PBC – Assessing and Adapting to Climate Risks

Joint WRTF WAB – May 9

Vulnerability Assessment

Vulnerability Assessment

Project Scope

- County's unincorporated area and western municipalities
- County's "Critical" Assets defined by Florida Statute
- Measures potential climate threat impacts
- Identifies the levels that people, property, and natural resources may be affected

- Government Buildings
- Lift Stations
- Fire Stations
- Schools
- Child Care Centers
- Senior & Assisted Living Facilities
- Mobile Home Parks
- Medical Facilities
- Hospitals
- Law Enforcement Facilities
- Courthouses
- Ground Storage Tanks
- Low-income Housing
- Historic Structures
- Transportation Methods (bus routes, streets, evacuation routes)

Funded by $1,300,000 in Grants

Climate Threats Assessed

Coastal Erosion: The permanent removal of sand from shorelines and coastal lands due to wind, waves, and longshore currents.

Drought: A period of abnormally dry weather due to a rainfall deficit

Extreme Heat: A period of hotter and more humid temperatures than average for a specific location at that time of year.

Non-Coastal/Inland Flooding: Temporary inundation of normally dry land due to excessive precipitation rates.

Severe Storm: Tornadoes, hurricanes, tropical storms, and other weather events that bring excessive rainfall and wind that produce higher and stronger storm surges.

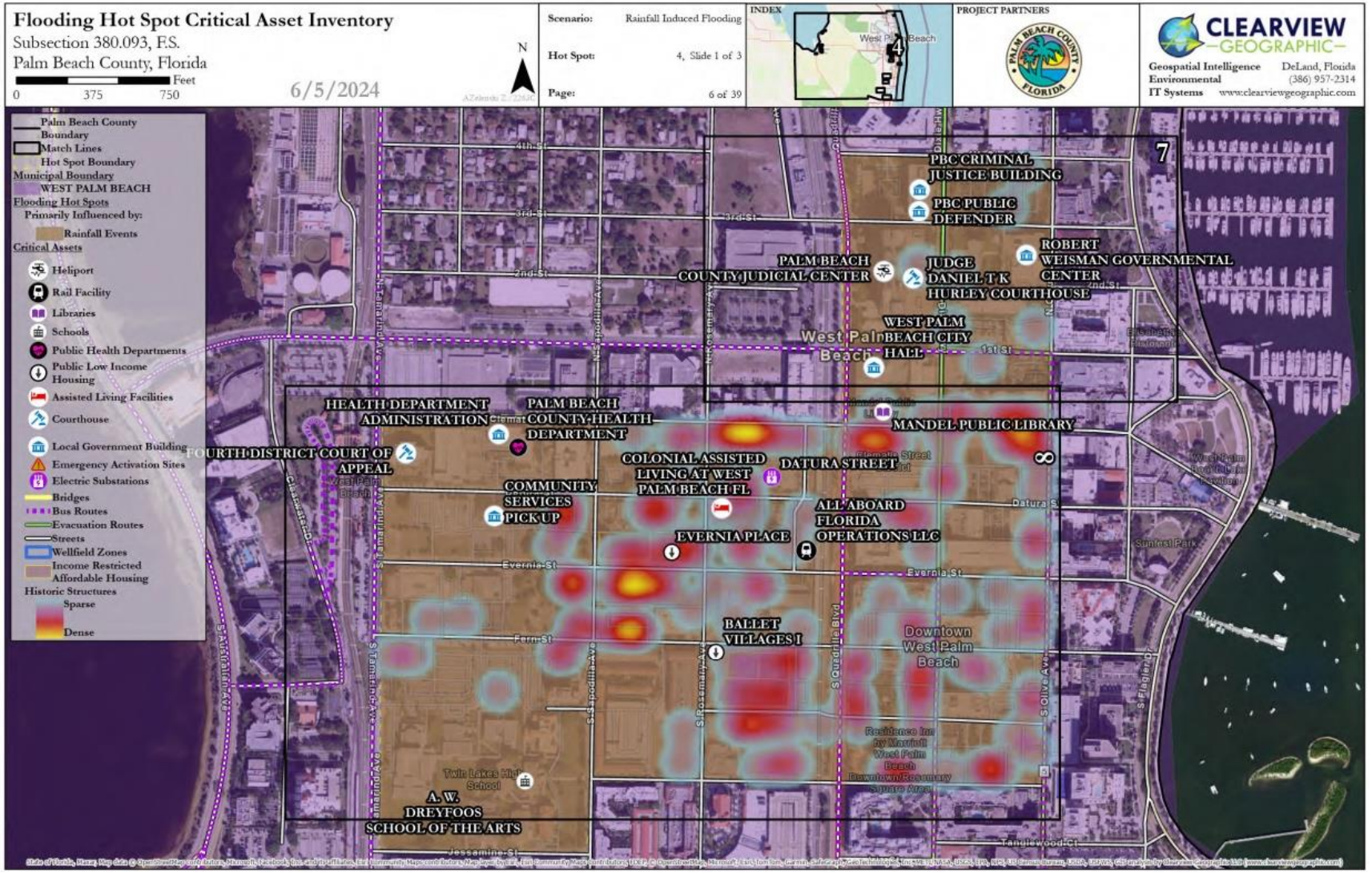
High Wind: Events with sustained wind speeds that are powerful enough to down trees and powerlines, damage property, and knock debris loose.

