

Sarasota County Vulnerability Assessment and Adaptation Plan

**Public Workshop
July 23, 2024**

Today's Agenda

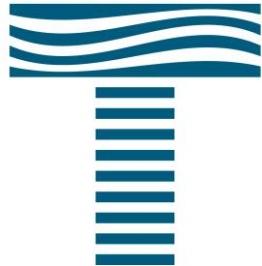
- Team Introductions
- Project Background & Objectives
- Vulnerability Assessment Components & Requirements
 - Exposure Analysis, Sensitivity Analysis, Focus Areas
- Project Process & Results
- Next Steps



Team Introductions



TAYLOR ENGINEERING, INC.



JonesEdmunds

AGRICULTURE

- Sustainable Agriculture



GARDENING / LANDSCAPING

- Gardens
- Residential Horticulture



NATURAL RESOURCES

- Chemicals in the Environment
- Ecology/Natural Resources
- Marine and Coastal (Sea Grant)
- Waste Reduction
- Water Resources



Programs are aligned to
six core areas

YOUTH DEVELOPMENT

- 4-H



SUSTAINABILITY

- Sustainability



NUTRITION / HEALTHY LIVING

- Family and Consumer Sciences
- Family Nutrition Program





<https://www.menti.com/alsc1mx2b1b6>

1. On any browser visit Menti.com or scan QR code
2. Enter code **2770 5175**
3. Answer questions for live audience results

What area/neighborhood of Sarasota County do you live and/or work in?

0 responses



Join at menti.com | use code 2770 5175

 Mentimeter

What flood events have you experienced? What hurricanes have you been in?

0 responses



Resilient Florida

- May 2021 – Senate Bill 1954 was signed into law establishing the Resilient Florida grant program
- Coordinated approach to Florida's coastal and inland resilience for the state, counties and cities
- Enhances our efforts to protect our inland waterways, coastlines and shores, which serve as invaluable defenses against sea level rise
- Legislation will yield the largest investment in Florida's history to prepare communities for the impacts of sea level rise, intensified storms and flooding
- Grants are available to for planning and implementation



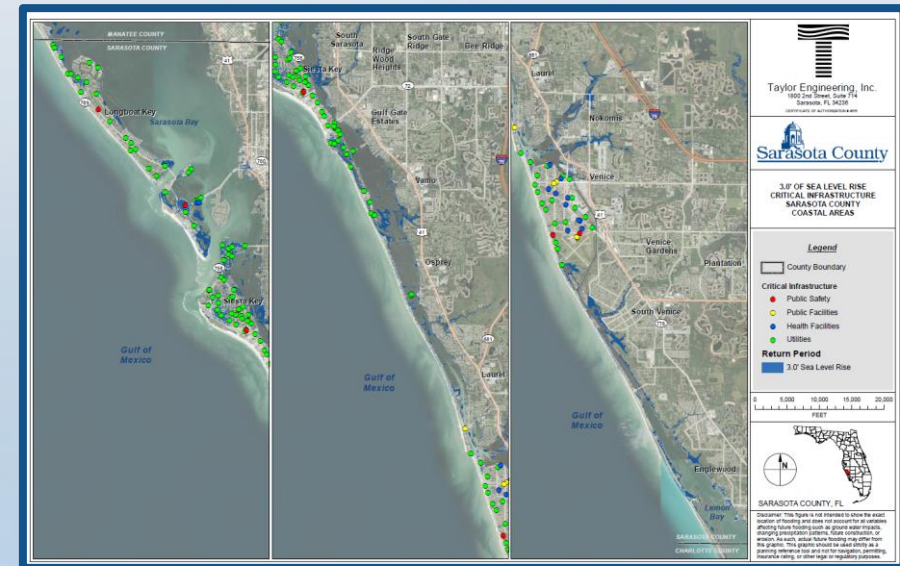
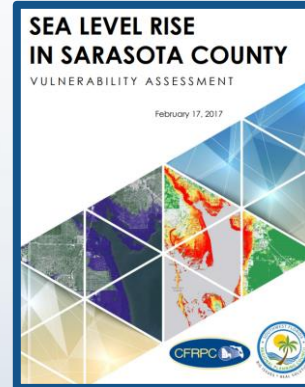
This work was funded in part through a grant agreement from the Florida Department of Environmental Protection's Office of Resilience and Coastal Protection Resilient Florida Program. The views, statements, findings, conclusions, and recommendations expressed herein are those of the author(s) and do not necessarily reflect the views of the State of Florida or any of its subagencies.

Project Background

Sarasota County has been proactive in resilience planning for years!

To enhance the County's Climate Resilience, the County applied for and was awarded a **Resilient Florida Grant** in 2022 to conduct a Vulnerability Assessment and develop and an Adaptation/Resilience Plan

- 2017 – Sea Level Rise in Sarasota County Vulnerability Assessment
- 2020 - Sarasota County Sea Level Rise Working Group Report and Vulnerability Assessment
- 2021 - Sarasota County Coastal Resilience – Baseline Coastal Analysis
- 2023 – Sarasota/Manatee MPO Resiliency Vulnerability Assessment Study



Project Objectives

- Complete a **County Wide VA** that satisfies FDEP Resilient Florida Program guidelines and State Statutes (380.093, FS)
- Identify the potential **flood impacts** on the County and community resources
- Evaluate the risk to County owned and/or maintained **critical and regionally significant assets to current and future tidal flooding, storm surge, sea level rise, and rainfall-induced flooding**
- Utilize data-driven sea level rise predictions for current conditions, and **2040 and 2070 planning horizons**
- Develop an **Adaptation Plan** to respond to these flood threats
- Harmonize **flood mitigation efforts and project prioritization** across the County



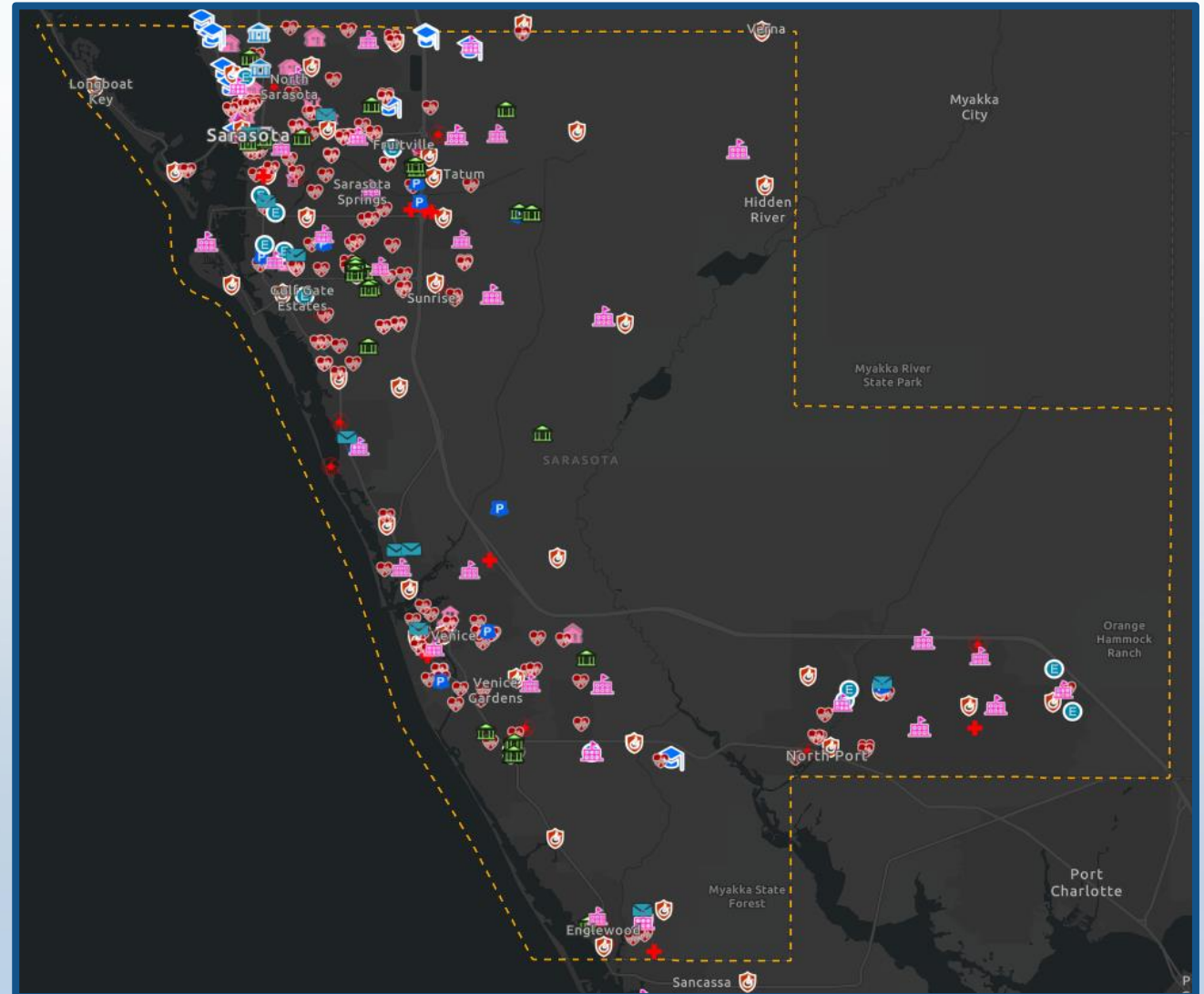
Vulnerability Assessment - Florida Statutes 380.093



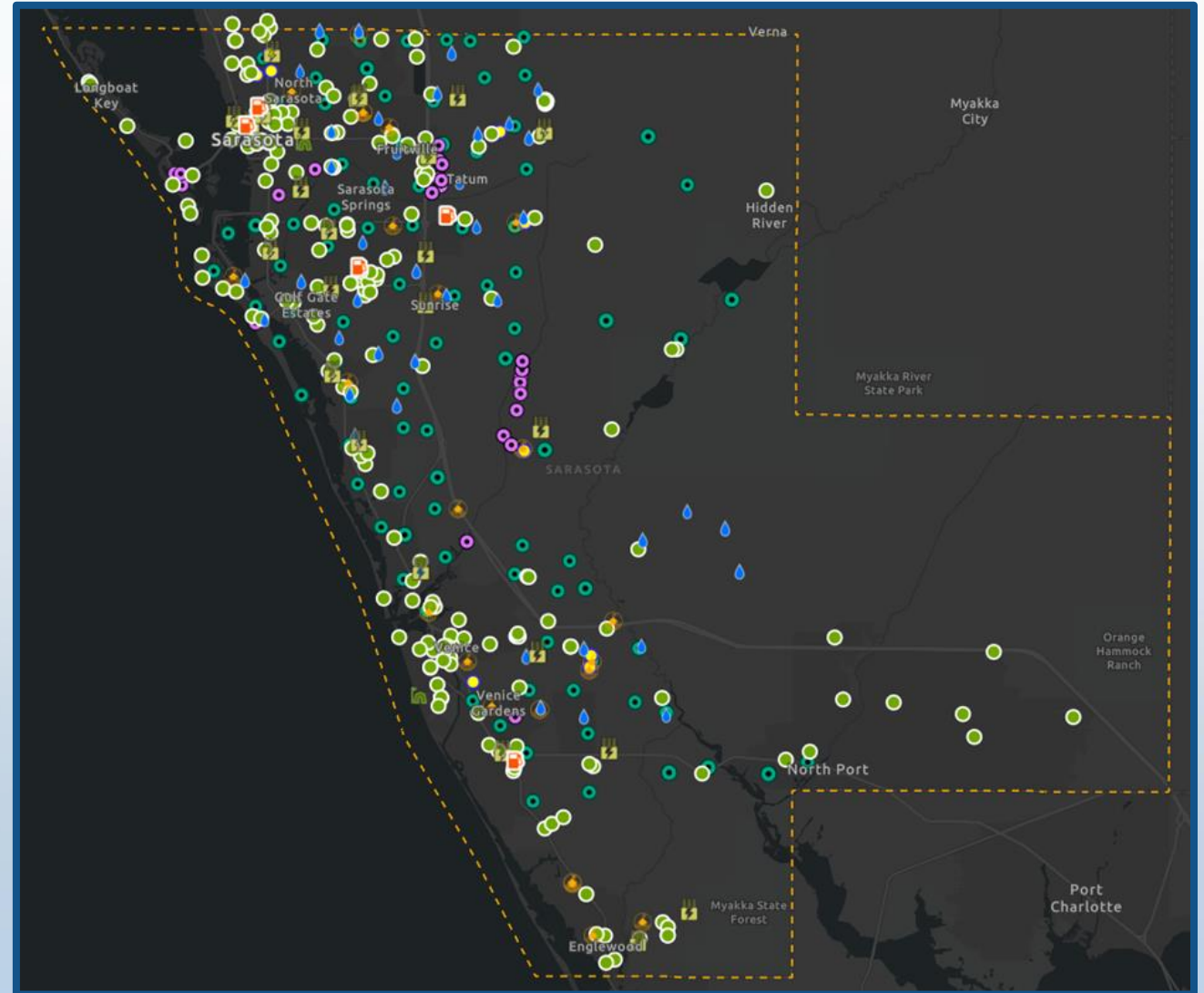
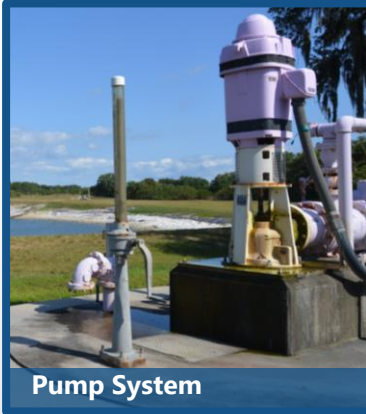
Section 380.093, FS

