APTIM

TOWN OF LONGBOAT KEY

SEA LEVEL RISE AND RECURRING FLOODING RESILIENCE PLAN UPDATE

PREPARED FOR

Town of Longboat Key
600 General Harris Street
Longboat Key, FL 33428

FEBRUARY 2025 UPDATE

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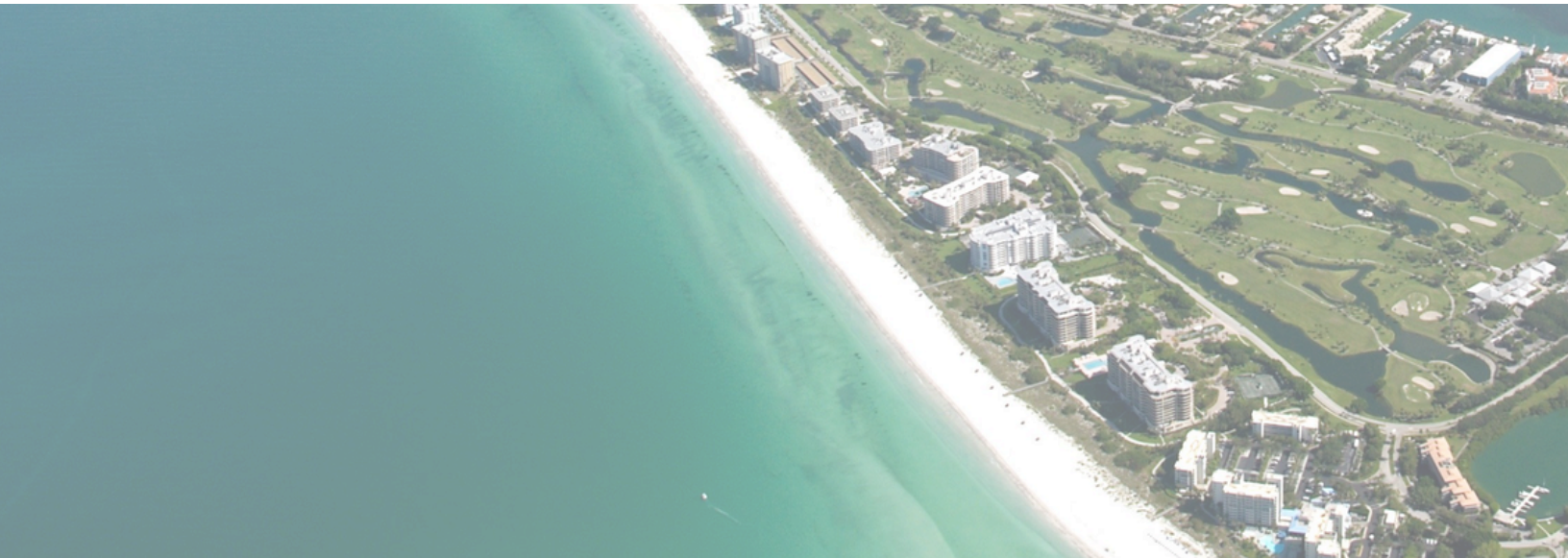


EXECUTIVE SUMMARY

The 2025 Sea Level Rise and Recurring Flooding Resilience Plan Update for the Town of Longboat Key builds upon the foundational 2022 Adaptation Plan, documenting significant progress across a series of targeted adaptation actions. This update assesses the Town's advancements in resilience efforts and refines the strategies based on emerging data, evolving climate risks, and new community priorities. By aligning with new NOAA projections and incorporating community achievements, the plan enhances Longboat Key's resilience framework to reflect the latest environmental data, regulatory requirements, and technological advancements.

Retaining the framework of the 2022 plan, the update is organized around six core objectives, covering mitigation of tidal flooding, active stormwater management, asset protection, community engagement, redevelopment for resilience, and integration in capital planning. Each action is tracked for progress, evaluated against performance metrics, and updated in dedicated sections that showcase achievements and challenges since 2022.

Key Findings Include:

- **Updated Projections and Asset Vulnerability**:
  - NOAA's 2022 sea level rise data suggests slightly lower long-term water levels than previous estimates. However, significant vulnerabilities persist, particularly in low-lying neighborhoods.
  - Stormwater facilities, critical roads, and natural flood barriers (e.g., wetlands, dunes) remain at high risk under 2050 and 2080 projections.
- **Major Progress Highlights:**
  - **Policy Initiatives:** Ordinances have increased the maximum allowable seawall height to 6 feet, offering added protection in flood-prone areas along the coastline. Additional policies introduce optional freeboard height adjustments, allowing property owners in high-risk zones to elevate structures in accordance with updated FEMA flood maps.
  - **Stormwater and Road Infrastructure Upgrades:** In low-lying zones like the Village, Sleepy Lagoon, and Buttonwood Harbor, upgrades have included the installation of tidal valves to prevent seawater backflow, and road elevations to ensure continued access during high-water events.
  - **Wastewater System Resilience:** Rehabilitation projects include re-lining of key wastewater mains and lift station improvements.
  - **Community Engagement and Policy Initiatives:** The town held numerous workshops, outreach events, and surveys to engage residents in resilience planning.

Overall, the 2025 update captures Longboat Key's progress in advancing resilience actions and establishes a clear path forward. It emphasizes adaptive strategies, ongoing community engagement, and alignment with state and regional initiatives, all aimed at securing the town's long-term resilience and sustainability.

INTRODUCTION

Purpose and Intent of the 2025 Resilience Plan Update

The 2025 Sea Level Rise and Recurring Flooding Resilience Plan Update aims to build on the foundation established by the original 2022 Adaptation Plan by assessing the progress made in implementing the identified strategies and refining the Town's long-term resilience goals. The intent of this update is to ensure that the Town of Longboat Key continues to proactively address the increasing risks associated with sea level rise, storm surges, and other climate-related impacts.

