

# Climate Vulnerability Assessment and Adaptation Plan City Commission Meeting

September 12, 2024



# Today's Agenda

- Project Overview Recap
- VA Results & Significance
- Adaptation Plan



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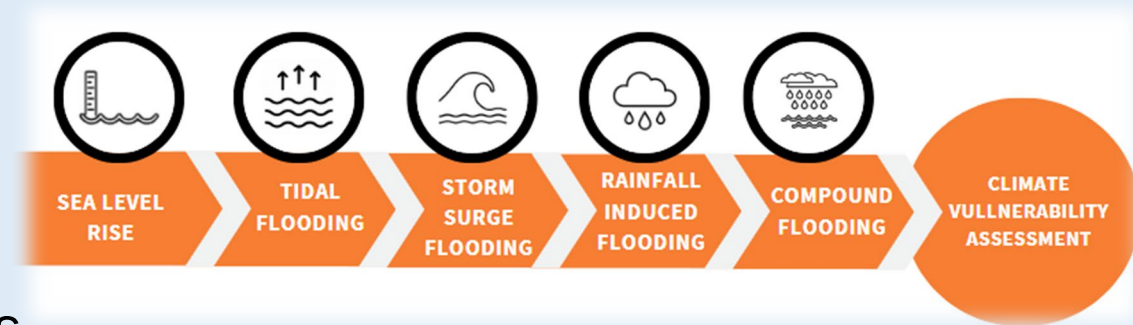
# Project Overview

- Evaluate FLOODING THREATS related to CLIMATE CHANGE impacting the City of Key West and the community assets at risk
- Data-driven analysis & multidisciplinary approach
- Evaluate ECONOMIC HARM from impacts and BENEFITS from mitigation
- Develop an ADAPTATION PLAN with prioritized adaptation actions and 10-Year budget timelines for: Infrastructure, Historic/Cultural Resources, Housing and Shelter, Power and Water Utilities, the Environment, Economics, and Health and Equity
- Identify opportunities to FUND PROJECTS identified in the ADAPTATION PLAN



# Vulnerability Assessment – Resilient Florida Sec. 380.093 F.S.

- Identify Critical Assets at risk to SLR, HTF, storm surge, rainfall and compound flooding
- Determine level of exposure at specific flood scenarios
- Prioritize the assets to identify future project needs
- Identify adaptation strategies
- Obtain and incorporate public/stakeholder feedback
- Identify priority projects to fund and implement



# Exposure Analysis: Results and Significance

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*Identifies baseline risks which allows the City of Key West to understand those risks in terms of spatial extent and level of exposure*

