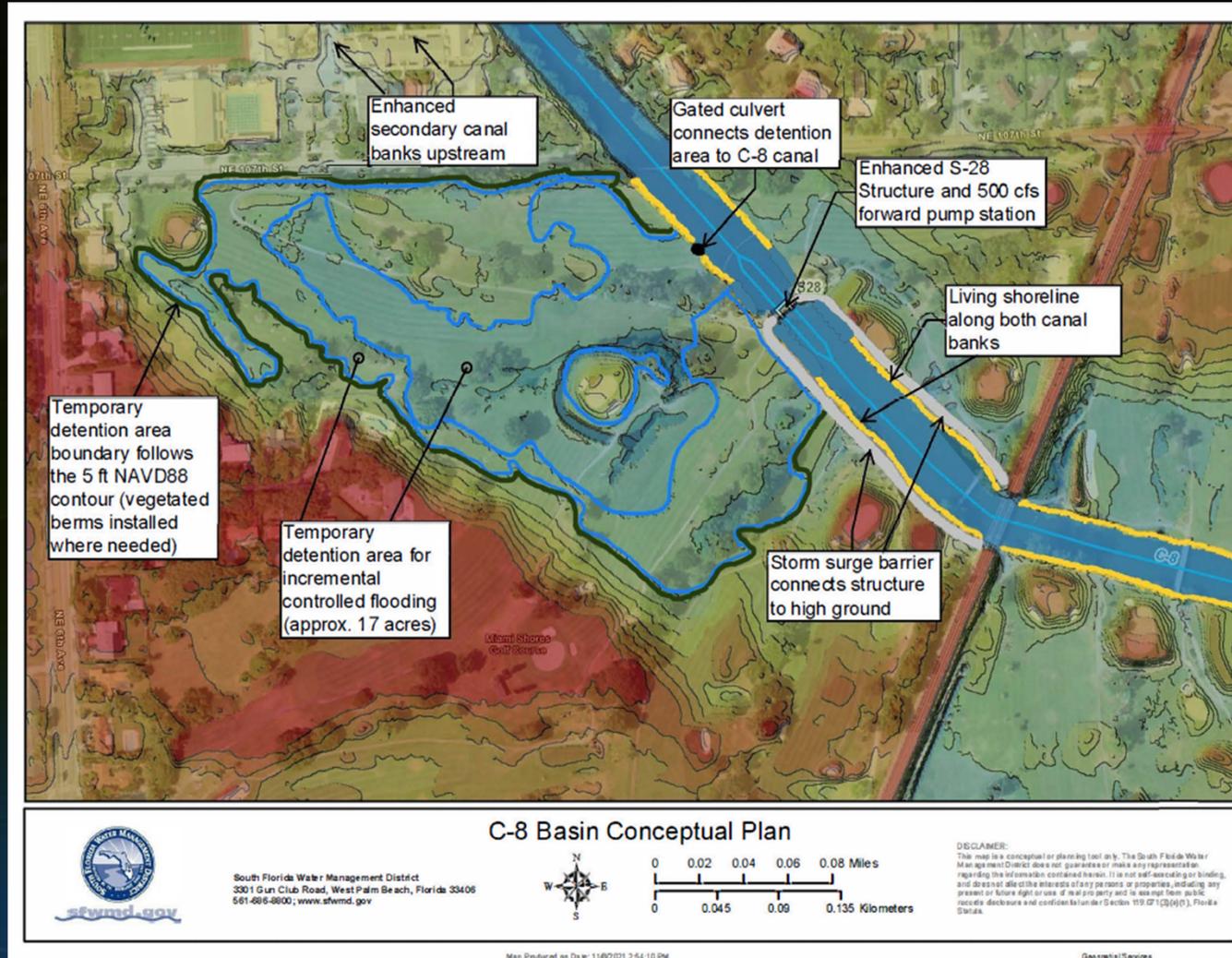
New Data Resilience: ET Trends



[Water and Climate Resilience Metrics | South Florida Water Management District \(sfwmd.gov\)](https://www.sfwmd.gov)

Moving into Implementation: C-8 Basin Resiliency

- Recent Award Recommendation from FDEM/FEMA BRIC
- Waiting for Green Light to Start Design
- Basinwide strategy to reduce flood risks due to sea-level rise and extreme rainfall; protect water resources and water supply sources
- Combination of Green and Gray Infrastruct.
- Increasing water management flexibility
- Restore S-28 Structure discharge capacity
- Increase the basin's flood protection level of service, including Miami Dade's secondary canal enhancements
- Enhance quality of life in the region



Coastal Structures Hardening and Self Preservation Mode

Additional Programming; storm resilient Back Up Controller instrument and platform

Install Backup Controller and other automation features

Modify gates for added high tide protection against reverse flow

Modify Structure by adding seals

Other automation and floodproofing needs

Control Panel Upgrades / Hardening

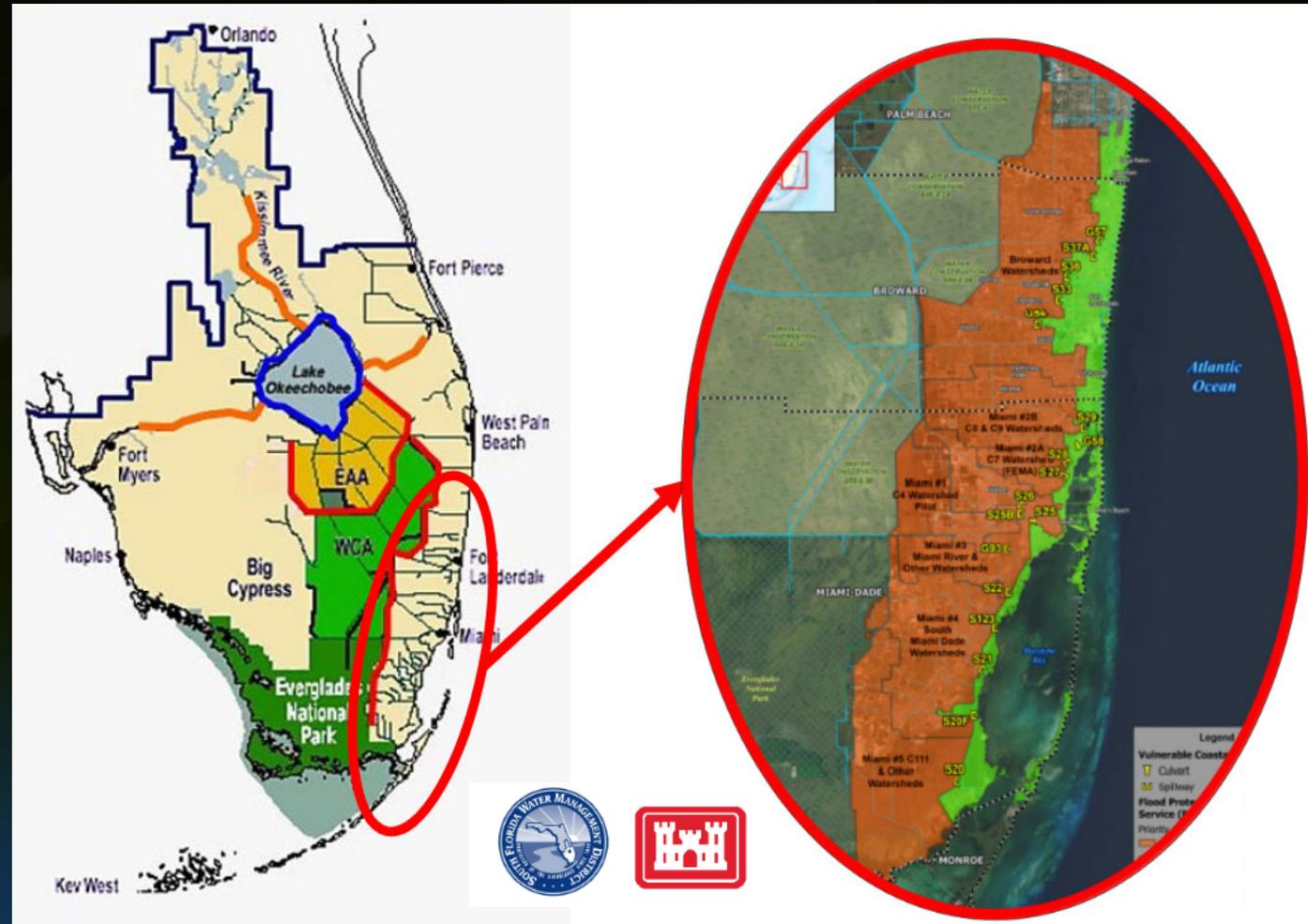
- Award from Resilient Florida Program – 20+ Coastal Structures
- Urgent need to optimize and harden operation of structures during storm surge and higher tide events, addressing Hurricane Irma/Matthew/Dorian/Ian gate-open lockouts
- Water Supply exposure to saltwater intrusion: wellfield protection zones vulnerability – **Regional Significant Assets (RSA)**
- Exacerbated upstream flood risks
- Focus on enhancing electronic/mechanical components, modifying gates, remote automation and floodproofing of RSAs



