



SOUTHEAST SUSTAINABILITY  
DIRECTORS NETWORK



## **Lessons Learned from Local Governments and Resources from the Environmental Finance Center**

*Strategies for Accessing Federal and  
State Funding for Flooding Adaptation*

October 31, 2024

# Speakers



## **Megan Houston**

Director, Office of Resilience  
Palm Beach County

## **Alison Higgins, LEED O&M**

Resiliency Manager  
City of Key West

## **Michael Dexter, CFM**

Dir. of Fed. Programs  
SSDN

# Hosts



**Jake Leech, PhD**

Gulf Coast Energy Manager  
SSDN

**Catherine Mercier-Baggett, AICP**

Dir. of Fed. Tech. Assistance  
SSDN

# Objectives

- Share **innovative approaches** to accessing federal funding
- Understand **resources and technical assistance**
- Present selected **local success stories** and strategies





# Southeast Sustainability Directors Network

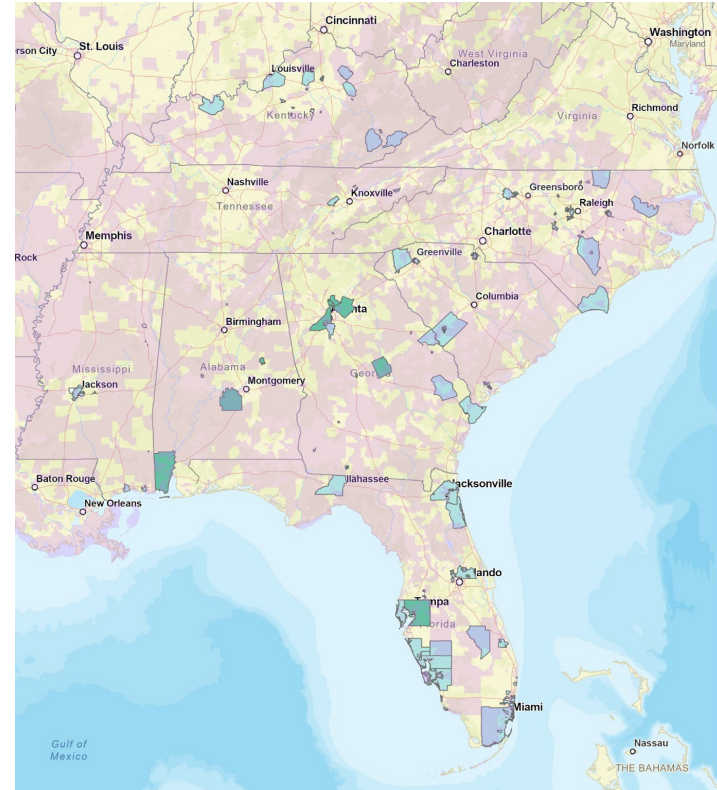
- Peer-to-peer network of local & tribal governments
- 125+ members across Southeastern US
- Member Network Focused on:
  - *Peer Learning*
  - *State Networks & Policy*
  - *Technical Assistance*
  - *Federal Funding Programs*



We connect local government sustainability professionals throughout the region to accelerate, scale, and implement sustainable best practices.

# Federally Funded Technical Assistance

- **EPA Region 4 Multimedia EFC:**
  - TA for water and environmental justice projects
  - Community Grants training and 1:1 assistance
- **DOE/NREL Regional ETIPP Partner:**
  - Energy transition & resilience in Gulf of Mexico states
  - Planning and project-specific assistance
- **Energy Futures Implementation Support:**
  - Support for Southeastern partner teams
  - Cohort-style funding implementation workgroup





# Flood Mitigation Funding



October 31, 2024

# PBC Office of Resilience

## Mission

### SOCIAL 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

### CLIMATE ADAPTATION

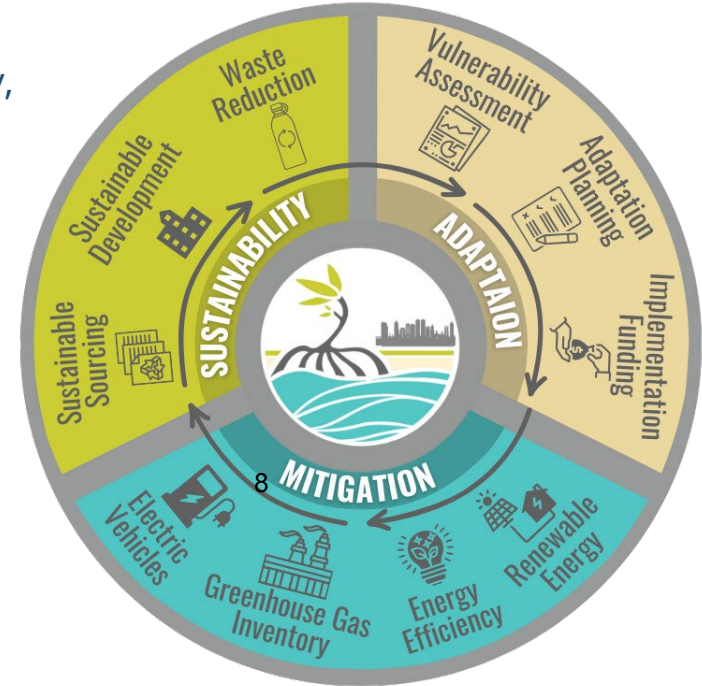
- Anticipate, prepare for, and respond to acute shocks, disruptions and hazardous events or longer-term, chronic stressors related to or exacerbated by climate change

### CLIMATE MITIGATION

- Reducing greenhouse gas emissions to lessen the impacts of climate change

### SUSTAINABILITY

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





# Office of Resilience Methods



## FUNDING

Identifies and pursues grant applications. Coordinates grant projects.