Wildfire: An uncontrolled fire that begins in an undeveloped area but the spread of which threatens nearby communities, populations, and critical assets.

Flooding:

- Sea Level Rise
- Tidal Flooding
- Storm Surge
- Rainfall
- Compound Flooding

VA Output


Flooding Hot Spot Critical Asset Inventory
Subsection 380.093, F.S.
Palm Beach County, Florida
Feet
0 375 750
6/5/2024
N
Scenario: Rainfall Induced Flooding
Hot Spot: 4, Slide 1 of 3
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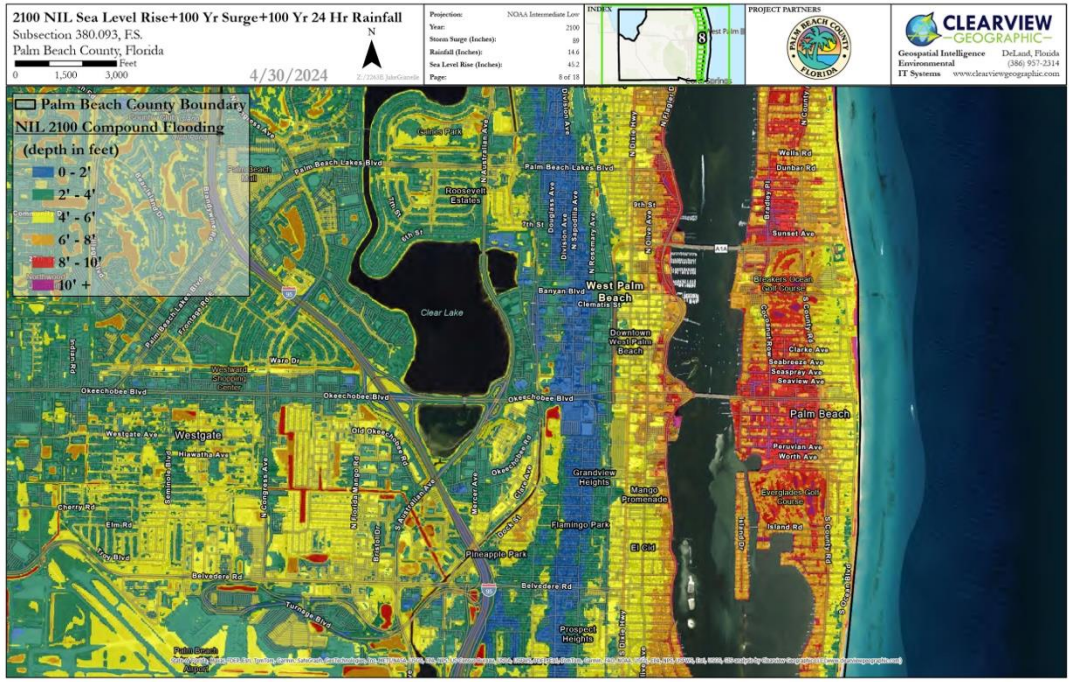
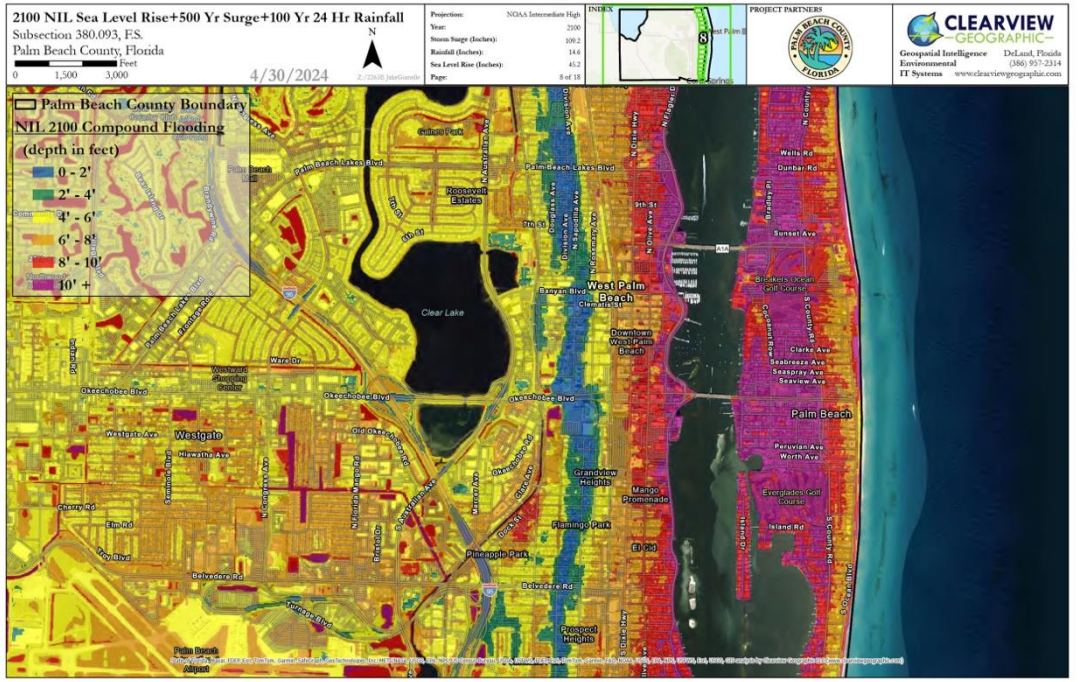
PROJECT PARTNERS
CLEARVIEW GEOGRAPHIC
Geospatial Intelligence DeLand, Florida
Environmental (386) 957-2314
IT Systems www.clearviewgeographic.com
Palm Beach County Boundary
Match Lines
Hot Spot Boundary
Municipal Boundary
WEST PALM BEACH
Flooding Hot Spots
Primarily Influenced by:
Rainfall Events
Critical Assets
Heliport
Rail Facility
Libraries
Schools
Public Health Departments
Public Low Income Housing
Assisted Living Facilities