By documenting the successes, challenges, and lessons learned since the 2022 plan, this update provides a roadmap for adapting the Town's approach to evolving environmental threats. It reflects new priorities based on the latest data, technological advancements, and community feedback. Additionally, this update highlights the importance of maintaining flexibility in project scheduling, resource allocation, and adaptation strategies to ensure that Longboat Key remains resilient, sustainable, and prepared for future climate impacts.

The updated plan emphasizes ongoing community engagement, policy refinement, and infrastructure improvements to protect Longboat Key's residents, economy, and natural resources. This update also serves as a platform to evaluate the effectiveness of previously completed projects, set performance metrics for future initiatives, and integrate best practices into the Town's overall adaptation framework.

How was the Resilience Plan Update developed?

The 2025 Sea Level Rise and Recurring Flooding Resilience Plan Update was developed primarily through input from Town staff and publicly available resources. The process focused on evaluating the progress made since the 2022 Adaptation Plan and refining the strategies based on available data and documentation. The following steps outline how the update was conducted:

- **Assessment of Town Progress:** Interviews with town staff were conducted to evaluate the implementation of the adaptation strategies outlined in the 2022 plan. This assessment involved identifying completed projects, ongoing initiatives, and planned efforts that align with the Town's resilience objectives. The evaluation was based on operational reports, infrastructure updates, and progress tracking within Town departments. Key projects, such as seawall height adjustments and tidal valve installations, were highlighted to showcase advancements in flood mitigation and stormwater management.

INTRODUCTION (CONT.)

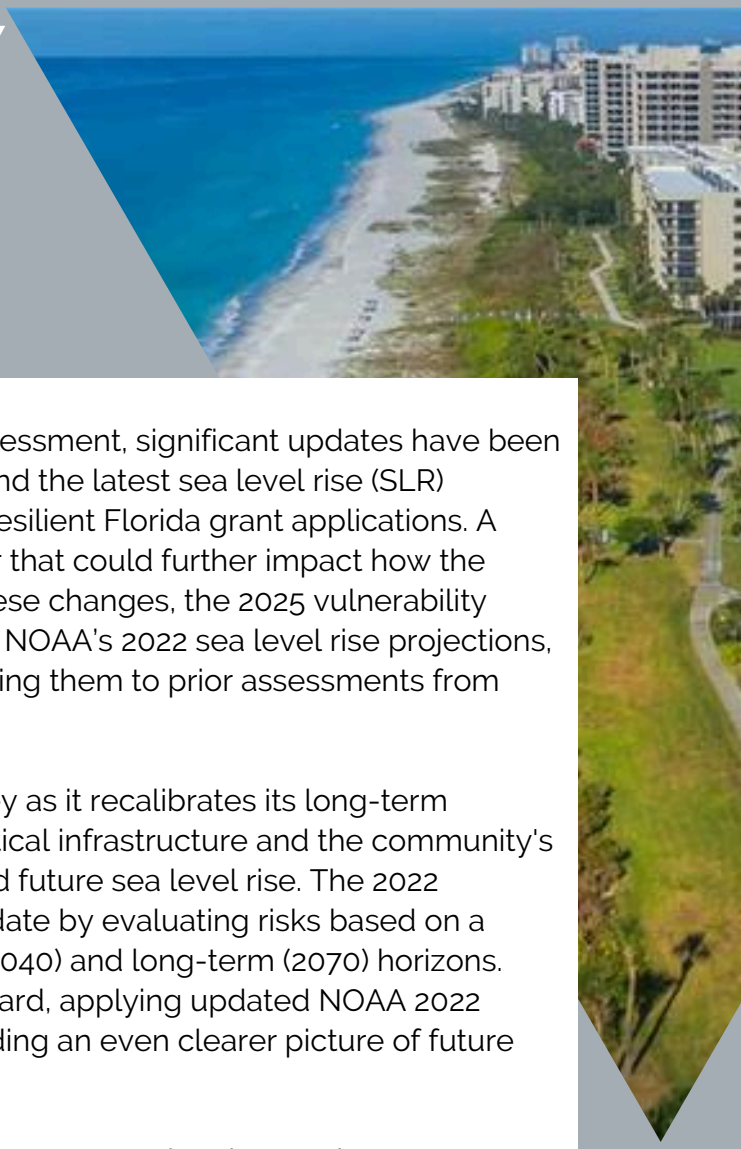
- **Review of County Plans:** The update incorporates information gathered from publicly accessible online resources, including county-level resilience studies, adaptation plans and community initiatives. Manatee and Sarasota County resilience documents available on government websites were reviewed to ensure that the Town's strategies remained aligned with broader regional resilience efforts. These documents provided context for policy shifts and offered insights into regional trends in sea level rise adaptation and stormwater management.
- **Documentation of Grant Awards and Applications:** Successful grant awards and ongoing grant applications were reviewed and outlined to document progress on specific adaptation strategies and actions. In progress and recently submitted grants were also accounted for.
- **Tracking of New Policies and Additions to the Comprehensive Plan:** The update involved a review of policy and ordinance updates within Longboat Key, particularly those available in public records and Town meeting minutes. Updates to the Town's Comprehensive Plan, including amendments to the Conservation and Coastal Management Element, were incorporated into the adaptation strategies.
- **Review of News Releases:** News and press releases detailing grant awards, project milestones, and updates on resilience initiatives were especially useful in tracking progress and understanding community perception.

When should the Resilience Plan be updated?

