



TOWN OF LONGBOAT KEY PHASE 4: SEA LEVEL RISE AND RECURRING FLOODING RESILIENCE PLAN

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PROGRESS UPDATE



Phase 1: Data Collection



Phase 2: Vulnerability and Risk Assessment



Phase 3: Adaptation Strategies



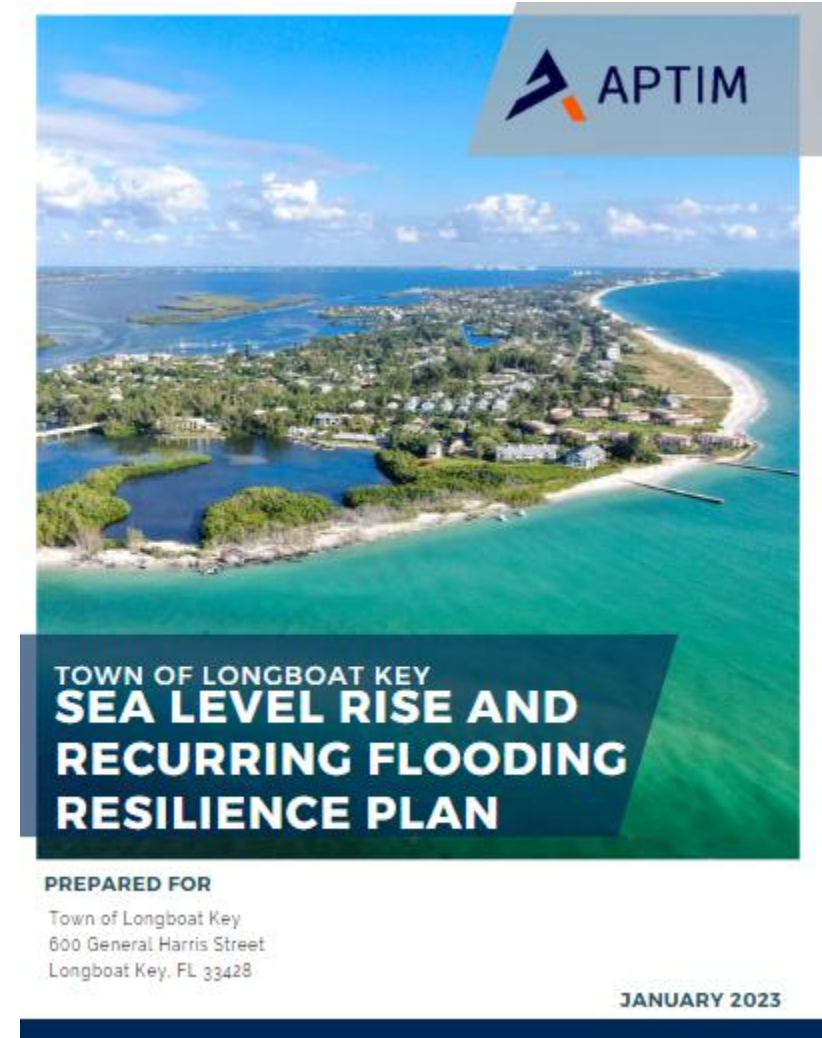
Phase 4: Sea Level Rise and Recurring Flooding Resilience Plan

- > Policies to Support Adaptation and Resilience (12/12 Workshop)
- > **Prioritized Resilience Projects to Mitigate Risks**
- > **Capital Plan for Short and Long Term Measures**