C&SF Flood Resiliency Study

Under the Authority of Section 216 of the Flood Control Act of 1970

- Reduce flood risk and increase flood resiliency in high-risk urban watersheds in southeast Florida, while looking to enhance the overall benefits of the multipurpose C&SF Project
- Improve the C&SF Project and enhance SEFL Communities' quality of life
- Ongoing study phase: Development of Alternatives - Alternatives Milestone Meeting
- Inviting all stakeholders to provide contributions to this ongoing study



www.sfwmd.gov/C&SF

Questions?

Carolina Maran, Ph.D., P.E.,
cmaran@sfwmd.gov
District Resiliency Officer

South Florida Water Management District
www.sfwmd.gov/resiliency

Thanks!



4. 2023 Legislative Session Update on Resilience

Phil Flood
Legislative Liaison / Regional Representative
March 1, 2023

2023 Legislative Session

125th Regular Session Since Statehood

January 3rd - February 24th Interim Committee Weeks

- Status reports, presentations from state agencies, and subject matter experts about state programs
- Begin to take up bills that have been filed

March 7th First day of Regular Session

May 5th Last day of Regular Session - Sine Die

Legislative Committees of Interest

House

- Agriculture, Conservation & Resiliency Subcommittee
- Select Committee on Hurricane Resiliency & Recovery

Senate

- Select Committee on Resiliency

Legislative Bills of Interest

HB 111 Public Financing of Potentially At-risk Structures and Infrastructure **SB 1170 Flooding and Sea Level Rise Vulnerability Studies**

Expands the existing SLIP statute (Sea Level Impact Projection study) to include all areas at risk due to sea level rise, as opposed to just the coastal building zone. A SLIP study would need to be conducted for any location that is projected to be below the threshold for tidal flooding within the next 50 years that receives state funding.

SB 734/HB 1079 Saltwater Intrusion Vulnerability Assessments

Authorizes the Department of Environmental Protection to provide grants to coastal counties for saltwater intrusion vulnerability assessments. Also requires DEP to update the comprehensive statewide flood vulnerability and sea level rise data set and make information from the saltwater intrusion vulnerability assessments available on its website.

Legislative Bills of Interest

HB 1147/SB 1200 Resilience Districts

Authorizes establishment of infrastructure resilience districts and condominium resilience districts through a citizen-initiated petition to address infrastructure and resilience problems. The resilience districts would implement projects that mitigate the risk of flooding and sea level rise and may utilize a local government as the project manager for the projects.

SB 100/HB 561 Mangrove Replanting and Restoration

Requires DEP to adopt rules for mangrove replanting and restoration. Rule must assist Everglades restoration and Biscayne Bay revitalization efforts and include development of living shoreline design options.

Legislative Bills of Interest

HB 859/SB 1018 Flood Damage Prevention

Provides specified maximum voluntary freeboard requirements for new construction & substantial improvements to existing construction. Also authorizes local governments to adopt by ordinance minimum freeboard requirement or maximum voluntary freeboard that exceeds minimum requirements and requires the Florida Building Commission to adopt by rule minimum freeboard requirements and review freeboard requirements every 5 years.

SB 484/HB 759 Flood Disclosures for Real Property Sales

HB 325 Flood Disclosure for Residential and Commercial Property Sales

Will require the seller of residential and commercial properties to disclose information to prospective purchasers about the risk of flooding prior to the execution of the contract for sale and purchase.

SB 716 Flood Zone Disclosures for Dwelling Units

Would require a landlord to disclose to renters whether the dwelling unit is located within a Federal Emergency Management Agency designated flood zone.

Legislative Bills of Interest

House and Senate Appropriations Bills

- Initial House and Senate Appropriation bills will likely be filed the first week of April
- Conference committees to resolve differences by first week of May
- May 5th for the scheduled last day of session

Includes:

- Local Funding Projects
- Resilient Florida Program

Questions?

2023 Legislative Session Update on Resilience

*Phil Flood, Legislative Liaison, Regional
Representative*



5. RESILIENCE ACTION PLAN

presented to

*South Florida Water
Management District
Resiliency Coordination
Forum*

presented by

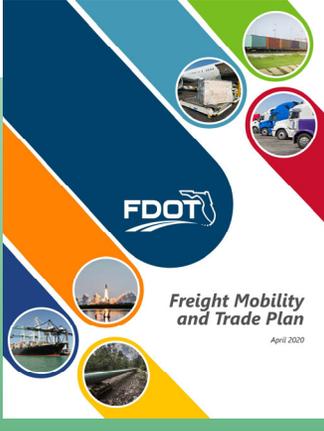
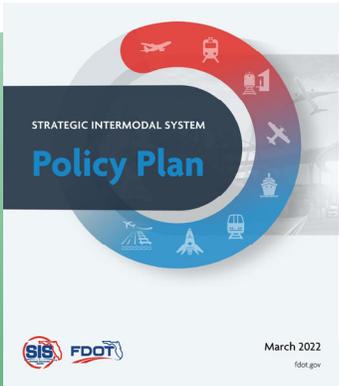
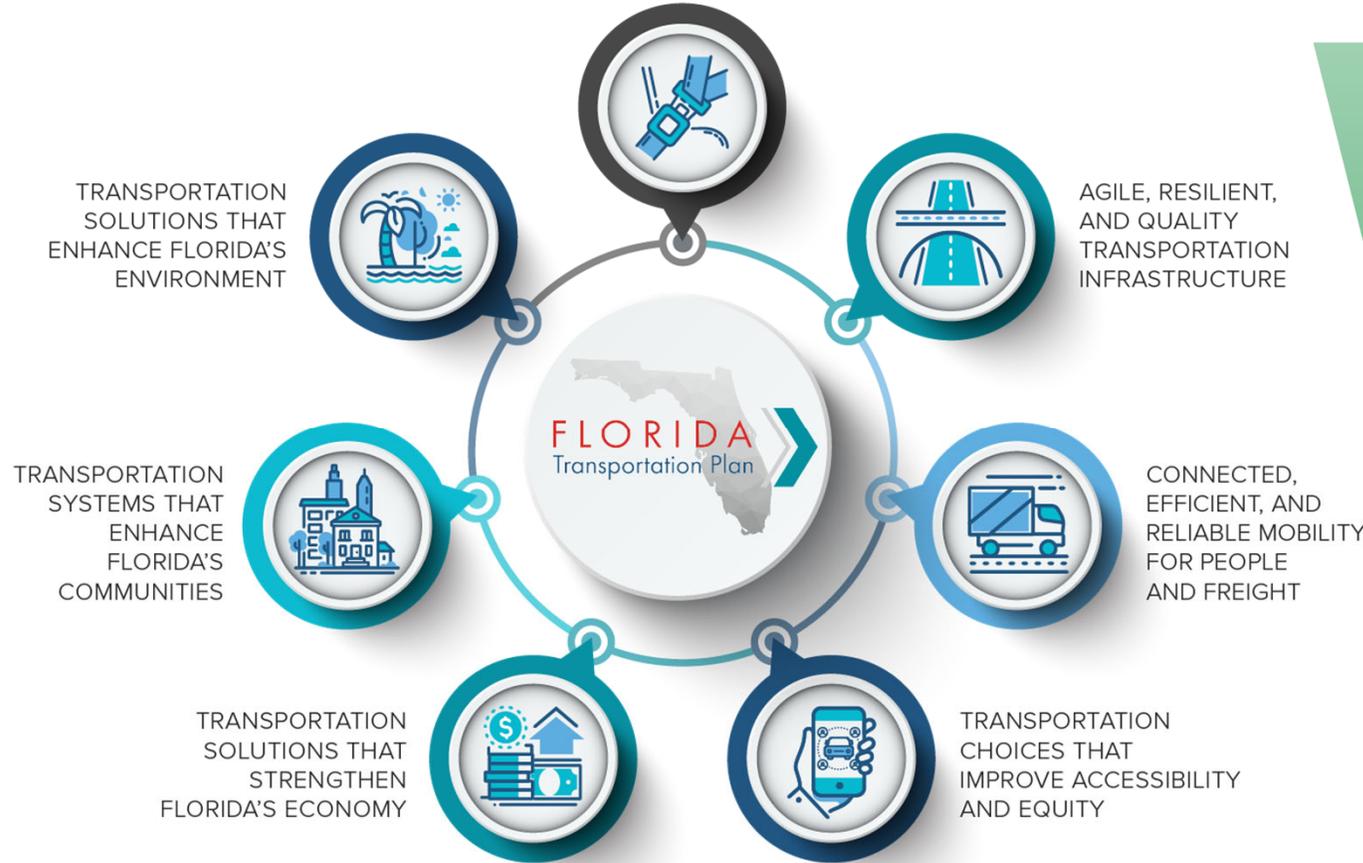
*Jennifer Z. Carver, AICP
FDOT Office of Policy Planning*



