



Collaborative Communities Vulnerability Assessment: Coastal Communities



Critical Infrastructure Flood Vulnerability Assessment

February 25, 2026

Barrier Islands Government
Council Meeting

& Town of Belleair



Purpose

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- Present the Flood Vulnerability Assessment (VA) approach and results
State-mandated for compliance with Resilient FL Statute 380.093

VA Objectives

- Inform communities about the flood vulnerability of their public assets
- Prioritize the flooding related risks to public infrastructure
- Recommend adaptation planning strategies
- Ensure communities are eligible to apply for resilience related grant funding (specifically the Resilient Florida program)

Topics

- What is the flood Vulnerability Assessment (VA)?
- What methods and approaches were used in the assessment?
- How was community engagement incorporated into the process?
- What are some of the results?
- What are next steps in the process?



What is the Vulnerability Assessment (VA)?

- A study that evaluates potential flood impacts to critical public infrastructure now and in the future
 - Enhances understanding of flood risks in the community
 - Identifies areas of improvement for flood mitigation
 - Focuses on impacts to public and regionally significant infrastructure, not residential homes or private businesses
 - Includes public assets owned/maintained by the City and select potential collaborators (medical facilities, hospital, PSTA)



***11 communities included in this Resilient Florida Planning Grant – other communities also doing VAs under other grant workplans**

Collaborative Communities Vulnerability Assessment:
Coastal Communities

Data included in VA

- Infrastructure data was organized into 4 categories, as defined by the State:

Critical Community & Emergency Facilities

- Community centers
- Fire stations
- Local government facilities

Critical Infrastructure

- Water & wastewater facilities
- Electric & natural gas supply facilities
- Communications

Natural, Cultural, & Historical Resources

- Parks & conservation lands
- Surface waters and wetlands
- Historical & cultural assets

Transportation & Evacuation Routes

- Major roadways
- Bridges
- Ports & airports
- Bus terminals & transit

How is this work funded?

- 2021 Gaming Compact Between the Seminole Tribe of Florida and the State of Florida
 - Funding for wildlife corridor, uplands, endangered species, water quality, and flooding
 - **\$100M deployed annually statewide** to guard communities against the impacts of flooding (RF Program)
- Example projects that have been awarded this grant:
 - Utilities Reliability Improvements (\$3.4M)
 - MHP Wastewater Collection System Improvements (\$25M)
 - Phillippe Park Shoreline Protection (\$129,200)
 - Joe's Creek Restoration (\$27.9M)
 - Cross Bayou Canal Improvements (\$12.9M)



Resilient Florida (RF) Program developed in accordance with Section 380.093, Florida Statutes (F.S.)

What is the Community Benefit?



- ✓ Achieves compliance with RF Program Statute*
 - ✓ Ensures eligibility for RF Program funding
- ✓ Maps out critical public infrastructure with associated flood risk scenarios
- ✓ Helps communities prioritize and plan for infrastructure investments
- ✓ Emphasizes resilient infrastructure design and operation

* Resilient Florida (RF) Program Statute: 380.093

Public Engagement 2023 - 2026

- Countywide VA Workshop
 - > 50 participants from local agencies
- Online and in-person surveys
 - > 500 responses
- Multiple events across the county
 - Attended 10 community events
 - Spoke directly with over 600 people
- Virtual public meeting
 - Presented draft results; answered questions
 - 62 registrants



Community Survey - Summer 2024

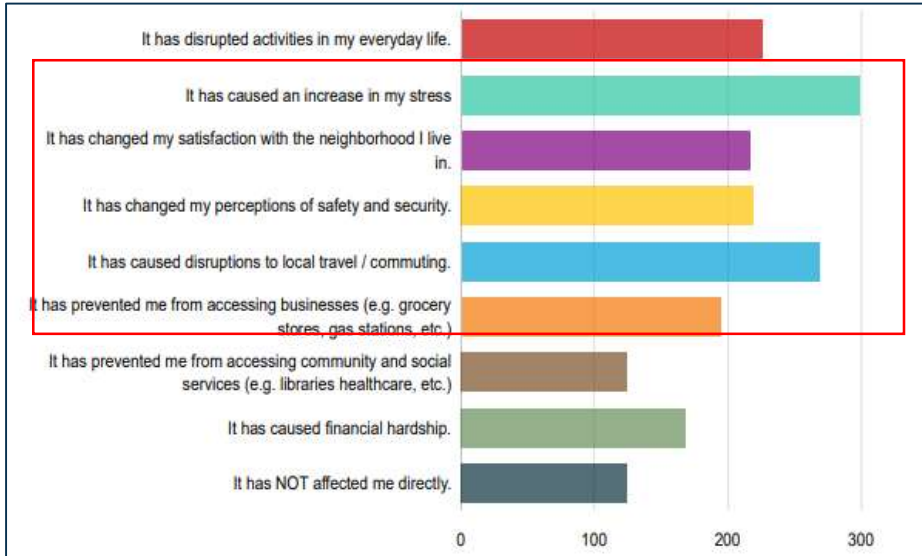
- Flooding has been very disruptive
- 50% consider flooding when deciding:
 - where to live; how to travel
- Highest level of concern for:
 - Roads, electricity, communications, buildings