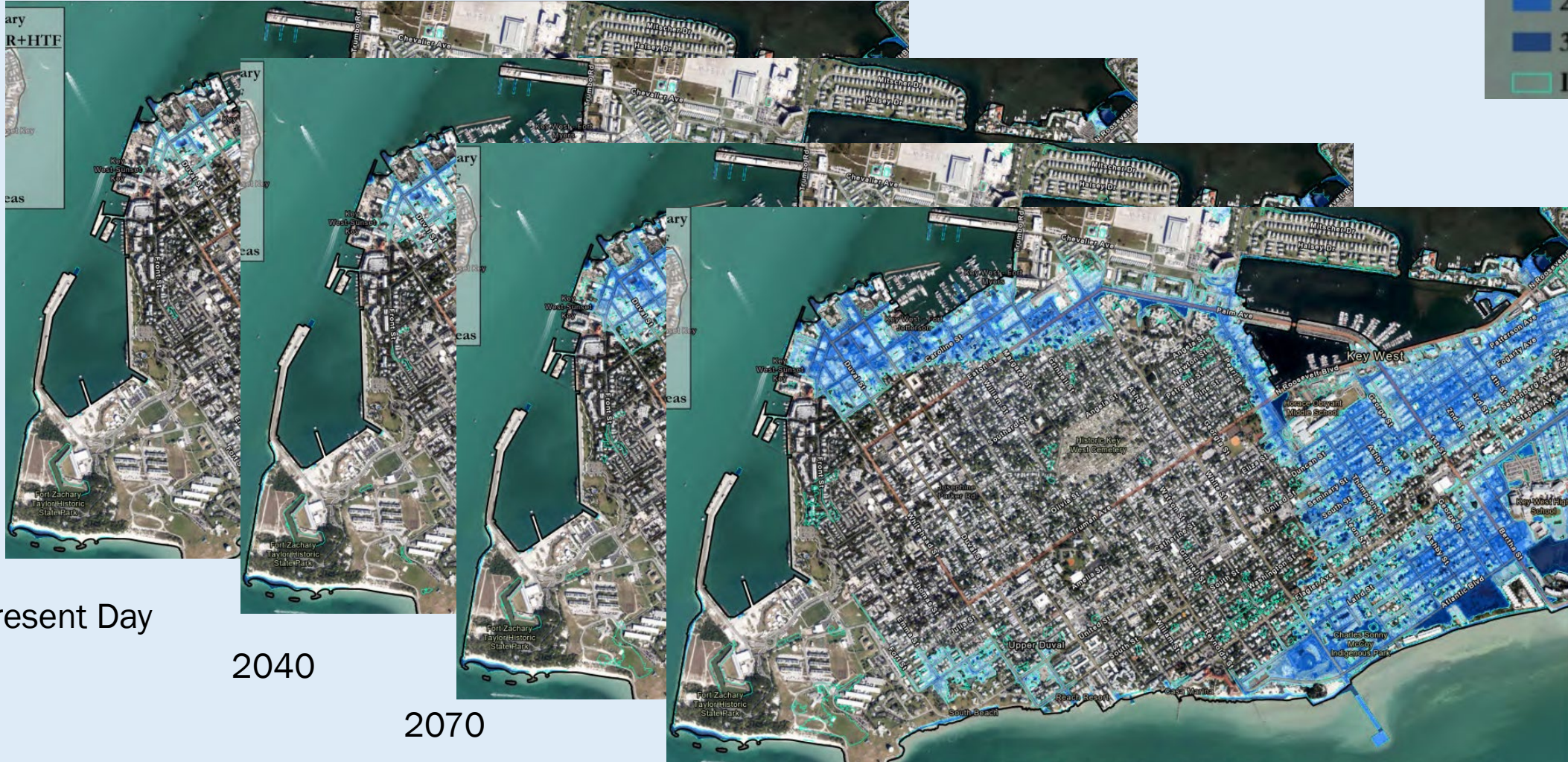
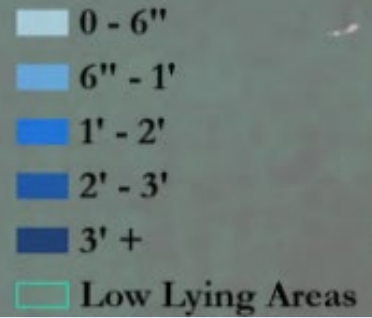


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# Sea Level Rise

(depth in feet)