## COLLABORATION

Supports County Departments, local jurisdictions, and community members.



## INNOVATION

Researches best practices, develops pilot projects, and shares cutting edge technology with relevant stakeholders



## STRATEGY

Develops action plans and policy recommendations that deliver cost-effective resiliency solutions



# Vulnerability Assessment and Resilience Action Plan



## Vulnerability Assessment









- Assesses the County's unincorporated area, western municipalities, and County assets
- Measures potential climate threat impacts
- Identifies the levels that people, property, and natural resources may be affected

**Project Partners:** Water Resources Manager, ISS, Division of Emergency Management, Tetra Tech, Glades Municipalities, Steering Committee (about 20 people from PBC departments and municipal government staff).



Funded by \$1,300,000 Grant

# VA+RAP Hazards

 <p><b>Coastal Erosion:</b> The permanent removal of sand from shorelines and coastal lands due to wind, waves, and longshore currents.</p>	 <p><b>Drought:</b> A period of abnormally dry weather due to a rainfall deficit</p>	 <p><b>Extreme Heat:</b> A period of hotter and more humid temperatures than average for a specific location at that time of year.</p>	 <p><b>Non-Coastal/Inland Flooding:</b> Temporary inundation of normally dry land due to excessive precipitation rates.</p>	 <p><b>Severe Storm:</b> Tornadoes, hurricanes, tropical storms, and other weather events that bring excessive rainfall and wind that produce higher and stronger storm surges.</p>	 <p><b>High Wind:</b> Events with sustained wind speeds that are powerful enough to down trees and powerlines, damage property, and knock debris loose.</p>	 <p><b>Wildfire:</b> An uncontrolled fire that begins in an undeveloped area but the spread of which threatens nearby communities, populations, and critical assets.</p>	 <p><b>Flooding:</b></p> <ul style="list-style-type: none"> <li>- Sea Level Rise</li> <li>- Tidal Flooding</li> <li>- Storm Surge</li> <li>- Rainfall</li> <li>- Compound Flooding</li> </ul>
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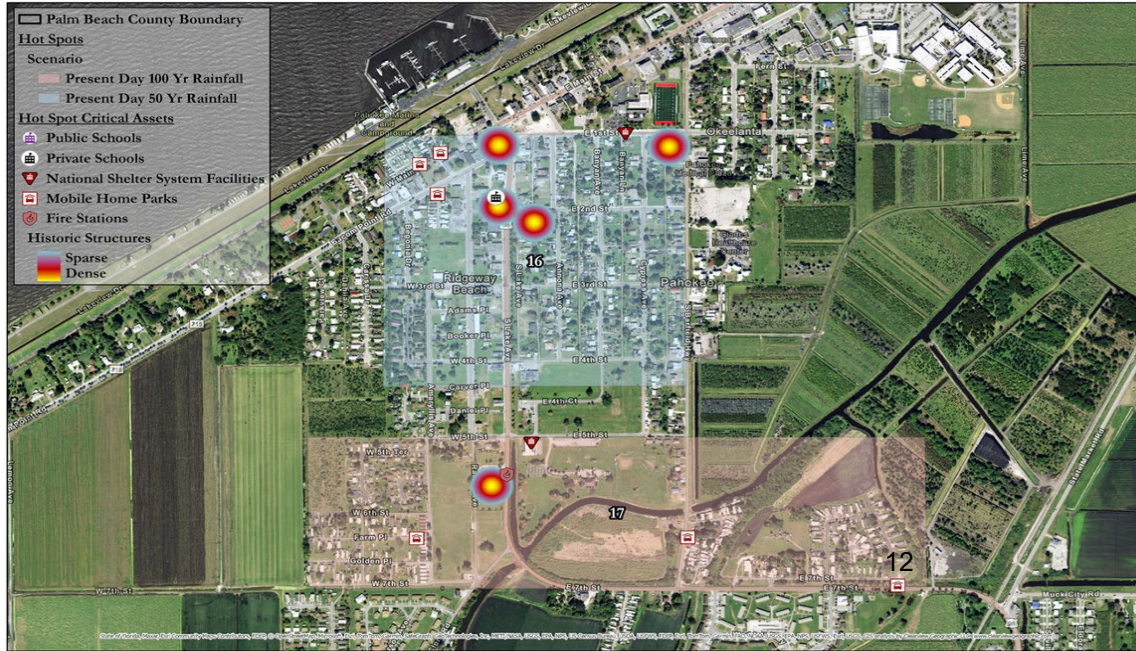
FL Commerce CDBG-MIT  
\$800,000