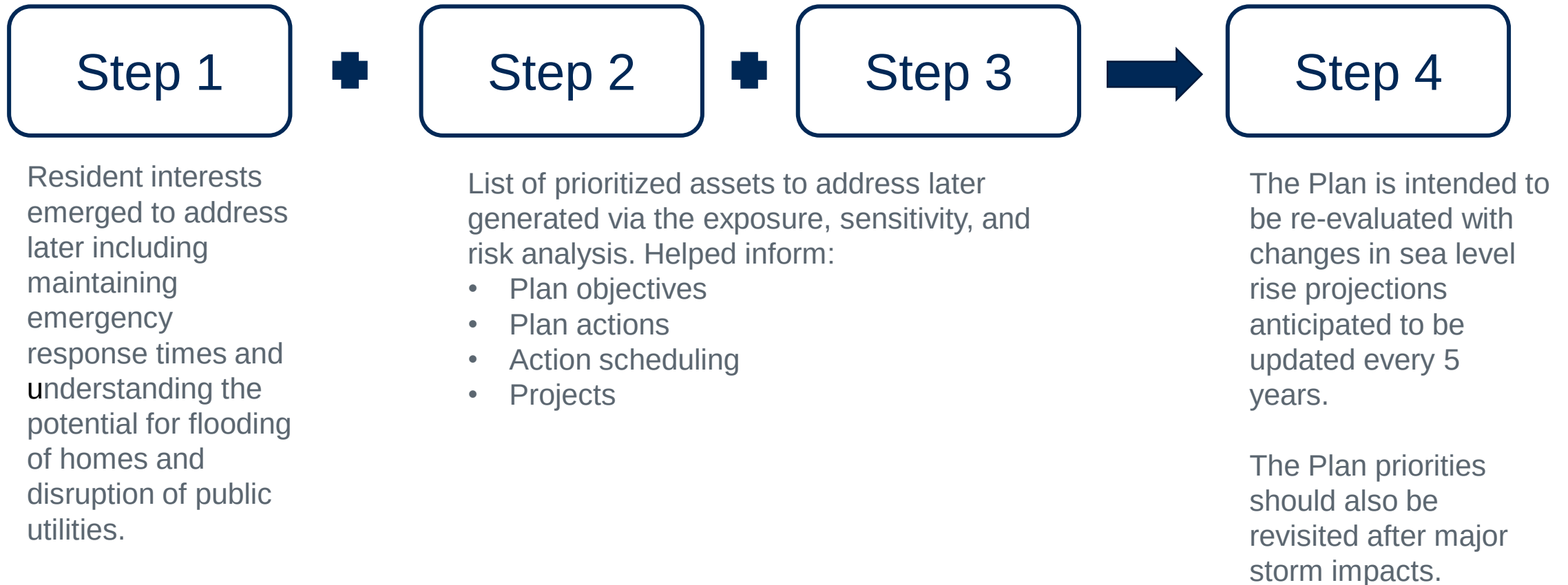


PURPOSE AND INTENT OF PLAN

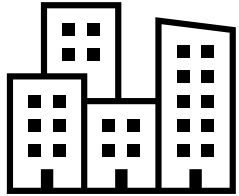
- ▶ Provides a collection of best practices, administrative actions and projects intended to prepare the Town of Longboat Key for changes in asset management and operational needs likely to manifest as sea level rises.
- ▶ Recommended actions are meant to be implemented by Town administration; however, the information throughout the Plan is valuable to community stakeholders that will need to adapt their own investments as sea level rises.
- ▶ The plan includes actions to implement over the next 5, 10 and 20 years.
- ▶ If the rate of sea level rise slows or accelerates, the timeframes for implementation can be adjusted based on risk tolerance.



PLAN DEVELOPMENT AND USE



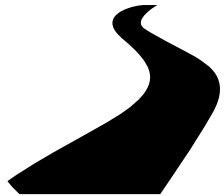
SEA LEVEL RISE AND RECURRING FLOODING VULNERABILITY ASSESSMENT FINDINGS REVIEW



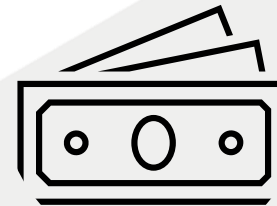
At least 78 individual Town-owned assets including lift station components, stormwater inlets and outfalls, parks, low elevation dunes and at least one mile of road are at risk to flooding by 2040



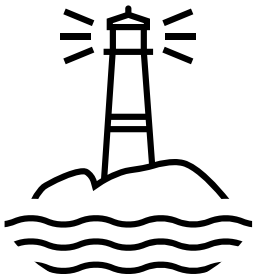
Most of the privately owned properties at risk have structures that were built before the base flood elevation or flood insurance standards were set



Seven neighborhoods and ten roads are at risk under current conditions



While operational challenges for the Town may increase, addressing the majority of the vulnerabilities would be the responsibility of private owners



Vulnerable bayfront/ beachfront shorelines in the Village, Sleepy Lagoon and along 4400 to 5300 Gulf of Mexico Drive will likely increase flood risk if not adapted



Vulnerability to storm surge today is much greater than sea level rise.

