



TAYLOR ENGINEERING, INC.

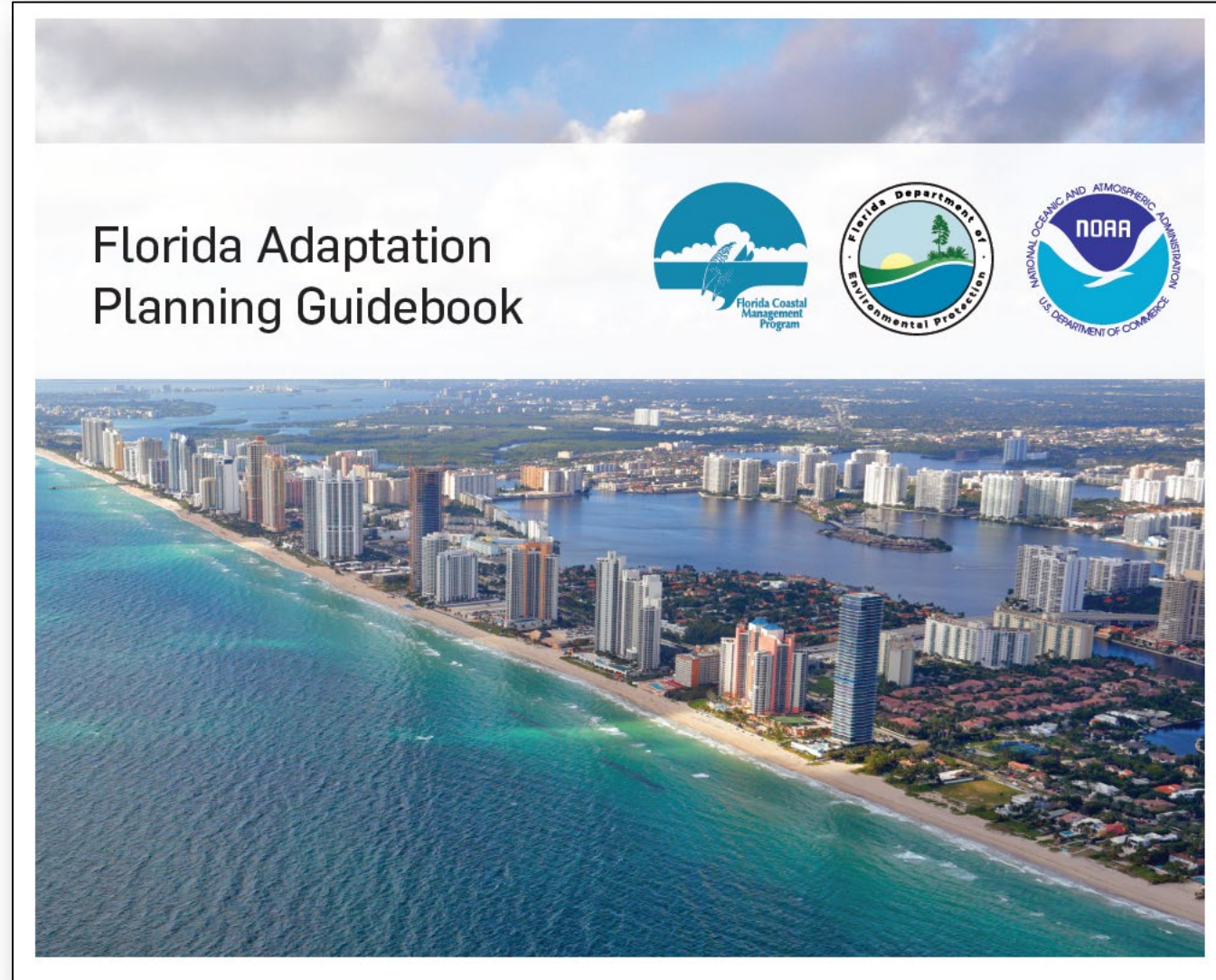
Sea Level Rise Adaptation: Where to Start?