The Resilience Plan is intended to be re-evaluated with changes in sea level rise projections anticipated to be updated every 5 years via grant funding. The plan priorities should also be revisited after major storm impacts.

SEA LEVEL RISE AND RECURRING FLOODING VULNERABILITY ASSESSMENT UPDATE REVIEW

VULNERABILITY ASSESSMENT UPDATE REVIEW



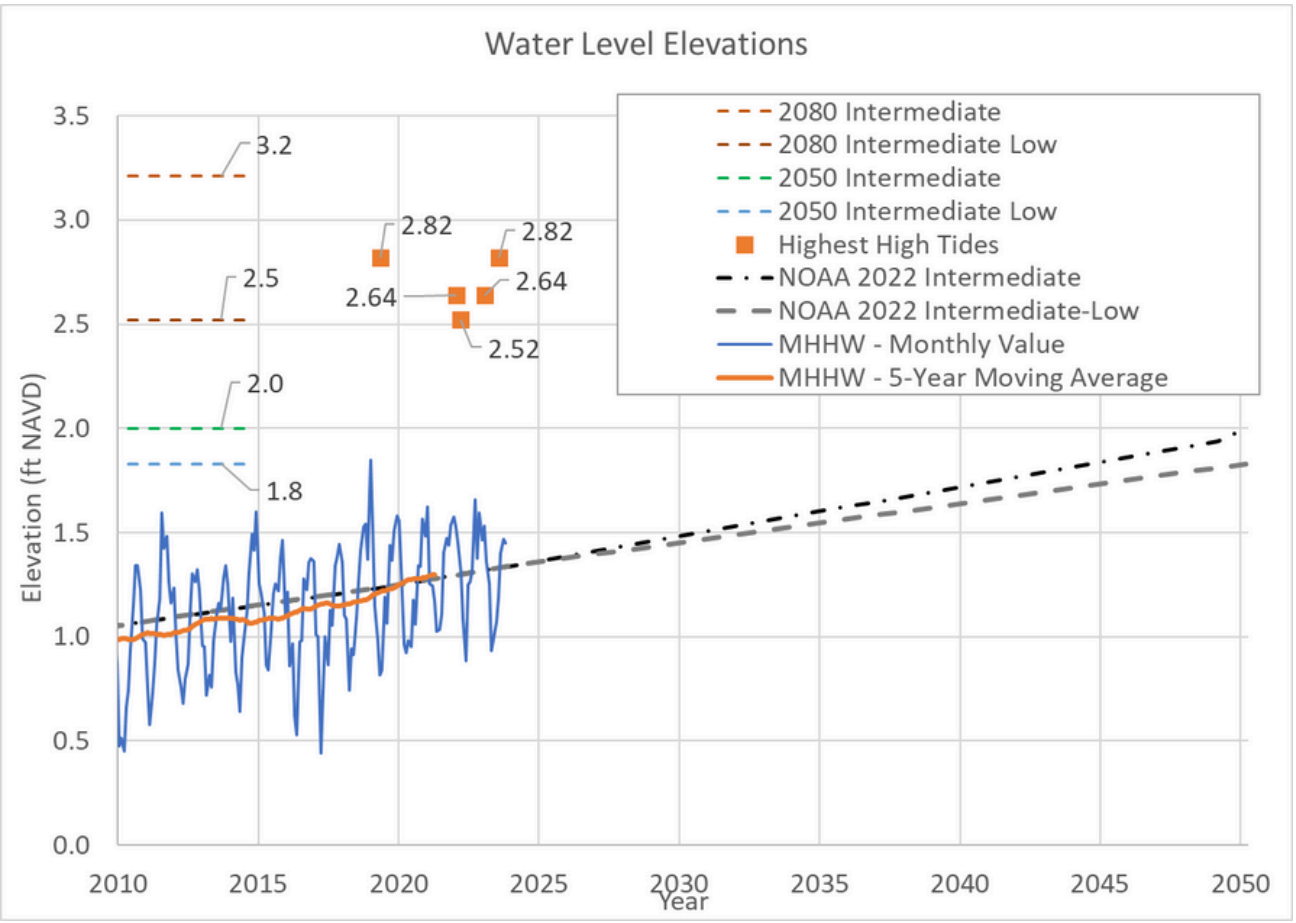
Since the completion of the 2022 Vulnerability Assessment, significant updates have been made to align with new legislative requirements and the latest sea level rise (SLR) projections, primarily for compliance with future Resilient Florida grant applications. A legislative bill has been approved by the Governor that could further impact how the Town qualifies for state funding. To prepare for these changes, the 2025 vulnerability assessment update was conducted, incorporating NOAA's 2022 sea level rise projections, focusing on the years 2050 and 2080, and comparing them to prior assessments from 2022.

This update is critical for the Town of Longboat Key as it recalibrates its long-term resilience planning, particularly with respect to critical infrastructure and the community's overall exposure to tidal flooding, storm surge, and future sea level rise. The 2022 assessment initially laid the foundation for this update by evaluating risks based on a scenario-planning approach for both short-term (2040) and long-term (2070) horizons. The 2025 assessment moved these timelines forward, applying updated NOAA 2022 projections for 2050 and 2080 horizons, and providing an even clearer picture of future vulnerabilities.

The NOAA 2022 projections offer more precise data compared to the previous 2017 models. The updated Intermediate and Intermediate-Low scenarios now suggest slightly lower long-term sea level rise estimates than earlier projections, but they still indicate significant challenges for the Town.