Courthouse
Local Government Building
Emergency Activation Sites
Electric Substations
Bridges
Bus Routes
Evacuation Routes
Streets
Wellfield Zones
Income Restricted Affordable Housing
Historic Structures
Sparse
Dense
PBC CRIMINAL JUSTICE BUILDING
PBC PUBLIC DEFENDER
PALM BEACH COUNTY JUDICIAL CENTER
JUDGE DANIEL T K HURLEY COURTHOUSE
ROBERT WEISMAN GOVERNMENTAL CENTER
WEST PALM BEACH CITY HALL
HEALTH DEPARTMENT ADMINISTRATION
PALM BEACH COUNTY HEALTH DEPARTMENT
MANDEL PUBLIC LIBRARY
FOURTH DISTRICT COURT OF APPEAL
COLONIAL ASSISTED LIVING AT WEST PALM BEACH FL
DATURA STREET
COMMUNITY SERVICES PICK UP
ALL ABOARD FLORIDA OPERATIONS LLC
EVERNIA PLACE
BALLET VILLAGES I
Downtown West Palm Beach
A. W. DREYFOOS SCHOOL OF THE ARTS
Residence Inn by Marriott West Palm Beach Downtown/Rosemary Square Area
Clematis St
Datura St
Evernia St
Fern St
Jessamine St
Tangelwood Ct
1st St
2nd St
3rd St
4th St
S Rosemary Ave
S Olive Ave
S Flagler Dr
S Quadrille Blvd
S Sapodilla Ave
S Tamarind Ave