Angela Schedel, PhD, PE

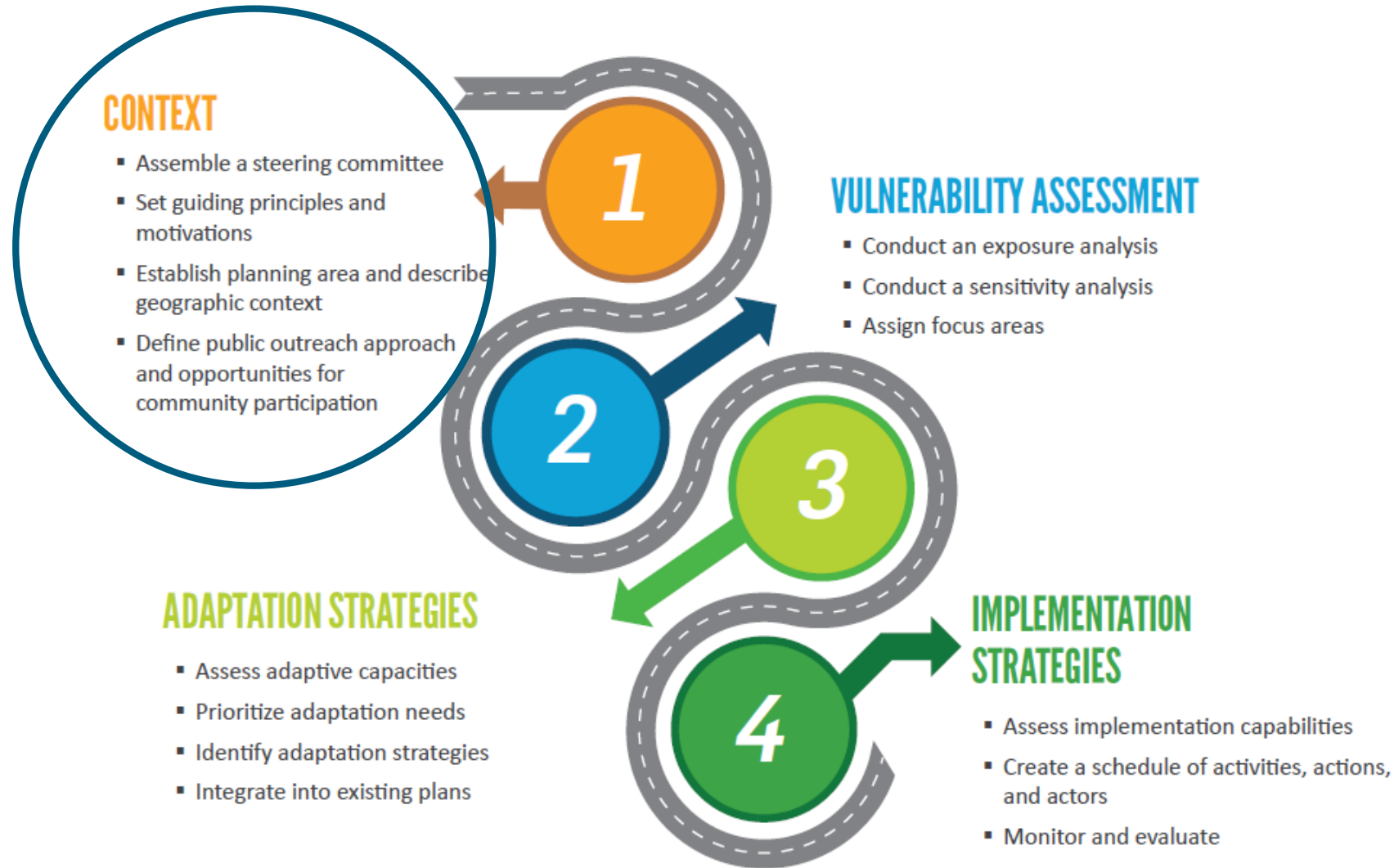
September 18, 2019

Planning Guidance



Source: floridadep.gov/ResilientCoastlines

Adaptation Planning Process



Source: Florida Adaptation Planning Guidebook

Start with WHY

- What is the motivation?
- Who is the lead person or department?
- When should this be completed by?
- Where to focus the effort?
- How to involve the community?



Venice, Italy - October 2018
Photograph- Andrea Merola / ANSA via AP

Public Input / Outreach

Online Flood Risk Survey

Build Community Resilience | Punta Gorda, FL Home [Take our Survey](#)

Flood Risk Survey | Punta Gorda, FL

How are you affiliated with Punta Gorda?

Full-time resident

How would you characterize the flood hazard risk for your community?

No Risk

How would you characterize the sea level rise risk for your community?

No Risk

Do you think your home is at risk from flooding?

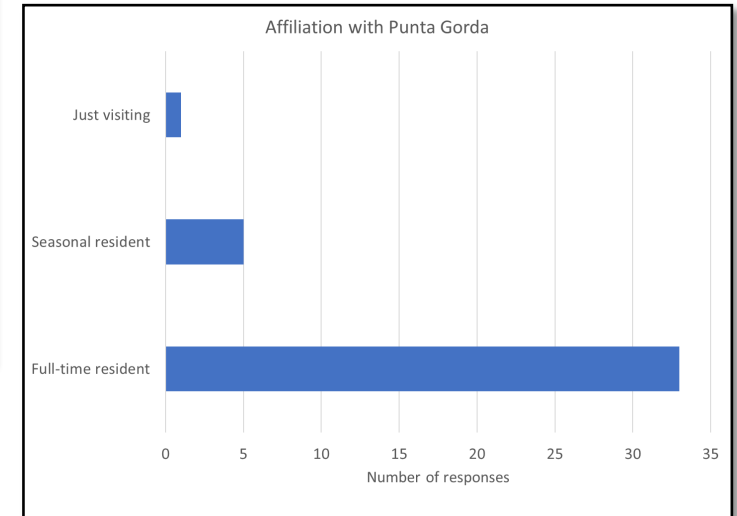
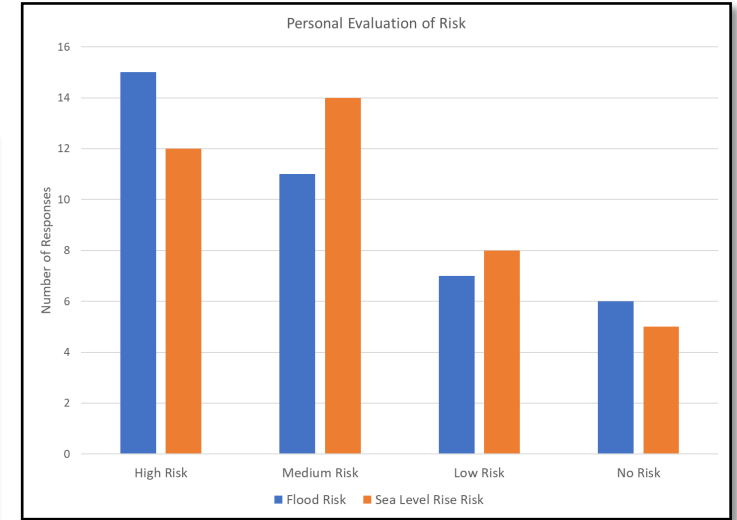
No

Do you know what adaptation planning is?

No

Does your city have an adaptation plan?