Present Day

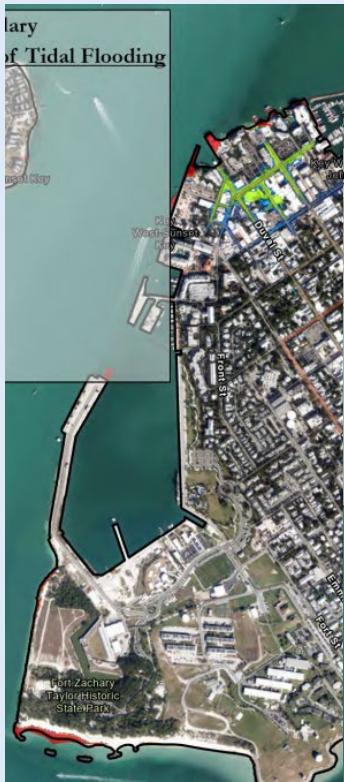
2040

2070

2100



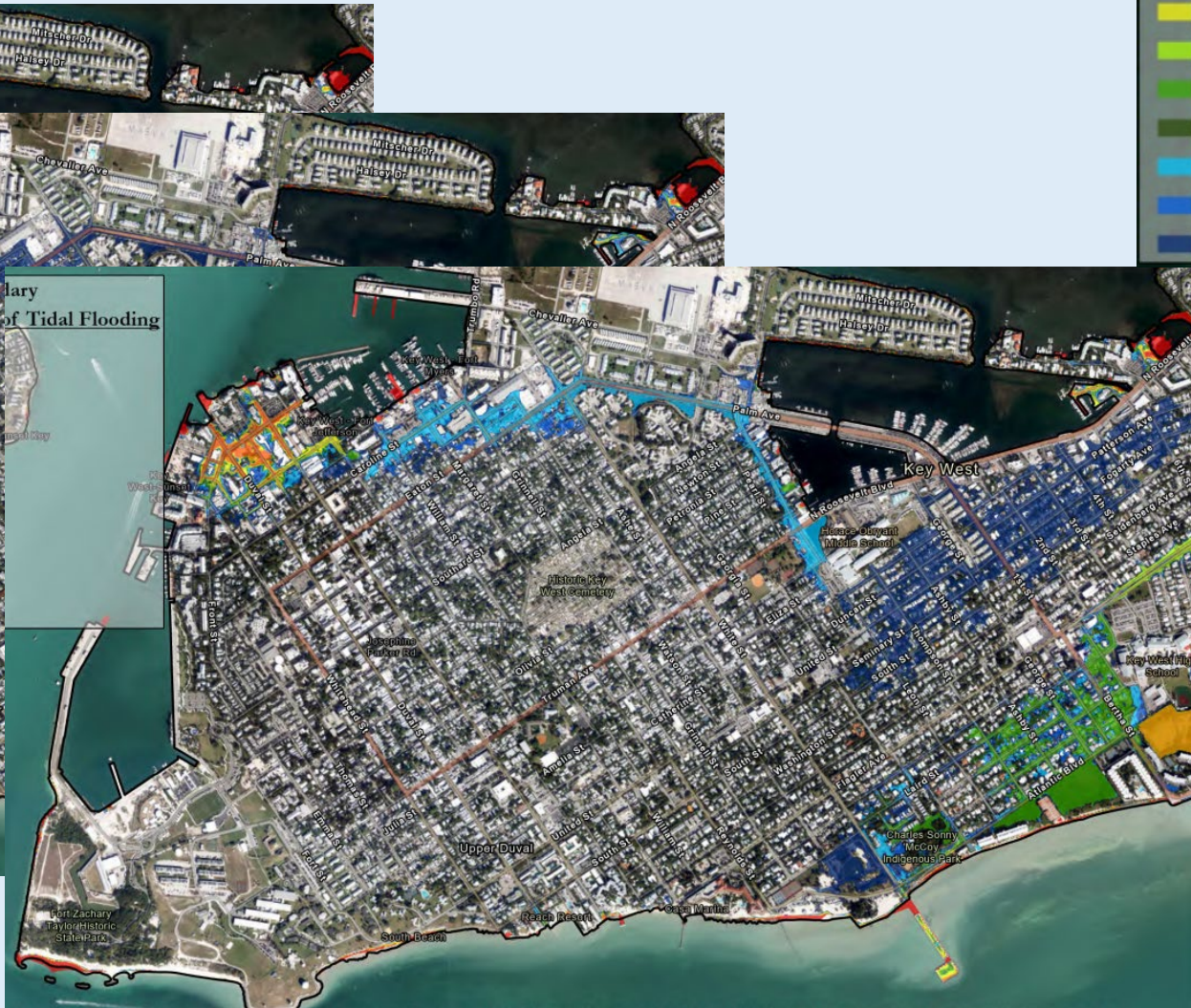
# Tidal Flooding



2040



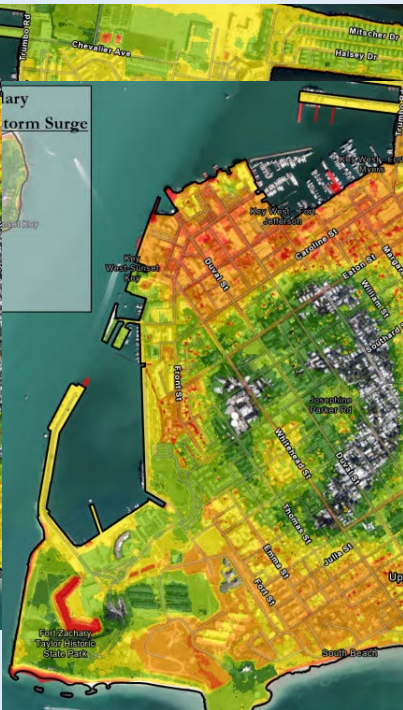
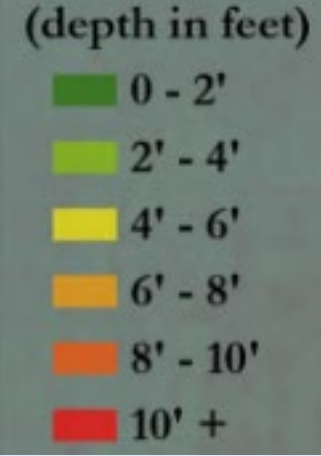
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2100