Bayfront shoreline is vulnerable to sea level rise.



MAJOR TAKE AWAYS OF PLAN

- No major immediate actions need to be taken.
- While the Town has previously worked to protect major town assets, there remains other assets that will require work.
- Some of the actions outlined are new, while some overlap existing programs and projects.
- The cost of the program should be viewed as an investment in the Town's future. The Town's cost are manageable and grant funding is available. Private investment is required to protect private assets.
- Actions will require leadership to appropriately plan, (fund) and implement in a comprehensive way.
- The schedule is flexible, but there are near term needs/recommendations.



PLAN ORIENTATION

- ▶ The plan centers on two overarching strategies:
 1. Maintain operations and quality of Town owned assets
 2. Communicate future risks to stakeholders to support resilience planning and investment in adaptation through policy and outreach.
- ▶ The 25 actions in the Plan are organized by 6 objectives.

Objectives

- 1 Mitigate Tidal Flooding
- 2 Prepare for Active Stormwater Management
- 3 Protect Public Assets and Natural Areas
- 4 Leverage Redevelopment to Implement Adaptation
- 5 Engage Community to Build Resilience
- 6 Integrate Resilience in the Capital Program

How do Implementation Timelines Relate to Planning Horizons?

Near term represents planning horizon for **urgent priorities** and existing risks that should be addressed in next 5 years.

Mid term implementation timeline affords time to address future risks anticipated by the **planning horizon of 2040**. Policies initiated in near term are assumed to be fully implemented.

Long term planning horizon affords time to address future risks anticipated by the **planning horizon of 2070**. Critical infrastructure installed today will need to be replaced at end of 50 year life cycle.



ACTIONS BY IMPLEMENTATION TIMELINE

Objectives

- 1 Mitigate Tidal Flooding
- 2 Prepare for Active Stormwater Management
- 3 Protect Public Assets and Natural Areas
- 4 Leverage Redevelopment to Implement Adaptation
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Near Term (0-5 Years)

Action 1	Install and Maintain Tide Valves
Action 2	Amend seawall Regulation to address Tidal Flooding
Action 6	Monitor Infiltration and Continue Active Utility System Preservation Programs
Action 7	Amend Stormwater Management Strategy
Action 15	Evaluate Opportunities to Integrate Green Infrastructure
Action 16	Adopt Policy Map Showing Sea Level Rise Projections
Action 17	Continue to Support Resilience Standards In Policies
Action 18	Consider Adaptation Needs in Evaluation of Redevelopment Impacts
Action 20	Maintain or Improve Community Rating System Grade
Action 21	Conduct Community Outreach
Action 22	Continue Intergovernmental and Stakeholder Coordination
Action 23	Encourage Floodproofing of Electrical Charging Stations and Battery Storage Equipment as Applicable
Action 24	Prioritizing Resilience Projects After Storm as Applicable
Action 25	Schedule Proposed Projects Based on Urgency, Funding Availability and Potential for Bundling

Mid Term (5-10 Years)

Action 8	Floodproof Vulnerable Electrical Equipment at Lift Stations
Action 9	Increase Resilience of Dune Systems as Part of Regular Beach Management Plan Updates
Action 10	Coordinate to Maintain Evacuation Routes
Action 11	Maintain Condition of and Access on Roads in Areas Experiencing Tidal Flooding and Seepage
Action 12	Maintain Beach Access Points
Action 13	Increase Water Quality Monitoring Near Septic Systems at Jewfish Key
Action 14	Plan for Mangrove Adaptation
Action 19	Encourage Private Adaptation

Long Term (>20 Years)

Action 3	Elevate Bayfront Roads and Install Pump Stations
Action 4	Evaluate Performance of Dry Retention Areas, Wet Detention Areas and French Drains
Action 5	Plan for Future Stormwater Management Operations



OBJECTIVE 1 - MITIGATE TIDAL FLOODING

ACTION 1: INSTALL AND MAINTAIN TIDE VALVES

TIMEFRAME

Near Term (0-5 Years)