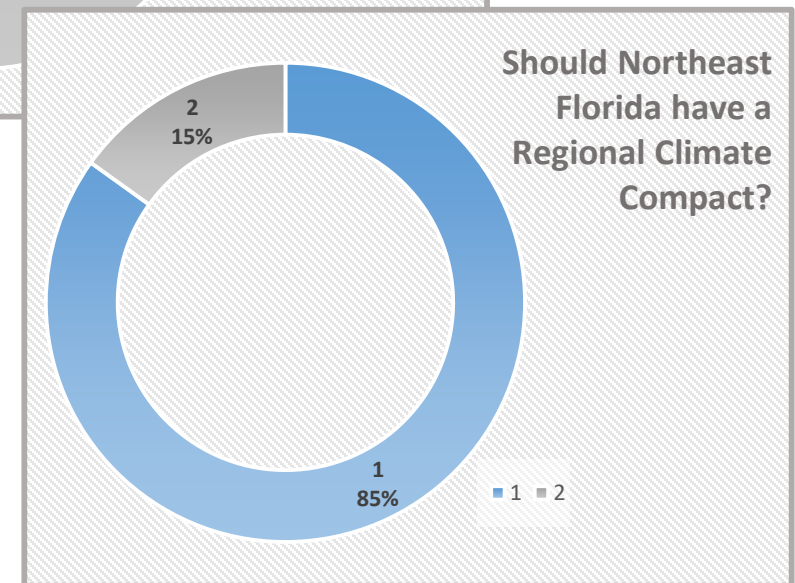
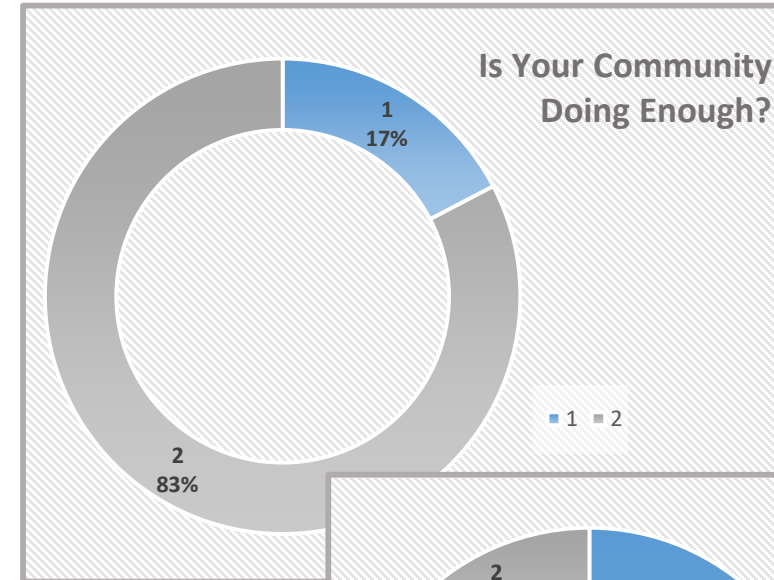
No



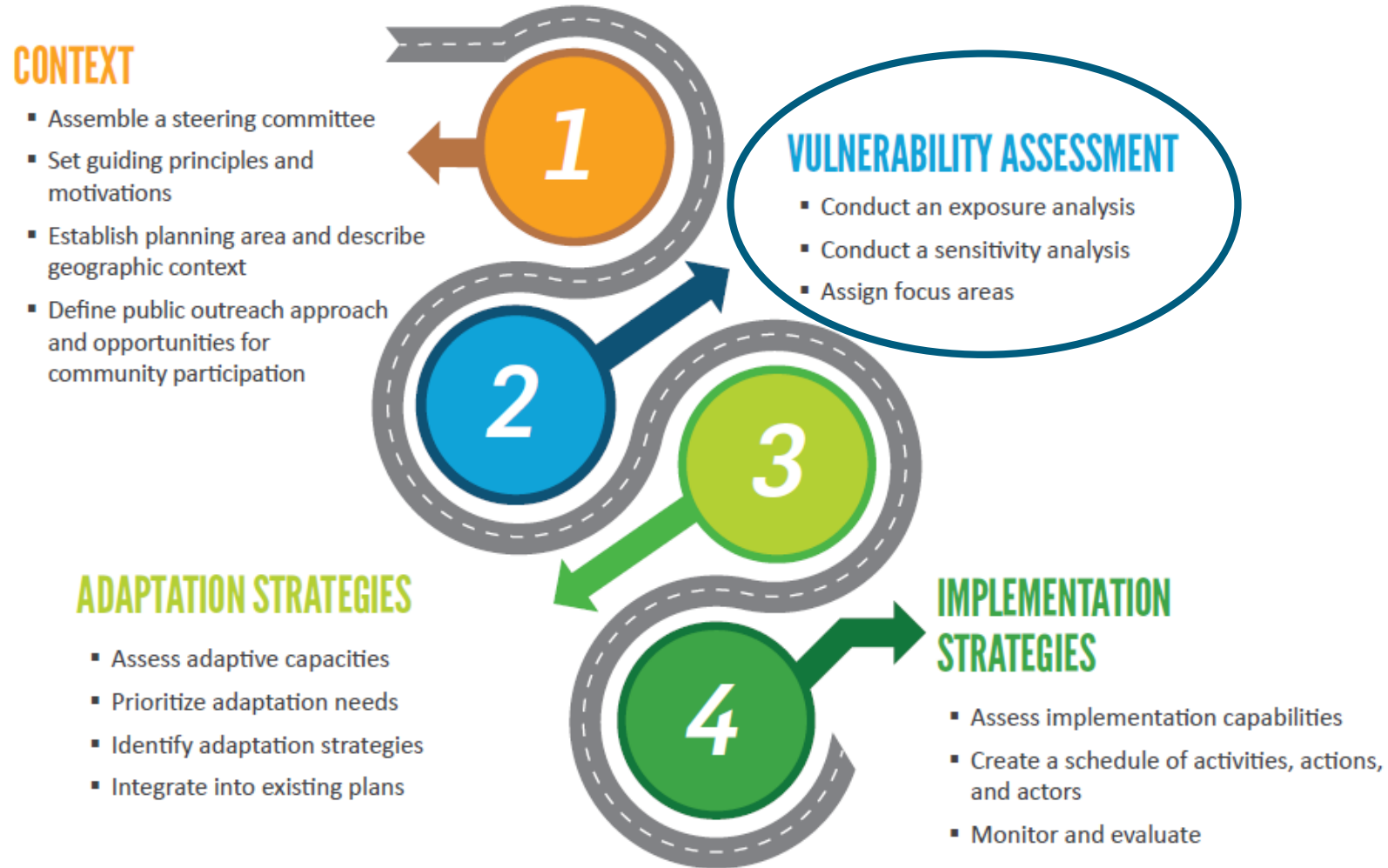
Public Input / Outreach

Online Resilience Survey

The screenshot shows a web-based survey interface titled "Rank the Vulnerabilities". On the left, a vertical sidebar contains navigation buttons: "WELCOME", "VULNERABILITIES", "STRATEGIES", "OPPORTUNITIES", and "WRAP UP". The main content area is yellow and features a list of vulnerability categories: "1 Hurricanes & Storm Surge", "2 Sea Level Rise", and "3 Aging Infrastructure". Below this list, a section titled "Order your top 3 items above this line" includes buttons for "City Improvement Funding", "Flooding", and "Water Quality". A "Suggest another" button is at the bottom left. On the right, a section titled "Hurricanes & Resulting Storm Surge" includes an aerial photograph of a coastal area and a text box stating: "It is expected that the frequency and intensity of hurricanes will increase. As sea level rises, storm surge will also magnify in depth and extent." At the top right of the main area are buttons for "? What to do" and "Next Task".