Vulnerability Assessment

Sea Level Rise + Storm Surge + Rainfall



2100 NIL SLR + 100 Yr. Storm Surge + 100 Yr. 24-Hr Rainfall
SLR: 45.2 inches / SS: 89 inches / Rainfall: 14.6 inches



2100 NIL SLR + 500 Yr. Storm Surge + 100 Yr. 24-Hr Rainfall
SLR: 45.2 inches / SS: 109.2 inches / Rainfall: 14.6 inches

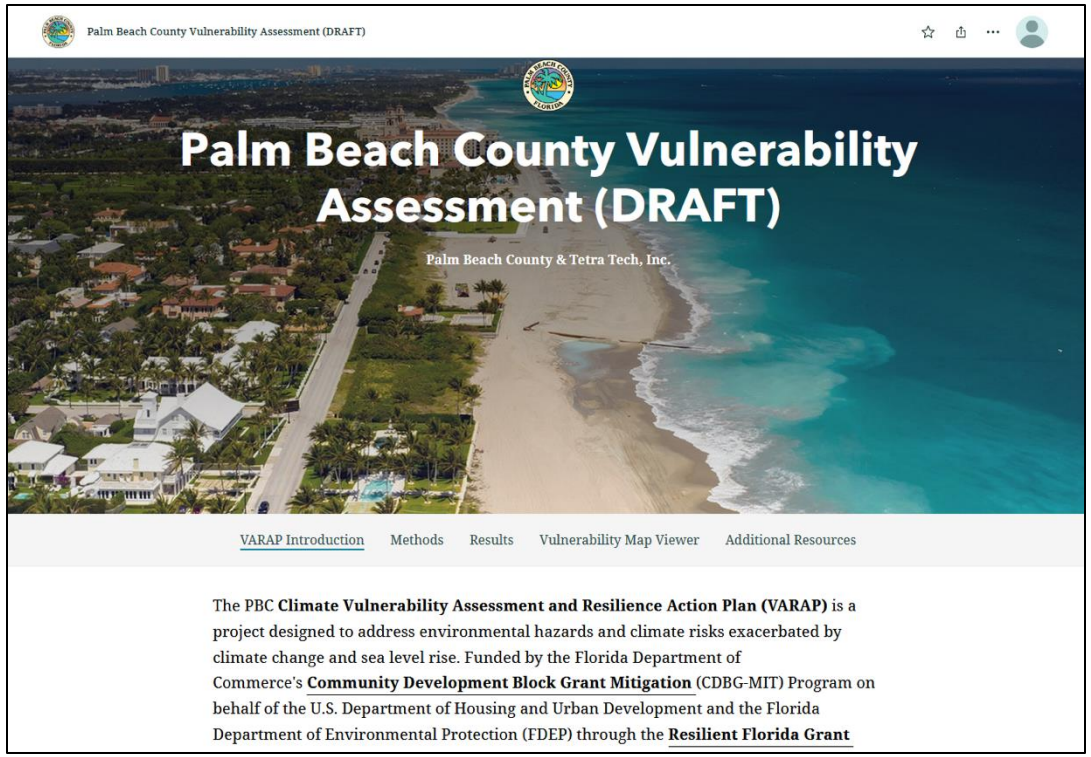
Vulnerability Assessment

Top Assets of Concern

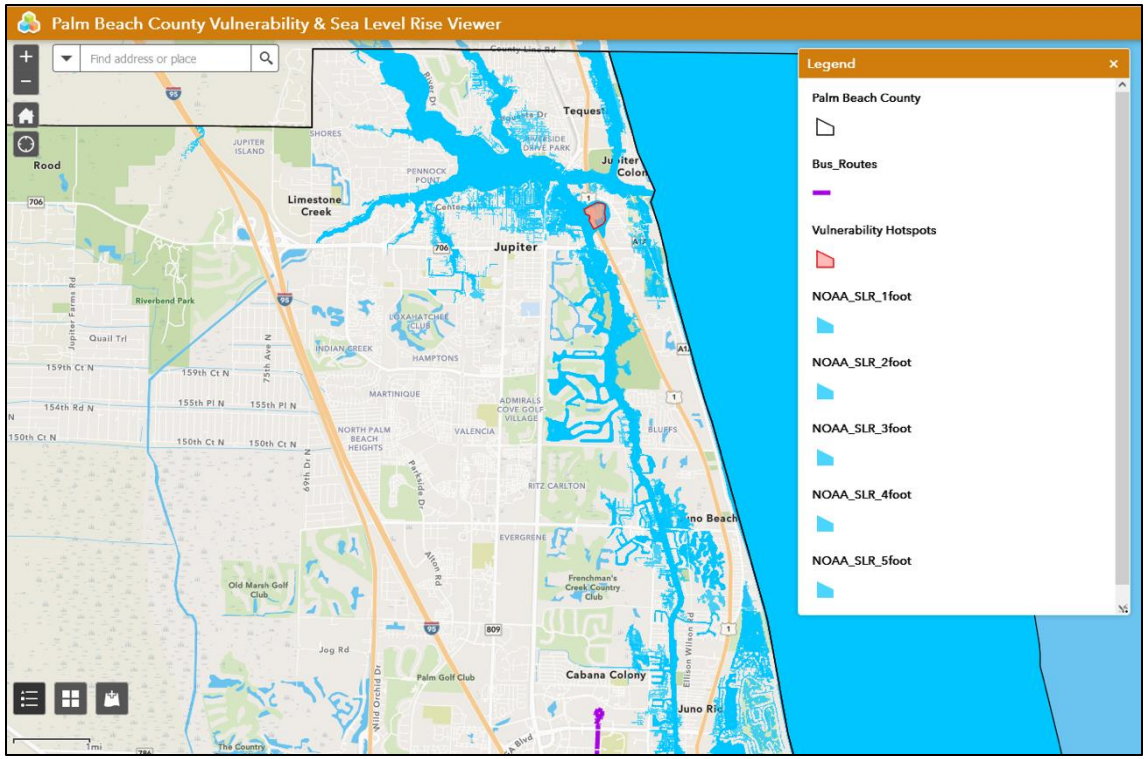
- Parks & Natural Areas
- Roads & Bridges
- Water and Wastewater Infrastructure
- Government Facilities
- Emergency Response Facilities
- Utility & Communications Infrastructure