- Flood Hazards: Tidal Flooding, Storm Surge Flooding, Rainfall-Induced Flooding, Sea Level Rise
- Critical and Regionally Significant Assets

Critical Community and Emergency Facilities



Critical Infrastructure



Natural, Cultural, and Historic Resources

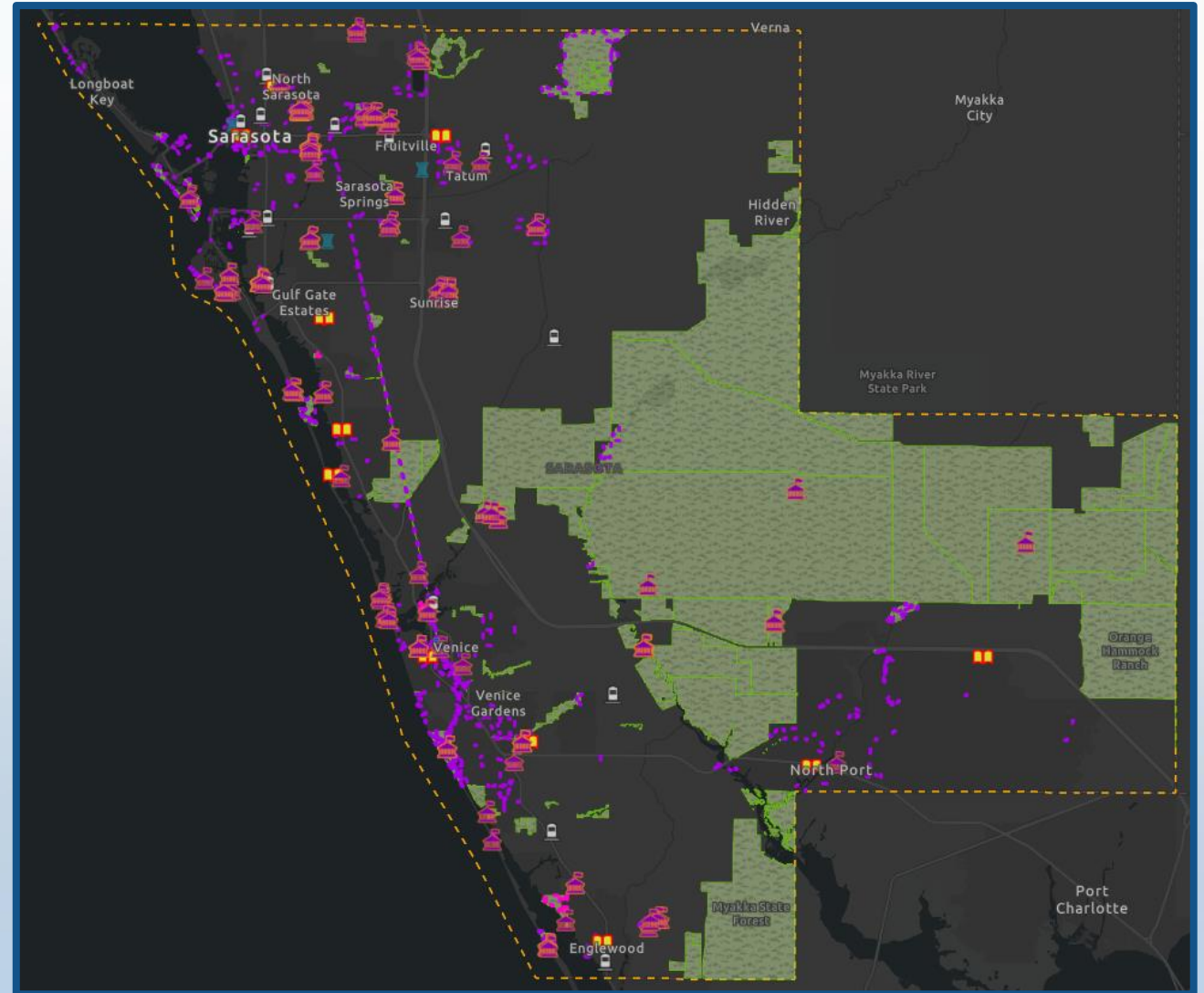
Myakka River



Osprey Library – Historic Center



Ted Sperling Nature Park

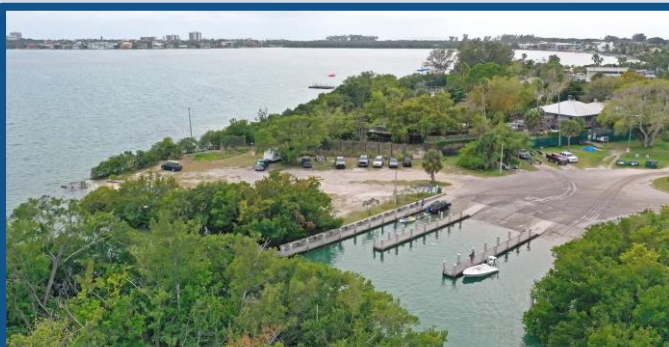


Transportation and Evacuation Routes

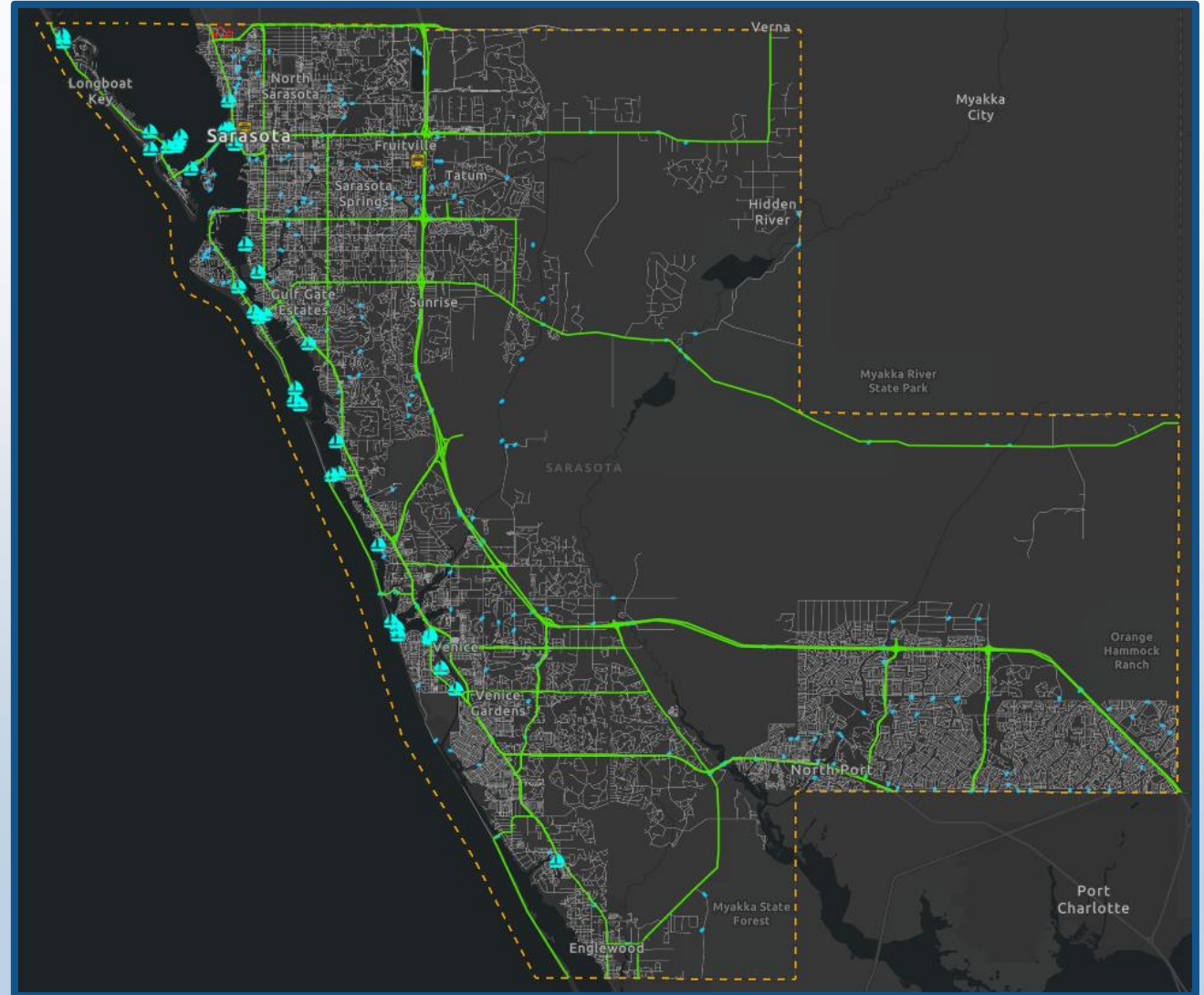
Roadway Damage after Hurricane Idalia



John Ringling Causeway



Ken Thompson Park and Boat Ramp

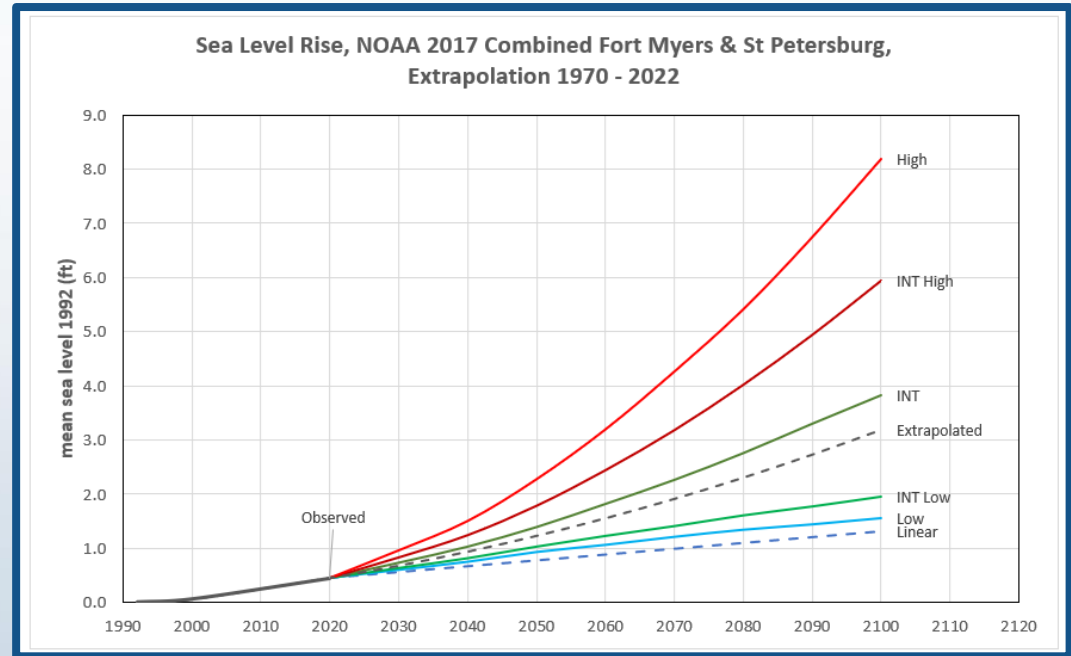


Flood Hazard Scenarios

Tidal Flooding - Tidal flooding, high tide flooding, or nuisance flooding, is driven by the astronomical tides and frequently occurs in low-lying coastal areas

