



VILLAGE OF ESTERO VULNERABILITY ASSESSMENT

Village Council Update
November 5, 2025



AGENDA

- ▶ What Is A Vulnerability Assessment?
- ▶ Public Workshop Outcomes
- ▶ Preliminary Findings from Exposure Analysis
- ▶ Next Steps



VULNERABILITY ASSESSMENT APPROACH



Data Collection

- Village infrastructure data
- State critical asset inventory
- Flood and non-flood scenarios



Exposure Analysis

- 10+ scenarios
 - % of assets exposed
 - % of land area exposed
 - Flood depth by scenario at each asset



Sensitivity Analysis

- Rank assets based on likelihood of scenario, consequence of failure of those assets and depth threshold for them
 - Identify focus areas



Adaptation Planning

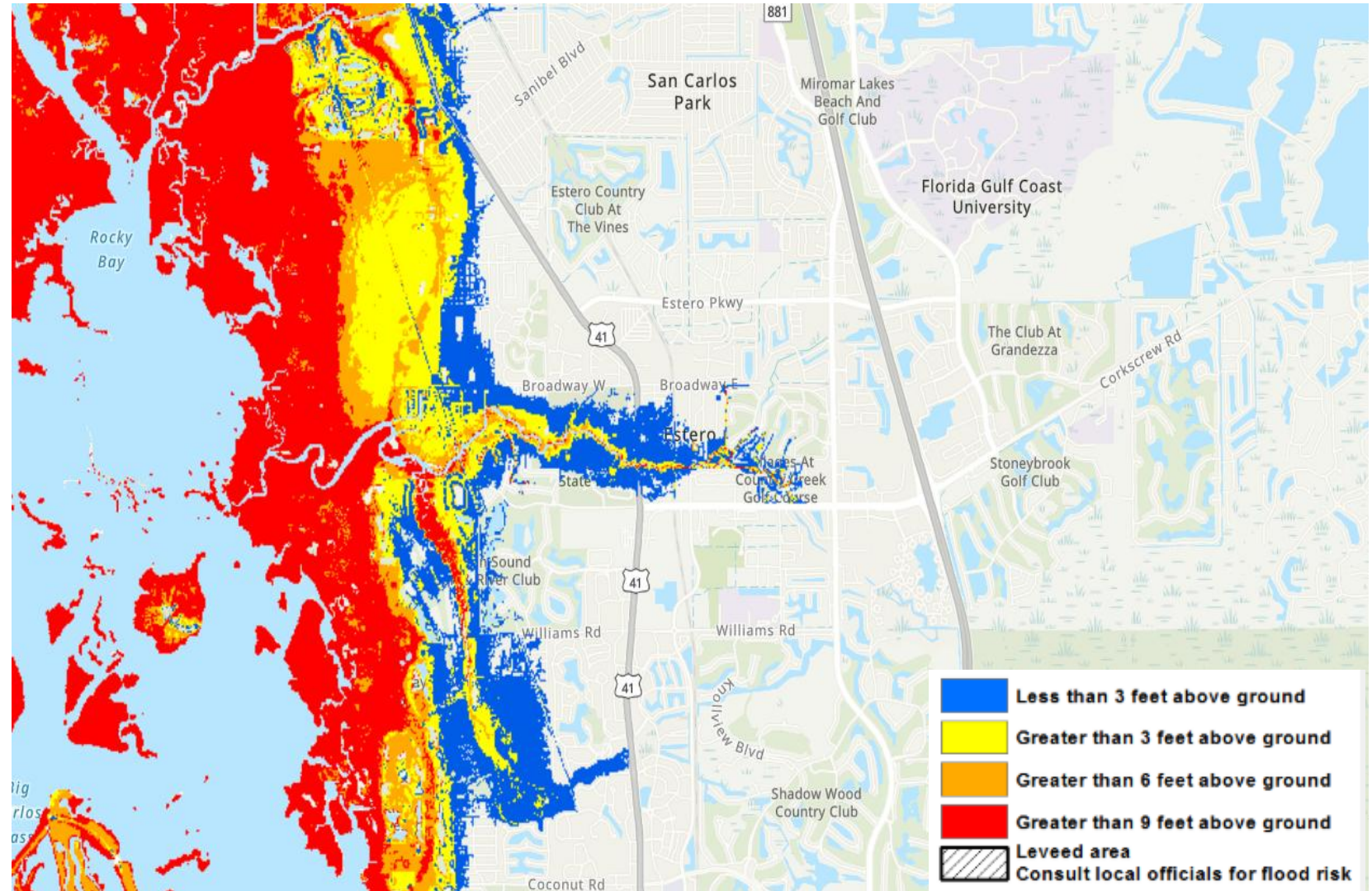
- Priorities
- Adaptation strategies
- Implementation

FLOODING HAZARD

COASTAL



- Direct risk from category 1 to 5 hurricanes
 - Tidal flooding
- Gradual increase contributing to higher groundwater levels and enhanced flood risks