# Storm Surge (100-Year)



Present Day

2040

2070

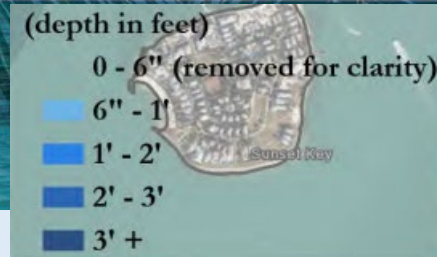
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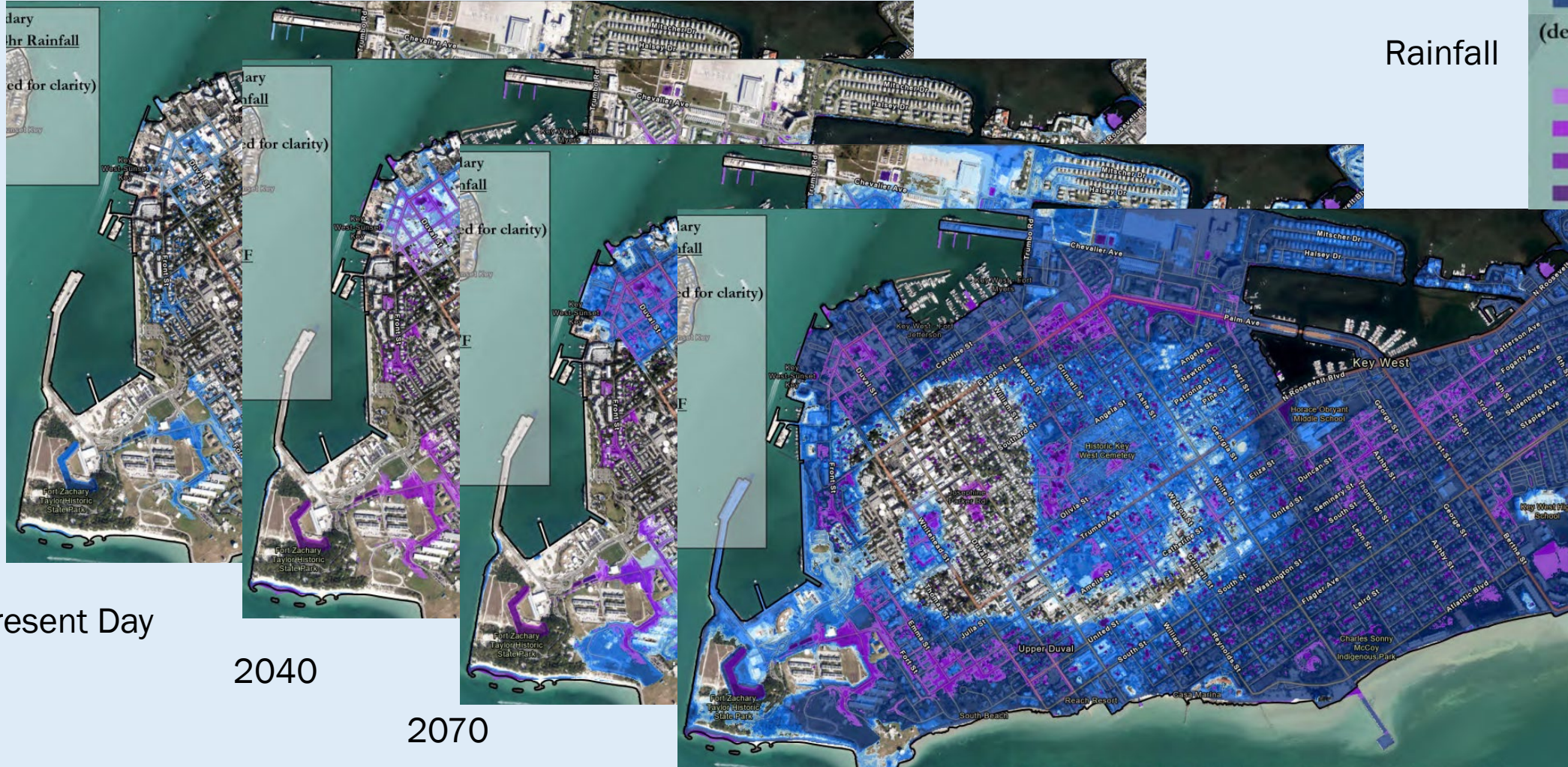
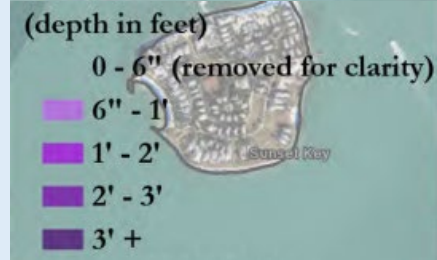