March 1, 2023

FLORIDA TRANSPORTATION PLAN

SAFETY AND SECURITY FOR RESIDENTS, VISITORS, AND BUSINESSES



RESILIENCE POLICY

- Ability to **adapt** to changing conditions and **prepare** for, **withstand**, and **recover** from disruption
- Identify risks, particularly related to:
 - Storms
 - Flooding
 - Sea level rise
- Assess potential impacts
- Employ strategies to avoid, mitigate, or eliminate impacts



INHERENT RESILIENCE

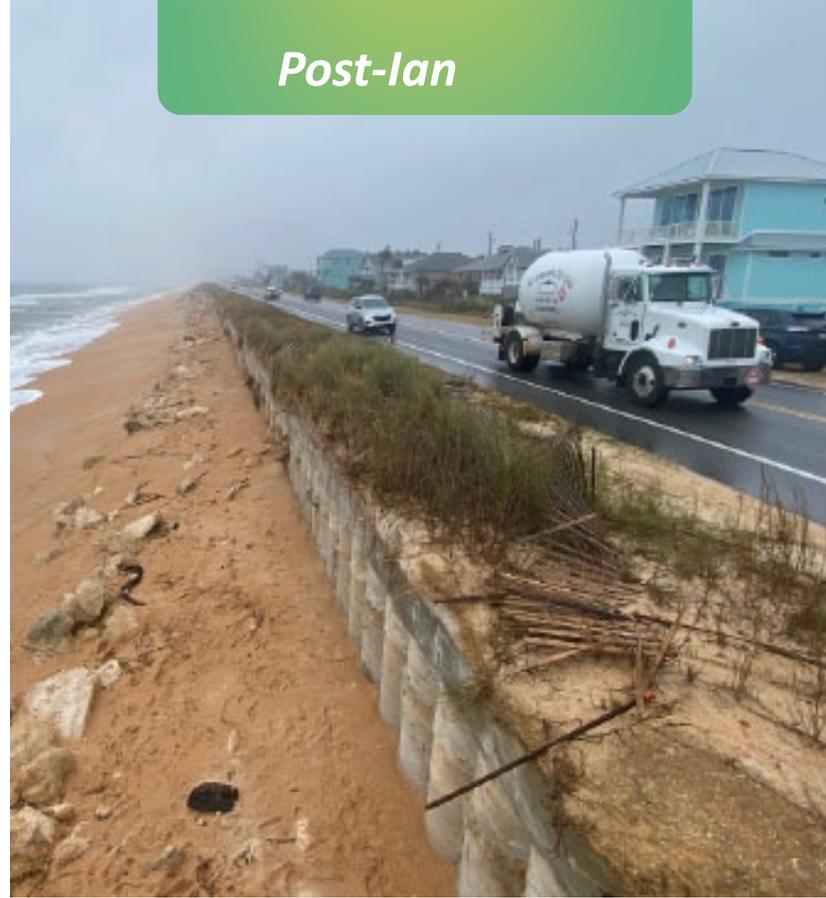
- Design criteria
- Stormwater/drainage design procedures
- Nature-based solutions
- Context sensitive, complete streets
- Local partner coordination



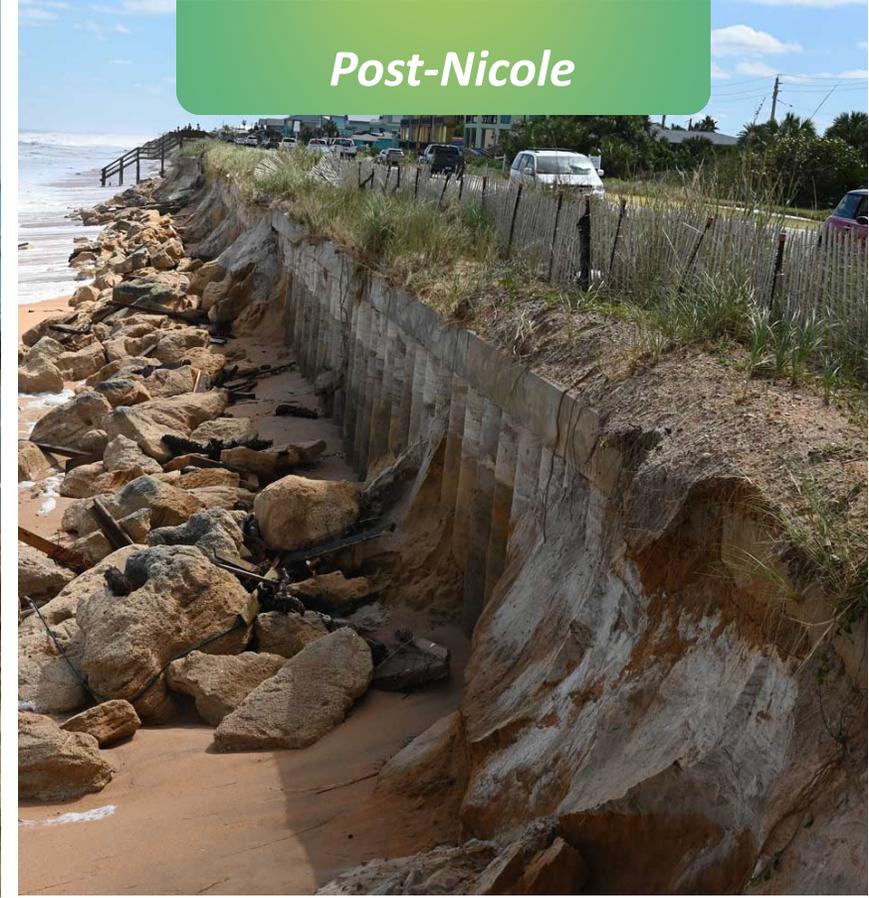
Pre-Ian



Post-Ian



Post-Nicole



SR A1A HURRICANES IAN & NICOLE

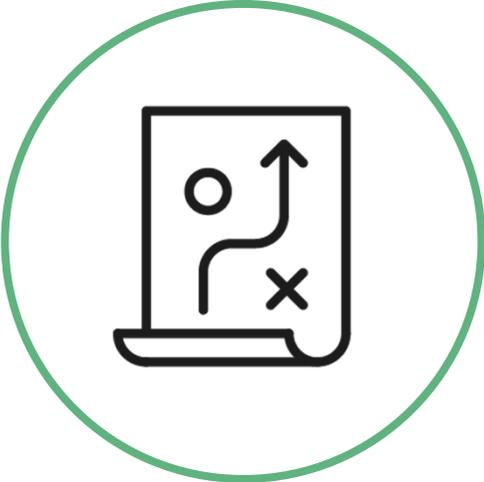
- Nature-based hybrid solution
- Dune washed away, but buried secant-pile bulkhead/seawall
- Protect transportation facility from storm-related wave action and erosion

RESILIENCE FOCUS IN FLORIDA

- Sea Level Impact Projection (SLIP) Studies
- Resilient Florida
- Florida Flood Hub
- Statewide Office of Resilience/Chief Resilience Officer
- FDOT Resilience Action Plan (RAP)