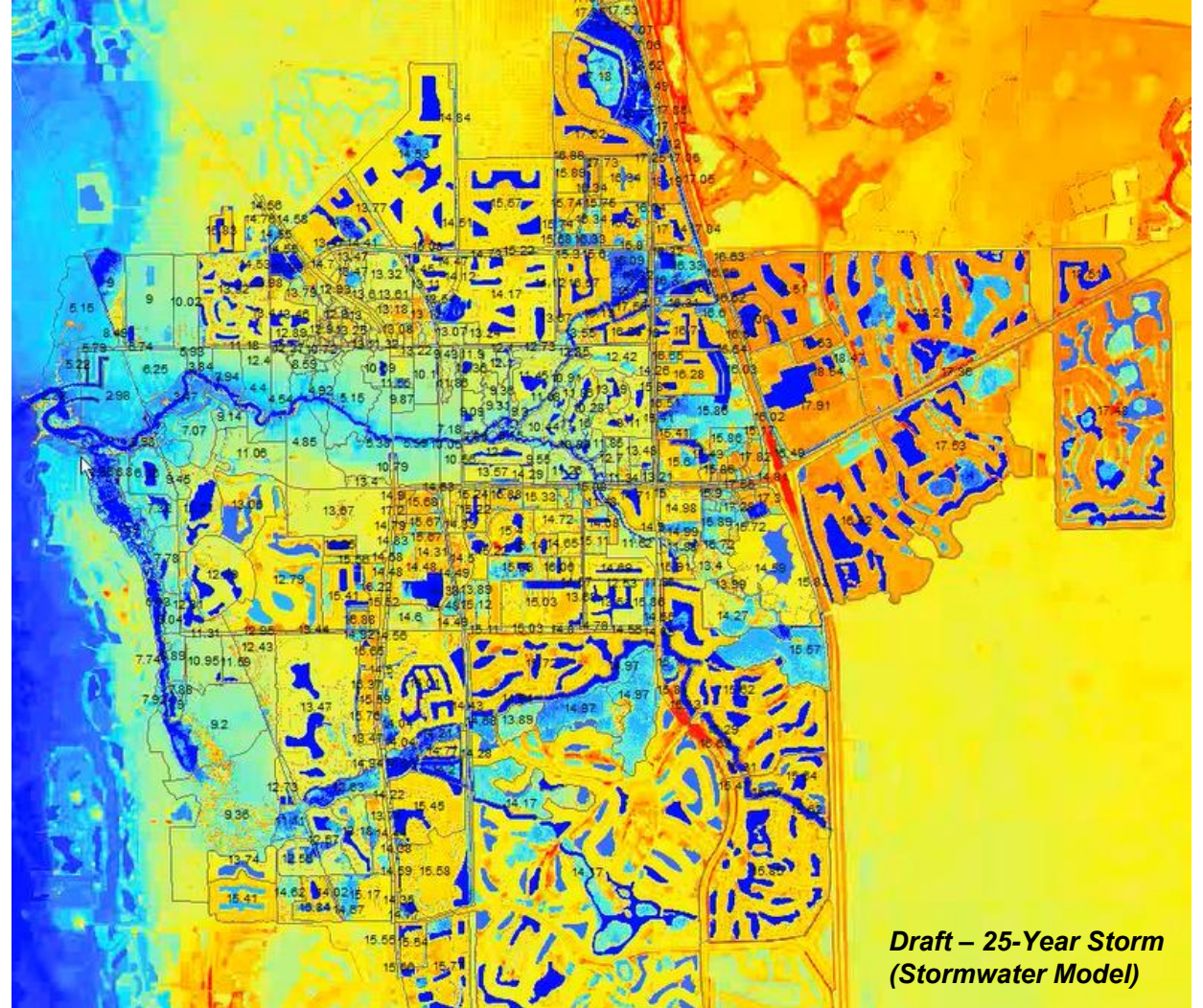


HAZARDS (FLOODING)

RAINFALL



- 11.2 inches of rain during event that occurs every 25 years for 3 days, increased future risk
- Sea Level Rise contributes to reduced drainage capacity
- Compound flooding when rainfall and high tides overlap