Storm Surge – An increase in the ocean's water level caused by hurricanes and coastal storms, which impacts coastal properties with elevated water levels, high waves, and high winds

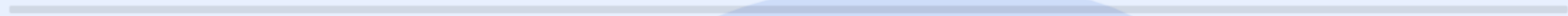
Rainfall-Induced Flooding - Extreme rainfall events and heavy rainstorms can overwhelm stormwater systems, leading to flooding of streets, sidewalks, and low-lying areas



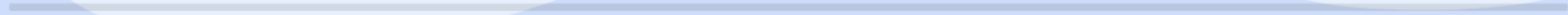
Sea Level Rise - The increase in the average global sea level as measured over time

How concerned are you about each of the following flood hazards?

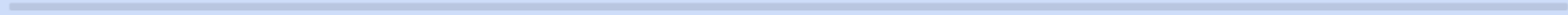
Sea Level Rise



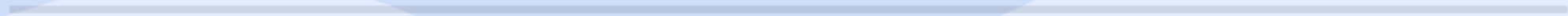
High Tide Flooding



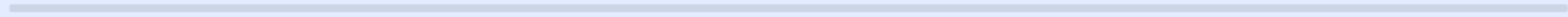
Storm Surge



Rainfall-Induced Flooding



Combined Flooding



Not Concerned

Very Concerned



What public services and facilities are most critical to you after a flood event?

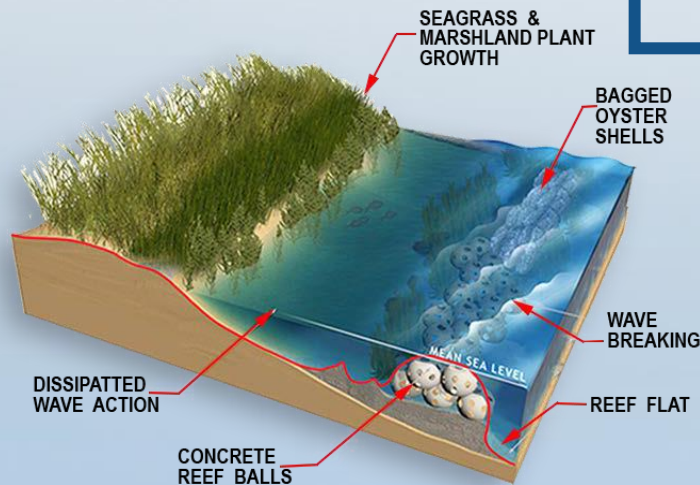
- Evacuation Routes
- Emergency Reponse - Fire, Police, Medical
- Utilities - Power, Water, etc.
- Schools/ Community Centers

What do we do about these threats?

Resilient communities adapt to changing conditions, allowing people and places to recover quickly from natural disaster...

ADAPT

Prepare for or adjust to the impacts of a changing climate

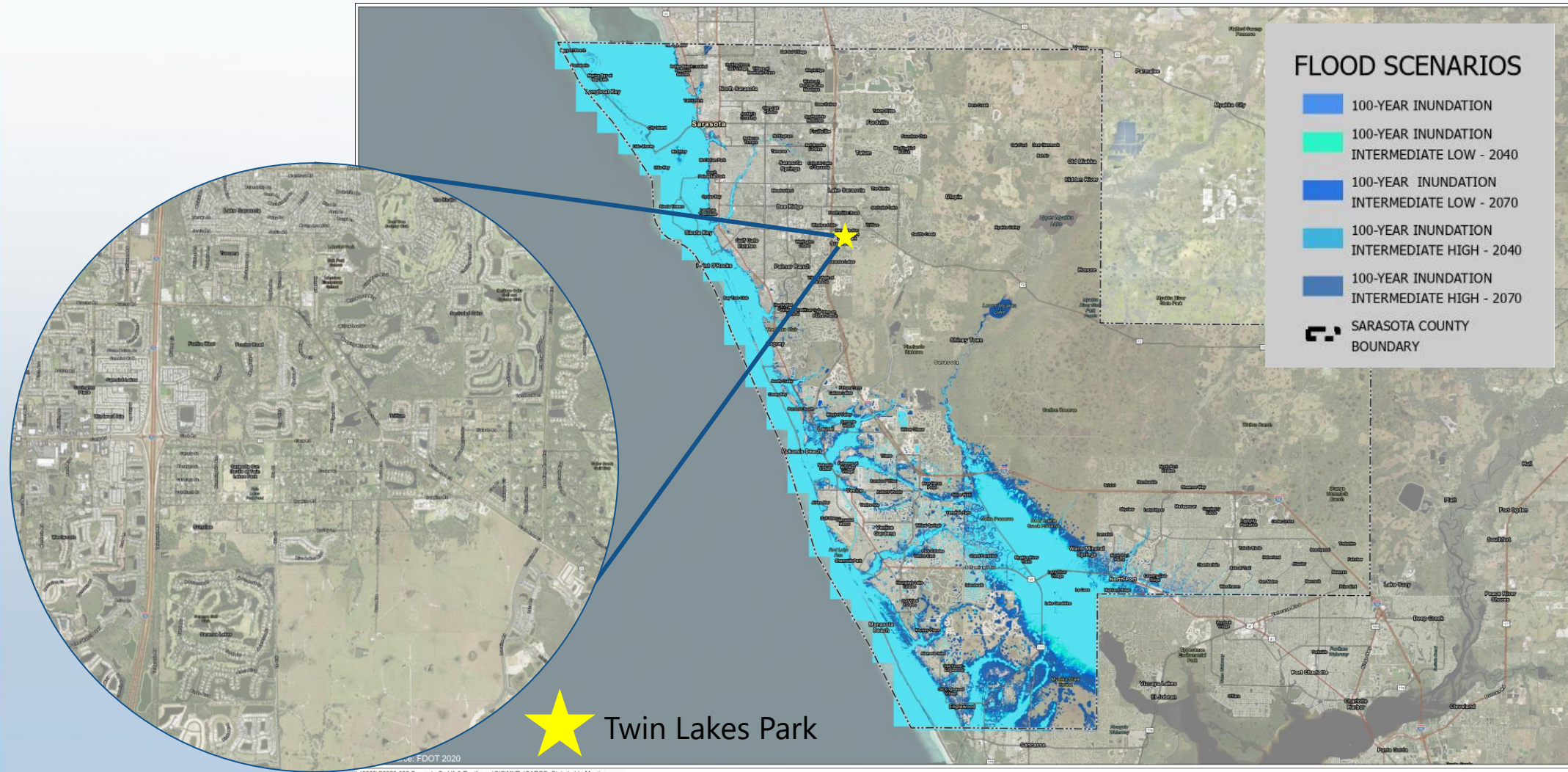


MITIGATE

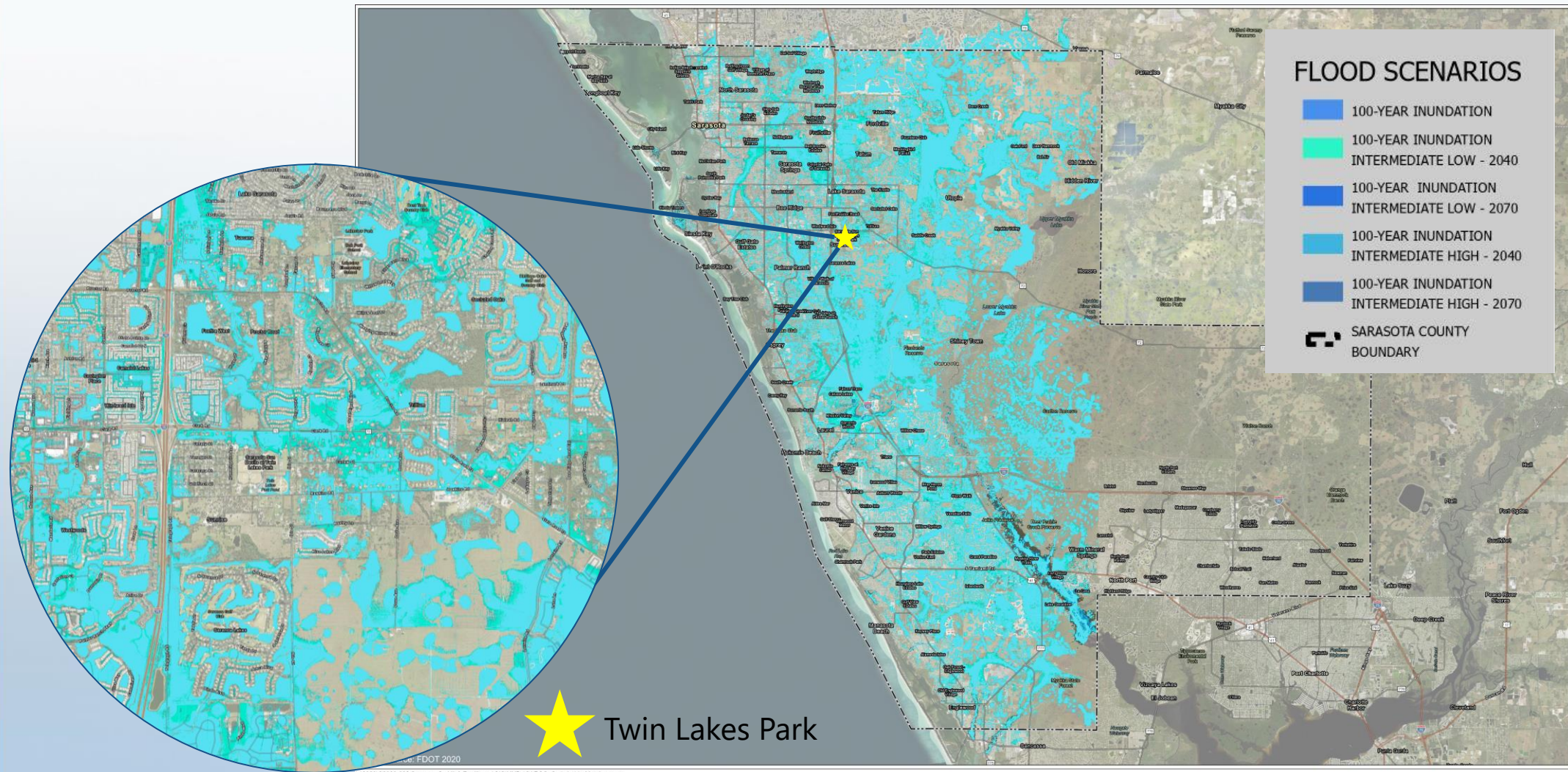
Reduce or prevent the adverse impacts of flooding by minimize the severity, extent, and frequency of flooding events