GIS Map Tool & Data Dashboard

PBC VARAP StoryMap



PBC Vulnerability & SLR Viewer

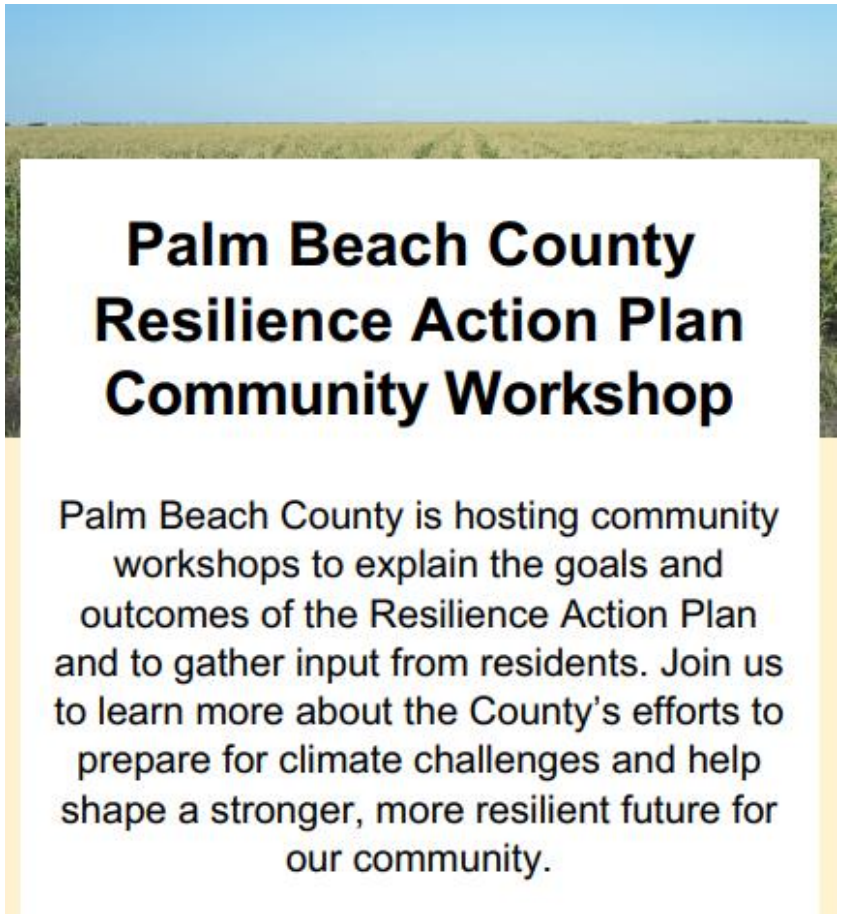


Adaptation

Resilience Action Plan

Project Scope

- Informed by VA:
  - **Extreme Flooding**
  - **Extreme Heat!**
- Policy recommendations
- Scoring Matrix
- 30 Priority Projects



Resilience Action Plan

Goals

1. **Address Climate Hazards**: Mitigate impacts on County assets and communities.
2. **Improve Infrastructure Resiliency**: Reinforce and retrofit infrastructure to withstand climate stressors, ensuring service continuity and minimizing recovery costs.
3. **Deliver Environmental Benefits**: Promote environmental health through green infrastructure and habitat conservation to enhance resilience and improve air quality.
4. **Ensure Equity and Safeguard Vulnerable Populations**: Focus on targeted interventions to protect vulnerable populations, ensuring equitable access to resilience resources and support.
5. **Streamline Implementation of Adaptation Measures and Operational Efficiency**: Prioritize feasible and cost-effective adaptation solutions to simplify implementation and reduce operational burdens.