Factors Making Recovery Difficult

Recurring flooding;
low-lying facilities;
risk of pollution

Vulnerable
populations;
wildlife;
habitat

- 1/3 Respondents
- 1/2 Respondents



Steering Committee

Name	Collaborative Community
Ryan Womack, Public Works Superintendent	Town of Belleair
Ashley Bernal, Assistant Town Manager	Town of Belleair
Kyle Riefler, City Manager	City of Belleair Beach
Mary Palmer, Town Clerk	Town Belleair Shore
Dean Scharmen, Public Works Director	City of Indian Rocks Beach
Christina (Tina) R. Porter, Town Administrator	Town of Indian Shores
Megan Wepfer, Public Works Director	City of Madeira Beach
Mari Campbell, Town Clerk	Town of North Redington Beach
Adriana Nieves, Town Clerk	Town of Redington Beach
Margaret Carey, Town Administrator	Town of Redington Shores
Josie Benwell, PMO Section Manager Public Works	Pinellas County

Technical Stakeholder Reviews

- Technical Stakeholder Reviews
 - Multiple City departments and City staff
 - St. Pete-Clearwater International Airport
 - Tampa Bay Estuary Program
 - Climate Science Advisory Panel
 - Florida Housing Coalition
 - Forward Pinellas
 - Tampa Bay Regional Planning Council
 - Florida Department of Health
 - Consultant and non-profit reviewers
 - +more!



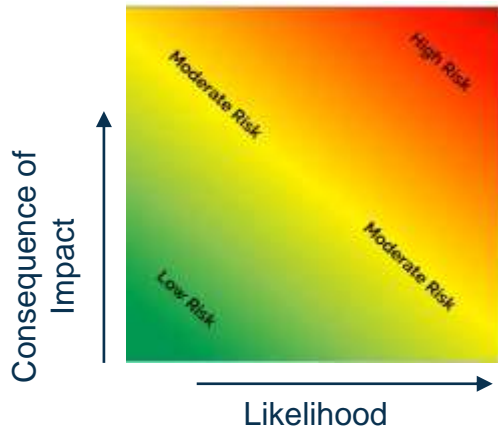
VA Steps

- Data Collection
 - GIS provided, desktop and field checks
- Exposure
 - Means an asset is impacted by floodwaters.
 - ✓ 21 flood scenarios in Ph II VA
 - 2018 base year, 2040, 2070
- Sensitivity
 - Considers flood severity for all, most also consider characteristics and criticality of an asset



Field check – Redington Beach Town Hall is elevated mitigating some impacts shown at ground elevation.

Exposure and Sensitivity Approach



Belleair Beach Tidal Flooding Overlay

- Flood depth extreme for park – consequences lower than facility or bridge
- Possible lower cost recovery for park



Public Safety

- Most critical
- Current resilience and adaptability varies

Countywide Takeaways

- Storm Surge tends to have higher flood severity and impact more assets.
 - This is based on available flood models; keep in mind there are many scenario combinations as well as mitigating factors not shown - like elevated structures and stormwater infrastructure.
- Regionally significant assets like the St. Pete-Clearwater International Airport, County Solid Waste Disposal Complex, and evacuation routes have flood impacts across most flood scenarios.
- Significant numbers of assets across all classes are impacted, although **emergency shelters** were one asset type that did not show impacts