Exposure Analysis – 100 Year Storm Surge Event

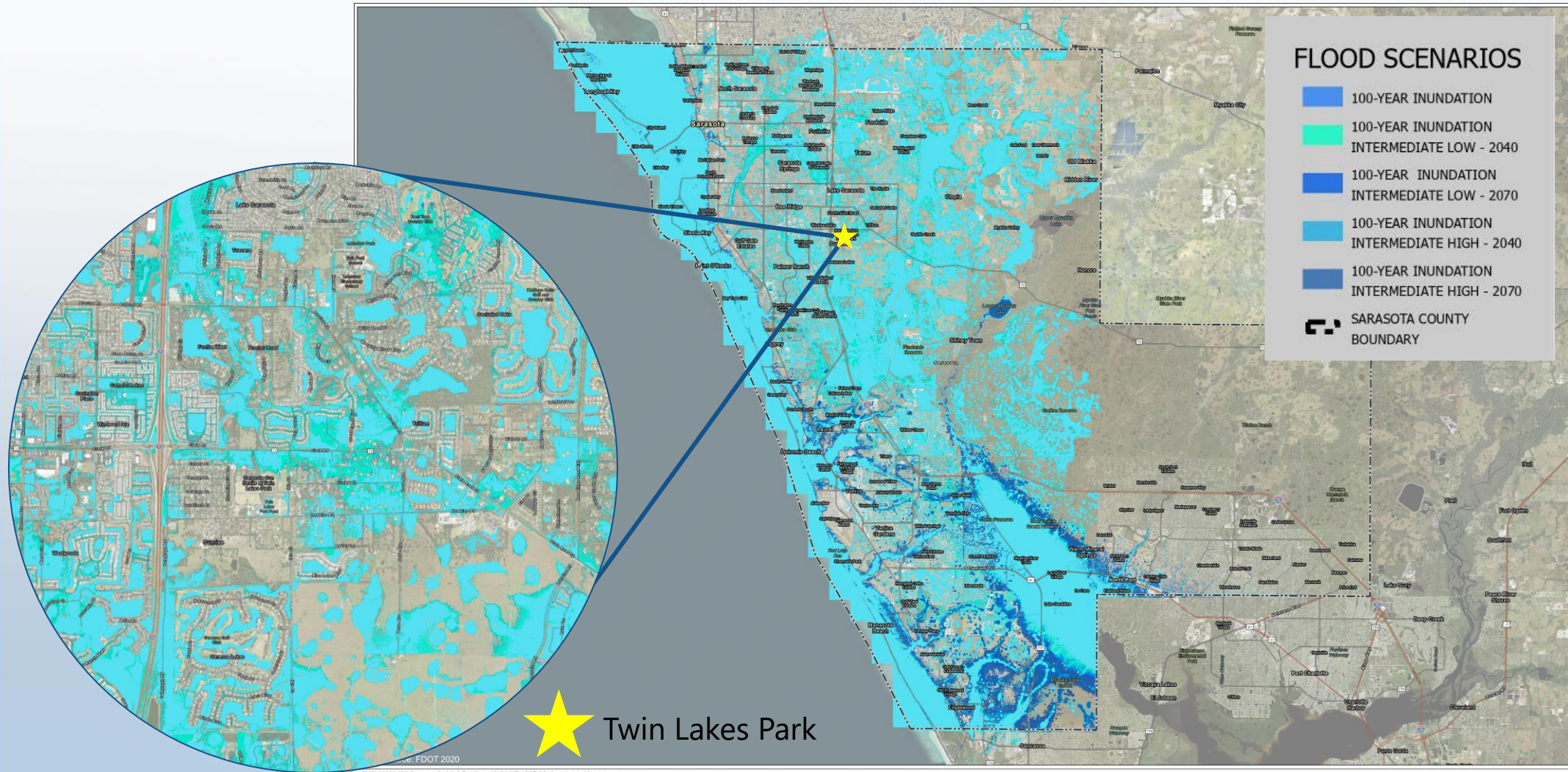


Exposure Analysis – 100 Year Rainfall Event

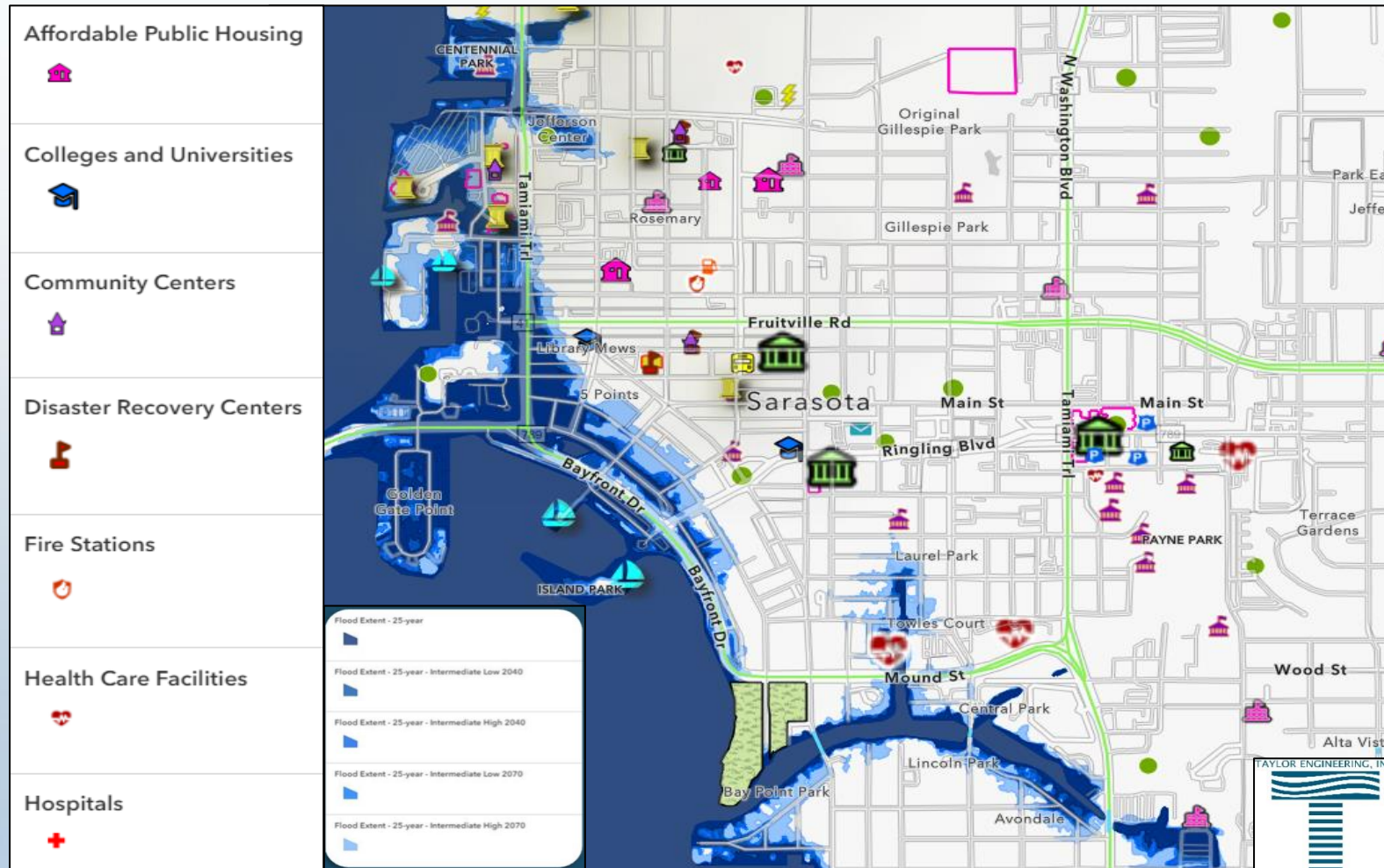


Exposure Analysis

100 Year Storm Surge + 100 Year Rainfall Event



Exposure Analysis – Overlapped with Assets

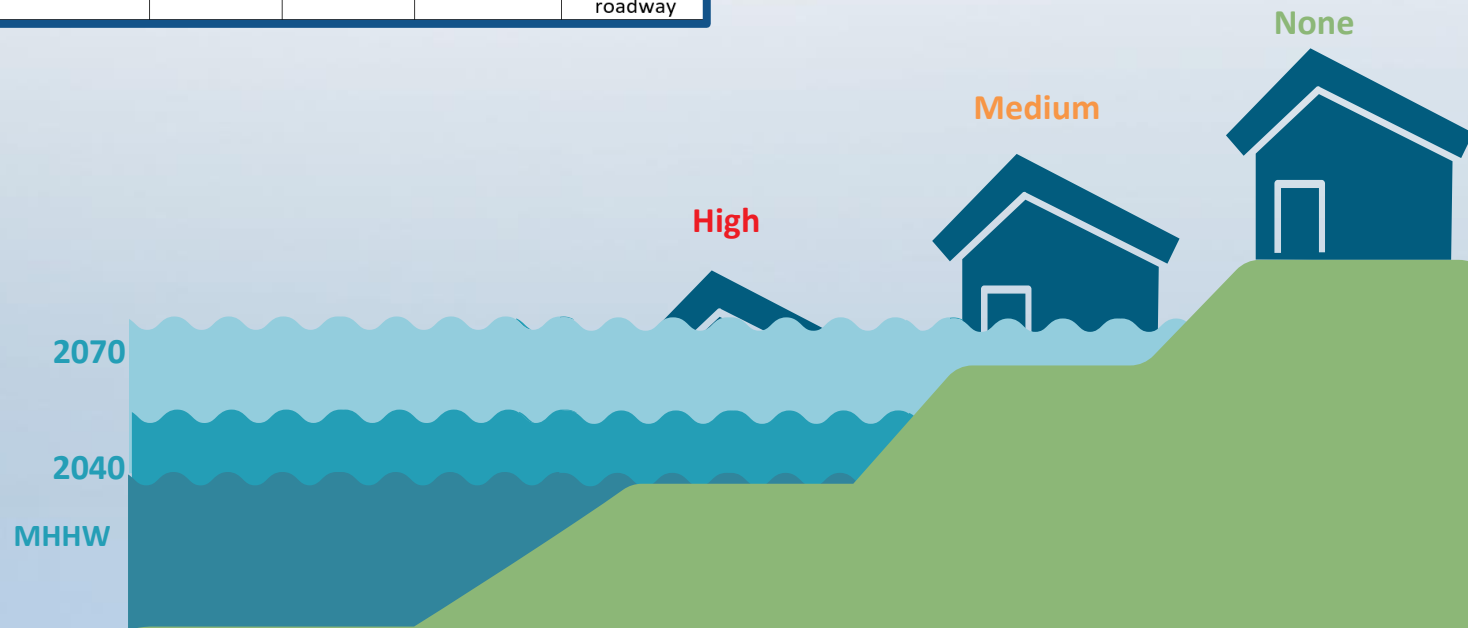


Sensitivity Analysis

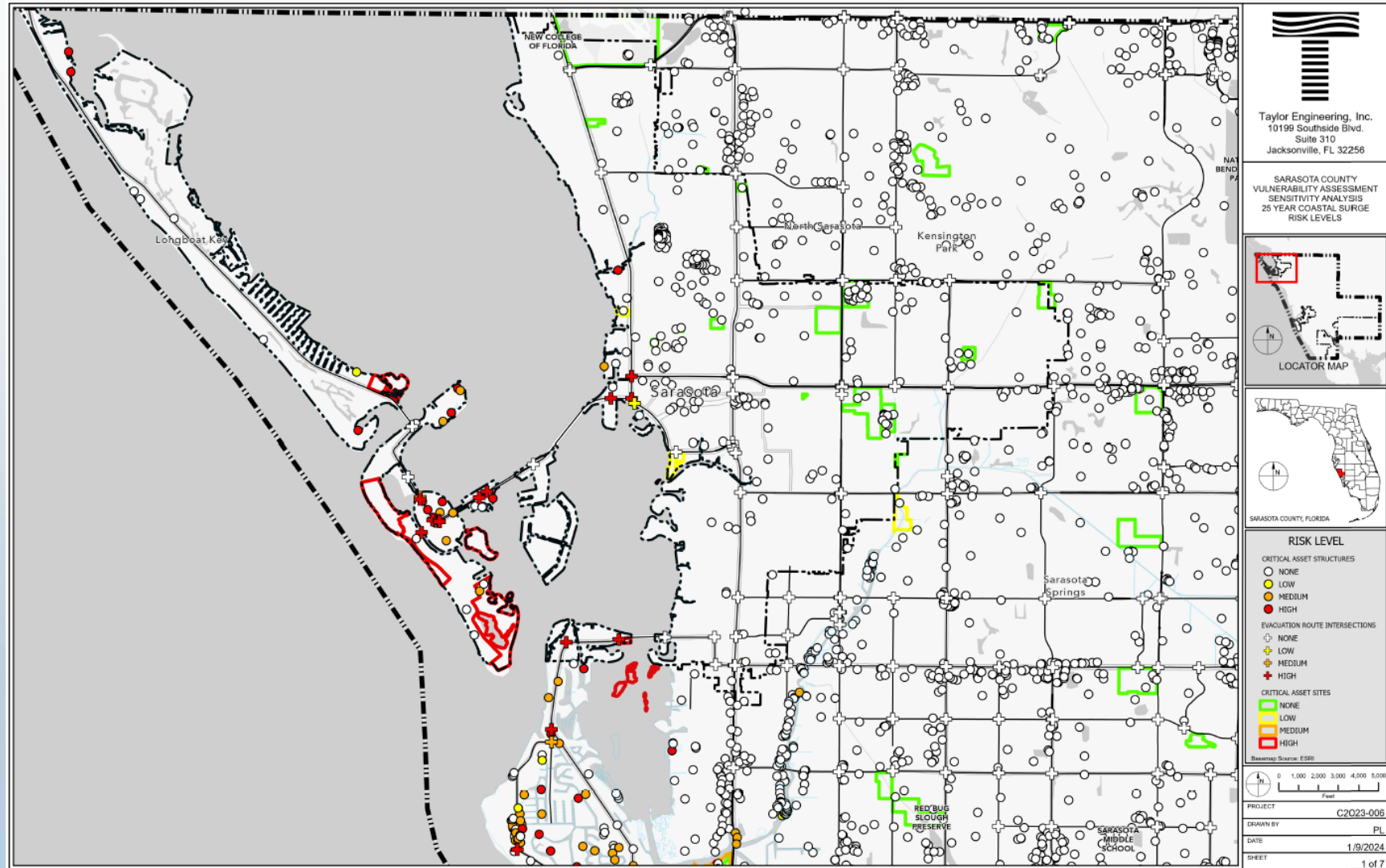
How much flooding does how much damage?

Critical Asset Type	Critical Community & Emergency Facilities	Critical Infrastructure	Natural, Cultural, and Historic Resources		Transportation & Evacuation Routes	