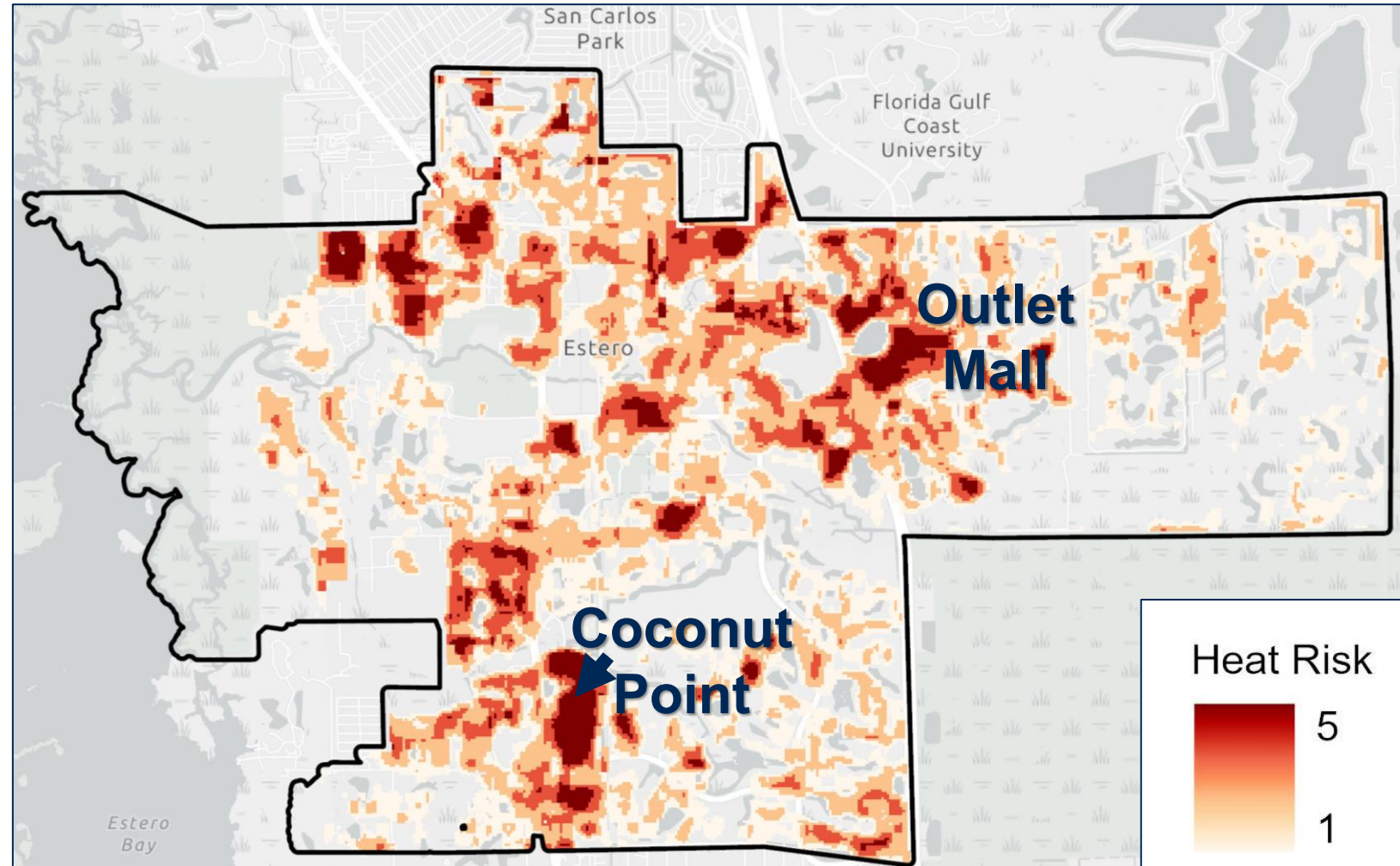
*Draft – 25-Year Storm
(Stormwater Model)*