Adaptation Planning Process



Source: Florida Adaptation Planning Guidebook

Assessing Vulnerabilities

Three components of a vulnerability assessment:

- Exposure
- Sensitivity
- Adaptive Capacity



Defining Vulnerability

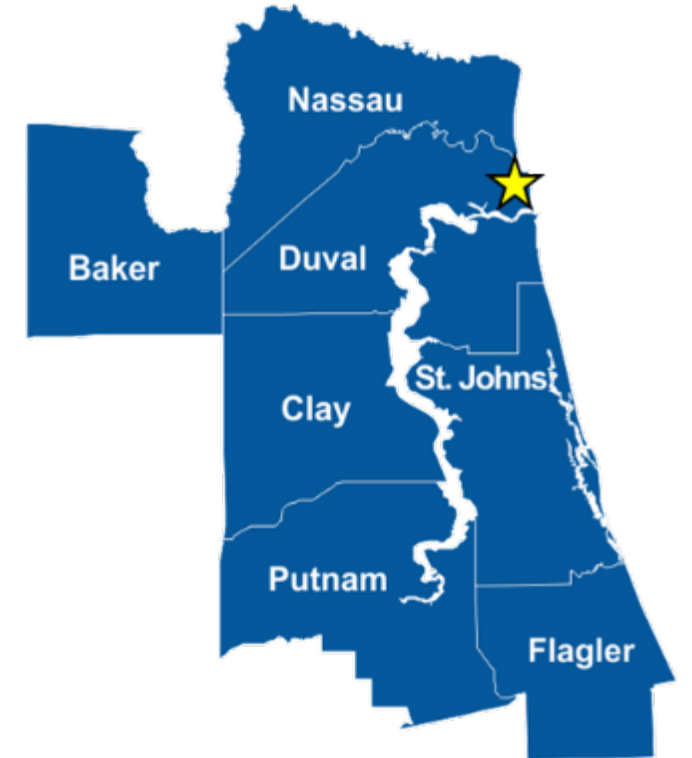
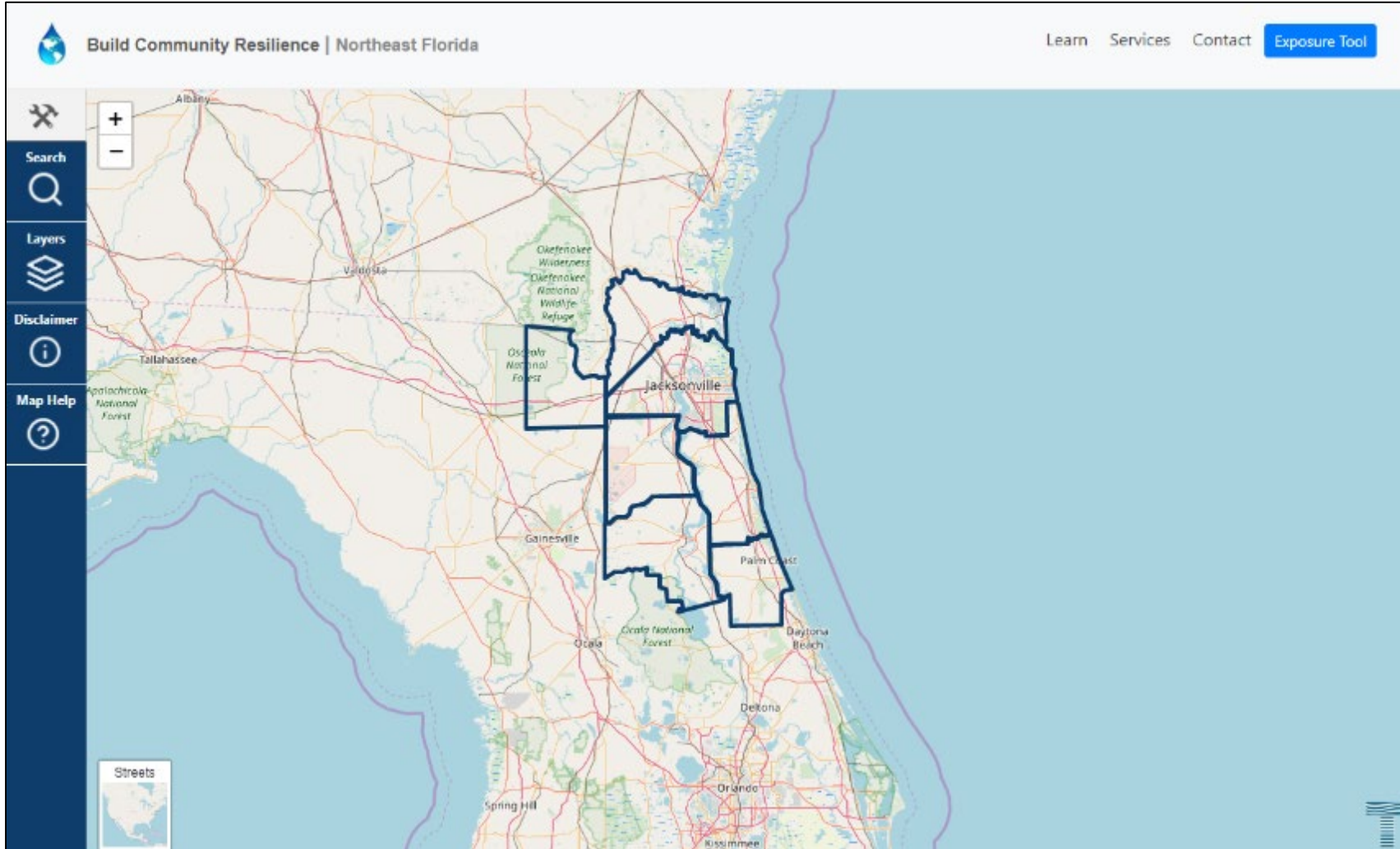
Exposure	<ul style="list-style-type: none">- How much of the asset is in contact with the stressor- How long is it in contact with the stressor
Sensitivity	<ul style="list-style-type: none">- Degree of impact if in contact with stressor- Level of existing stress or pressure
Adaptive Capacity	<ul style="list-style-type: none">- Ability of the asset to adjust, repair, or respond to stressor



(Source: National Oceanic and Atmospheric Administration)

Public Outreach / Education

Regional Resilience Exposure Tool (R2ET)



Regional Resilience Exposure Tool (R2ET)

The screenshot displays the Regional Resilience Exposure Tool (R2ET) interface. The top navigation bar includes the text "Build Community Resilience | Northeast Florida" and links for "Learn", "Services", "Contact", and "Exposure Tool". The main interface is divided into three sections: a search and navigation sidebar, a layers panel, and a map view.