RESILIENCE ACTION PLAN GOALS



Recommend **strategies** to enhance infrastructure and operational resilience



Recommend design changes for existing and new facilities



Enhance partnerships to address multijurisdictional resilience needs

RESILIENCE ACTION PLAN ELEMENTS



Historic/
current issues



Alternatives to retrofit existing
infrastructures and systems



FDOT policies
& procedures

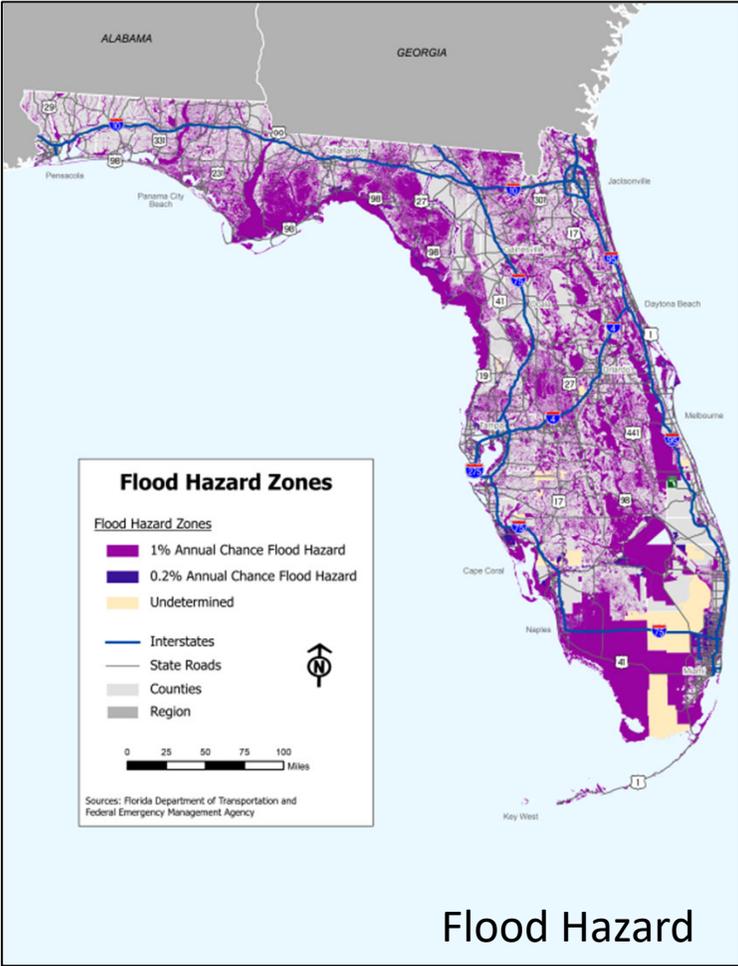
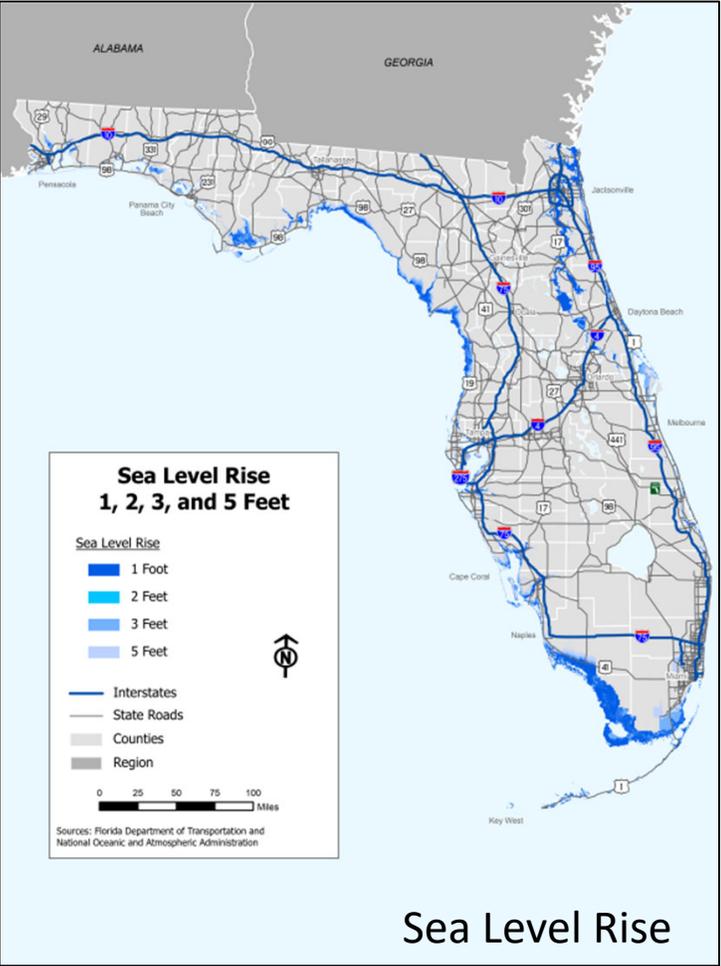


Database of vulnerable assets



Vulnerability assessment
of State Highway System

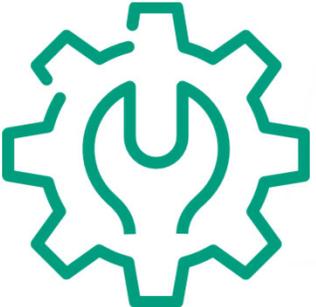
VULNERABILITY ASSESSMENT



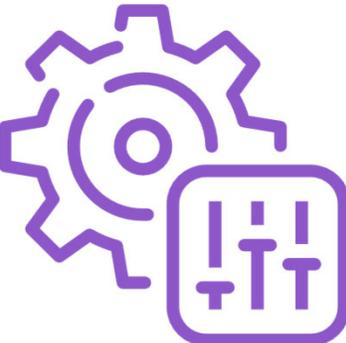
RESILIENCE ACTION PLAN STRATEGY AREAS



Planning/PD&E



Design & Construction



Operations



Asset Management

Plan due to Governor and Legislature by June 30, 2023

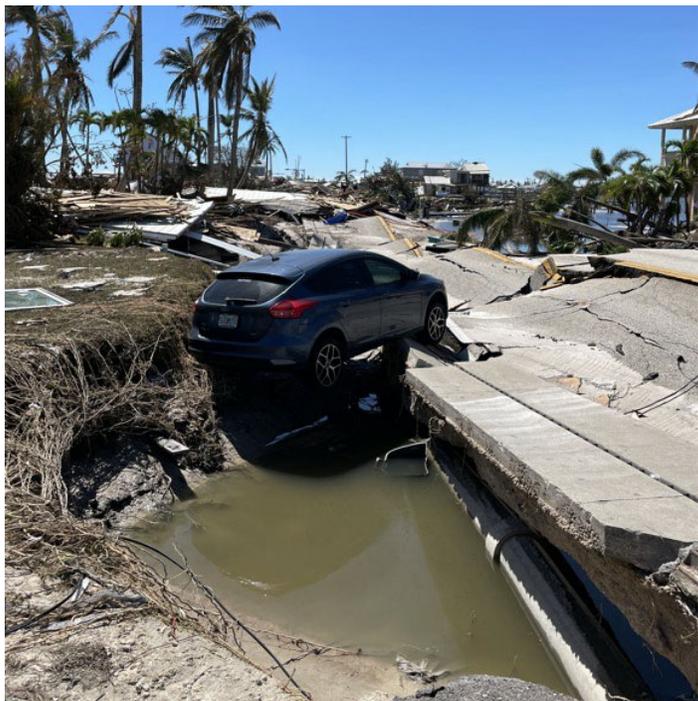
FEDERAL PROTECT PROGRAM

- Promoting Resilience Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)
- Formula and discretionary funding
- Emphasis on incremental improvements and natural hazards
- Optional resilience improvement plan