Photo Credit: Visit St. Pete Clearwater Florida

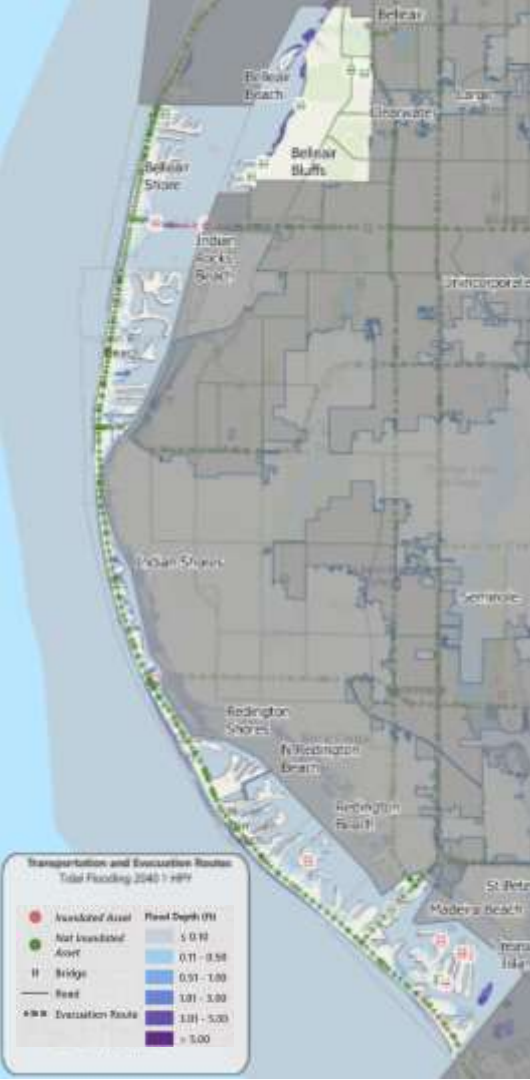
Collaborative Communities



- Tidal flooding in coastal communities.
 - 10% - 40% of area 2018 through 2070.
- Storm Surge 100-Year in coastal communities.
 - about 100% of area for all scenarios.
- Town of Belleair more inland and at higher elevation – different trends.
 - Extreme rainfall shows more impact.
- City of Pinellas Park – extreme rainfall and storm surge impacts.

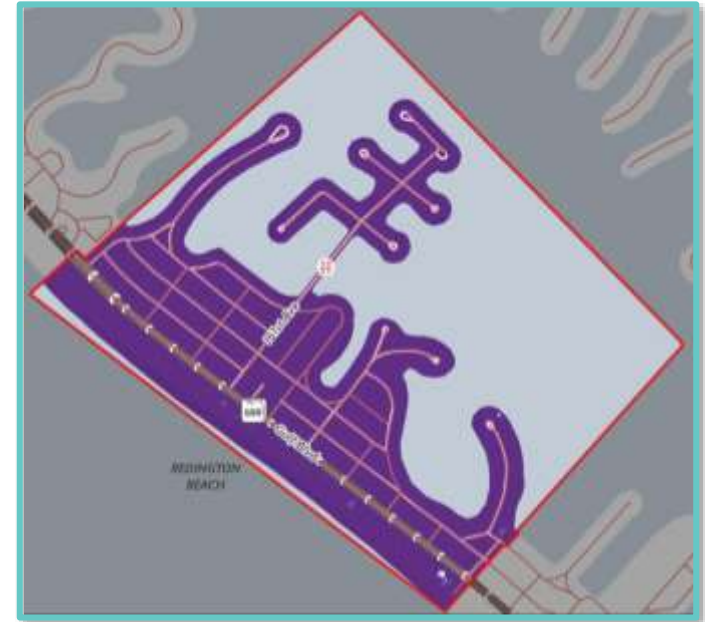
2040 Tidal Flooding Intermediate High 1 HPY

- 44% Total Bridges Impacted
 - 55% Belleair Beach Bridges
 - 57% Madeira Beach Bridges
 - 100% Indian Shore Bridges
 - 0% Belleair Bridges
- Minor Gulf Boulevard Impacts
- Significant local roads impacts



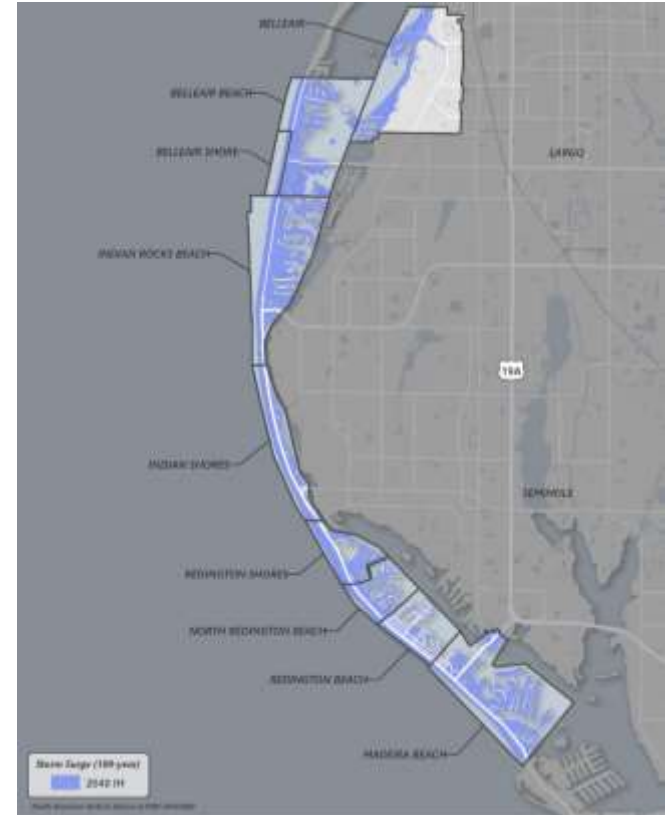
Base Year 2018 Storm Surge 100 Year Intermediate Low