FL DEP  
\$500,000





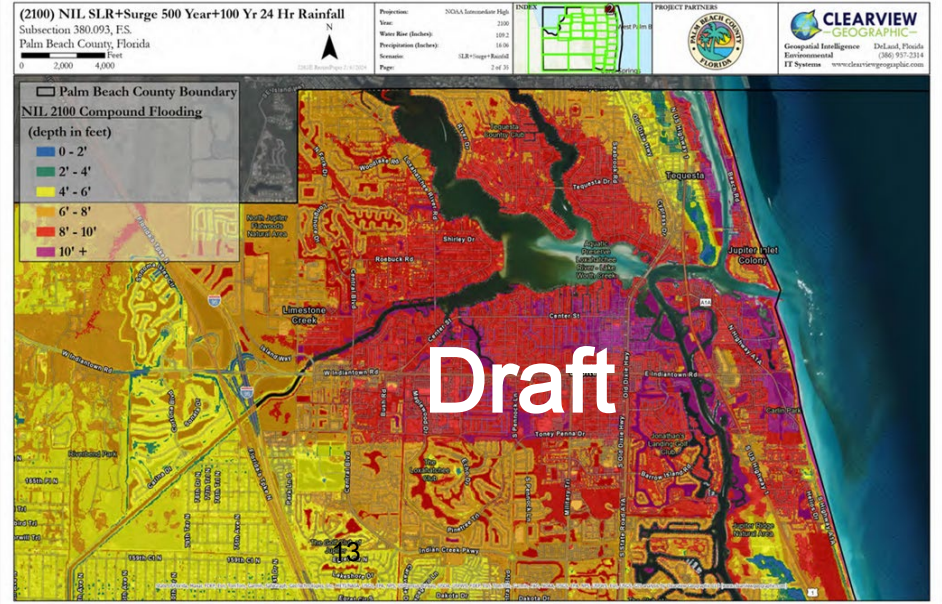
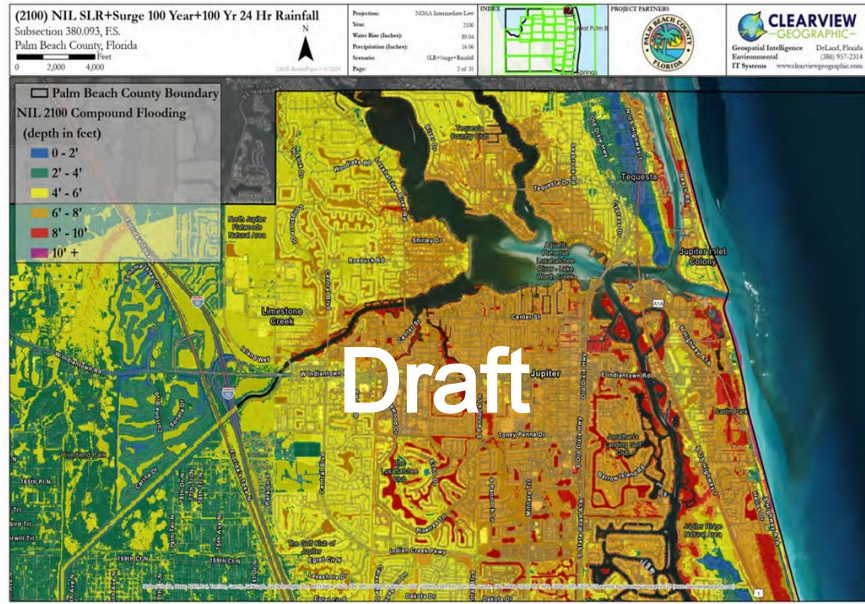
# Flooding “Hot Spots”







# Sea Level Rise + Storm Surge + Rainfall



# VARAP – Countywide Priority Projects

## ➤ RAP Goals and Metrics Matrix (sample):

Category	Resilience Goals	Metrics	Value	Value (Column D)	Weight	Score	Weighted Score
Engineering	Structural v. Non-Structural Strategies	Type of Strategy	1. <b>Non-Structural Strategy</b> , this adaptation strategy involves policy, planning, codes, and/or education/awareness 2. <b>Structural Strategy</b> , this adaptation strategy involves physical modifications to the asset 3. <b>Mixed method</b> , this adaptation strategy involves both structural and non-structural components		100%		0
	Adaptive to Multiple Climate Threats	Yes/No	1. <b>No</b> , the adaptation strategy only addresses one climate threat or the ability to address multiple threats is undetermined 2. <b>Yes</b> , the adaptation strategy addresses multiple climate threats		100%		0
	Asset Lifespan	Time to End of Life Cycle	1. The adaptation strategy is being applied to a asset with a life cycle of > 15 years 2. The adaptation strategy is being applied to a asset with a life cycle of > 30 years 3. The adaptation strategy is being applied to a asset with a life cycle of > 50 years		100%		0
	Future Adaptability/Adaptive Capacity	Yes/No	1. <b>No</b> , the adaptation strategy can not be modified in the future to further accommodate expected climate conditions, or its capacity for adaptation is uncertain 2. <b>Yes</b> , the adaptation strategy can be modified to accommodate expected future climate conditions		100%		0
Environmental	Net Zero GHG Emissions	Time to Meet	1. The adaptation strategy will contribute to net zero GHG emissions in PBC within a >50 year time frame 2. The adaptation strategy will contribute to net zero GHG emissions in PBC within a <30 year time frame 3. The adaptation strategy is being applied to a building/facility with a life cycle of <15years		100%		0
	Flood Reduction	Level of Flood Reduction	1. This adaptation strategy will provide a <b>low level</b> of flood reduction 2. This adaptation strategy will provide a <b>medium level</b> of flood reduction 3. This adaptation strategy will provide a <b>high level</b> of flood reduction		100%		0
	Ecosystem/Habitat/Water Quality	Yes/No	1. <b>No</b> , this adaptation strategy will <b>not improve</b> ecosystem/habitat/water quality in PBC, or the effect is uncertain 2: <b>Yes</b> , this adaptation strategy <b>will improve</b> ecosystem/habitat/water quality in PBC		100%		0
	Nature Based Solution	Yes/No	1. This adaptation strategy is <b>not a NBS</b> 2. This adaptation strategy is <b>a NBS</b> (ex: green infrastructure, living shoreline, restoration, etc)		100%		0