Resilience Action Plan

Adaptation Project Types: Natural Resources

- Sky glow limit
- Shoreline ordinance
- Coastal redevelopment policy
- Groundwater consideration within Code
- Seawall replacement/installation Living shoreline creation
- Mangrove island creation
- Dune stabilization and planting
- Beach nourishment, sand transfer, and shoreline protection
- Canopy expansion & tree donation sites

Resilience Action Plan

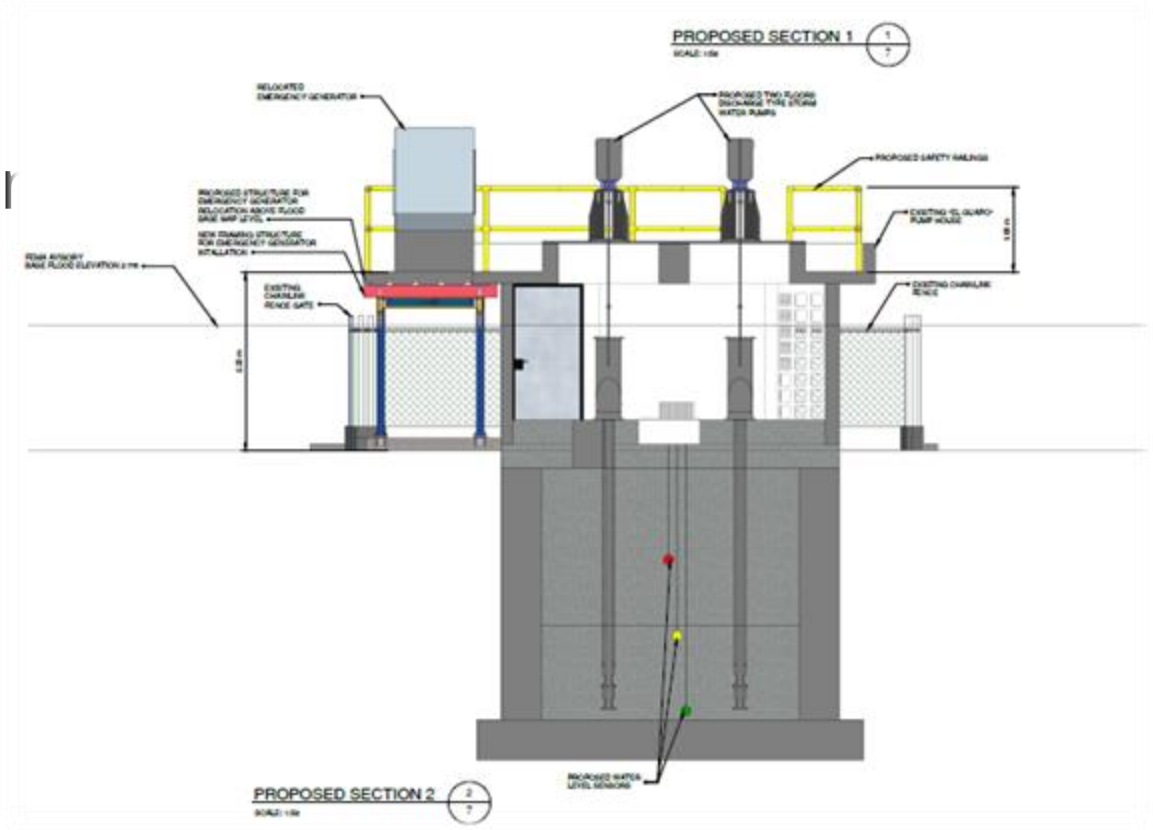
Adaptation Project Types: Community Facilities

- Shade structure replacement and expansion
- Multipurpose field house
- Resilience hub
- Shelter upgrades
- Harden government and community facilities
- Construct water play structures

Resilience Action Plan

Adaptation Project Types: Infrastructure & Utilities

- Septic to sewer
- Lift and pump station rehab/elevation
- Facility hardening and expansion
- Stormwater management/improvements
- Stormwater master plan
- Drainage improvements for frequently flooded residential areas and roads