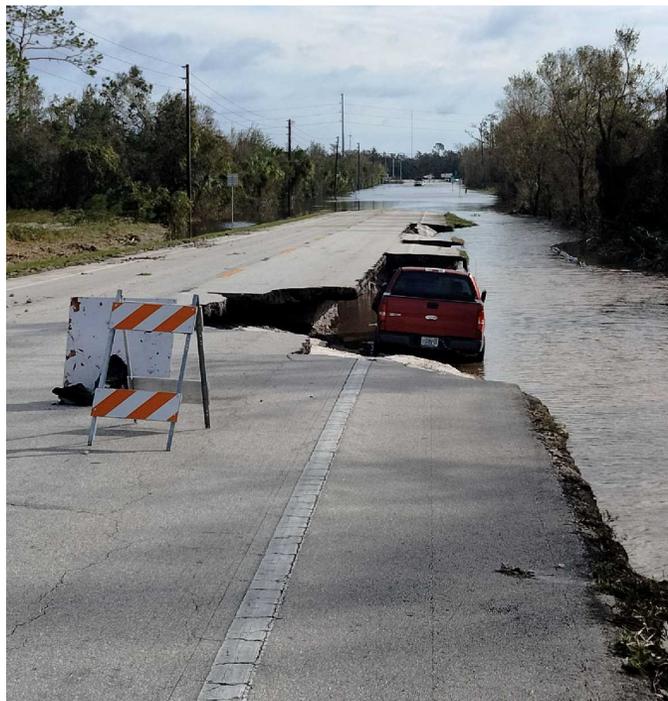


FDOT DISTRICT 1: HURRICANE IAN DAMAGE & RECOVERY

- Roadway Assessment Team - Total of 137 Damage Sites investigated
- Flood Assessment Team - 45 Locations where Flooding/Erosion occurred



SR 78 East of Pine
Island
(Lee County)



SR 70 West of SR 72
(Desoto County)



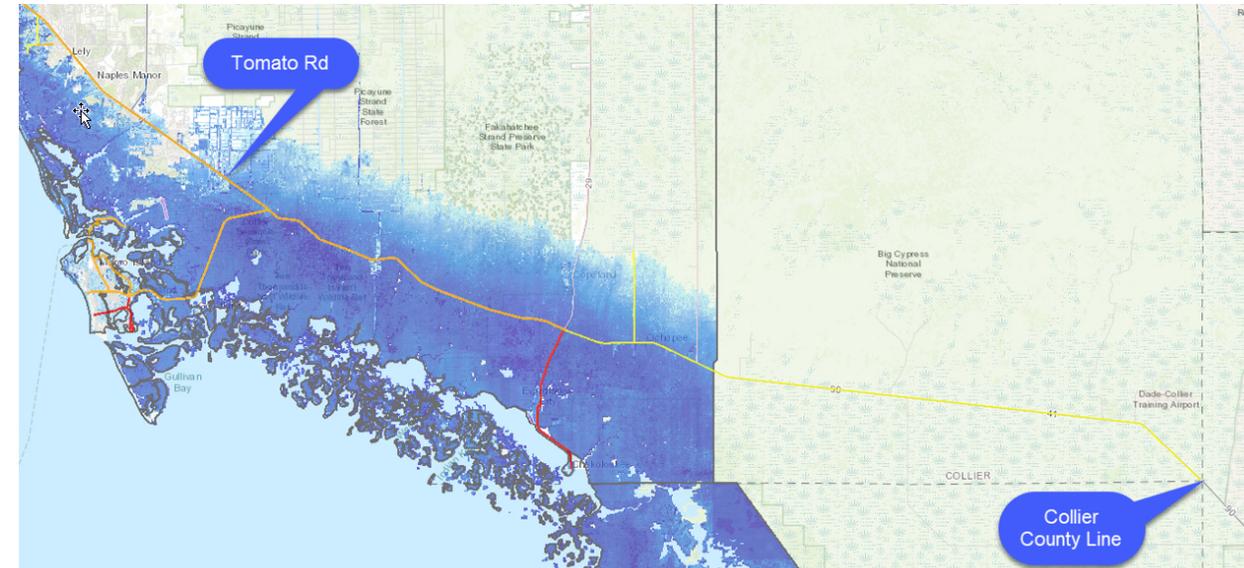
SR 64 at Peace River Bridge
(Hardee County)

FDOT DISTRICT 1: US 41 RESILIENCY STUDY

- USACE Silver Jackets project for US 41 in Collier County
- Facility susceptible to sea level rise and storm surge
- Planning Study to evaluate alternatives to raise US 41 and replace aging bridges
- Coordination with stakeholders and agency representatives



Study Limits



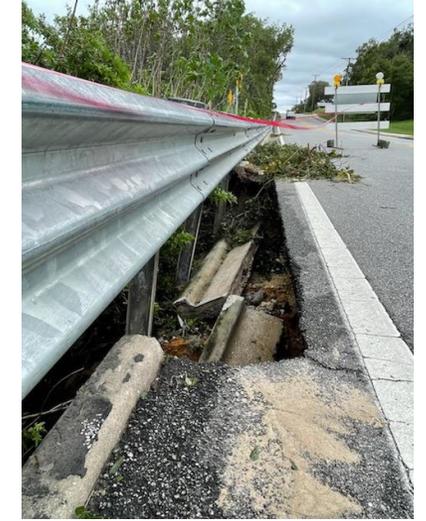
FDOT DISTRICT 1 – PROTECT FUNDS

➤ 26 projects throughout D1 Counties for PROTECT Funds from FY23–28

- 441562-1: SR 70 Downtown Arcadia (Desoto County)
- 446369-1: SR 17 at Hillcrest Avenue (Polk County)
- 439032-1: SR 15 in Okeechobee (Okeechobee County)



441562-1



446369-1



439032-1

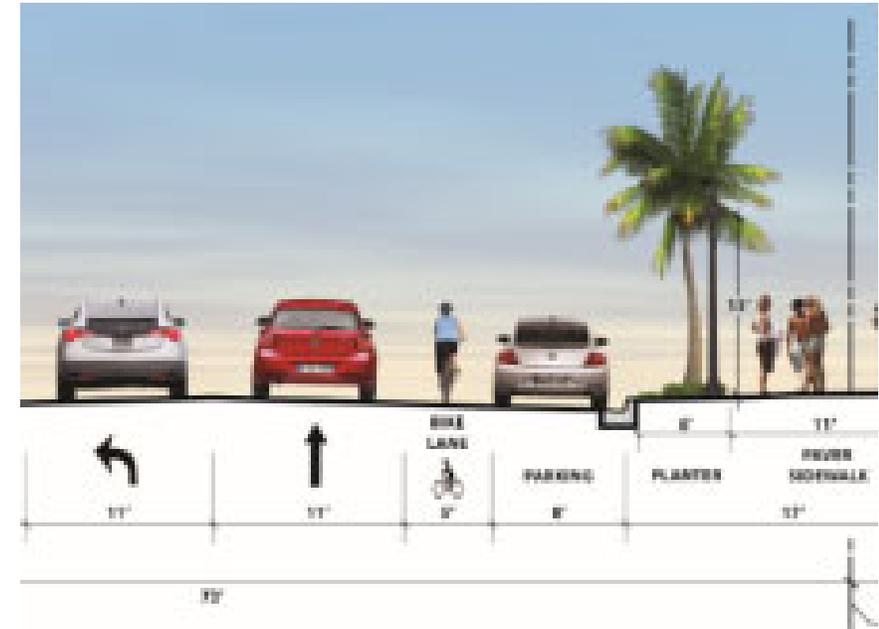
DISTRICT 4: SR A1A IN BROWARD COUNTY

➔ Hurricane Sandy - SR A1A in Fort Lauderdale



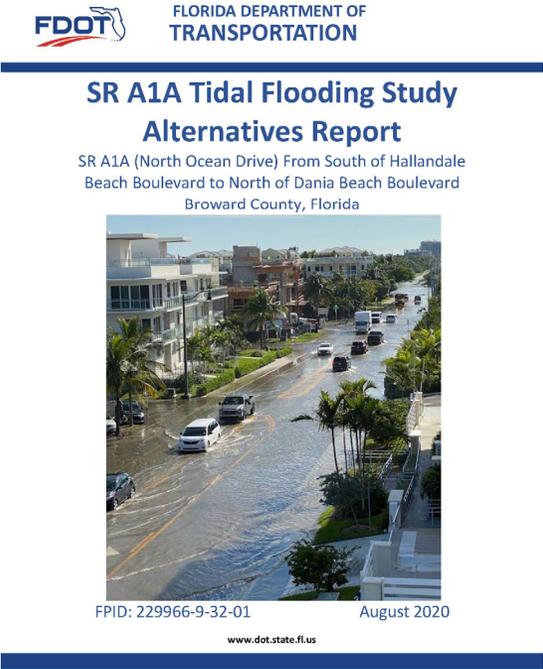
DISTRICT 4: SR A1A IN BROWARD COUNTY

- Permanent Project Reflecting Resiliency and Community
- Goals for SR A1A in Fort Lauderdale