# Rainfall (25-Yr 24-Hr)

SLR + HTF



Rainfall



Present Day

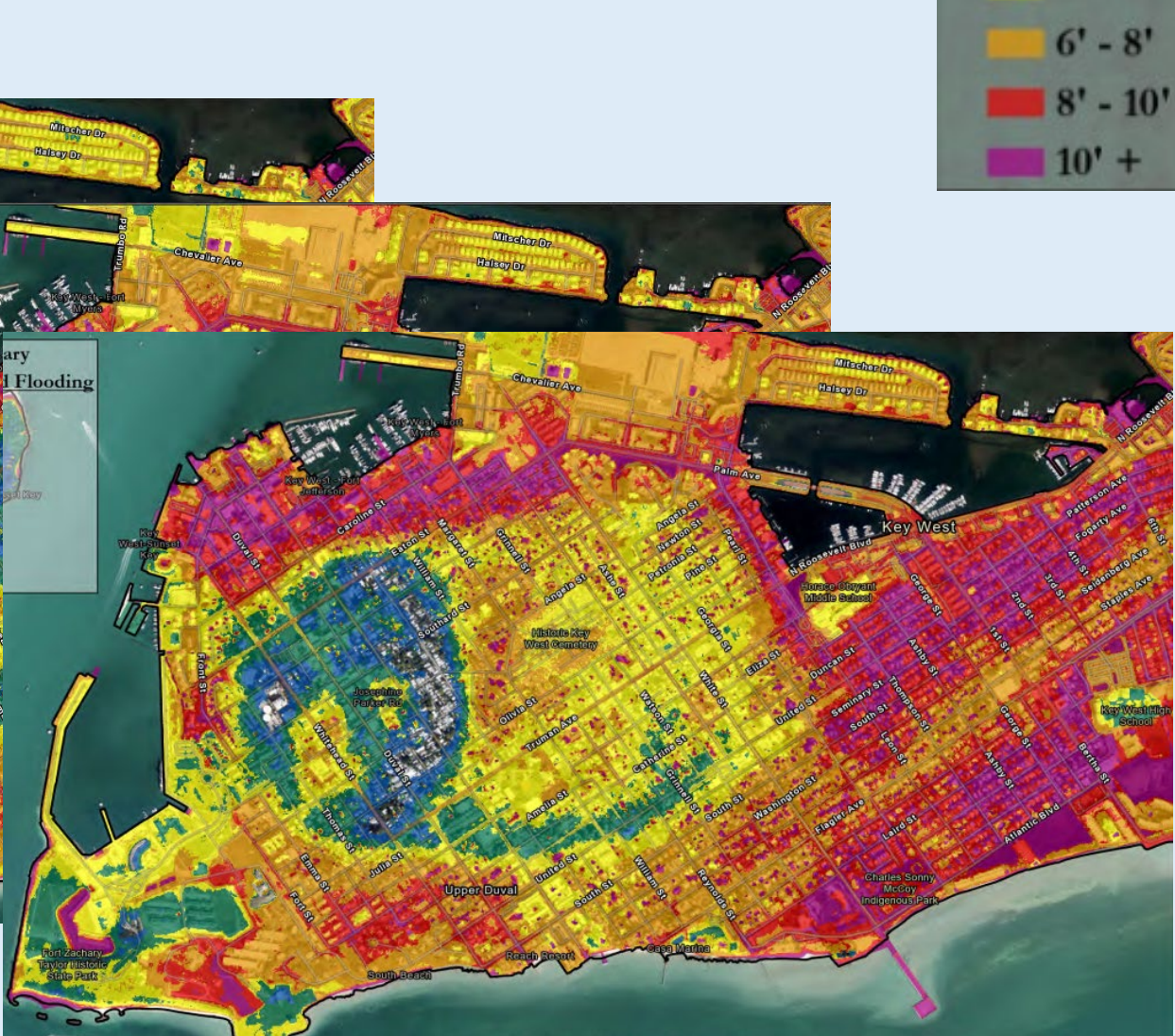
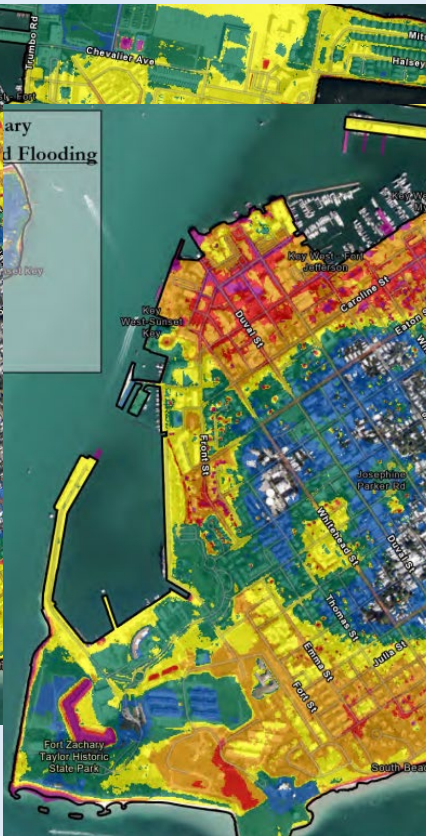
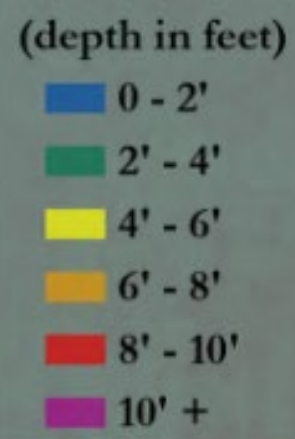
2040