Measured and projected water levels in NOAA St. Petersburg gage between years 2010 and 2050 are shown in the figure on the next page. Observed water levels including the monthly mean higher high water (MHHW) elevations (solid blue line) and the five-year average of water level elevations (orange line) were plotted alongside the projections for sea level rise (gray and black dash lines) to show the projections have been accurate to date as well as to show the actual variability of water elevations over time. Since 2010, typical water level elevations have been less than 1.5 ft NAVD and are projected to remain less than 2 ft NAVD through 2050. Straight dashed lines are plotted to show where the 2050 and 2080 Intermediate-Low and Intermediate scenario water levels would land in frame of other sea level conditions and projections. These water levels are approximations of the levels that may occur along the bayside shorelines of the Town of Longboat Key and were applied in the analysis for the updated vulnerability assessment.

ASSESSMENT UPDATE REVIEW (CONTINUED)



Several times per year, Longboat Key experiences extreme high tides (not including storm surge). As an example, the three highest high tide elevations from 2020 to 2024, were also plotted (orange squares in the figure above), showing that extreme water levels can be on the order of a couple feet higher than the typical high tide.

RECENT STORMS

In the past two years, Longboat Key has experienced several significant storm events that have tested the resilience of the town's coastal infrastructure. **Hurricane Idalia** hit Longboat Key on August 30, 2023, with an observed peak water level of 4.5 feet NAVD, causing significant flooding and debris throughout the town. Many roads became impassable due to standing water, and the storm's surge, combined with wind-driven tides, led to beach erosion and debris scattered along the coastline. The Village, Sleepy Lagoon, and Buttonwood neighborhoods were particularly hard-hit, with flooding impacting homes and infrastructure.

Norton Street flooded from Hurricane Idalia when residents were allowed back on Longboat Key (Carter Weinhofer-the Observer).

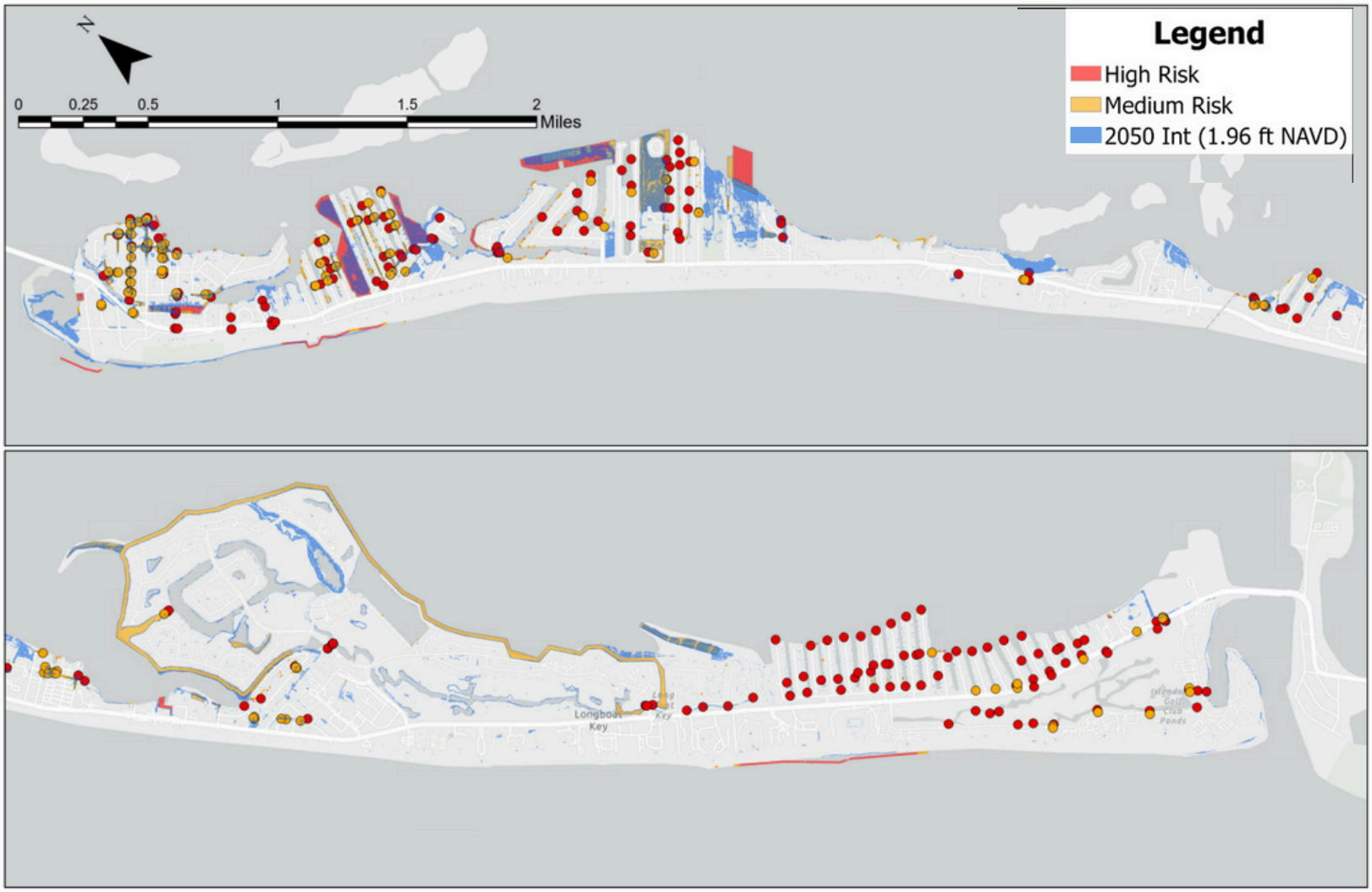
Hurricane Helene brought a peak storm surge of 7 feet NAVD on September 27, 2024. Businesses in Longboat Key reported widespread damage, with floodwaters reaching up to five feet in some locations. Many residents had to evacuate and were only allowed back days later due to safety concerns.