Search and Navigation Sidebar:

- Search (magnifying glass icon)
- Layers (stack of layers icon)
- Disclaimer (information icon)
- Map Help (question mark icon)

Layers Panel:

Important Data Layers:

- Critical Facilities
- Population Density
- Low Income Population
- Minority Population
- Over Age 64 Population
- Wildlife Index

Coastal Flooding Layers:

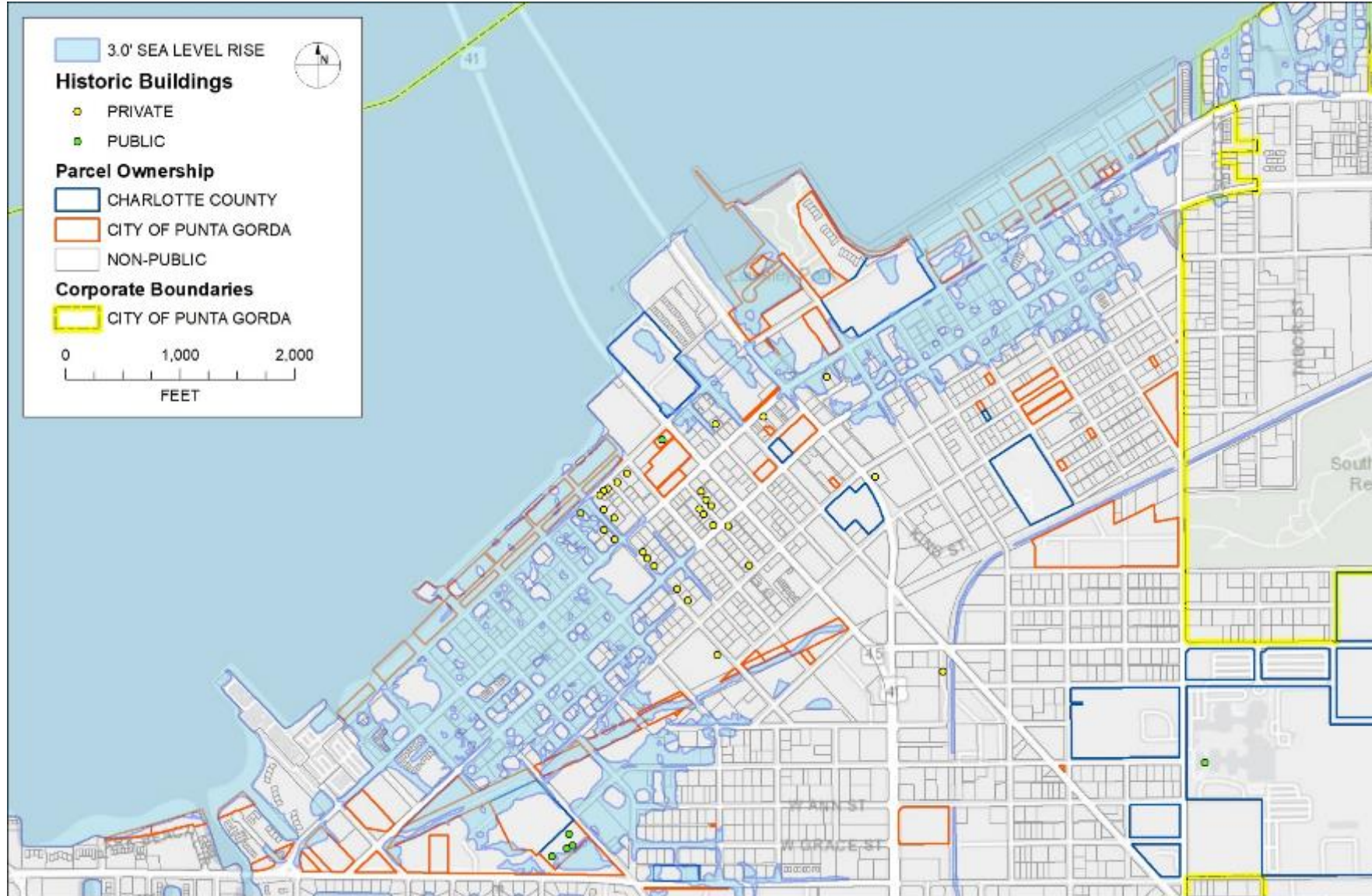
- None
- Flood Hazard Zones
- Storm Surge for Evacuation Planning
- Depth of Flood
 - 1% Annual Chance (100 Year)
 - Change Scenario ▼
- Sea Level Rise
 - Change Water Level ▼ 3 ft

Map View:

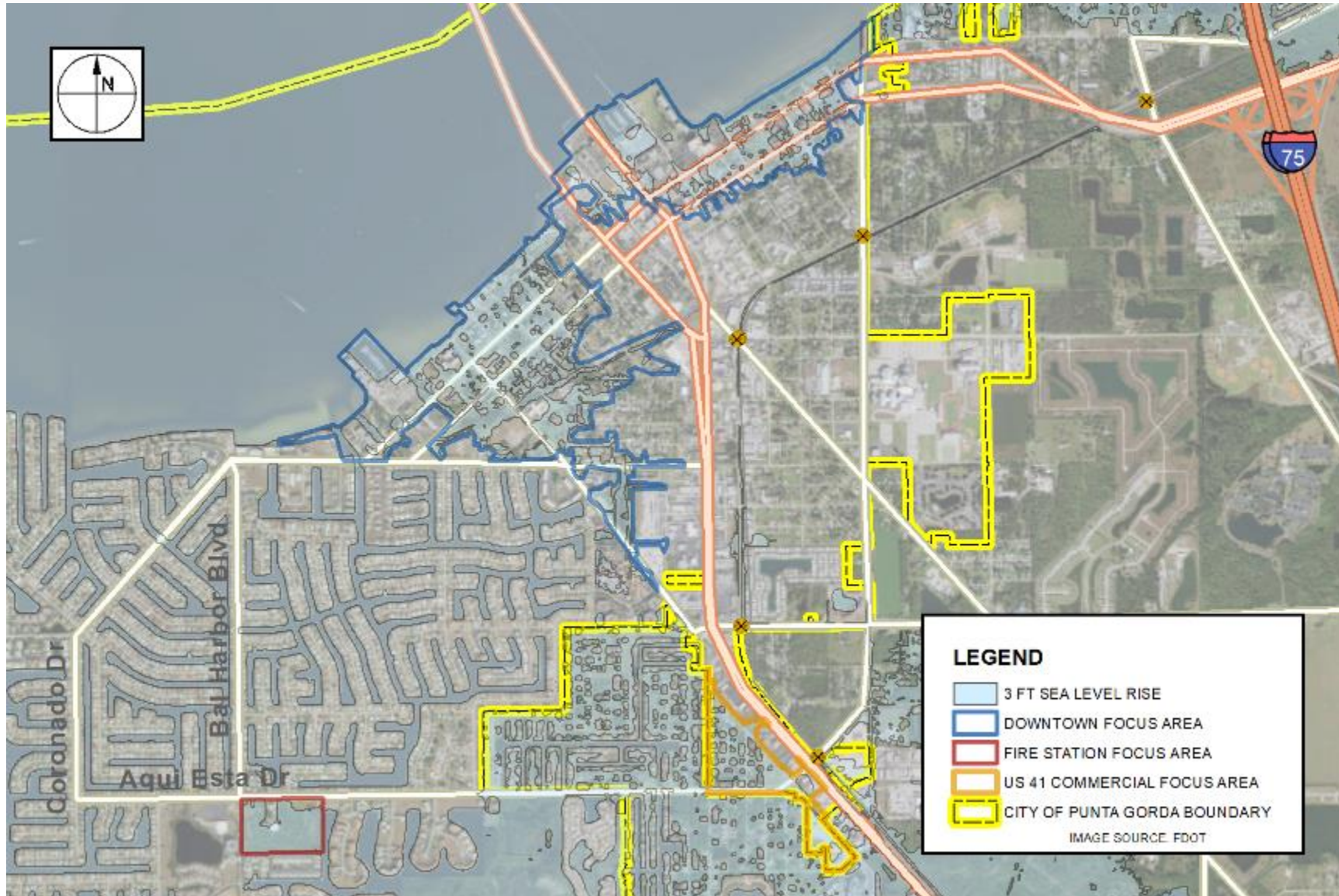
The map shows a coastal area with various data layers overlaid. Key features include:

- Streets:** Atlantic Boulevard, US 90, Beach Boulevard, and others.
- Neighborhoods:** Neptune Beach, Jacksonville Beach, and others.
- Water Bodies:** A large canal or river system on the left side of the map.
- Markers:** Yellow house icons representing critical facilities and blue location pins.
- Legend:** A small legend in the bottom left corner identifies the "Streets" layer.

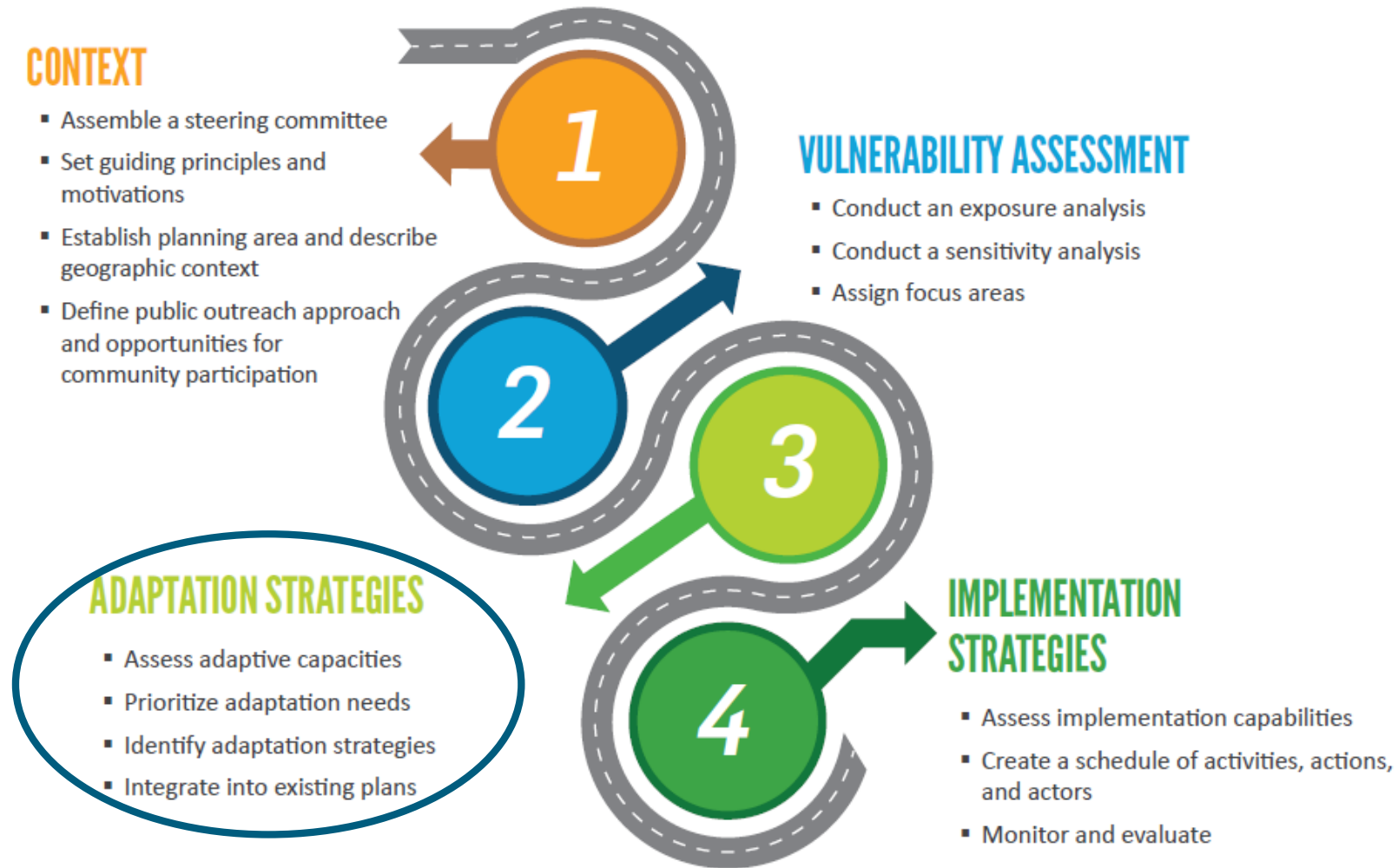
Exposure Analysis & Sensitivity Analysis