2070

2100



# Combination Flooding (100 yr SS+25 yr rainfall)



Present Day

2040

2070

2100



# Sensitivity Analysis

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*Compiles an inventory of community assets and assesses the risks of climate hazards to those assets*



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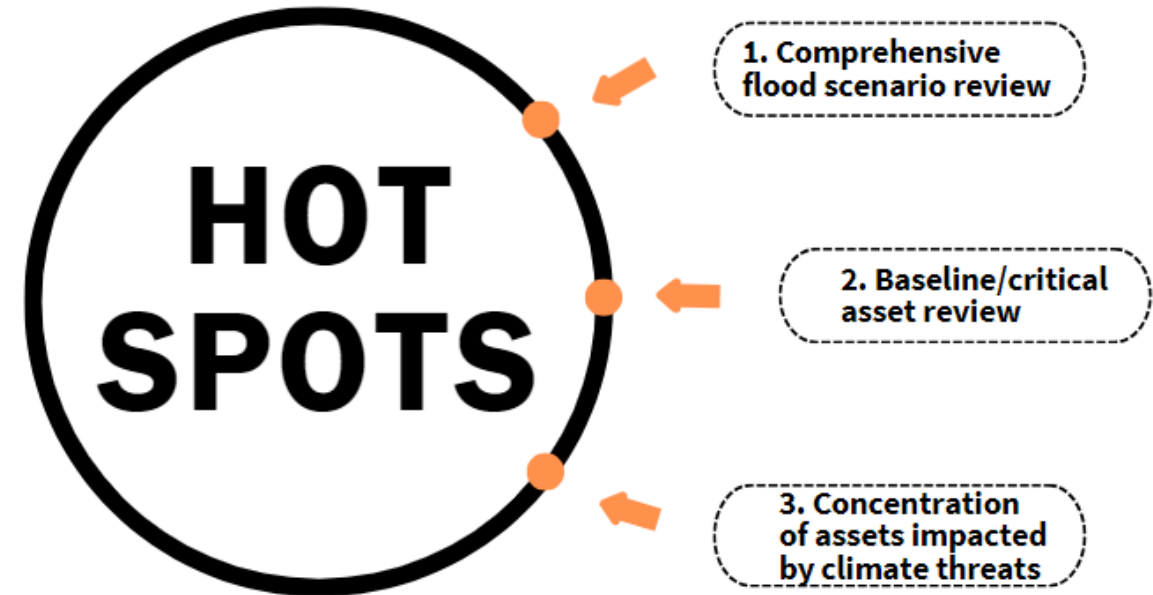


# Hot Spots

Criteria for a hot spot:

1. There is a high number of critical assets at risk within an area
2. The area is subject to sea level rise, storm surge, rainfall or combined flooding risk today, by 2040 or by 2070
3. Critical Assets include those identified by stakeholders and community members