			Buildings	Parcels	Bus Terminals & Marinas	Roadway Intersections
Low	< 3"	< 3"	< 3"	< 25%	< 3"	< 6" of centerline of roadway
Medium	3" – 15"	3" – 18"	3" – 15"	25% – 50%	3" – 15"	0" - 6" above centerline of roadway
High	> 15"	> 18"	> 15"	> 50%	> 15"	> 6" above centerline of roadway

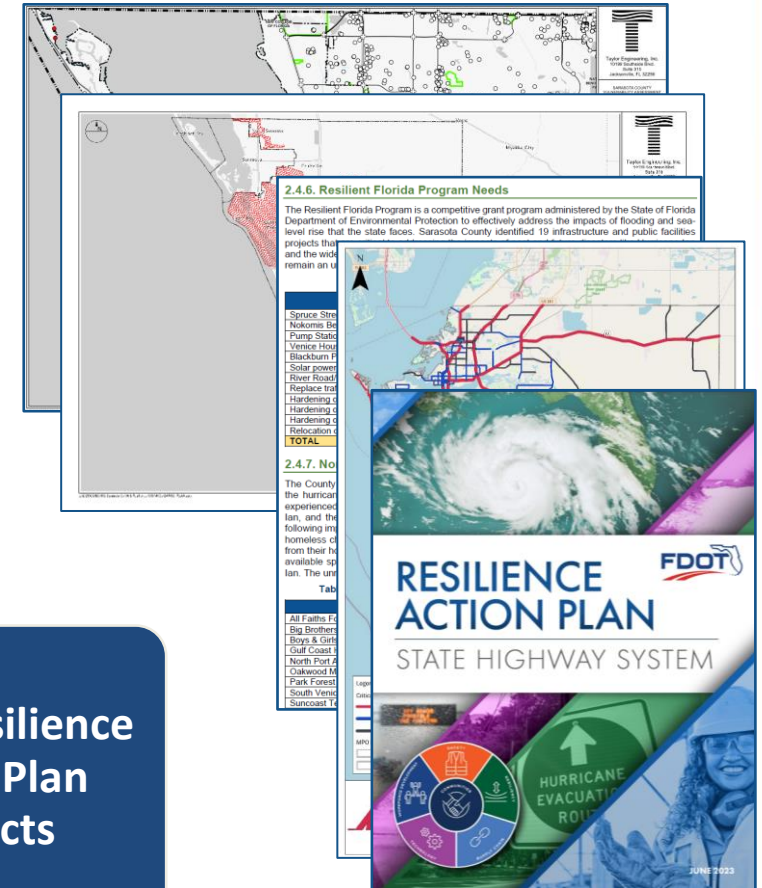
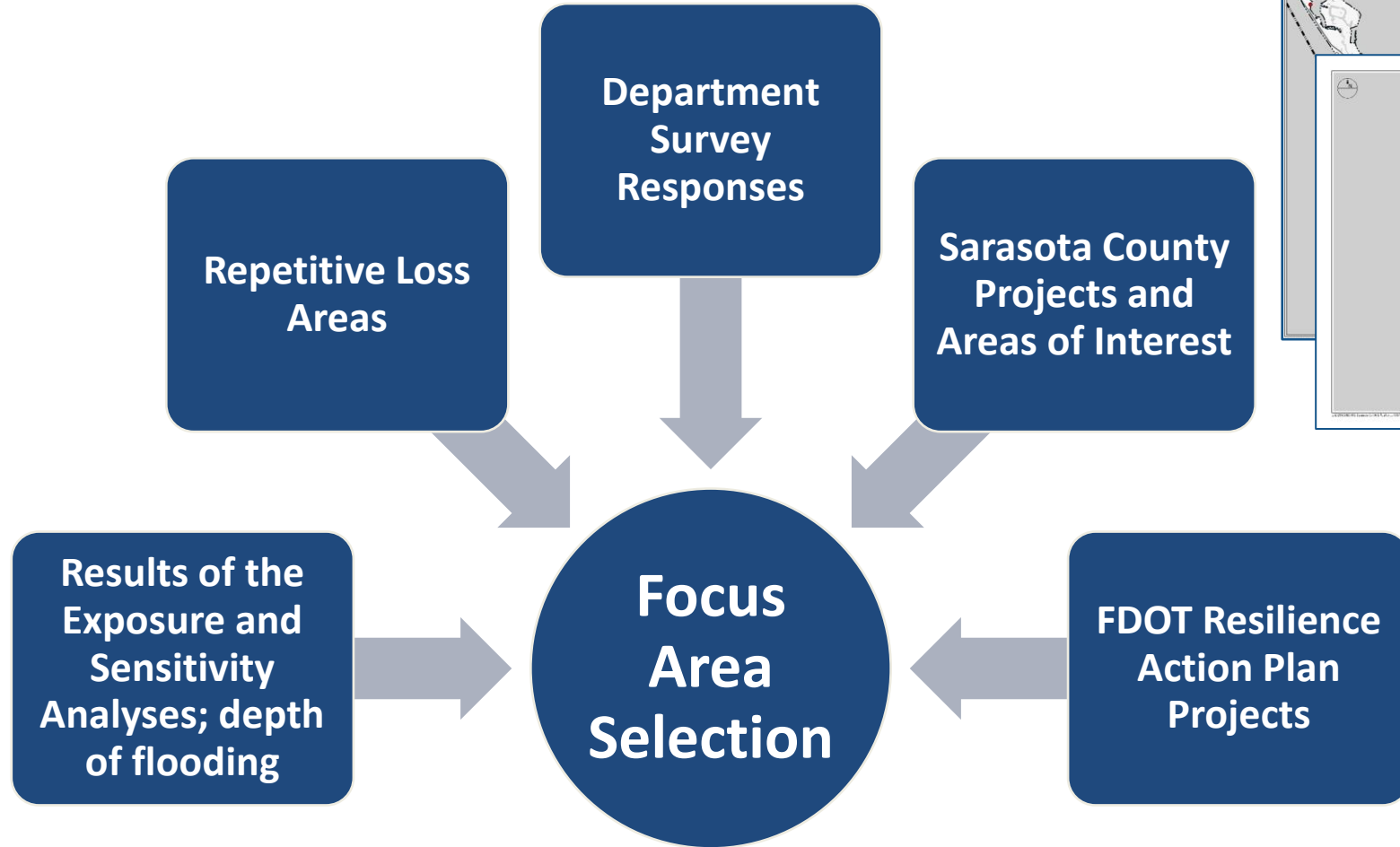
Overall Risk Assessment	Land Area Inundated (% of site)	Critical Assets Affected (% of total assets or within each asset category)
None	0%	0%
Low	<25%	<25%
Medium	25-50%	25-50%
High	50-75%	50-75%
Extreme	>75%	>75%