A severely damaged home in the Twin Shores community on Longboat Key after Hurricane Milton (Carter Weinhofer-the Observer).

A week later, the town narrowly avoided a direct hit from **Hurricane Milton,** experiencing a storm surge of 2 feet NAVD. Although surge levels were significantly lower than those during Hurricane Helene, the town nonetheless experienced flooding and erosion. Up to 3 ft of sand accumulation occurred on Gulf of Mexico Drive as a result of the hurricanes. The impact of Milton was felt more acutely as the town was still in the process of recovering from Hurricane Helene. Many homes, particularly in lower-lying areas, sustained damage, while newly built homes that adhered to higher elevation standards fared better.

The water levels from these storms can be contextualized within the typical and projected elevations for Longboat Key's coastal areas, as demonstrated in the graphic previously presented on water level elevations. According to the NOAA (2022) Intermediate and Intermediate-Low projections, typical water levels are expected to remain below 2 feet NAVD through 2050, with extreme high tides surpassing this range only occasionally. Surge experienced during Hurricane Milton align with this forecast. However, as observed, storm surges during events like Idalia and Helene far exceeded these typical projections, reaching levels of 4.5 ft and 7 ft, respectively. These surges place immense pressure on infrastructure and highlight the need for adaptive strategies outlined in the 2025 Adaptation Plan Update.

NOAA 2050 INTERMEDIATE SEA LEVEL RISE PROJECTION
MEDIUM AND HIGH RISK ASSETS



Critical Assets at High Risk, Medium Risk

- Seawalls (linear feet) 103, 634
- Shorelines (linear feet) 650, 54
- Roadways (linear feet) 3, 1274
- Stormwater Treatment Facilities and Pump Stations 223, 121
- Parcels 62, 39
- Wetlands 27, 11
- Parks 1, 1

Key findings based on the 2024 Vulnerability Assessment (VA) Update:

Please note that the 2024 VA update includes only new sea level rise projections. For analysis of other flood hazards, please refer to the 2022 VA.

- **Water Levels:**
  - Typical water levels are projected to remain less than 2 ft NAVD through 2050.
  - NOAA 2022 projections result in lower water elevations than previous assessments, suggesting that risk to assets has not increased as initially expected.
  - The Vulnerability Assessment conducted in 2022 for the Town utilized a slightly different methodology for exposure and sensitivity, therefore the results of the 2024 study should not be directly compared against the 2022 study.
- **Stormwater and Wastewater Critical Assets:**
  - Stormwater Treatment Facilities and Pump Stations remain among the most vulnerable assets experiencing flood depths greater than 2.5 ft under the NOAA 2022 projections, much like the 2017 projections.
  - 51% of stormwater assets are exposed under the NOAA 2050 Intermediate scenario, similar to vulnerabilities outlined for 2040, with medium to high risk for many of these assets. **7 outfalls that were categorized as high- to medium-risk in Buttonwood, Longboat Key Harbor, and Gulf of Mexico Drive neighborhoods were retrofitted with tide valves from 2022 to present, effectively reducing the tidal flood and sea level rise vulnerability of corresponding areas.**
  - Wastewater treatment and lift stations continue to exhibit low risk of sea level rise inundation under 2022 projections. Some lift stations were impacted during 2024 hurricanes that brought surge heights exceeding a 100-year storm, and damaged electrical equipment below BFE.
- **Critical Infrastructure and Buildings:**
  - While most critical infrastructure assets in the 2022 VA were exposed to flood depths under 2.5 ft, the 2024 VA Update shows no significant increase in this exposure due to revised projections.
  - By 2080, however, a substantial increase in exposed residential properties (more than 2,350 parcels) is projected compared to the 600 properties expected by 2050. This is consistent with the earlier finding that the Village, Sleepy Lagoon, and Buttonwood are the most vulnerable neighborhoods.
- **Roads and Transportation:**
  - Gulf of Mexico Drive (SR 789) continues to be vulnerable to sea level rise, particularly in low-lying sections identified under both sets of projections (e.g., 3740 and 4621 Gulf of Mexico Drive). Efforts to harden and elevate the road remain critical.
  - By 2080, new findings indicate that road segments like Fox St, Russell St, and Broadway St. may experience consistent flooding across all SLR scenarios.
- **Natural Assets and Parks:**
  - The vulnerability of wetlands and conservation lands like Greer Island Park and Quick Point Nature Preserve remains significant across both sets of projections. These areas are crucial for natural flood protection and are marked as medium to high risk under both the 2017 and 2022 projections.

While certain findings remain similar, particularly the vulnerability of critical assets like stormwater infrastructure and Gulf of Mexico Drive, the 2022 projections suggest lower water level risks overall due to updated NOAA data. However, the town still faces significant challenges, particularly in the increase of vulnerable properties by 2080, which requires long-term adaptation planning.

RESILIENCE PLAN UPDATE
PERFORMANCE TRACKING

RESILIENCE PLAN UPDATE OVERVIEW
TRACKING PROGRESS TO ACHIEVING ACTIONS

The 2025 Sea Level Rise and Recurring Flooding Resilience Plan Update follows the same format and orientation as the original 2022 Adaptation Plan. This approach ensures consistency and allows for clear comparisons between the original strategies and the progress made since the plan's inception. The 2025 update is organized around the six overarching objectives that structured the original plan, allowing readers to easily track progress within the familiar framework.

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

Following the structure of the 2022 plan, each action is presented on its own dedicated page, under the umbrella of its relevant objective. While all 25 actions from the original 2022 plan are referenced within this update and are provided performance metrics, only actions showcasing progress will have a dedicated action page.