Assigning Focus Areas



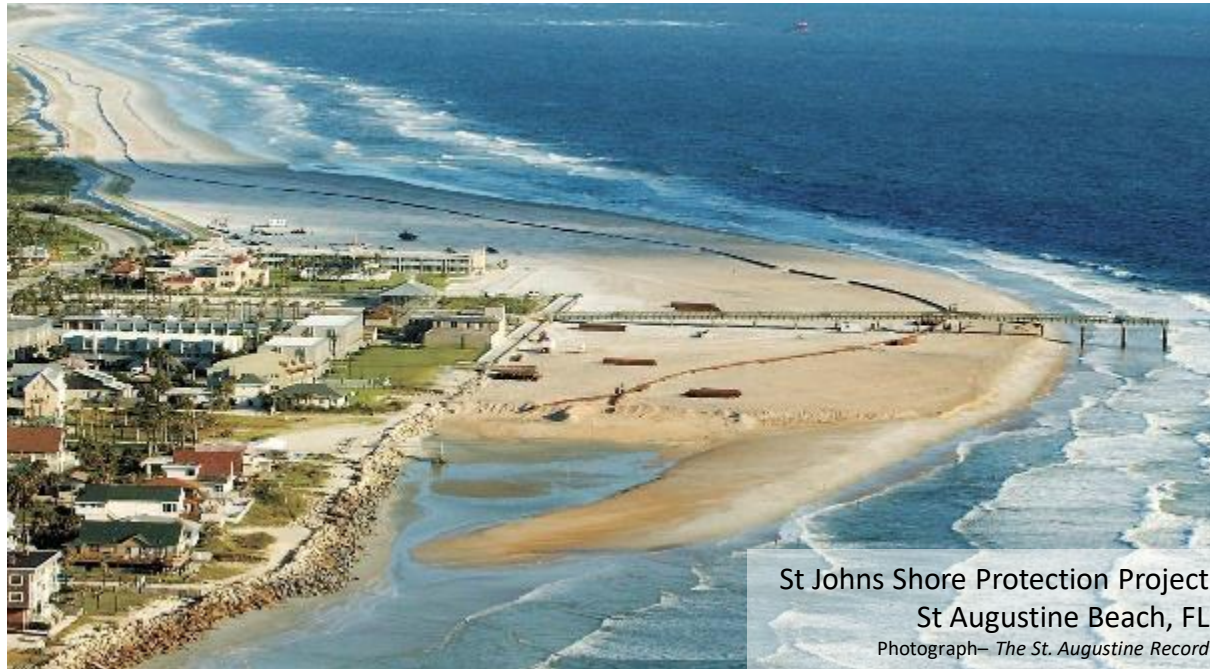
Adaptation Planning Process



Source: Florida Adaptation Planning Guidebook

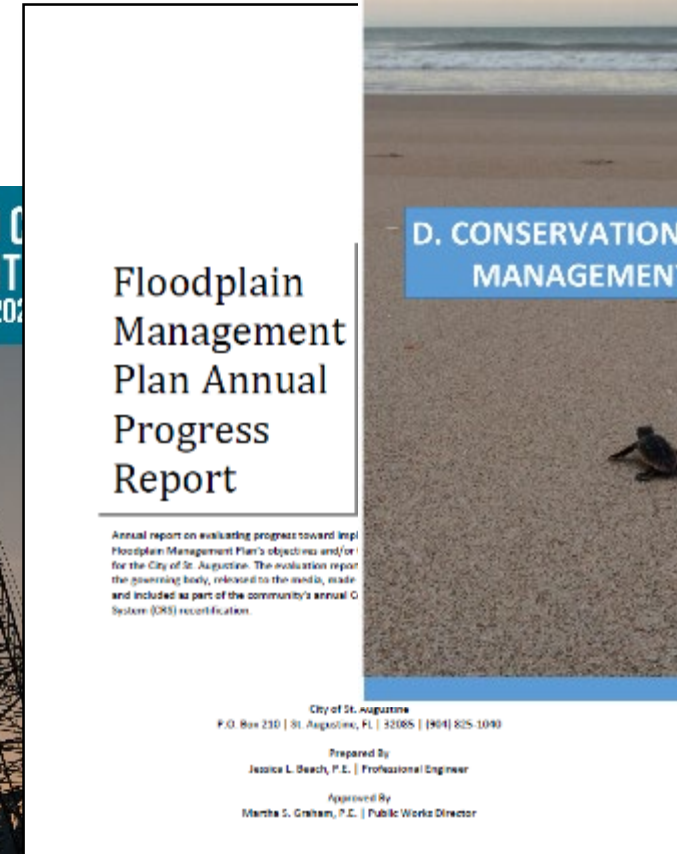
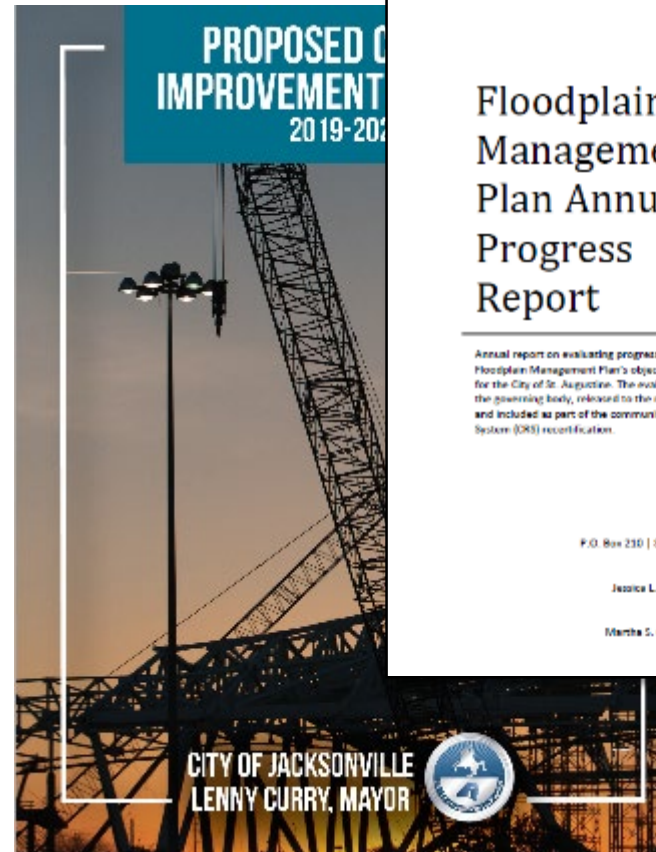
Adaptation Strategies