DISTRICT 4: SR A1A TIDAL FLOODING STUDY IN HOLLYWOOD

- Review of existing devices
- Proposed remedies:
 - Prevention
 - Attenuation
 - Restoration



DISTRICT 6: INTEGRATING RESILIENCE: TAMIAMI TRAIL

- Partnership with National Park Service to raise 8 miles of Tamiami Trail to help restore sheet flow to the Everglades
- New bridges provide more natural wildlife crossings
- Collaborative improvements with the Miccosukee Tribe of Indians of Florida to Tigertail Camp
- Phase 1: completed 2019
- Phase 2: ongoing, began 2020



DISTRICT 6: SEA OATS BEACH AND THE FILLS

➤ US 1/Overseas Highway Shoreline Protection and Road Raising Projects



DISTRICT 6: INTEGRATING WATER WITH TRANSPORTATION - MIAMI BEACH

- Addressing flooding to improve level of service for roadways – Indian Creek Drive/SR A1A Emergency Evacuation Route
- Pump stations – emergency by-passes
- Outfalls with backflow preventers



DISTRICT 6: COMMUNITY AND AGENCY PARTNERSHIPS

- USACE Florida Keys Coastal Storm Risk Management (CSRM) Feasibility Study
- USACE Miami-Dade Back Bay CSRM Feasibility Study
- Tamiami Trail Modification: Next Steps Project
- Resilient305 Strategy



US Army Corps
of Engineers®



Don't Drive Into the Unknown.....



.....Stay Away from Flooded Streets!

For more information, please contact:

Jennifer Z. Carver, AICP



Jennifer.Carver@dot.state.fl.us



850-414-4820



PBC volunteers celebrating World Ocean Day by participating in a coastal clean up at Coral Cove Park, Jupiter, FL.

6. Palm Beach County Vulnerability Assessments

March 1, 2023





**Ensure a resilient, thriving PBC by
adapting to and mitigating climate change
and developing sustainably.**

1. Adaptation

2. Mitigation

3. Sustainable Development

OUR VALUES



EQUITY

Prioritizing “frontline communities,” i.e., people both highly exposed to climate risks and with fewer resources, capacity, safety nets or political power to respond to those risks in planning, processes, and outcomes



ADAPTATION

Anticipate, prepare for, and respond to acute shocks, disruptions and hazardous events or longer-term, chronic stressors related to or exacerbated by climate change



MITIGATION

Reducing greenhouse gas emissions to lessen the impacts of climate change



SUSTAINABLE DEVELOPMENT

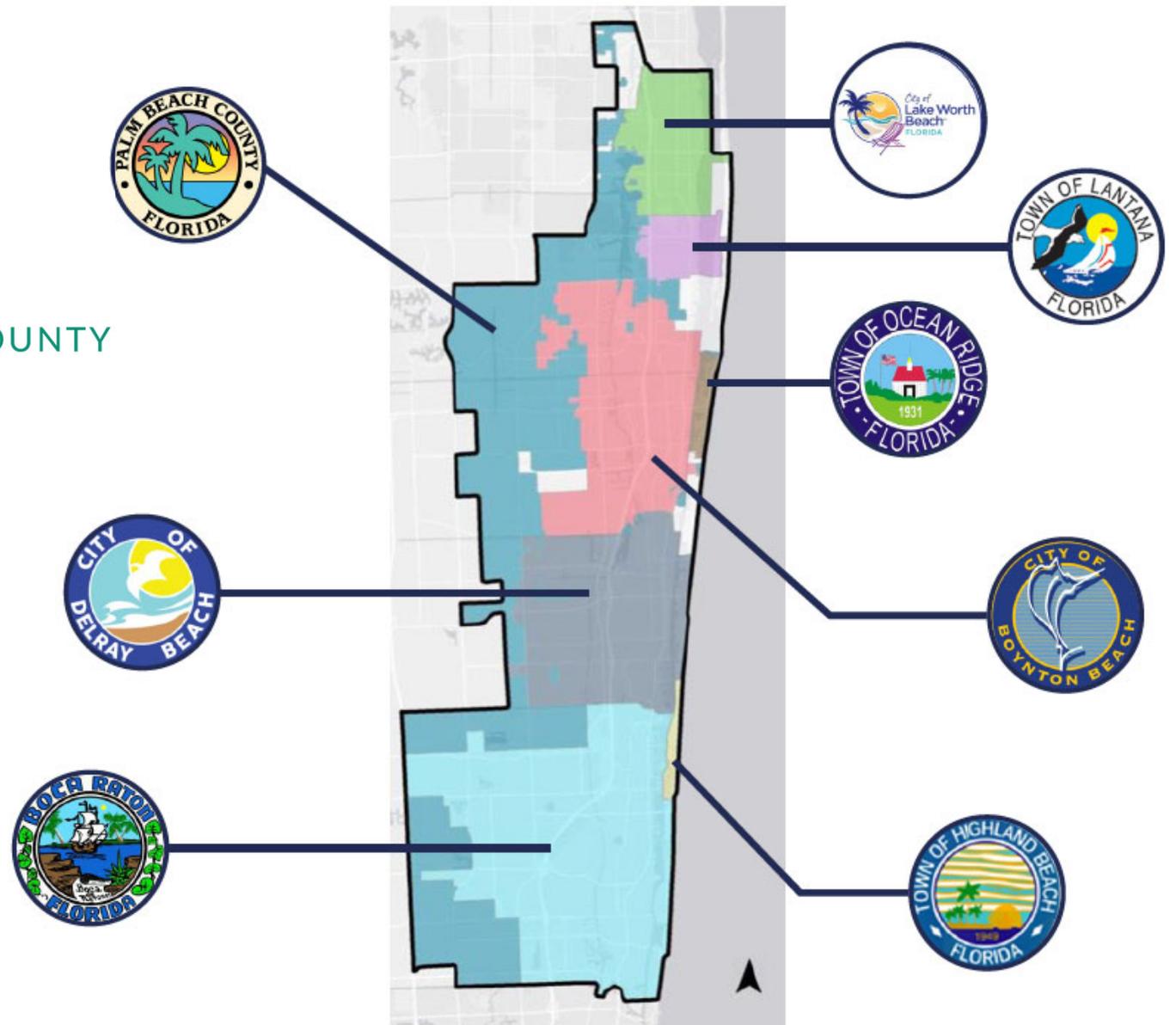
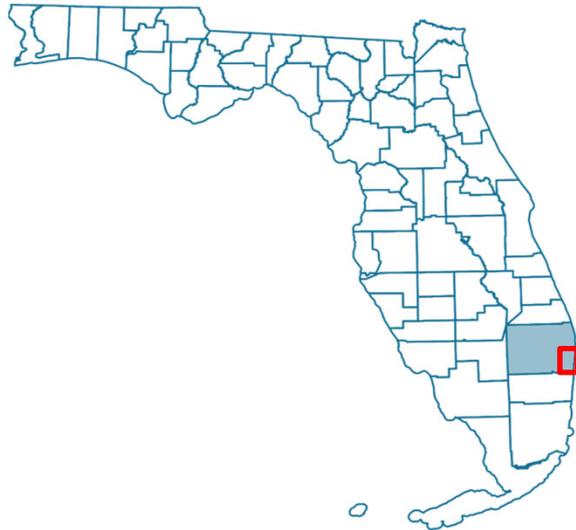
Create solutions that serve the environment and inhabitants and promote a better, healthier and cleaner future



COASTAL RESILIENCE PARTNERSHIP

SOUTHEAST PALM BEACH COUNTY

Multi-Jurisdictional Climate Change Vulnerability Assessment



THIS MAP REPRESENTS THE STUDY AREA FOR THE COASTAL RESILIENCE PARTNERSHIP OF SOUTHEAST PALM BEACH COUNTY CLIMATE CHANGE VULNERABILITY ASSESSMENT



COASTAL RESILIENCE PARTNERSHIP

SOUTHEAST PALM BEACH COUNTY

Climate Threats Assessed



High Winds



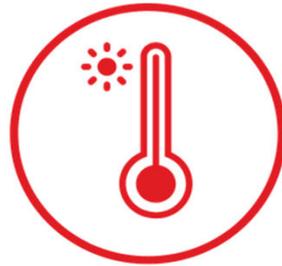
**Rainfall-Induced
Flooding**



**Harmful Algal
Blooms**



**Pest & Disease
Outbreaks**



Extreme Heat



Drought



Wildfire



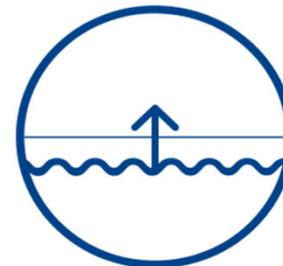
**Shoreline
Recession**



Tidal Flooding



Storm Surge



**Groundwater
Inundation**



**Saltwater
Intrusion**

*Analyses involving sea level rise used the 2017 NOAA intermediate-low and NOAA intermediate-high projections to 2040 and to 2070 to comply with Section 380.093, F.S.