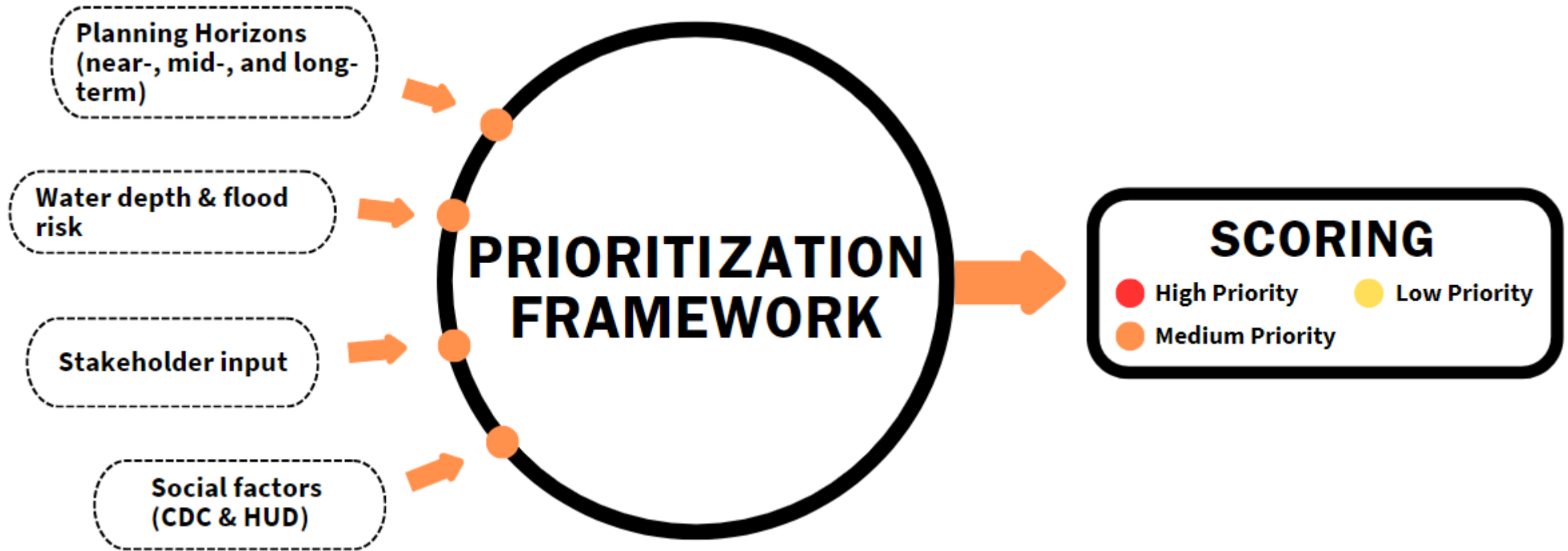
**Purpose:** Helps prioritize where adaptation response should occur based on geographic area and community needs



# City of Key West Hot Spots



# Asset Prioritization & Scoring



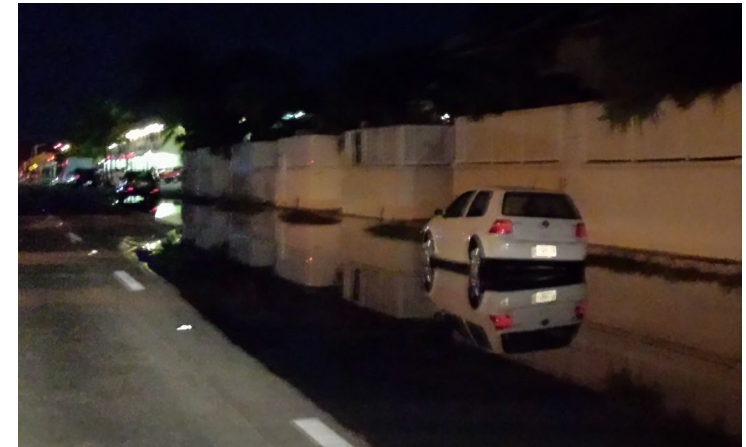
# Prioritized Critical Asset Types within Flood Hot Spots

## High Priority Assets

- Fire Stations
- Hospitals
- Local Law Enforcement
- Emergency Staging Area
- Emergency Operations Center
- Keys Energy Facilities
- FCAA Facilities
- National Shelter System Facilities
- Key West International Airport
- Wastewater Pump Stations
- Stormwater Pump Stations
- Electrical Substations
- Potable Water Assets
- Transmission Towers
- Microwave Service Towers
- Cellular Towers
- Evacuation Routes



*Flagler Ave: Fire Station #3  
and Evacuation Route*



# Adaptation Plan

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# Adaptation Plan

Will develop a list of comprehensive **ADAPTATION STRATEGIES** to include both **STRUCTURAL** and **NON-STRUCTURAL** strategies at both the **REGIONAL** and **COMMUNITY** scale and **PRIORITIZE** these actions for a **10-YEAR** implementation timeline



# 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



# Adaptation Chapters

1. Infrastructure
2. Environmental
3. Historic & Cultural
4. Power & Water Utilities
5. Economics
6. Housing & Shelters
7. Health & Social Equity