- 100% Gulf Blvd
- 100 % bridge impacts (not including Belleair)



Storm Surge 2040 100 Yr

Community	Local Government Facilities (buildings mainly)	Parks
Belleair	0%	9%
Belleair Beach	50%	100%
Belleair Shore	N/A	100%
Indian Rocks Beach	100%	100%
Indian Shores	100%	100%
Madeira Beach	50%	100%
North Redington Beach	100%	100%
Redington Beach	100%	100%
Redington Shores	100%	100%



Tidal Flooding 2040

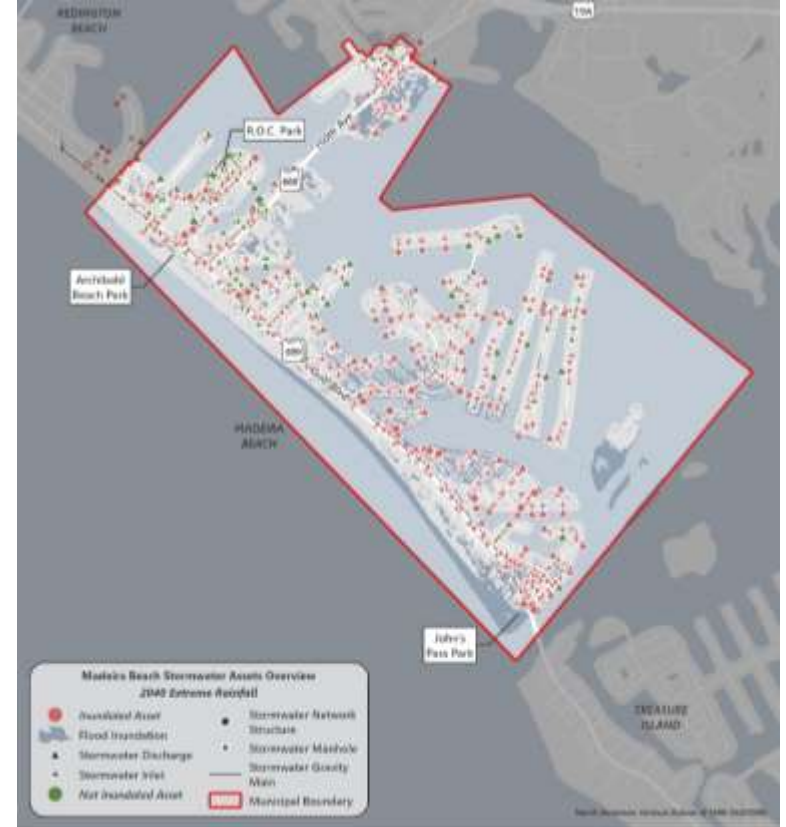
Community	Local Government Facilities	Parks
Belleair	0%	0%
Belleair Beach	50%	83%
Belleair Shore	0%	0%
Indian Rocks Beach	0%	0%
Indian Shores	0%	6%
Madeira Beach	0%	0%
North Redington Beach	0%	0%
Redington Beach	0%	10%
Redington Shores	0%	0%



Likely Scenarios Subset

Madeira Beach Subset

Asset Type	Total #	Storm Surge IL 2040 %Assets Exposed	Extreme Rainfall 2040 % of Assets Exposed
Community center	2	100%	0%
Local government facilities	2	50%	0%
Stormwater Conveyance System	1,117	99%	73%
Parks	22	100%	



Next Steps: Focus Area and Adaptation Planning

- Draft VA reviews through March 10
- Focus area and adaptation planning April – August 2026



Next Steps: County BOCC & Submittals

- County BOCC Meeting March 19
- Submit final VA to FDEP March 2026
- Submit adaptation plan to FDEP September 2026
- Ongoing funding strategies and grant applications



Thank You

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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.