PRIORITY AREAS

- | | |
|--|-----------------|
| 1.Sleepy Lagoon | 5.Buttonwood |
| 2.The Village | 6.Hideaway |
| 3.Emerald Harbor | 7.4400-5300 GMD |
| 4.Spanish Main (Private Outlets,
Not for Town to Implement) | |

STAKEHOLDERS

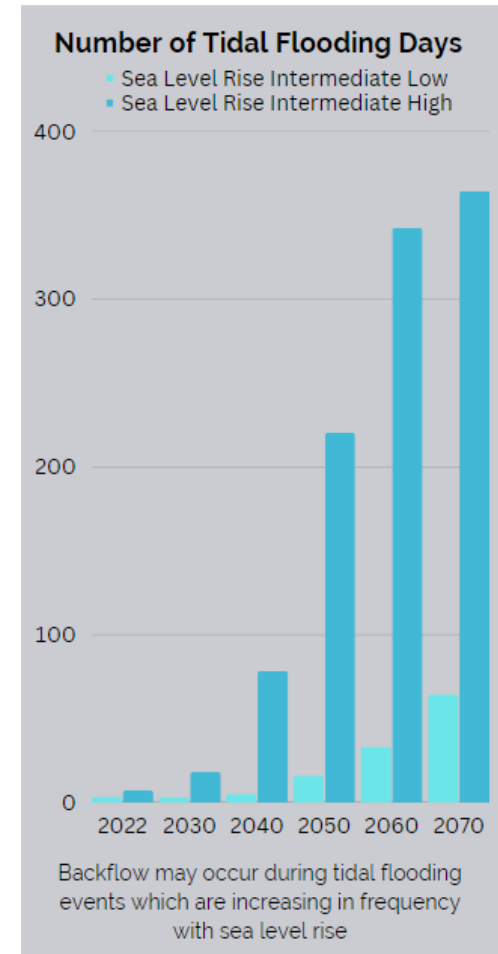
- Town- Implementation
- Residents- Receive Benefits
- Private Owners- Educate and Encourage Private Installation
- Home Owners Associations- Coordination if connected to Town outlet

DESCRIPTION

- The installation of tidal valves is necessary for the prevention and management of inland inundation caused by tidal flooding
- The implementation of tide valves on drainage pipe outlets that discharge to the bay will prevent the backflow of seawater into the discharge pipe during times of high tide while still allowing stormwater out during rainfall events during low tide.

Maintaining tide valves:

- The Town has already installed tide valves in select locations. To ensure proper operations, these valves should be inspected during flood conditions to assess performance and plan maintenance as necessary.



OBJECTIVE 2 - PREPARE FOR ACTIVE STORMWATER MANAGEMENT IN LOW LYING NEIGHBORHOODS

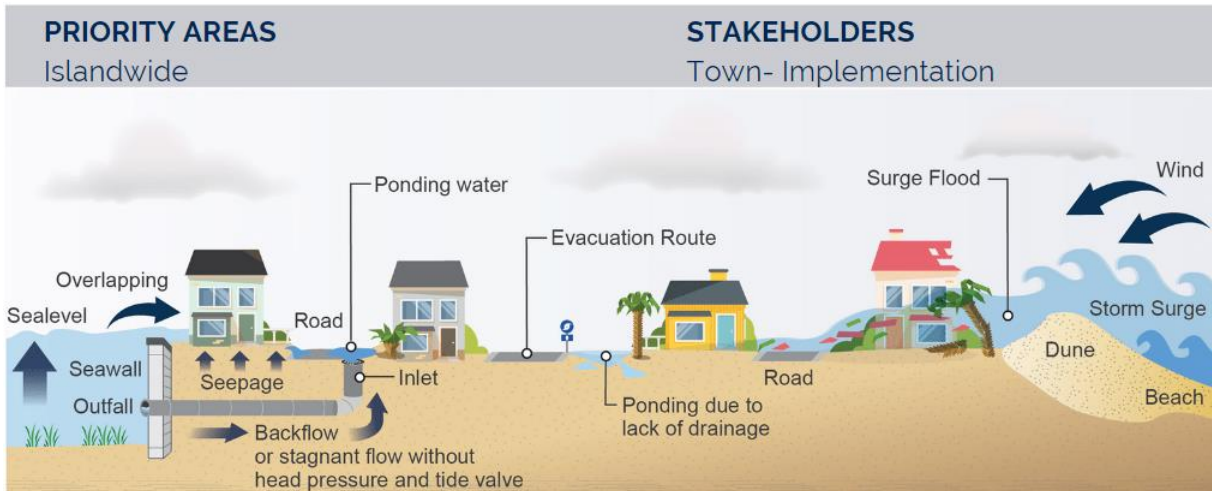
ACTION 7: AMEND STORMWATER MANAGEMENT STRATEGY