- Protection
- Accommodation
- Managed Retreat
- Avoidance

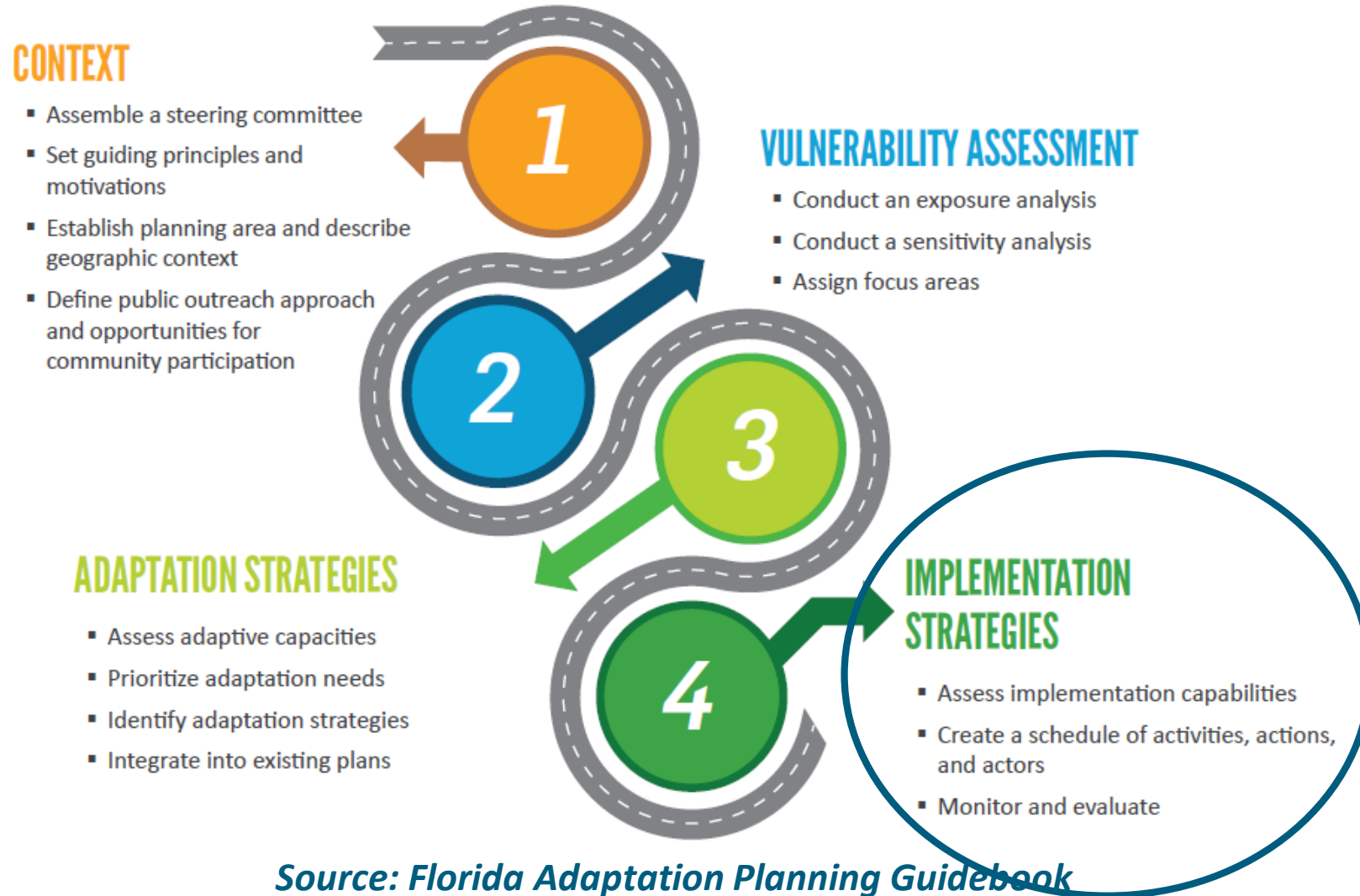


Adaptation Planning Tools

- Regulatory and Planning
 - Local Mitigation Strategy
 - Local Comprehensive Plan
 - Adaptation Action Areas
- Infrastructure Upgrades
 - Capital Improvements Plan
 - Stormwater Management Plan
 - Historic Preservation Plan



Adaptation Planning Process



Implementation Challenges

- Stakeholder Support
 - Need someone to carry the banner!
 - Passion, motivation, momentum
- Funding
 - FDEP Resilience Planning Grants
 - NOAA Resilience Grants
 - NFWF Coastal Resilience Funds
 - RESTORE Act
 - FEMA
 - Pre-Disaster Mitigation
 - Flood Mitigation Assistance
 - Hurricane Mitigation



Summary

- There is a process.
- Resources exist.
- Professionals are available to help.
- It's time to talk about adaptation!



Acknowledgements



**NORTHEAST FLORIDA
REGIONAL COUNCIL**





THANK YOU

Questions?

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