Sensitivity Analysis Maps Example

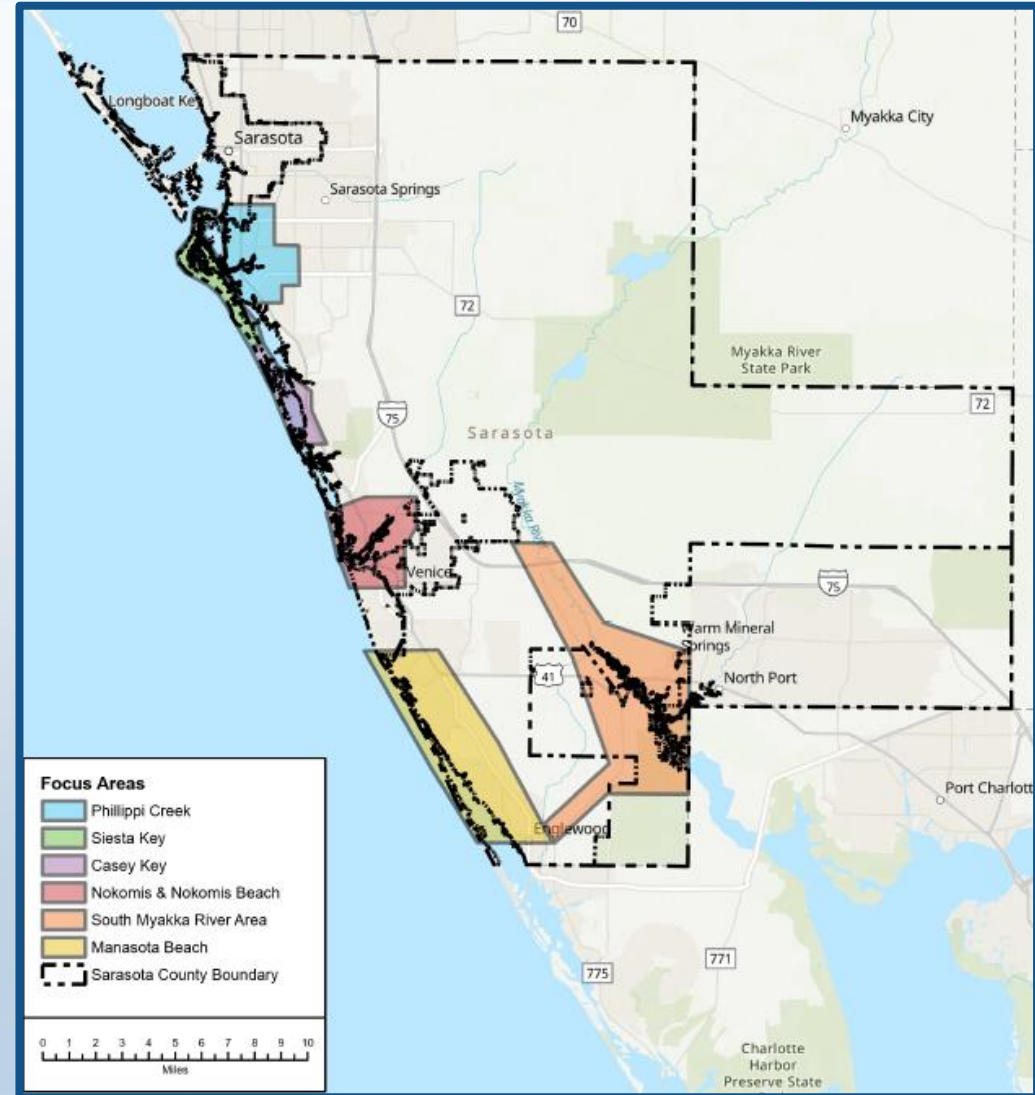


Focus Area Selection



Focus Areas for Adaptation

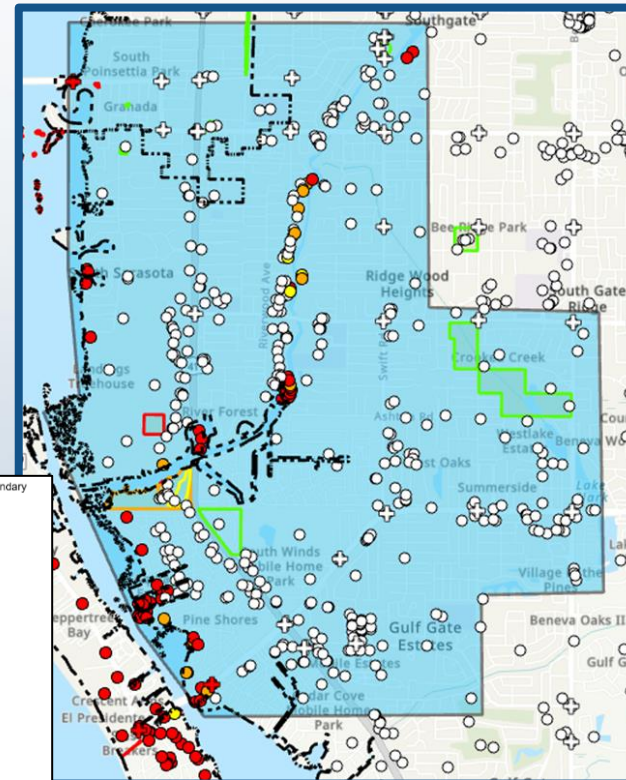
1. Phillippi Creek Area
2. Siesta Key
3. Casey Key
4. Nokomis / Nokomis Beach
5. South Myakka River Area
6. Manasota Beach



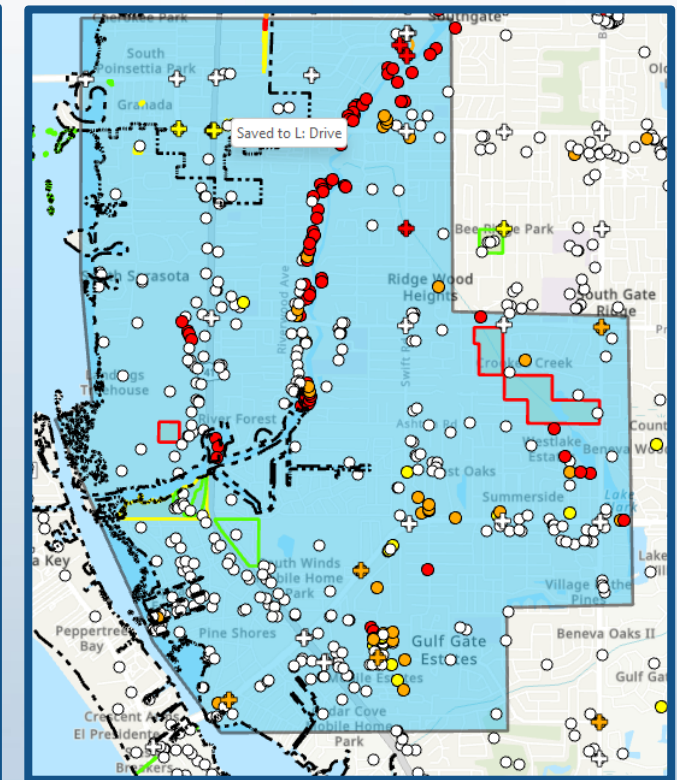
Focus Area 1: Phillippi Creek



Coastal Induced Flooding: 100 Year Event + 2040 IH SLR



Rainfall Induced Flooding: 100 Year Event + 2040 IH SLR



Focus Area 2: Siesta Key



Sarasota County Fire Station 13

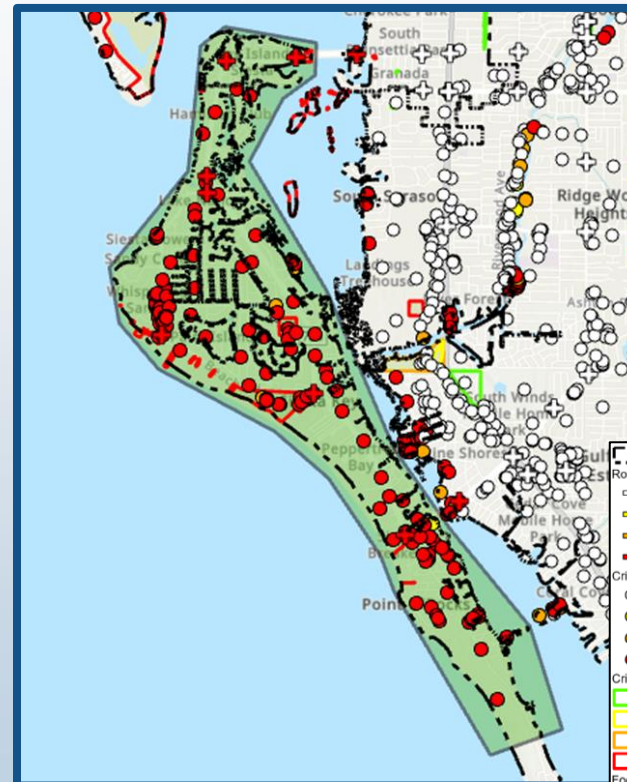


Glebe Park

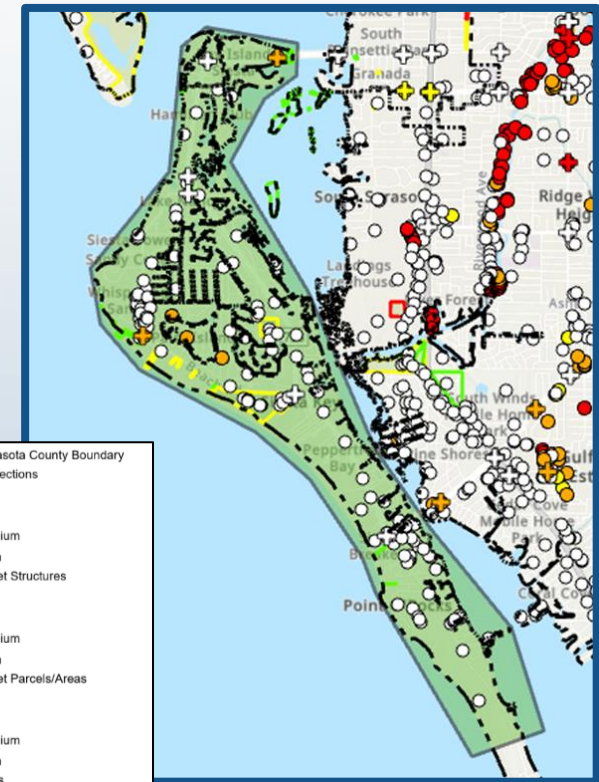


Stickney Point Bascule Bridge

Coastal Induced Flooding: 100 Year Event + 2040 IH SLR



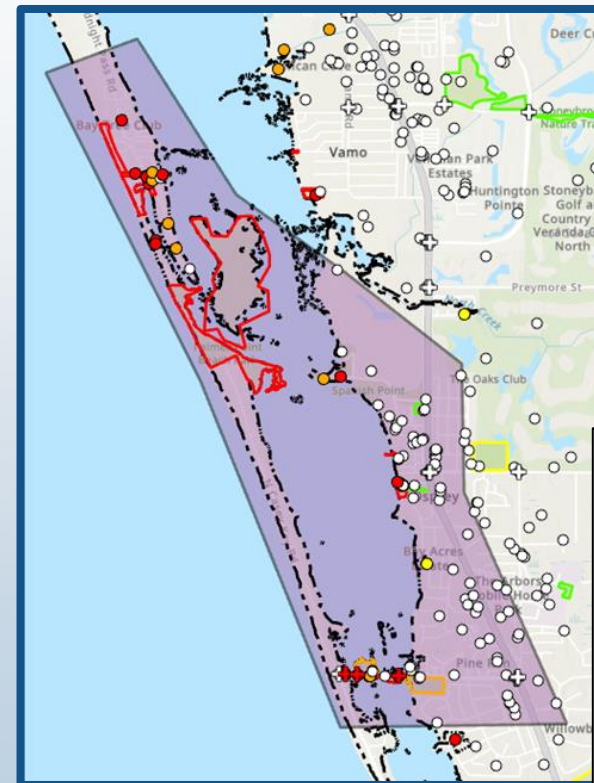
Rainfall Induced Flooding: 100 Year Event + 2040 IH SLR



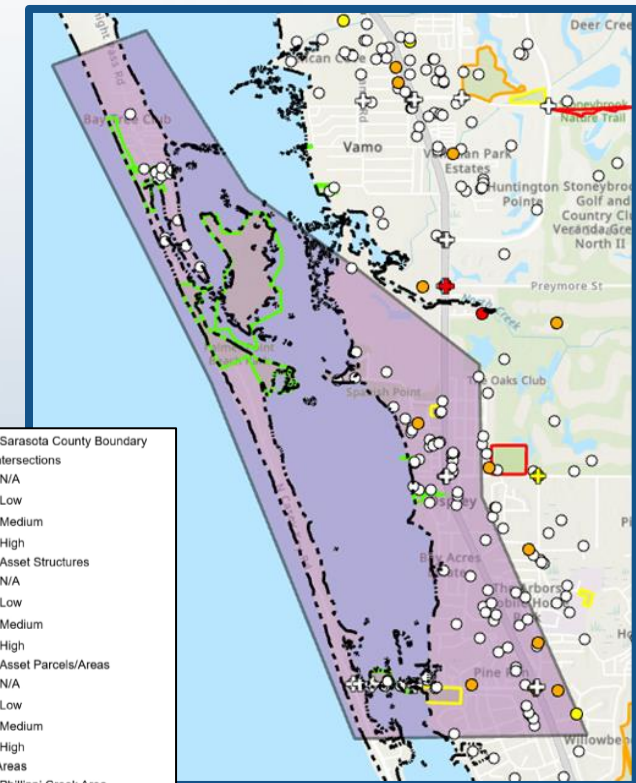
Focus Area 3: Casey Key



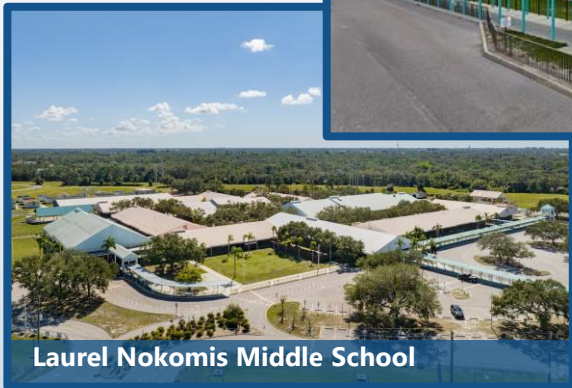
**Coastal Induced Flooding:
100 Year Event + 2040 IH SLR**