TIMEFRAME

Near Term (0-5 Years)

DESCRIPTION

- As sea level rises, storm drainage systems will have additional floodwaters to convey & natural drainage through soil infiltration will be reduced.
- If storm drainage systems are at or over capacity, the systems will not drain floodwaters as desired.



The proposed amendments & procedural changes includes:

- retrofit outfalls with tidal valves
- reflect current and projected tailwater conditions in future stormwater design
- reference to 2040 & 2070 Intermediate High SLR inundation maps

OBJECTIVE 3 - PROTECT PUBLIC ASSETS AND NATURAL AREAS

ACTION 15: EVALUATE OPPORTUNITIES TO INTEGRATE GREEN INFRASTRUCTURE

TIMEFRAME

Near Term (0-5 Years)

DESCRIPTION

- Green infrastructure elements should be considered for adaptation strategies to mitigate climate impacts of flooding, heat and ecosystem degradation

Suggested actions:

- Town administration to add the inclusion of green infrastructure as criteria for project development
- identifying opportunities to reduce impermeable areas,
- planting vegetation with high absorption capacity and salt tolerance

PRIORITY AREAS

Town swales and right of ways

STAKEHOLDERS

Town of Longboat Key



OBJECTIVE 4 - LEVERAGE REDEVELOPMENT TO IMPLEMENT ADAPTATION STRATEGIES

ACTION 16:

ADOPT POLICY MAP SHOWING SEA LEVEL RISE PROJECTIONS

DESCRIPTION

- A map of land areas that may experience tidal flooding or permanent inundation as a result of future SLR should be added to the comprehensive plan
- The map should be cross-referenced in relevant sections of land use, stormwater, redevelopment and capital improvement policy.
- The map would delineate locations of SLR affected areas in 2040 and 2070 based on the NOAA Intermediate High sea level rise projection.

TIMEFRAME

Near Term (0-5 Years)

PRIORITY AREAS

Islandwide

STAKEHOLDERS

Town (Implementation)
Residents and property owners (Hazard awareness and adaptation planning)



OBJECTIVE 5 - ENGAGE COMMUNITY TO BUILD RESILIENCE

ACTION 19:

ENCOURAGE PRIVATE ADAPTATION

TIMEFRAME

Mid Term (5-10 Years)

DESCRIPTION

- Much of the vulnerable infrastructure on Longboat Key is privately owned and would require private adaptation.

Suggested actions:

- Policies such as the tidal flood barrier requirement and providing a minimum elevation for barriers will encourage adaptation.
- Private adaptation of shorelines and seawalls is necessary to limit flood trespassing into common areas

PRIORITY AREAS

Private shoreline adaptation

STAKEHOLDERS

- Town of Longboat Key
- Private owners



OBJECTIVE 6 - INTEGRATE RESILIENCE IN THE CAPITAL IMPROVEMENT PROGRAM

ACTION 24:

PRIORITIZING RESILIENCE
PROJECTS AFTER STORM AS
APPLICABLE

TIMEFRAME

Near Term (0-5 Years)

PRIORITY AREAS

Islandwide

PARTNERSHIPS (FOR FUNDING)

- State of Florida
- Department of Environmental Protection
- Department of Economic Opportunity
- Southwest Florida Water Management District