ASSET CATEGORIES ASSESSED



Critical Facilities



Water Infrastructure



People and Socioeconomics



Transportation & Mobility



Natural Resources



Economic Factors



Property

2022 Resilient Florida Critical Assets

Transportation Assets and Evacuation Routes

Critical Infrastructure

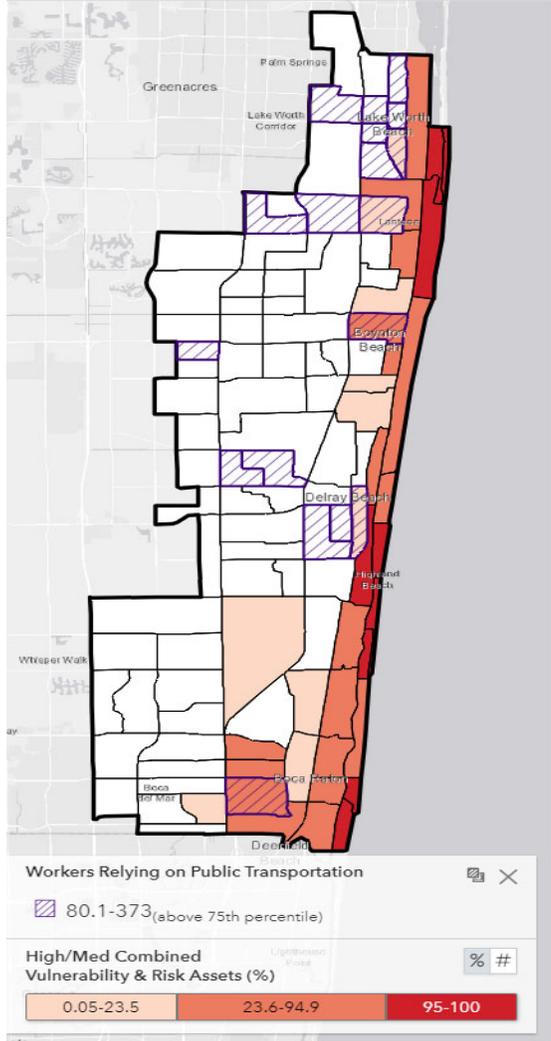
Critical community and emergency facilities

Natural, Cultural, and Historical Resources

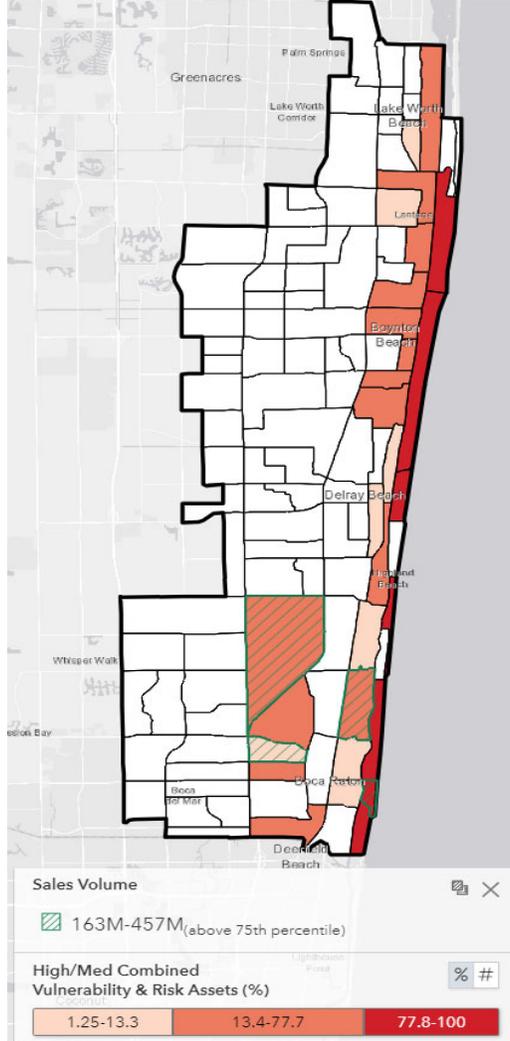


Storm Surge

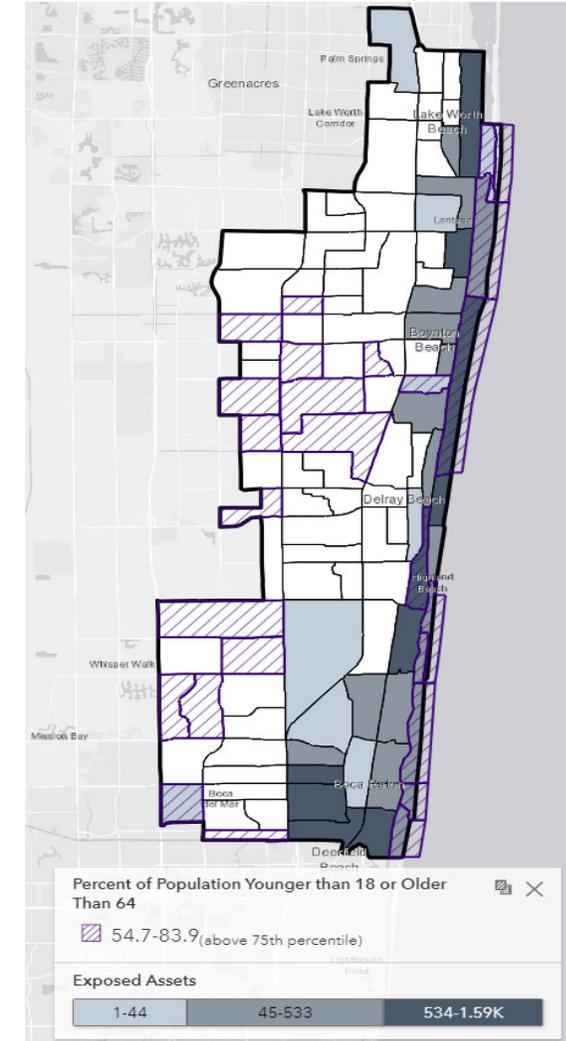
Residential Property & Storm Surge 2070 (2020 baseline +33" SLR, 100-yr) RF 380.093



Commercial and Industrial Property & Storm Surge 2070 (2020 baseline +33" SLR, 100-yr) RF 380.093



Roads and Parcels inaccessible due to Storm Surge 2070 (2020 baseline +33" SLR, 100-yr)