Dedicated action pages, offer the following:

- **A snapshot of progress** towards meeting performance metrics, using indicators to assess achievement.
- **A recap section** on each action page reminds readers of the original 2022 proposed timelines and goals, allowing for a side-by-side comparison of expected progress versus actual outcomes. This contextualizes how each action fits into the broader implementation schedule, making it easier to identify where the Town has made strides and where further efforts are needed.
- **A 2022-2025 progress section** that outlines relevant efforts, plans, policies, or projects that have been implemented or are scheduled for future execution. These pages serve to document the progression of each action and underscore the Town's ongoing efforts to enhance resilience.

2022-2025 PERFORMANCE TRACKING

To assess the Town of Longboat Key's achievements in meeting each action, all 25 actions from the original 2022 plan were assigned performance metrics and evaluated to determine accomplishments made to date.

Actions are organized into two distinct tables to help track implementation:

- **Table 1** highlights actions aimed at protecting vulnerable critical assets. These actions are linked to specific assets identified as “at-risk” in the vulnerability assessment, with performance metrics and strategies developed to enhance protection and reduce vulnerabilities. Actions are grouped by applicable asset type. The table highlights the priority areas identified within the 2022 Adaptation Plan, established performance metrics to determine progress made, and offers a 2025 status update to measure performance to date.
- **Table 2** focuses on actions related to policy, coordination, and monitoring, which are broader in scope and emphasize governance and oversight. Like Table 1, Table 2 highlights established performance metrics to determine progress made and offers a 2025 status update to measure performance to date.

Actions that have shown limited advancement to date (indicated within Tables 1-2) will be excluded from the subsequent progress tracking sections but will be reflected in the updated implementation timeline presented later in this adaptation plan update. This includes Actions 4, 8, 16, 18, and 23.

The 2025 Resilience Plan Update is intended to serve as a supplementary document to the original 2022 plan, offering a comprehensive log of steps taken to date. By pairing the original action pages with the updates provided in this document, the Town aims to maintain transparency, ensure accountability, and provide a clear record of how its resilience goals are being met.

Table 1. Performance Tracking for Actions to Address Vulnerable Critical Assets

Actions		Priority Areas	Performance Metric(s)	2022-2025 Performance Tracking
Action 1	Install and Maintain Tide Valves	Sleepy Lagoon, the Village, Emerald Harbor, Buttonwood, Hideaway, and 4400-5300 GM	% of vulnerable outfalls retrofitted with tidal valves (in priority areas)	90% (Total of 34 tidal valves installed in 2024)
Action 5	Plan for Future Stormwater Management Operations	Collection points at Poinsetta/ Longboat Dr N, Longboat Dr E/ Fox St, Bayside Dr, Lois/ Broadway/ Bayside, Bayside/ Linley	# of drainage improvements (in the Village and Sleepy Lagoon)	3 projects
			# of outfalls with pump stations added	Found unfeasible for current conditions. 1 outfall built for a future pump installation, as needed
Action 7	Amend Stormwater Management Strategy	Island wide	% of vulnerable outfalls retrofitted with tidal valves (in priority areas) (Action 1)	90% (Total of 34 tidal valves installed in 2024)
		Active stormwater management needed along Norton St, Marbury Ln, Penfield St	Total investment ($) made to adapt stormwater infrastructure	$515,000
Action 2	Amend Seawall Regulation to Address Tidal Flooding	The Village, Sleepy Lagoon and along 4400 to 5300 Gulf of Mexico Dr	# of seawalls built with new maximum height or raised (permits)	27 permits (All are increased heights, 2 are to the max height)
Action 19	Encourage Private Adaptation	Island wide	# of regulations implemented to encourage private adaptation	4
Action 9	Increase Resilience of Dune Systems as Part of Regular Beach Management Plan Updates	Long Beach Village, private residences near 6851 and 6661 GMD, and Gulfside Rd public access	# of dune restorations or walkover projects completed	2

Table 1. Performance Tracking for Actions to Address Vulnerable Critical Assets - Cont.

Actions		Priority Areas	Performance Metric(s)	2022-2025 Performance Tracking
Action 12	Maintain Beach Access Points	Oceanfront shoreline	# of beach access points elevated	3
Action 3	Elevate Bayfront Roads and Install Pump Stations	Elevate intersection of Longboat Dr/ Russel St	Total investment ($) planned to elevate Longboat Dr/ Russel St	$280,000 in design studies $2,800,000 in grant requests (pending)
Action 10	Coordinate to Maintain Evacuation Routes	4715, 6400, 6700-6800 GMD, General Harris (connecting Hideaway)	# of coordinated efforts/ projects to plan for elevating GMD	In progress
Action 11	Maintain Condition of and Access on Roads in Areas Experiencing Tidal Flooding and Seepage	Road maintenance at intersection of Longboat Dr/ Russell St Elevate Longboat Dr/ Bayside Dr/ Broadway and Longboat Dr S/ Jackson Way	Total investment ($) made to elevate critical roads	$280,000 in design studies $2,800,000 in grant requests
Action 23	Encourage Floodproofing of Electrical Charging Stations and Battery Storage Equipment as Applicable	Lift Stations 2A, 3D, 3E, and 2H are at risk to 10-year storm surge inundation. Additionally, due to recent storms impacts, all lift stations should have flood proofing measures where feasible,	% of lift stations with floodproofed electrical equipment	In progress Generators made available (fixed or mobile)
Action 8	Floodproof Vulnerable Electrical Equipment at Lift Stations	Lift Stations that were damaged during 2024 hurricane season	% of lift stations with floodproofed electrical equipment	
Action 14	Plan for Mangrove Adaptation	Greer Island Park Quick Point Nature Preserve (wetland) Durante Park (wetland)	% of areas protected/ mitigated	100%
			# of policies/ programs to protect areas	6