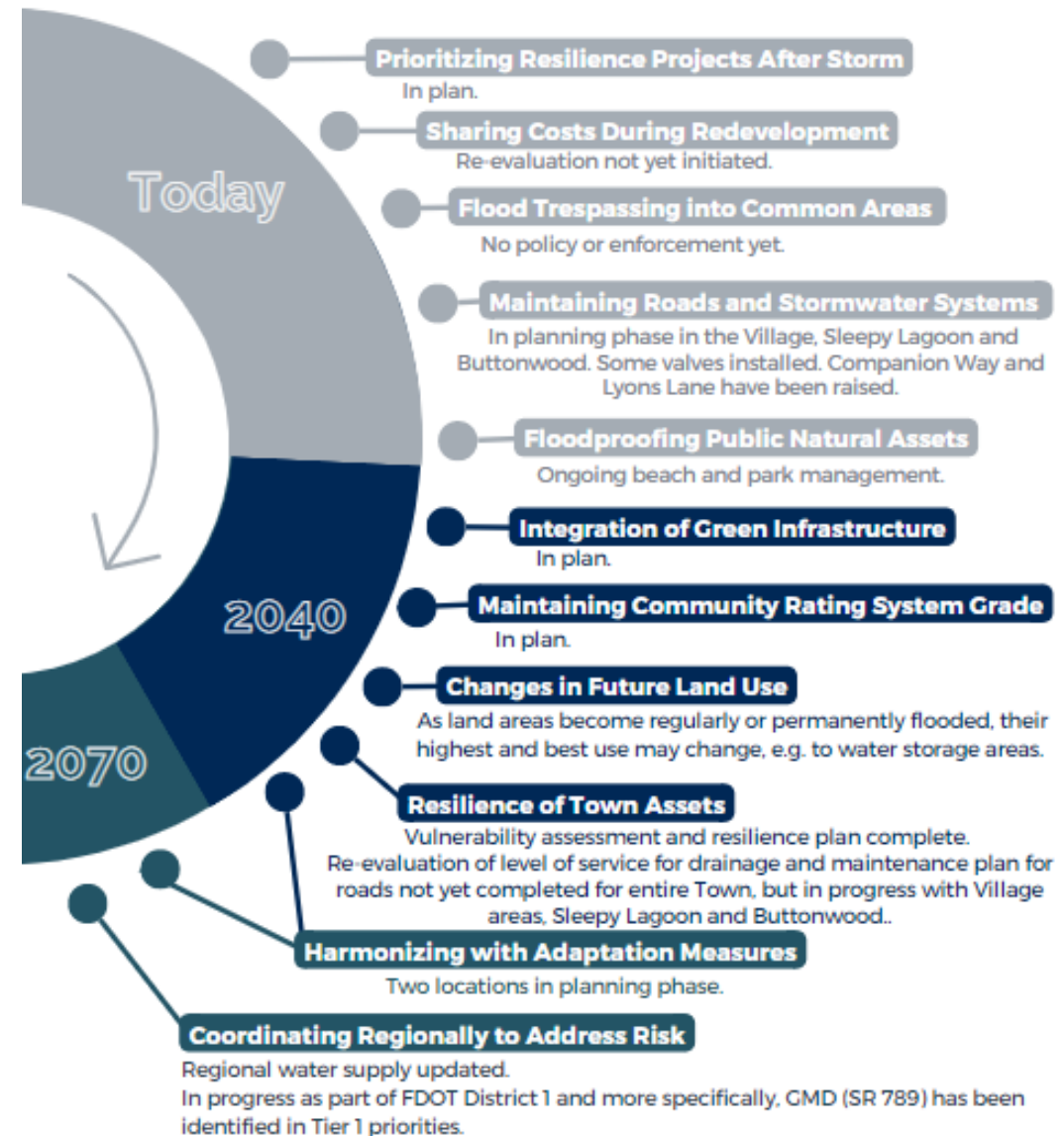


DESCRIPTION

- Resilience projects should be advanced for funding requests to support implementation of the resilience plan.
- Review the capital plan prior to hurricane season
 - to identify which resilience projects would likely be eligible for funding
 - to pre-determine if the Town administration is inclined to prioritize resilience projects over some recovery projects or competing needs.
- Integrating resilience into the recovery plan eases the burden on staff during challenging post-disaster times.