# GIS Map Tool & Data Dashboard

## ➤ PBC VARAP StoryMap

Palm Beach County Vulnerability Assessment (DRAFT)

Palm Beach County & Tetra Tech, Inc.

**Palm Beach County Vulnerability Assessment (DRAFT)**

VARAP Introduction | Methods | Results | Vulnerability Map Viewer | Additional Resources

The PBC Climate Vulnerability Assessment and Resilience Action Plan (VARAP) is a project designed to address environmental hazards and climate risks exacerbated by climate change and sea level rise. Funded by the Florida Department of Commerce's Community Development Block Grant Mitigation (CDBG-MIT) Program on behalf of the U.S. Department of Housing and Urban Development and the Florida Department of Environmental Protection (TDEP) through the Resilient Florida Grant

## ➤ PBC Vulnerability & SLR Viewer

Palm Beach County Vulnerability & Sea Level Rise Viewer

Legend

- Palm Beach County
- Bus\_Routes
- Vulnerability Hotspots
- NOAA\_SLR\_1foot
- NOAA\_SLR\_2foot
- NOAA\_SLR\_3foot
- NOAA\_SLR\_4foot
- NOAA\_SLR\_5foot





# 2023 PBC Flood Workshop

- In 2023, 18 out of 39 municipalities hadn't yet pursued 100% grant-funded vulnerability assessments from Resilient Florida

Atlantis

Cloud Lake

Glen Ridge

Golf

Gulf Stream

Haverhill

Hypoluxo

Juno Beach

Jupiter





# 2023 PBC Flood Workshop



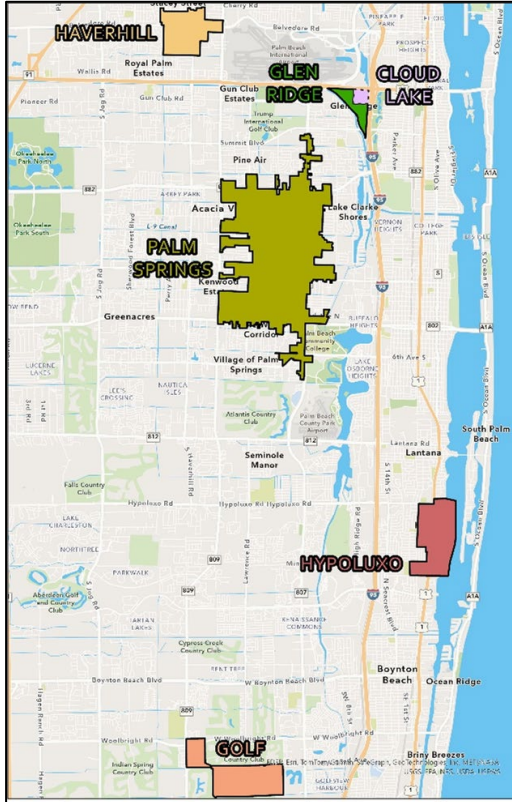
- OOR Partnered with the American Flood Coalition
- 42 PBC Municipal Representatives Attended
- Discussed Resilient FL Program & Collaboration
- Surveyed remaining municipalities who hadn't applied for Resilient Florida funding to see if they wanted PBC to apply for and manage the grant to conduct their vulnerability assessment.



# PBC Flood Workshop – Invite

- Cohort Lead
  - Grant Application
  - Fiscal Responsibility
  - Procurement
  - Grant Administration

# Central Palm Beach County Vulnerability Assessment



## FDEP Florida Planning Grant

PBC OOR will partner with six municipalities to conduct flooding and sea level rise (SLR) vulnerability assessments and identify flooding and SLR risks on critical and regionally significant assets owned or maintained by the municipalities.