NON-FLOODING HAZARD

HEAT



Increasing temperatures
across region, hot spots in
urban areas

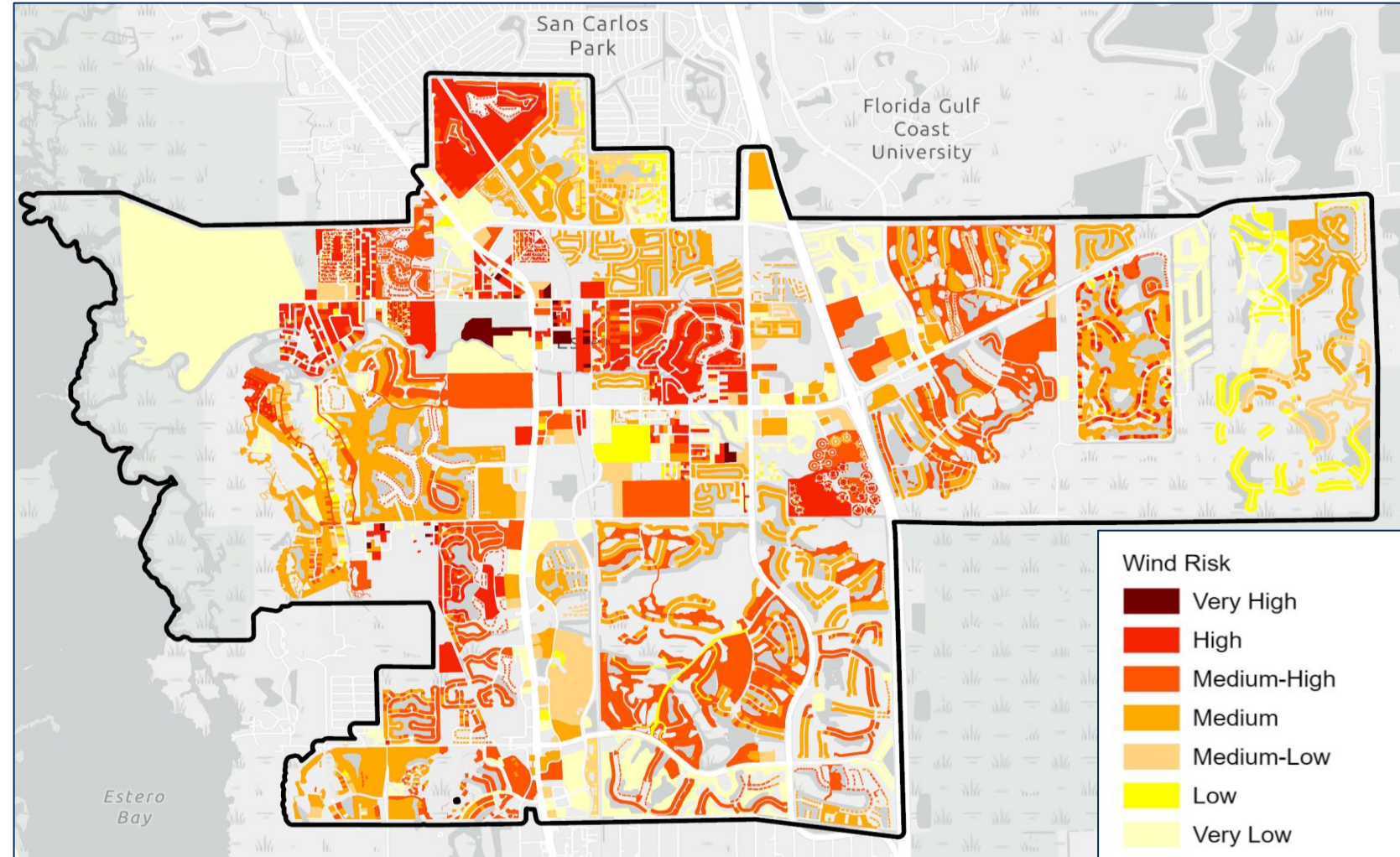


NON-FLOODING HAZARD

WIND



Florida is known for being prone to high-intensity wind events such as hurricanes and even tornados



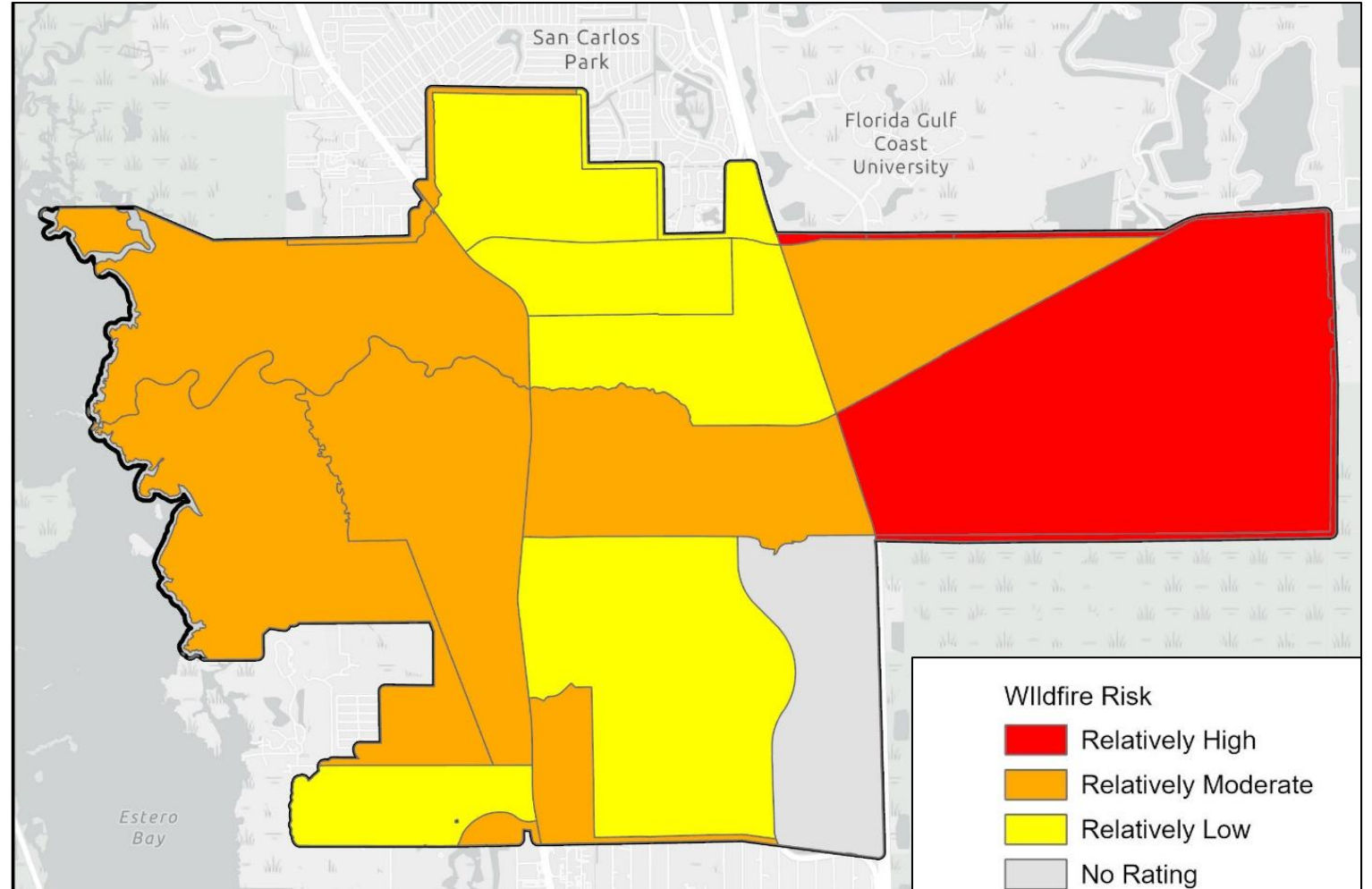
Not Final Result: Shows where development occurred before wind code adoption