**Rainfall Induced Flooding:
100 Year Event + 2040 IH SLR**



Focus Area 4: Nokomis & Nokomis Beach



Laurel Nokomis Middle School

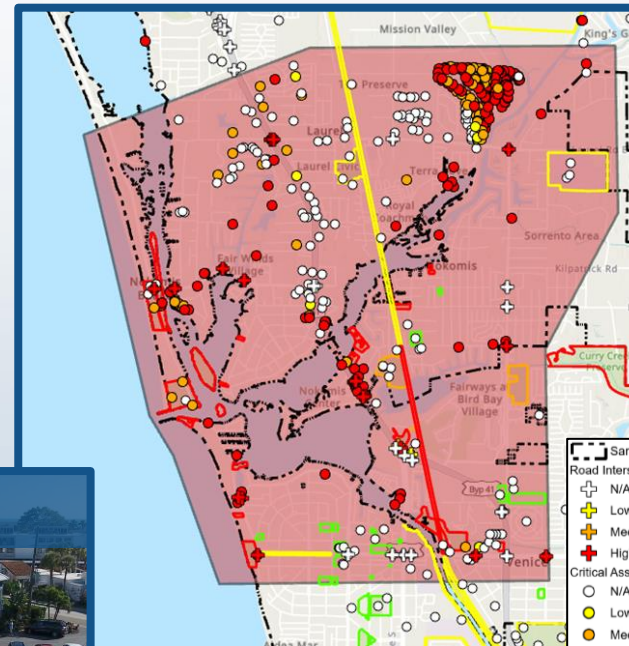


Legacy Trail

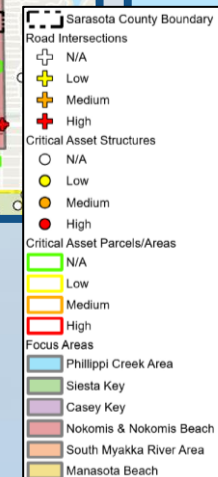
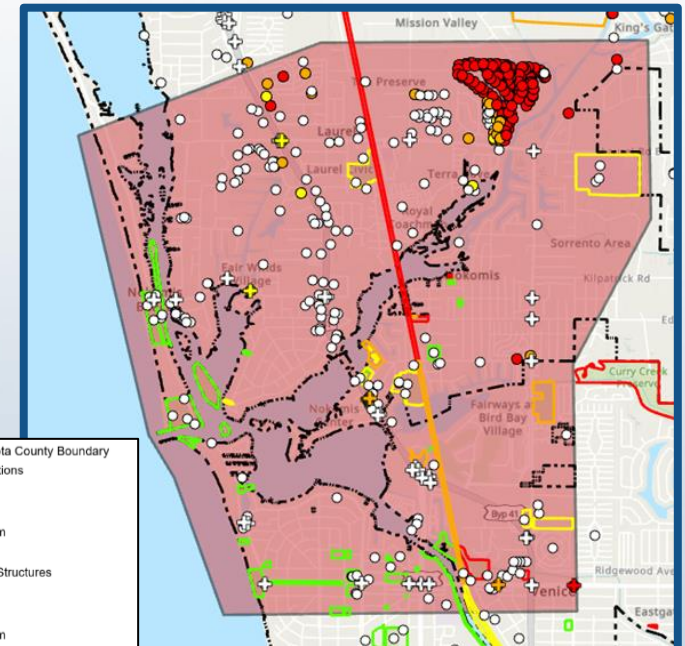
Crow's Nest Marina & Restaurant



**Coastal Induced Flooding:
100 Year Event + 2040 IH SLR**



**Rainfall Induced Flooding:
100 Year Event + 2040 IH SLR**



Focus Area 5: South Myakka River Area

Snook Haven Park and Restaurant

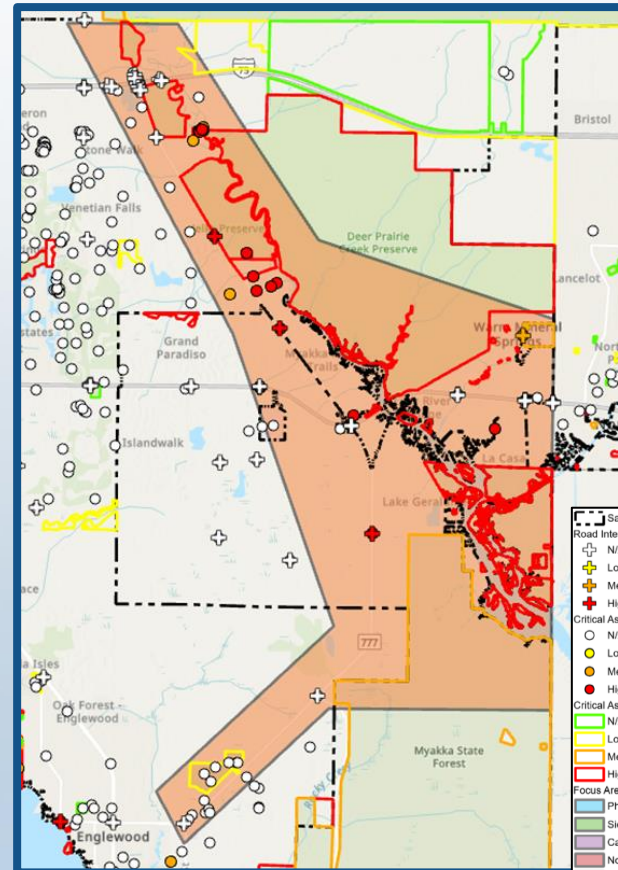


Warm Mineral Springs Park

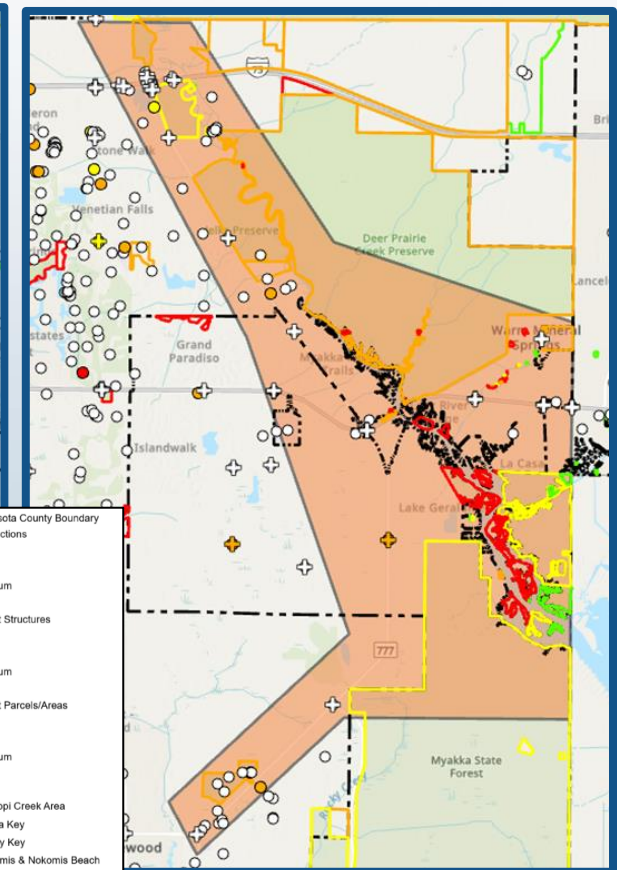


Myakka State Forest

**Coastal Induced Flooding:
100 Year Event + 2040 IH SLR**



**Rainfall Induced Flooding:
100 Year Event + 2040 IH SLR**



Focus Area 6: Manasota Beach



Manasota Beach Park

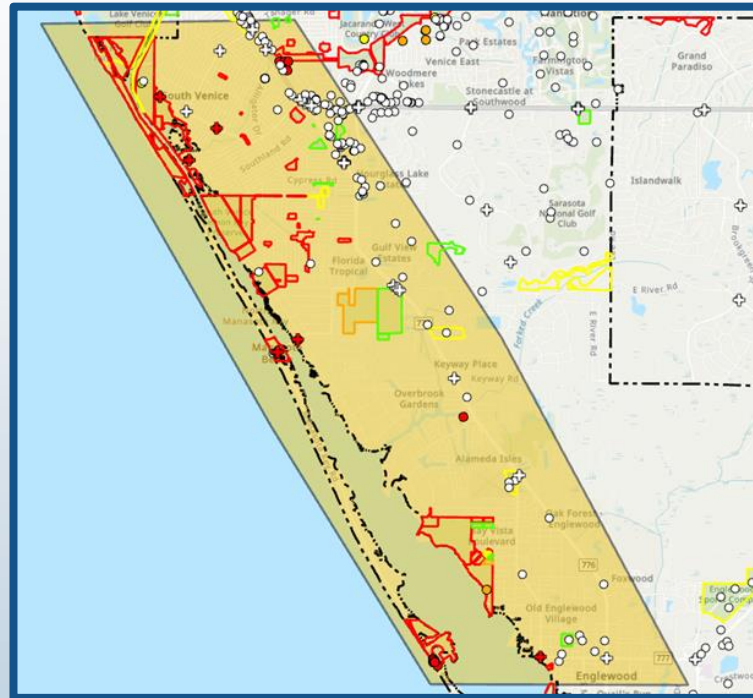


Indian Mound Park

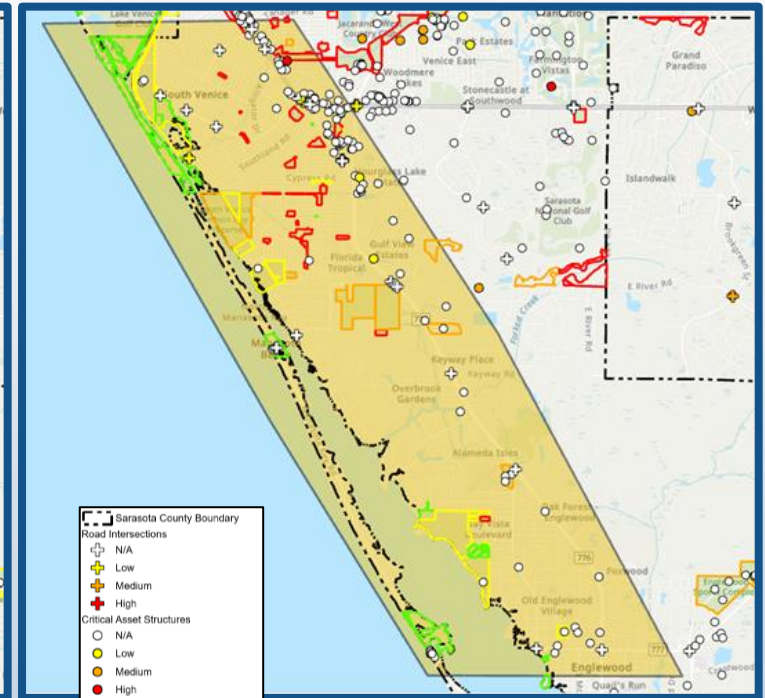


Manasota Key Bridge

Coastal Induced Flooding: 100 Year Event + 2040 IH SLR



Rainfall Induced Flooding: 100 Year Event + 2040 IH SLR



Adaptation Plan

The **Adaptation Plan** will take the risks presented by the Vulnerability Assessments and provide Adaptation Strategies, including structural and non-structural efforts, for community response to specific hazards.