Table 2. Performance Tracking for Policy, Coordination, and Monitoring Actions

Policy, Coordination, and Monitoring Actions			
Actions		**Performance Metric(s)**	**2022-2025 Performance Tracking**
Action 4	Evaluate Performance of Dry Retention Areas, Wet Detention Areas, and French Drains	# of evaluations	9
Action 6	Monitor Infiltration and Continue Active Utility System Preservation Programs	# of monitoring events	Continuous
		% of compromised conveyance systems replaced	In progress
Action 13	Increase Water Quality Monitoring Near Septic Systems at Jewfish Key	# of policies and actions to increase water quality around Jewfish key	Conducted by Sarasota County and Sarasota Bay Estuary Program
Action 15	Evaluate Opportunities to Integrate Green Infrastructure	# of projects implemented with green infrastructure elements	7 (2 in progress)
Action 16	Adopt Policy Map Showing Sea Level Rise Projections	Policy map adopted (Y/N)	In progress
Action 17	Continue to Support Resilience Standards in Policies	# of resilience policies passed	Ordinance 2023-01 updated the Town's Comprehensive Plan Recreation & Open Space and Conservation & Coastal Management Comprehensive Plan Elements.
Action 18	Consider Adaptation Needs in Evaluation of Redevelopment Impacts	Maps adopted (Y/N) (Action 16)	In progress
		# of redevelopment projects that consider adaptation	12 New Single Family Permits
		# of funding channels utilized for adaptation projects during redevelopment	3
Action 20	Maintain or Improve Community Rating System Grade	# of efforts taken to increase CRS rating	1
Action 21	Conduct Community Outreach	# of community outreach events hosted	8+
Action 22	Continue Intergovernmental and Stakeholder Coordination	# of coordinated efforts with intergovernmental agencies- Sarasota Manatee MPO, FDOT, etc.	12
Action 24	Prioritizing Resilience Projects After Storm as Applicable	Total requested investment ($) via post storm grant applications	$13,000,000
Action 25	Schedule Proposed Projects Based on Urgency, Funding Availability, and Potential for Bundling	Total amount ($) of funds received via resilience grants	$5,000,000 awarded $5,800,000 pending

ADAPTATION ACTIONS PERFORMANCE TRACKING SNAPSHOTS

Objective 1: Mitigate Tidal Flooding

Actions #1-2

ACTION 1: INSTALL AND MAINTAIN TIDE VALVES

90% of vulnerable outfalls retrofitted with tidal valves

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The original proposed action called for the installation of tidal valves on drainage pipe outlets to manage inland flooding caused by high tides. These valves were deemed essential for preventing backflow of seawater into the drainage system while still allowing stormwater to drain out during low tide.

The 2022 Resilience Plan recommended:

- Expanding the installation of tidal valves to more drainage outfalls based on the identified areas of need.
- Ongoing inspections and maintenance of installed valves to ensure optimal performance, particularly during flood conditions.
- Refinement of tidal valve technology in areas where the pressure differential may reduce valve effectiveness, as some low-lying areas may trap rainwater.
- Prioritization of locations where tidal valves are most likely to function effectively, considering local conditions and drainage patterns.