- Town of Cloud Lake
- Town of Glen Ridge
- Village of Golf
- Town of Haverhill
- Town of Hypoluxo
- Village of Palm Springs

Funded by \$1,086,000 Grant

# 2024 Resilient Florida Grant Applications – *Implementation Projects*

## Implementation Projects

- PBC Engineering Drainage Improvements – Applied for \$6.4M
- PBC Water Utility Department – Applied for Resiliency Hardening
- PBC Parks & Recreation – Applied for \$7.5M to elevate an oceanfront park



Country Club Acres



# LESSONS LEARNED

**RFVA**

**Resilient Florida  
Vulnerability Assessment**

Flooding, Sea Level Rise, Storm Surge

**CRA**

**Climate Risk  
Assessment**

Heat, Drought, Storms,  
Coastal Erosion, Wildfires

**RAP**

**Resilience  
Action Plan**

Identify Projects, Funding and Schedule

- **Combine funding.**
- **Pool resources with other departments and municipalities.**
- **100% grants aren't free! Make sure you have the time and resources to manage the grant.**

# THANK YOU!



Megan Houston  
mshouston@pbc.gov

**#PBCGOV | pbc.gov**

# Flooding in Key West

Alison Higgins  
Resiliency Manager



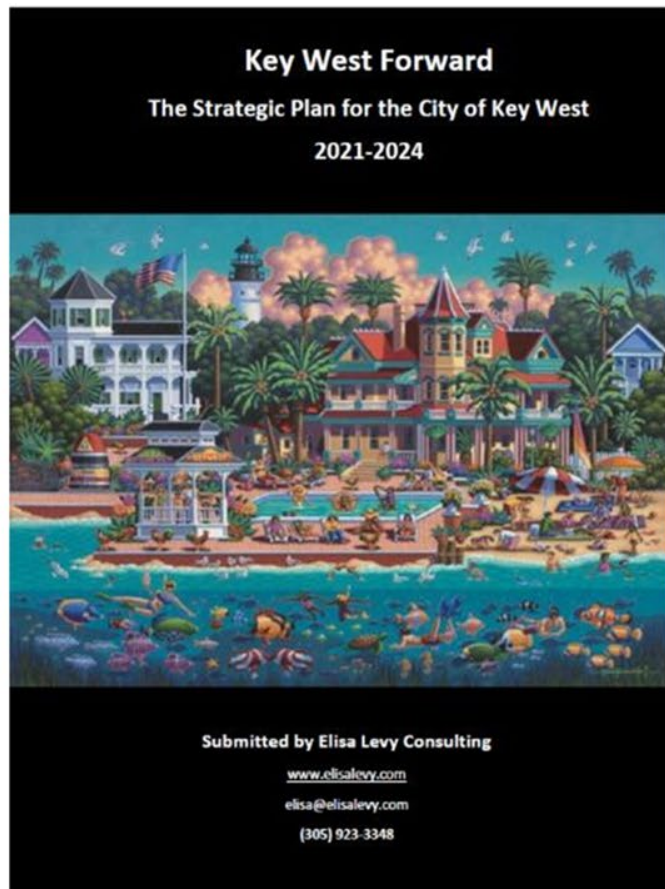
# Our Vulnerable Island Home

- 4.7' Above Sea Level
- A Very Long Extension Cord
- A Very Long Hose
- Longest Trash Route
- One Road In, One Road Out