Phase 1 – Recommendations by Focus Areas and Asset Groups

Focus Areas are geographic which allows prioritization to be given to specific vulnerable areas and regions.

Phase 2 – Project Prioritization by common themes and goals to align County Departments

This phase encourages collaboration between the departments and making projects multifunctional and multi-beneficial.



Types of Adaptation Strategies



► **Avoid**
Prevent new development in flood prone areas



► **Accommodate**
Adjust land use to accommodate flooding (building on piles, agriculture to aquaculture)



► **Protect**
Use hard structures (sea walls) or soft solutions (dunes) as protection (expensive)



► **Retreat**
Relocate or abandon at-risk assets and move landward



► **Procedure**
Regulations, education, and policies that enforce limits to using vulnerable areas

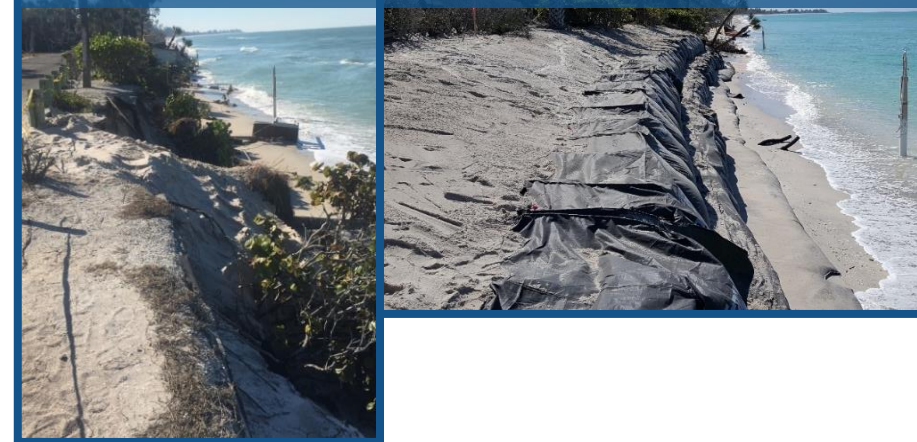
Mangroves Living Shoreline



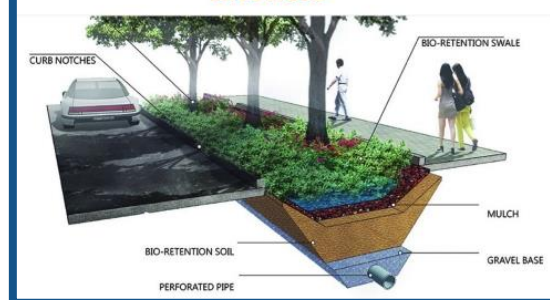
Flood Vents on a Park Restroom



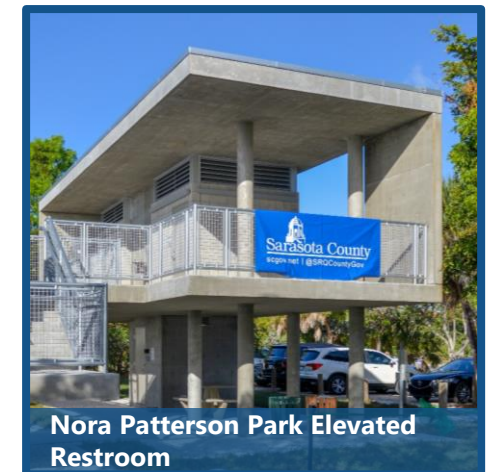
Before (left) and After (right) the Casey Key Shoreline Stabilization



Bioswale



Siesta Key Elevated Pavilion



Nora Patterson Park Elevated Restroom

What Adaptation Strategies do you want to see the County do more of to address flood risks?

0

Nature Based Solutions

0

Utility Hardening (water, sewer, power)

0

Elevate Buildings and Roadways

0

Public Education and Outreach

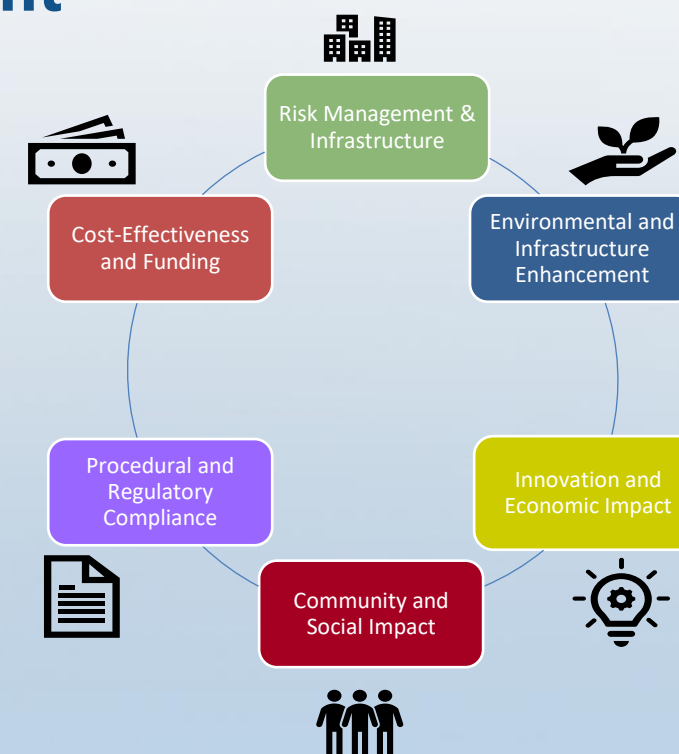
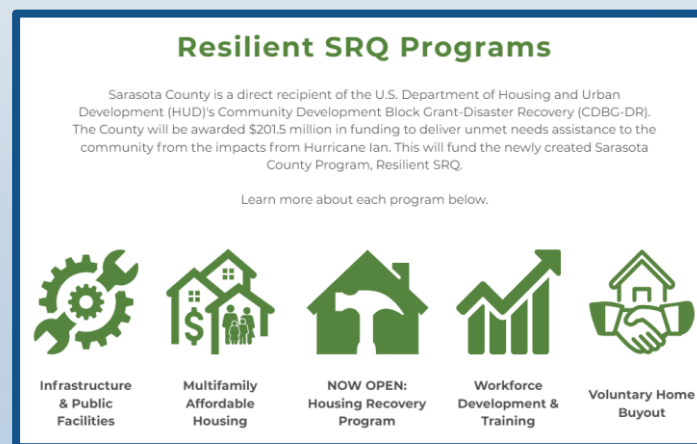
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Updated Plans, Policies, Building/Development Codes



Next Steps – Implementation!

- A **community level analysis** to refine the VA at the census block level throughout the unincorporated areas of the County, using CDC Social Vulnerability Index
- Continue applying for grant funding to **implement** adaptation projects
- Cross-department and Regional **collaboration**



Additional Resources

Sarasota County Vulnerability Assessment Web Based Story Map



Schools

A key place to daily life; schools are essential to protect from flooding. For schools that are built and currently in use, dry floodproofing is...



Fire Stations

Many fire station buildings, especially close to the coast, are built completely elevated. However, if not recommendations would also include...



Healthcare Facilities

Not all residents can leave during a weather event. Healthcare facilities, including nursing homes, are examples of such. Taking this into...



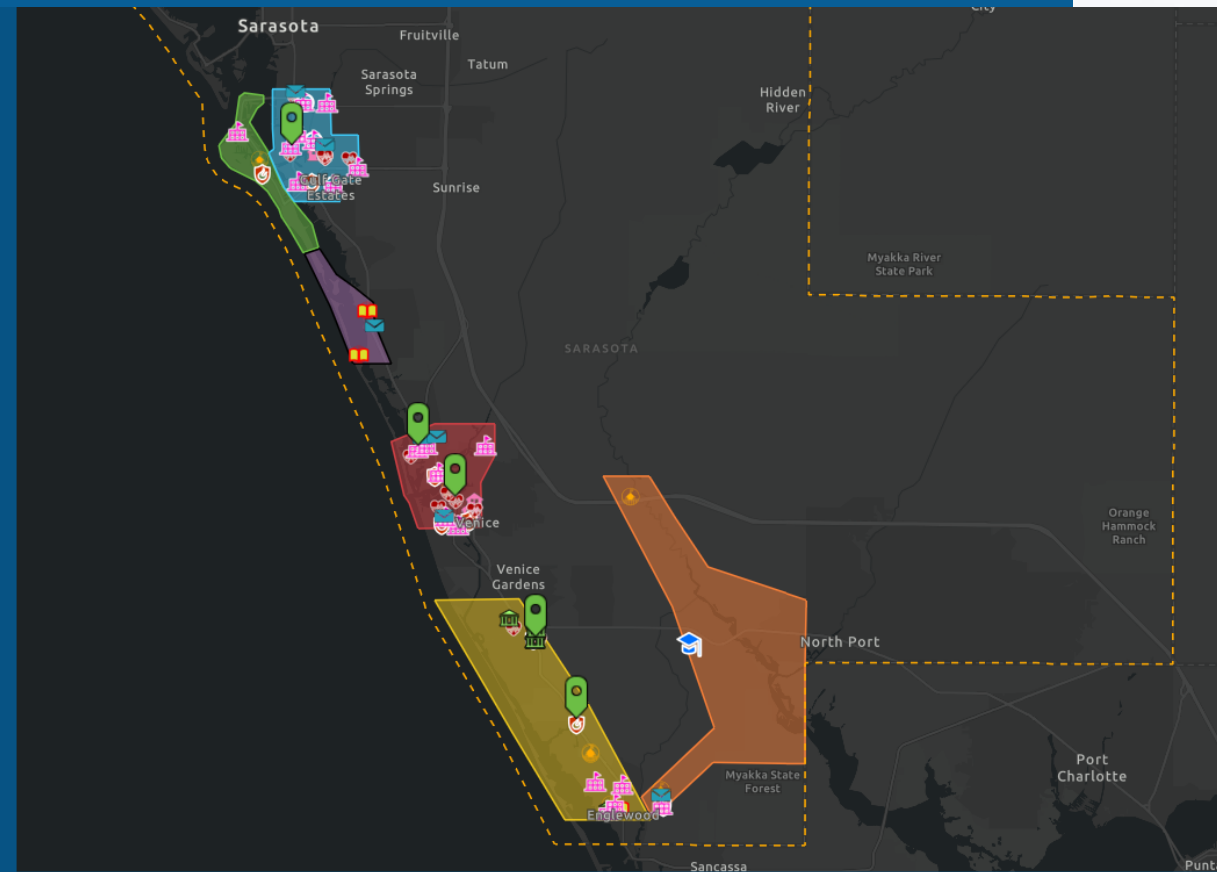
Government Facilities

Government facilities include a range of social services including the DMV and courthouses. Due to the varied age of government buildings, each one...



Law Enforcement Facilities

Similar to fire stations, law enforcement facilities tend to be spread out



Additional Resources

Sarasota County Sustainability Website & Social Media (<https://www.scgov.net/government/sustainability/sustainability>)

Government » [UF/IFAS Extension and Sustainability](#) »

Sustainability

Sarasota County Government defines sustainability as satisfying our present needs without compromising the ability of future generations to meet their needs.

We are committed to environmental, social and economic sustainability. To achieve the balance necessary for a sustainable community, this means:

- Replenish the resources we use or consume;
- Ensure our values guide us into the future; and
- Invest in our community to ensure future prosperity.



How do you prefer to stay up to date with the County's Resilience efforts?

- ☐ Facebook
- ☐ Website
- ☐ Public Workshops
- ☐ Emails

THANK YOU!

If you have questions or comments, please
email sustainablesarasota@scgov.net