NON-FLOODING HAZARD

WILDFIRE



Driven by a combination of environmental and societal factors such as fuel loads, land cover, local climate conditions, and community vulnerability



PUBLIC WORKSHOP SUMMARY

October 8, 2025

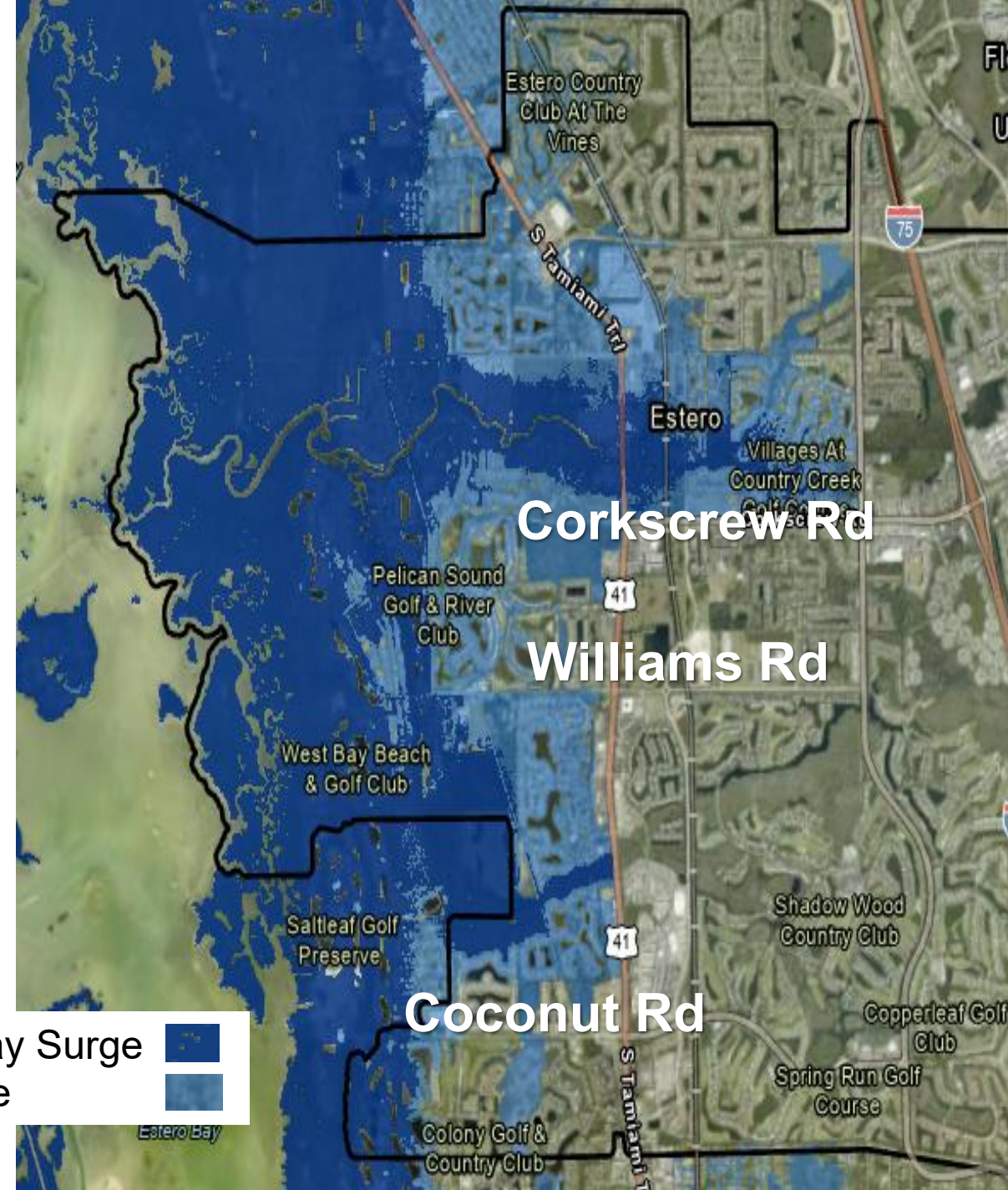
- Presentation, live polling and facilitated discussion
- Residents shared experiences of storm surge and flooding, especially along the Estero River and low-lying areas
- Hurricane Ian impacts reviewed
- Interest in sheltering in place and understanding local adaptation options
- Discussion of drainage and redevelopment affecting runoff and ponding
- Interest in how the assessment considers social vulnerability, age, and overall community capacity