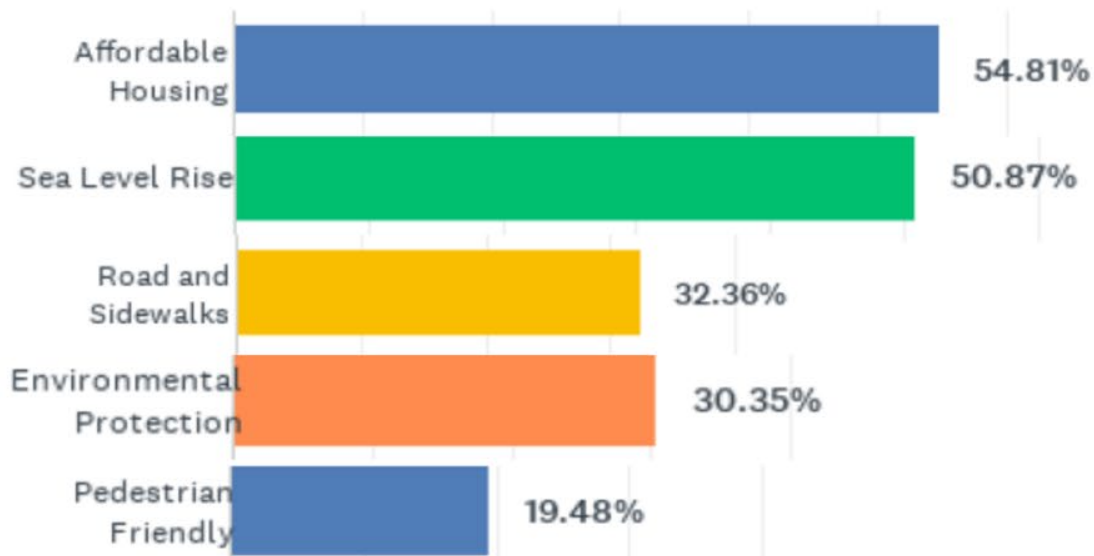




# Strategic Planning

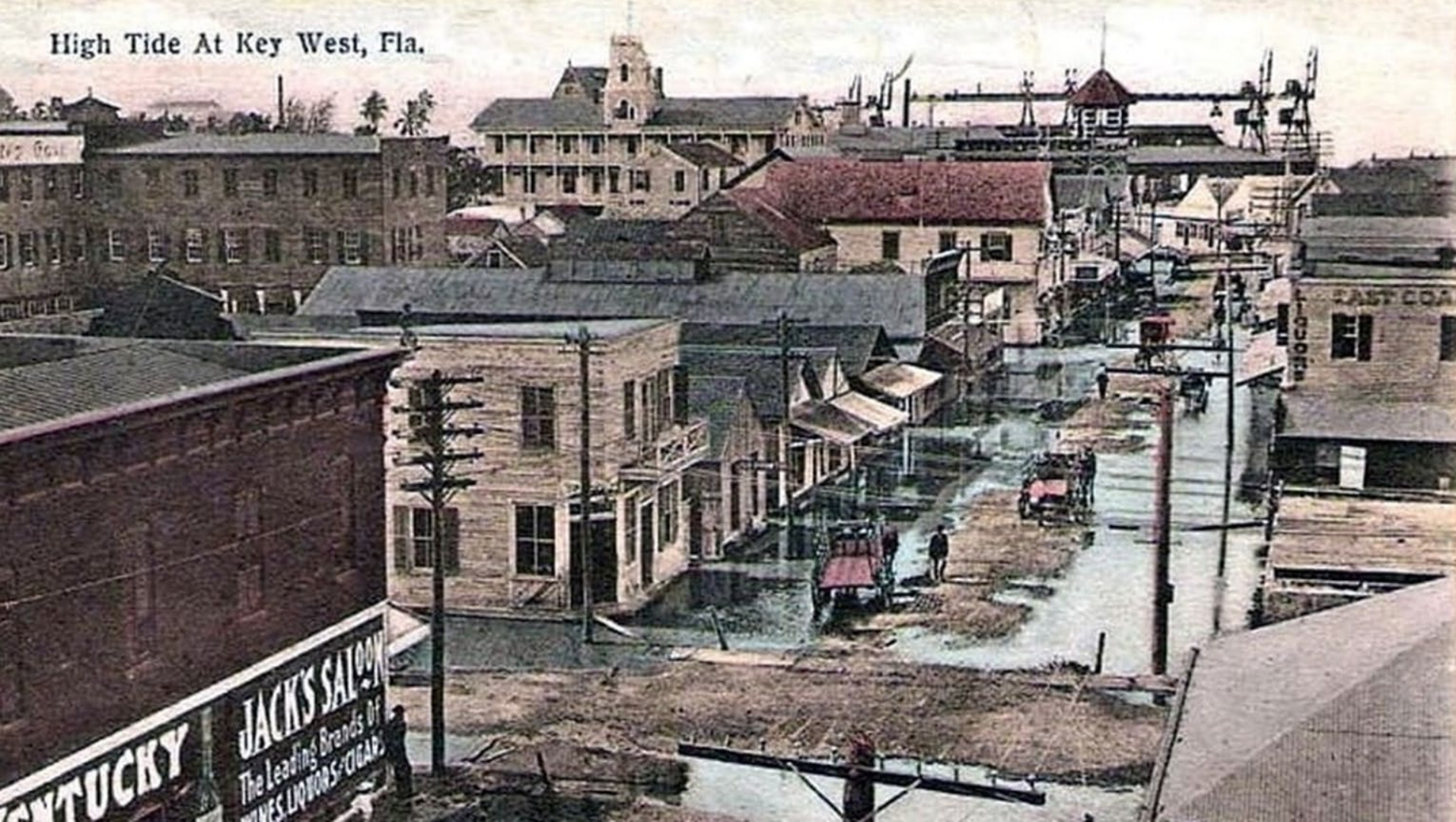


## Major Issues of Concern



KEY WEST  
**FORWARD**

High Tide At Key West, Fla.

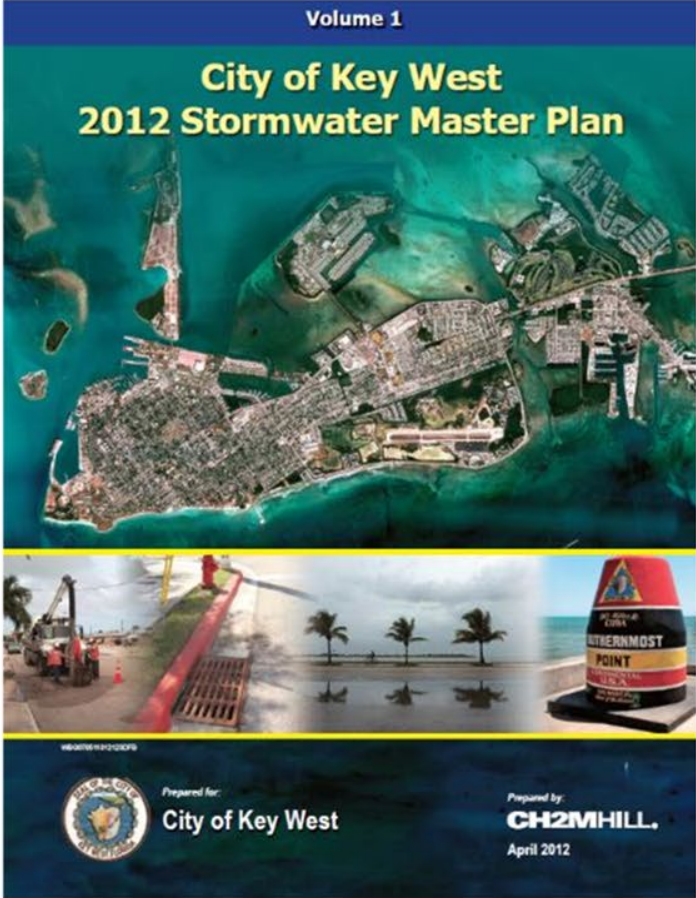




# Stormwater Master Plan

## 2020 Update

- Catalogues Completed Projects
- Incorporates Newest Projections
- Updates Feasibilities and Costs