Resilience Action Plan

Scoring Matrix – SAMPLE

Category	Resilience Goals	Metrics	Value	Value (Column D)	Weight	Score	Weighted Score
Engineering	Structural v. Non-Structural Strategies	Type of Strategy	1: **Non-Structural Strategy**, this adaptation strategy involves policy, planning, codes, and/ or education/awareness 2: **Structural Strategy**, this adaptation strategy involves physical modifications to the asset 3: **Mixed method**, this adaptation strategy involves both structural and non-structural components		100%		0
	Adaptive to Multiple Climate Threats	Yes/No	1: **No**, the adaptation strategy only addresses one climate threat or the ability to address multiple threats is undetermined 2: **Yes**, the adaptation strategy addresses multiple climate threats		100%		0
	Asset Lifespan	Time to End of Life Cycle	1: The adaptation stategy is being applied to a asset with a life cycle of **> 15 years** 2: The adaptation stategy is being applied to a asset with a life cycle of > **30 years** 3: The adaptation stategy is being applied to a asset with a life cycle of > **50 years**		100%		0
	Future Adaptability/Adaptive Capacity	Yes/No	1: **No**, the adaptation strategy can not be modified in the future to further accommodate expected climate conditions, or its capacity for adaptation is uncertain 2: **Yes**, the adaptation stategy can be modified to accommodate expected future climate conditions		100%		0
Environmental	Net Zero GHG Emissions	Time to Meet	1: The adaptation stategy will contribute to net zero GHG emissions in PBC within a **>50 year** time frame 2: The adaptation stategy will contribute to net zero GHG emissions in PBC within a **<30 year** time frame 3: The adaptation stategy is being applied to a building/facility with a life cycle of **<15years**		100%		0
	Flood Reduction	Level of Flood Reduction	1: This adaptation strategy will provide a **low level** of flood reduction 2: This adaptation strategy will provide a **medium level** of flood reduction 3: This adaptation strategy will provide a **high level** of flood reduction		100%		0
	Ecosystem/Habitat/Water Quality	Yes/No	1: No, this adaptation strategy will **not improve** ecosystem/habitat/water quality in PBC, or the effect is uncertain 2: Yes, this adaptation strategy **will improve** ecosystem/habitat/water quality in PBC		100%		0
	Nature Based Solution	Yes/No	1: This adaptation strategy is **not a NBS** 2: This adaptation strategy **is a NBS** (ex: green infrastructure, living shoreline, restoration, etc)		100%		0

Capital Planning

Resiliency Checklist

- All County Capital Construction Projects have to do a “mini” VA to disclose likely climate risks and what, if anything, they are doing to address that in the project scope.
- Use the SEFL Regional Climate Change Compact Unified Sea Level Rise Projection
- Complete an Office of Resilience Checklist
- Demonstrate how a County Building complies with State Green Building Statute F.S. 255.2575 by providing a completed green building scorecard.

Capital Planning – Resiliency Checklist

1. Sea Level Rise and Flooding

How will this project adapt to rising sea levels, flooding, and storm surges?

- ☐ Build on partially elevated areas
- ☐ Check valves or non-return valves
- ☐ Elevated flood wall or flood gate
- ☐ Flood barriers (passive or active)
- ☐ Flood-damage resistant materials
- ☐ Living shoreline
- ☐ Raising land
- ☐ Reduced paved surfaces
- ☐ Utility elevation
- ☐ Foundation flood vents
- ☐ Elevated finished first floor
- ☐ Relocate structure
- ☐ Dune restoration or beach nourishment
- ☐ Wetlands restoration or retention pond
- ☐ Floodable park or water square
- ☐ Increased plantings and other nature-based infrastructure

Adaptation Funding Strategy

Implementation Projects

- P&R- Ocean Inlet Park Resiliency Improvements ($7.5M)
- EPW- Country Club Acres Drainage Improvements ($1.4M)
- EPW- Englewood Estates Drainage Improvements ($1M)

Country Club Acres

Adaptation Funding Strategy

Implementation Projects *(cont.)*

- WUD - Western Region North Wastewater Treatment Facility
- WUD - Western Region Wastewater Treatment Facility

Additional Funding

- EPW - Australian Ave. (Requesting $4M; has already received $13.3M)

Western Region Wastewater Treatment Facility

THANK YOU!

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