PRELIMINARY FINDINGS

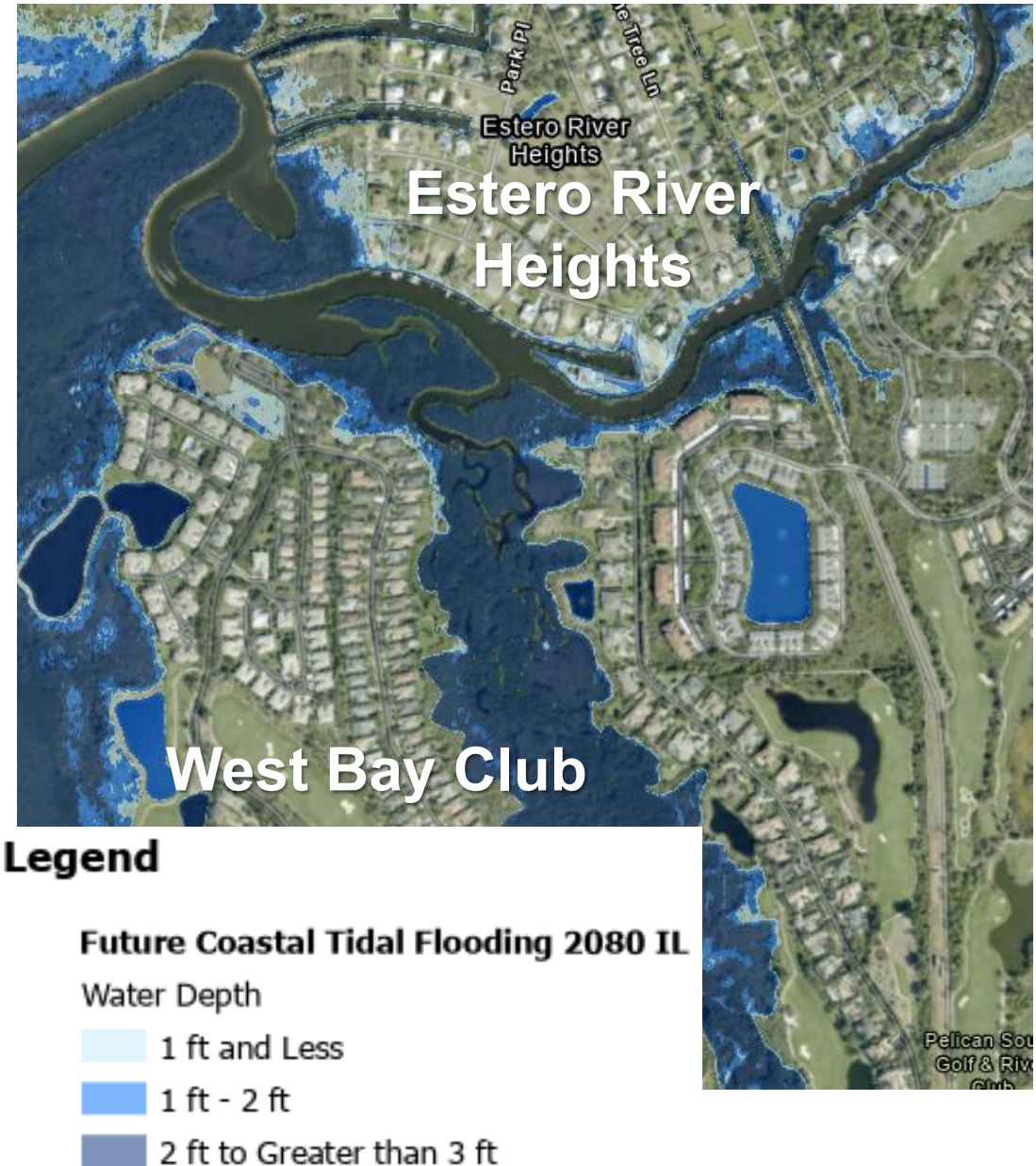
- Extreme **storm surge** may affect **16%** of critical infrastructure today, **up to 30%** in the future
 - Exposed assets include
 - Fire Station 41 (8631 County Rd, Estero, FL 33928)
 - County lift stations, bridges, and an electrical substation