Key West Post Disaster Recovery and Redevelopment Plan - \$75K  
Community Planning Technical Assistance Grant

**FLORIDA**COMMERCE



# Key West Post Disaster Recovery & Redevelopment Plan



## Flooding Focus Areas

- Marine-based Biodiversity
- Water Quality Protection
- Repetitive Loss Housing
- Housing Authority Resilience
- Housing Below BFE
- Disclosure Notices
- Stakeholder Engagement
- Blue-Green Ways
- Green Streets
- Elevated roads
- Build-back Standards
- Airport Flooding
- Sewer Inflow & Infiltration
- Resilient Planting

FOR YOUR SAFETY AND THE SAFETY OF OTHERS, PLEASE DO NOT SWIM IN THIS AREA. THE WATER IS VERY DEEP AND THE CURRENTS ARE STRONG. PLEASE STAY ON THE BEACH AND ENJOY THE VIEW. IF YOU SEE ANYONE IN DISTRESS, PLEASE CALL 911.



FEMA MIT-CDBG - \$500K  
FDEP Resilient Florida - \$905K

# KEY WEST COMPREHENSIVE ADAPTATION AND RESILIENCE IMPLEMENTATION PLAN



# Climate Threat Analysis – Resilient Florida VA

## Sea Level Rise

- An increase in the level of the world's oceans as a result of the effects of climate change

## High Tide Flooding

- Characterized by high tide occurrences, leading to the temporary inundation of low-lying areas

## Storm Surge Flooding

- An event driven rise of ocean water generated by elevated water levels associated with a storm or wind event

## Rainfall-Induced Flooding

- Occurs when rainfall overwhelms drainage/stormwater systems and natural waterways, leading to the inundation of normally non-flood-prone land

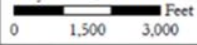
## Compound Flooding

- The combination of tidal, storm surge, and rainfall-induced flooding



# Hot Spot Map

Subsection 380.093, F.S.  
Key West, Florida



2003C Job/Guide 1/17/2004



Projection:	n/a
Year:	n/a
Water Rise (Inches):	n/a
Scenario:	n/a
Page:	Overview



**PROJECT PARTNERS**

Geospatial Intelligence Environmental IT Systems  
DeLand, Florida  
(386) 957-2314  
www.clearviewgeographic.com

**Legend**

**Municipal Boundary**  
[Black outline]

**Hot Spots**

**Scenario**

- [Light Green] Present Day 50 Year Rainfall
- [Yellow] NIH 2040 SLR+HTF
- [Light Blue] NIH 2070 SLR+HTF

**Special Designation**

- [Green with diagonal lines] Wastewater Treatment Plant
- [Yellow with diagonal lines] Naval Base
- [Brown with diagonal lines] Landfill
- [Purple with diagonal lines] Truman Annex





# Adaptation Plan Overview

- Develop adaptation strategies across the 7 focus areas
- Perform cost-benefit analysis for projects, policies, and plans
- Identify planning level cost estimates for infrastructure projects
- Identify funding opportunities for projects
- Develop a 10-year timeline for funding and implementation of the prioritized projects

## The Seven Chapters:

1. Infrastructure & Roads
2. Power & Water
3. Housing & Shelter
4. Health & Social
5. Historic & Cultural
6. Environmental
7. Economic



[www.KeyWestAdaptationPlan.com](http://www.KeyWestAdaptationPlan.com)





# Keyswide Home Elevation Education Project - \$20K



GULF OF  
MEXICO  
RESEARCH INITIATIVE

Sea Grant

Texas • Louisiana • Florida  
Mississippi • Alabama

**FIRM**

FAIR INSURANCE RATES IN MONROE

UF | IFAS Extension  
UNIVERSITY OF FLORIDA



# Summaries of Recent Home Elevations

- Square Footage
- House Construction
- Cost
- Finance Method
- Insurance Changes
- Appraisal Changes
- Unexpected Issues
- Time out of House
- Etc





# FMA: Home Elevation Funding - ~\$8M

[Home](#) › [Departments](#) › [About Monroe County](#) › [Land Authority](#) › [Grant Funding: Flood Mitigation Assistance \(FMA\)](#)

## FEMA FLOOD MITIGATION GRANT ASSISTANCE PROGRAM

Are you interested in obtaining grant funds to elevate, demolish/reconstruct, or sell your home that is below base flood elevation, at risk of flooding, or has flooded before with a National Flood Insurance Program (NFIP) flood insurance claim?

If so, Monroe County is participating in a national grant program known as Flood Mitigation Assistance (FMA) to help with these costs.