POTENTIAL OPERATIONAL CHALLENGES

Potential Operational Challenges And Status



RESILIENT CAPITAL IMPROVEMENT PLAN

▶ **Near Term Costs (Next 5 years)**

- > ~\$1.8 million per year
- > 8 project areas

▶ **Mid Term Costs (5 to 10 years)**

- > ~\$1.6 million per year
- > 5 projects or programs

▶ **Long Term Costs (20+ years)**

- > \$2.6 million per year
- > 10 projects or programs

Costs estimated in 2022 dollars.



POTENTIAL GRANT FUNDING SOURCES FOR PROJECTS

- ▶ FDEP Resilient Florida Implementation Grants
 - Drainage system improvements, tide valves, seawalls, permitting, road elevation
- ▶ FEMA Hazard Mitigation Grant Program
 - Primary source for near term, post Hurricane Ian
- ▶ FEMA Building Infrastructure and Communities (BRIC)
 - Potential source once shovel ready, highly competitive
- ▶ DOT RAISE Discretionary Grants and DOT PROTECT program
 - Road resilience/ elevation projects
- ▶ FDEP Coastal Partnership Initiative Grant Program
 - Living shoreline and dunes



Action Summary by Location

The Village

Actions 1 and 2 Action 18

Actions 3, 5, and 6

Add pumps at collection points at Poinsetta/ Longboat Dr N, Longboat Dr E/ Fox St, Bayside Dr, Lois/ Broadway/ Bayside, Bayside/ Linley

Actions 8 and 10

Elevate intersection of Longboat Dr/ Russel St to mitigate impassable street at 2040 high tide
Elevate Longboat Dr/ Bayside Dr/ Broadway and Longboat Dr S/ Jackson Way to mitigate road damage from tidal flooding in 2040

Gulfside Road

Action 9

Increase elevations of low points in dunes along Gulfside Road to better fortify the shoreline's defense against flooding and protect inland infrastructure.

Sleepy Lagoon

Actions 1 and 2

Actions 3-7

Active stormwater management along Norton St, Marbury Ln, Penfield St

Actions 8 and 10

Complete Lyons Lane projects: elevate road, linear storage
Elevate Norton St, Marbury Lane, Penfield St to mitigate impassable roads at 2070 high tide

Action 18

Containerized swale along GMD, perpendicular to Channel Ln, Outrigger Ln, canal north of Putter Ln, north of Buttonwood, south of South Dr., Bayfront Park, 4200 GMD, 5100 GMD, 5900 GMD

Hideaway

Action 1

Action 10

Elevate evacuation route along General Harris St mitigate impassable road 2040 tidal flooding

Dream Island

Action 2

Actions 8 and 10

Seawall policy amendment to prevent flood impacts to private seawalls.

Emerald Harbor and 4030- 5655 Gulf of Mexico Dr

Action 1

Installation of tidal valves to prevent and manage inland inundation caused by tidal flooding.

4700 & 6700 Gulf of Mexico Dr

Action 9

FDOT is the responsible entity. Coordinate with FDOT to elevate low points to mitigate flooding in 2070. Town working through MPO and directly with FDOT District 1.

4400-5300 Gulf of Mexico Dr

Action 2

FDOT is the responsible entity. Town working through MPO and directly with FDOT District 1.

Buttonwood

Action 1

Action 9

Elevate Buttonwood Dr to mitigate 2070 high tide

Private Neighborhoods: Spanish Main, Twin Shores/ Gulf Shore, Bay Isles, Lighthouse Point

Action 9

Elevate S 6th/ Platinum Coast, Twin Shores (inundated 2040 high tide)
Elevate Harbor Sound Dr roads (mitigate 2070 high tide)
Elevate Companion Way to mitigate 2040 tidal flooding

Actions 1 and 2

Pages 49 and 50 in plan



LOOKING FORWARD

- ▶ **Implementing the Plan will involve:**

- > Addressing existing threats
- > Planning for redevelopment
- > Developing public policies
- > Convening support through stakeholder engagement
- > Implementing projects and investment in the short and long term.

- ▶ The return on investment will yield savings in avoided losses, service disruptions, and ultimately property values.

- ▶ The Town is **now eligible for state funding** for resilience projects and prepared with a list of priorities to address.



QUESTIONS

SAMANTHA DANCHUK, PHD, PE

Samantha.Danchuk@aptim.com

561 361 3199

DOUG MANN PE, DCE

Douglas.Mann@aptim.com

561 400 7766





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