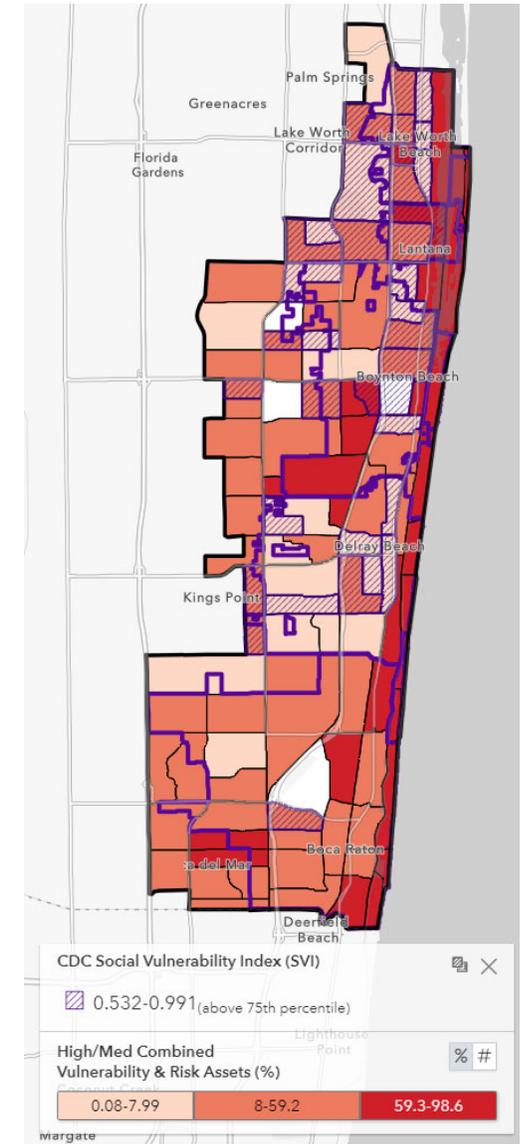
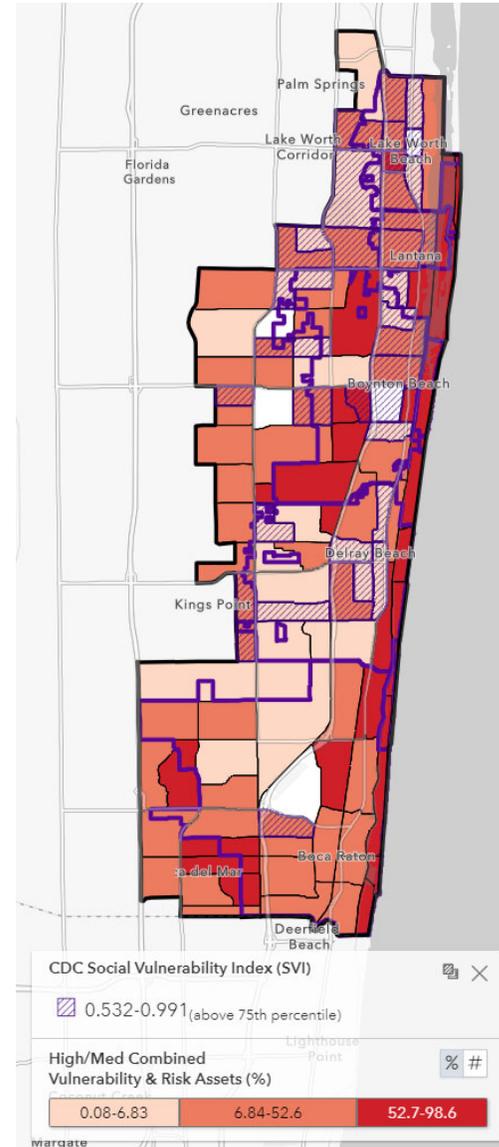
Rainfall Induced Flooding

Flooding on normally dry land caused by changes in rainfall patterns



+5" (2040)

+13" (2070)



VARAP



VULNERABILITY ASSESSMENT (VA)

Assess climate impact risks for County assets within unincorporated Palm Beach County & the western municipalities



RESILIENCE ACTION PLAN (RAP)

Develop an implementation strategy, priority projects, and a greenhouse gas reduction options for County infrastructure in all of Palm Beach County

VARAP

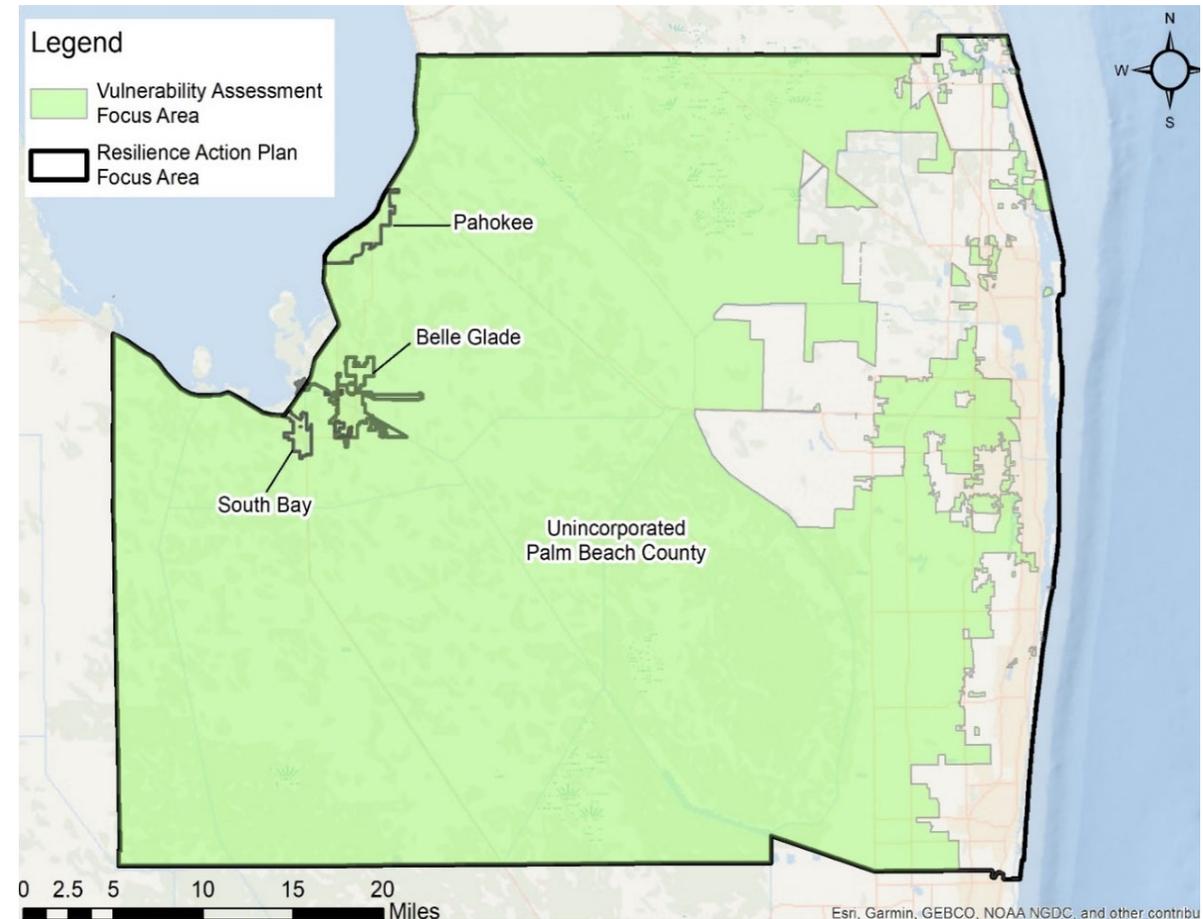
Project Scope

1. Vulnerability Assessment

- Includes Unincorporated PBC
- Select Assets
- Identify Climate Threats
- Calculate Risks
- Incorporate Social Vulnerability
- Resilient Florida Compliant
- Create Visualization Tool

2. Resilience Action Plan

- Includes Whole County
- Prioritized Project List
- Detailed Project Descriptions
- Equity Considered
- Net Zero Feasibility



VARAP

Community Engagement

Strengthen capacity of frontline communities for climate resilience planning to ensure more equitable processes and outcomes for VARAP.



THANK YOU



09

Megan Houston
Resilience Director
mshouston@pbcgov.org

SCAN ME



www.pbcgov.com/resilience

8. Around the Table Updates from:

**Local,
Tribal, and
State Agencies**

9. Public Comment:

If you would like to comment, please complete Section 6 of the public comment card and give to a meeting attendant.





10. Closing Remarks



Carolina Maran, P.E., Ph.D., District Resiliency Officer

March 1st, 2023

Send us your Comments and Feedback

Please take a moment to send us your comments and suggestions for the upcoming meetings and share your topics of interest with us.



<https://forms.office.com/g/4X2kHNe1dj>

2023 Southwest Florida Climate Summit

Invitation to Register

<https://www.chnep.org/2023-climate-summit>



March 15-16, 2023



**The Collaboratory
(2031 Jackson Street,
Fort Myers, FL 33901)**



WGPU npr NEWS
SOUTHWEST FLORIDA

2023 SOUTHWEST FLORIDA CLIMATE SUMMIT



Ricardo Arduengo / AFP via Getty Images

Register Today!

An aerial photograph of a coastal city, likely Miami, showing a dense cluster of high-rise apartment buildings along a waterfront. The water is a vibrant turquoise color, and several sailboats are visible. In the background, a large body of water and a distant city skyline are visible under a blue sky with scattered clouds. A white wake from a boat is visible in the lower right foreground.

**Thank you for
joining !**