Present Day Surge
2050 Surge

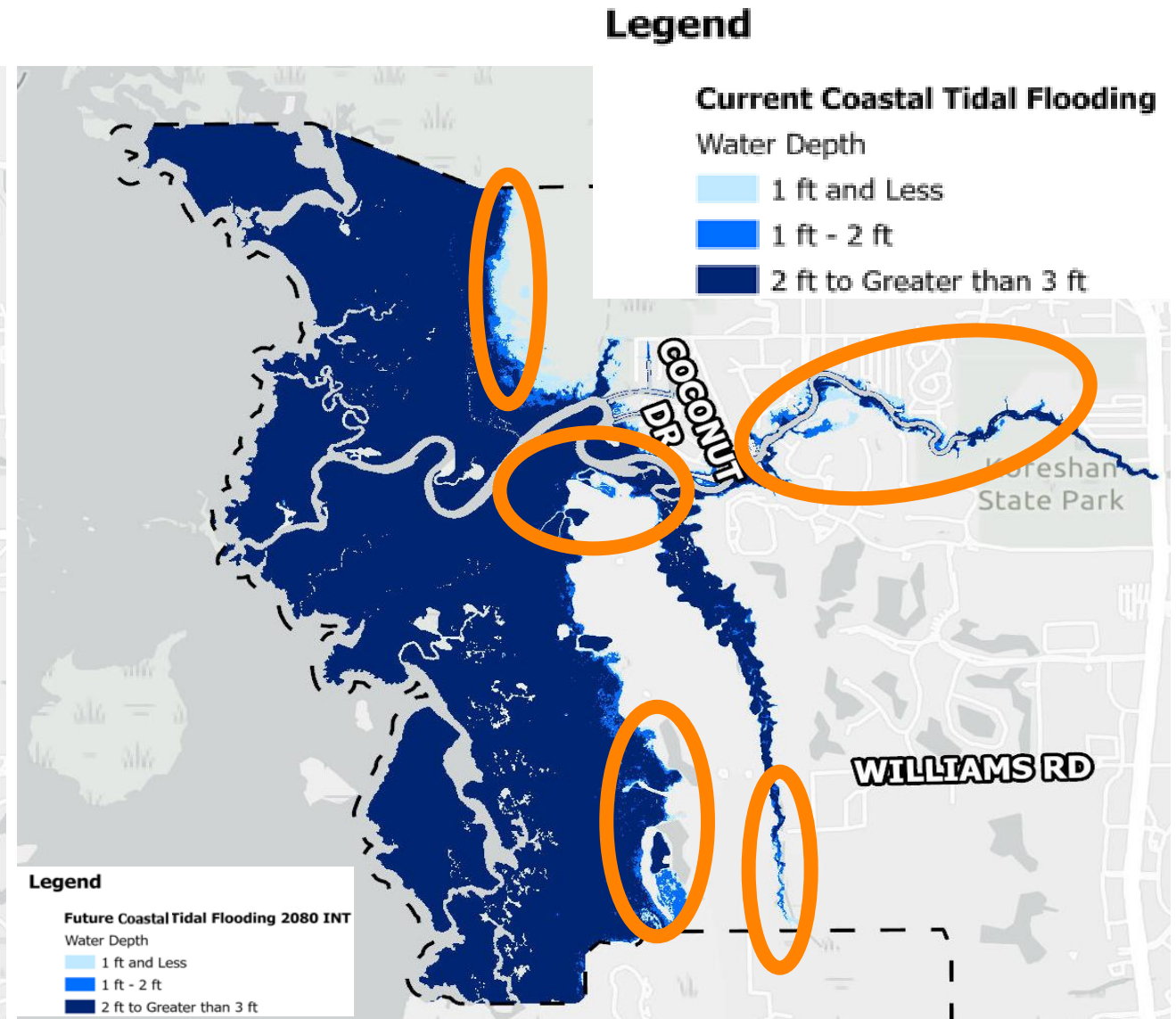
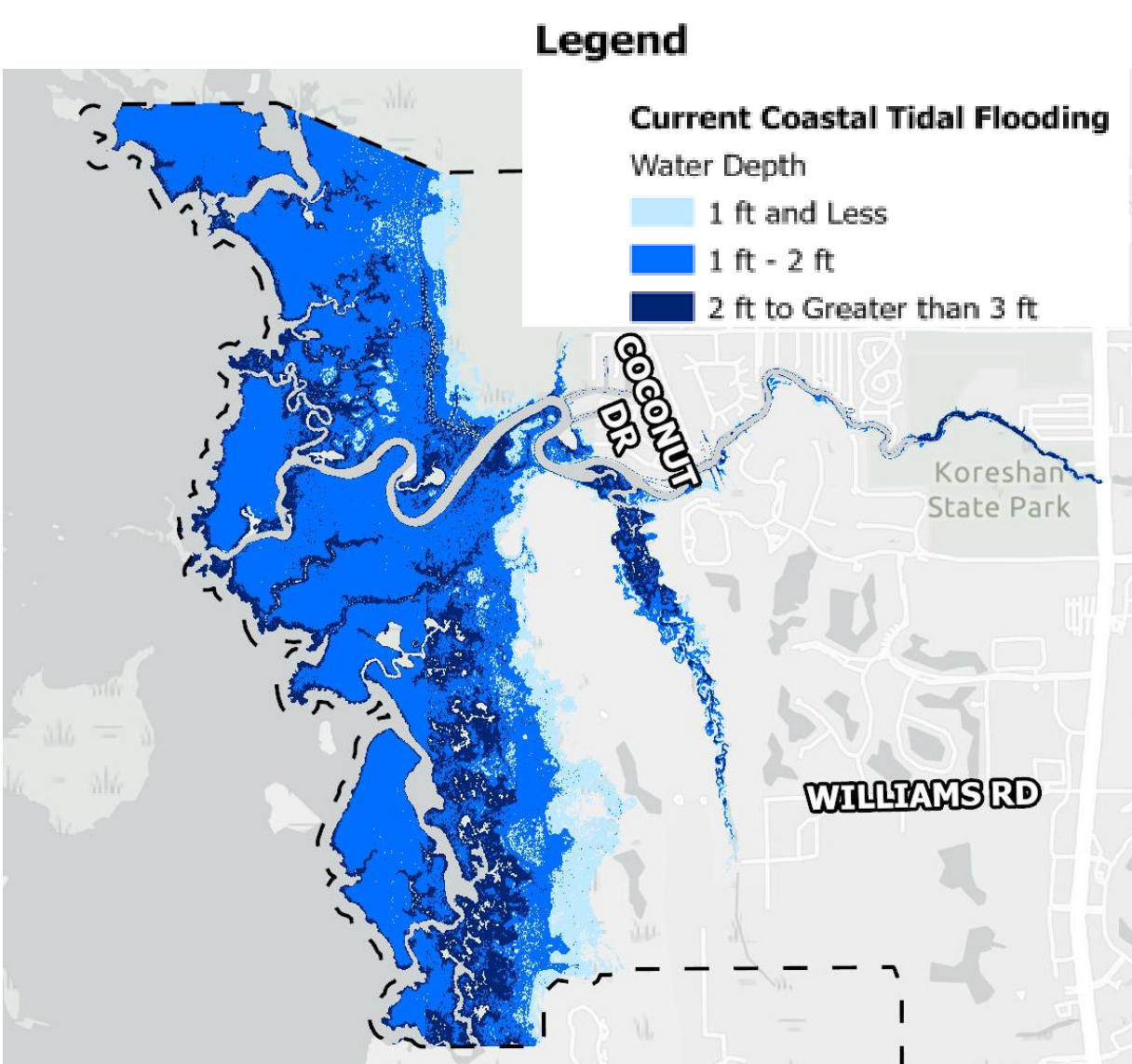