- Elevate
- Demolish/Reconstruct
- Sell

The application period to apply for the fiscal year 2021 (FY 2021) FMA grant program funding is currently open and will be closing at 6 p.m. on Nov. 9, 2021. The County encourages applicants to apply. There is at least \$80 million available for individual FMA funding from FEMA. Applications submitted after this deadline will not be considered for funding.

## CONTACT US

Mike Lalbachan

Administrator-Mitigation

[Email Mike Lalbachan](#)

Phone: 305-453-8796

Land Authority

[Email Land Authority](#)

Physical Address

1200 Truman Avenue

Suite 207

Key West, FL 33040



75% FEMA /  
25% Local Funding:

Applications  
Annually in  
November



# ACOE: Storm Risk Funding - \$2.7B



65% FEMA / 35% Local Funding:

- US1: 6 areas of Overseas Highway
- Critical Infrastructure: 2 fire stations, 1 police station, 9 wastewater system sites and 3 schools.
- Commercial Properties: 382 projects.
- Residential Properties: 2,028 projects.

# FEMA HMGP - \$20M

- Tidal Valves
- 3<sup>rd</sup> & Fogarty



# DOD: \$450K

- Wastewater Resiliency Plan



# FDEM FEMA: \$185K

- Watershed Master Plan



# Water Quality Partnerships

- With College of the Florida Keys

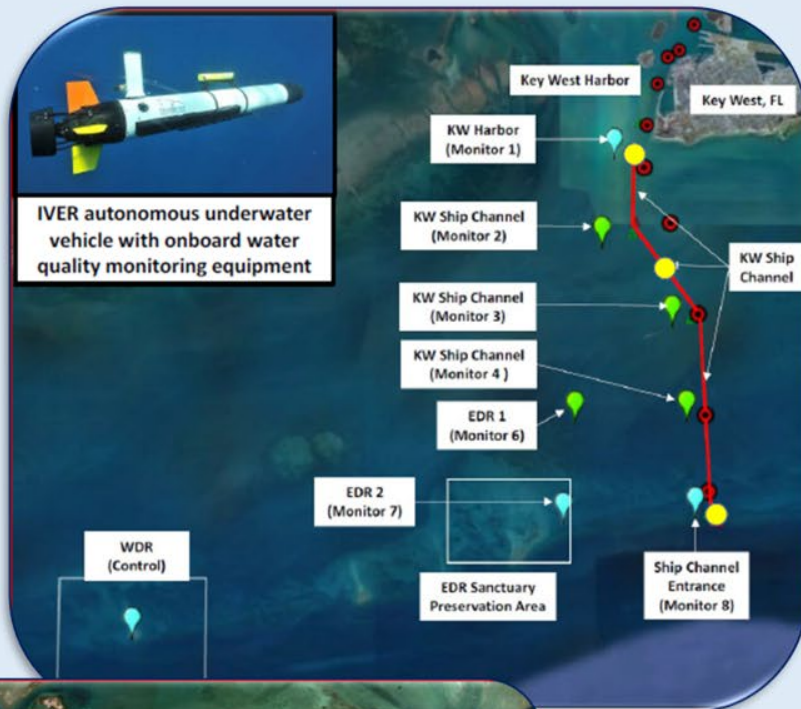
- EPA Funding:

Confirmed: \$696K

- Key West Harbor
- Sucralose
- Oxybenzone
- Hydrogen Sulfide

Pending:

- Sewer System Saltwater Intrusion Plan - \$750K







Flooding in  
Key West

Resiliency Manager

Alison Higgins

ahiggins@  
cityofkeywest-fl.gov

# Federal Program Initiatives

- **Federally Funded Technical Assistance**
  - EPA Region 4 Multimedia Environmental Finance Center
  - ETIPP: Energy Transitions Initiative Partnership Program
  - Energy Futures
- **Local Infrastructure Hub**
  - Deep support to help communities access funding
  - Focused on advancing climate and racial wealth equity
  - Philanthropically-supported grant application assistance
- **Southeast Sustainable Recovery Center**
  - Member-focused support
  - State specific groups, inc. FL Sustainability Directors Network
  - Resources, tools, & training to improve access to funding



*All built off peer networking and knowledge sharing*

# Flood Resilience Funding Landscape

- **EPA Brownfields Grant:** *([Open Now](#), Due: November 15)*
  - **Sanford:** \$600,310 to mitigate a flood-prone property in historic Goldsboro community
  - **Merritt Island:** \$500,000 to mitigate a property in the floodplain
- **DOT PROTECT Grant:**
  - **FDOT:** \$18 million to raise SR907 in Miami Beach to improve resilience to SLR
  - **Orange County:** \$1M for a Real-Time Flood Predictive Model
  - **Osceola County:** \$1.75M to study flood & transportation issues
  - **Sarasota County:** \$6M for Manasota Key Bridge resiliency
- **FEMA BRIC:**
  - **Cedar Key** is receiving support with BRIC project scoping and application for generators and a raised lift station platform.
  - **SFWMD:** 49.9M for C-8 Basin resiliency w/ Gray & Green Infrastr.



***Also consider state opportunities from Resiliency Florida, SRF, and other sources***





# Contact Information

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