# Adaptation Strategies in Flooding Hot Spots




**Infrastructure hardening or relocation**




**Green and nature based solutions**



**Community education, programs, and readiness**



**Emergency management planning**



**Land use and code guidelines**

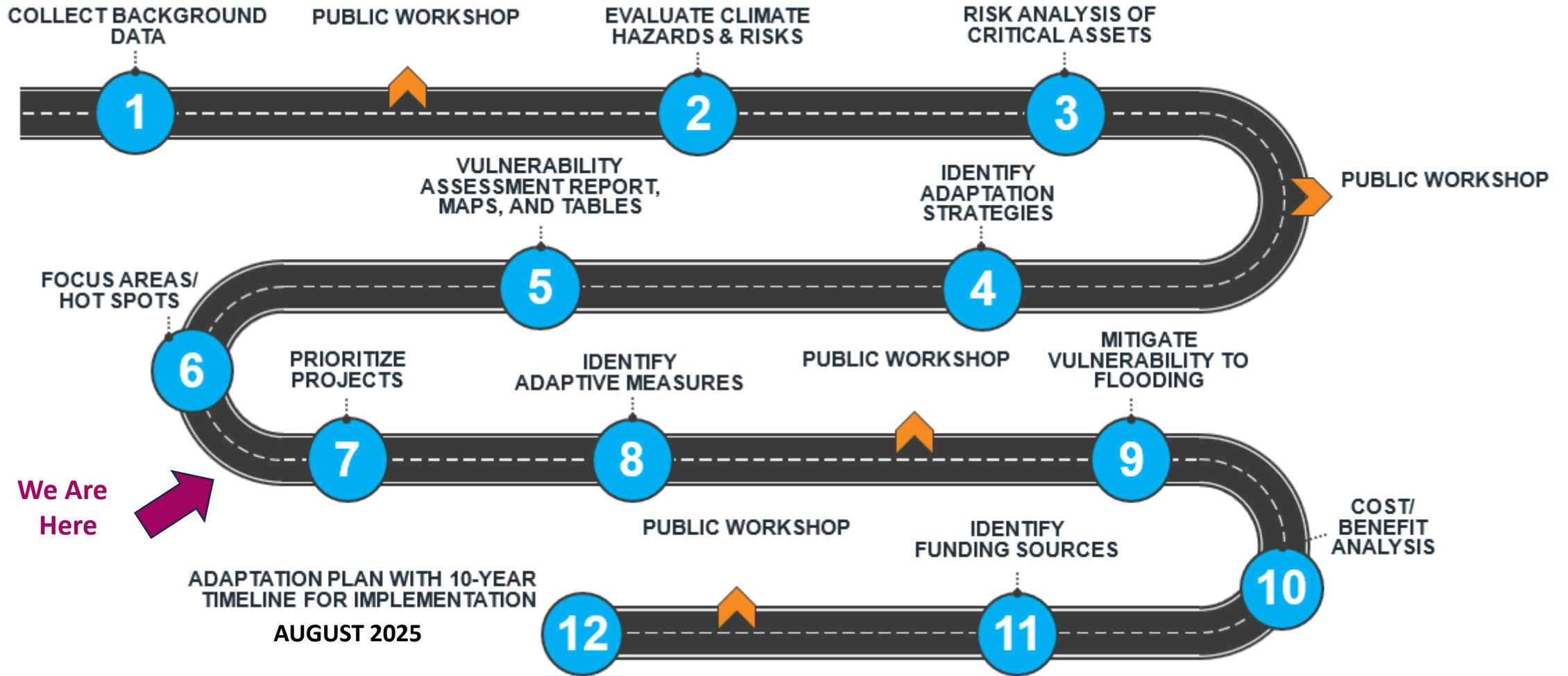


# Future Project Funding Opportunities

- FL Dept. Of Environmental Protection: Resilient Florida Program
- Community Dev. Block Grant: Multiple programs
- FEMA: BRIC, Hazard Mitigation Grant, etc.
- NOAA: Coastal Zone Enhancement Grants, Emergency Coastal Resilience, etc.
- Dept. of the Interior: Energizing Insular Communities
- Environmental Protection Agency: Clean Water State Revolving Fund
- Numerous others.....



# Key West Climate Adaptation Plan



CITY OF  
**KEY WEST** FLORIDA



**CLIMATE ADAPTATION PLAN**

# Thank You!

**For project information & updates please visit:**

[keywestadaptationplan.com](http://keywestadaptationplan.com)

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Survey!



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