PRELIMINARY FINDINGS

- **Tidal flooding** propagates inland north and south of the Estero River inlet by 2080
 - (Estero River Heights, West Bay Club)
- Floodplain along river expands
- Potential Inundation Areas:
 - Shorelines along Ritz Residences and Hyatt Regency area
 - Coconut Road
 - Saltleaf Golf Preserve (unincorporated County)
 - Wetlands and ponds



CURRENT AND FUTURE TIDAL FLOODING



NEXT STEPS

Complete Exposure Analysis (December 2025)

- Identify the depth of water for each scenario
- Overlaying the scenarios onto the local landscape of the Village
- Visual representation of the magnitude and percentage of the impact
- Pinpoint the locations

Sensitivity Analysis (February 2026)

- Evaluating flood sensitivity by assigning risk scores across scenarios
- Integrating results into GIS for prioritization of critical assets

CRAFTING RESILIENT COMMUNITIES



NEXT STEPS

2nd Public Outreach Meeting and Public Presentation (March 2026)

- Gather community input and opinion on the obtained results
- Revisit methodologies and assumptions for potential refinement

Flood Certificate Invitations (March through May 2026)

- Engage property owners in submitting or obtaining Elevation Certificates (EC)

Adaptation Plan (June 2026)

- Outlining strategies with clear priorities and implementation steps, while aligning with LMS

Local Mitigation Strategies (June 2026)

- Use the VA results to update the Lee County Joint Local Mitigation Strategy (LMS)
- High priority areas may be eligible for future grant funding



QUESTIONS

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