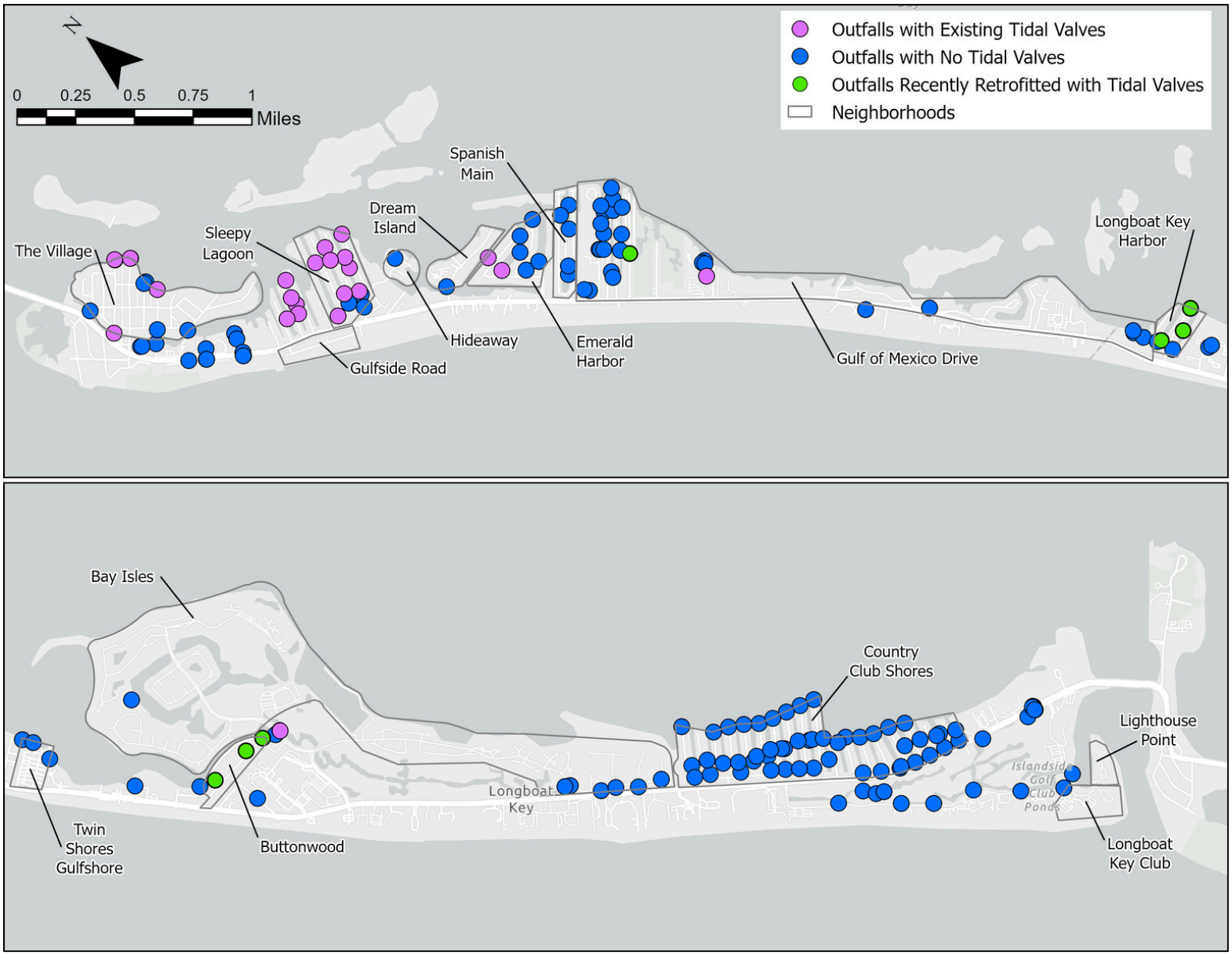
2022- 2025 PROGRESS

- Since the installation of Wa-Stop tidal valves in 2018 in the Village and Sleepy Lagoon areas, the Town of Longboat Key has actively tracked their performance to mitigate flooding caused by tidal backflow. **Seven (7) outfalls in the vulnerable areas have been retrofitted with tidal valves between 2022 and 2025**. The map on the following page illustrates these recently retrofitted outfalls as well as all outfalls with and without tidal valves. The valves, designed as flexible, hollow, cone-shaped barriers, allow stormwater to flow out during rainfall events while blocking seawater from entering during high tides. This design aimed to reduce tidal flooding and protect both public and private properties.
- Performance monitoring over the past five years has shown that while the valves have successfully reduced tidal backflow in certain areas, flooding remains an ongoing issue in the Village. The valves have been effective in managing specific stormwater events, particularly by preventing backflow during high tide, but they are not a comprehensive solution for all flooding challenges. Some low-lying areas continue to experience residual flood issues, particularly during heavy rainfall when rainwater can be trapped for extended periods due to the limitations of the valves in areas with insufficient elevation.

Objective 1: Mitigate Tidal Flooding

Actions #1-2

ACTION 1:
INSTALL AND MAINTAIN TIDE VALVES



Map of Outfalls with and without Tidal Valves

ACTION 2:

AMEND SEAWALL REGULATION TO ADDRESS TIDAL FLOODING

# of seawalls built with new maximum height or raised

PROPOSED TIMEFRAME Near Term (0-5 Years), Long Term (<20 Years)

PROPOSED ACTION

The proposed action aimed to implement regulations to prevent overtopping of seawalls during high tides and small storm events. This was critical in preventing "flood trespassing," where seawater could flow into public drainage systems and onto roads.

The 2022 Resilience Plan recommended:

- Establishing a new minimum seawall elevation greater than 3.5 feet NAVD to ensure adequate protection.
- Amending the maximum seawall height to 6 feet NAVD to accommodate rising sea levels and more frequent storm events.
- Verifying on-site drainage during the permit review process to ensure proper stormwater management with new seawalls in place.
- Closing gaps between adjacent seawalls at the time of replacement to create a continuous barrier against tidal flooding.
- Supporting living shorelines and wetland migration by altering setback regulations to promote the adaptation of natural flood barriers.
- In the long term, encouraging impermeable shoreline berms and higher seawalls as long-term flood protection measures.

2022- 2025 PROGRESS

- Significant progress has been made on the proposed seawall regulation amendments since the 2022 Resilience Plan. One of the key achievements was the adoption of Ordinance 2024-04, which increased the maximum allowable seawall height from 4.5 feet NAVD to 6 feet NAVD. This change is designed to provide enhanced protection against higher tides and small storm events, addressing the issue of “flood trespassing” where seawater flows over seawalls into public drainage systems and roadways.
- Since 2022, 27 seawall permits have been issued, all involving height increases, with 2 reaching the maximum height of 6 feet NAVD.
- The primary issue with enacting a minimum seawall height in Longboat Key is tied to state legislation. Under Senate Bill 250, municipalities within 100 miles of where Hurricanes Ian and Nicole made landfall are prohibited from adopting more restrictive land development regulations until 2026. This has delayed Longboat Key from enforcing a minimum seawall height regulation, which was originally recommended as part of this action.

Objective 2: Prepare for Active Stormwater Management in Low Lying Neighborhoods

Actions #3, 5, 6, and 7

ACTION 3:
ELEVATE BAYFRONT ROADS AND INSTALL PUMP STATIONS

Investments include $280,000 in design studies and $2,800,000 in grant requests

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 Longboat Key Adaptation Plan proposed a strategy to elevate bayfront roads and install pump stations in the Village to mitigate flooding risks. Due to the impracticality of elevating all roads, the plan suggested raising select bayfront roads to create a protective road berm and using pump stations to actively remove ponded water through discharge outlets. This approach aimed to reduce adaptation costs while giving property owners more time to implement individual flood control measures. The plan also called for phased implementation, prioritizing the most vulnerable areas. For instance, the eastern intersection of Longboat Drive and Russell Street is projected to become impassable during high tides by 2040 and needs to be elevated or have a pump installed to maintain local access. A phased project including outfall improvements, bank raising, bulkhead elevation at the boat ramp, and living shoreline is underway along Russell Street.

2022- 2025 PROGRESS

- **2024 Roadway Resurfacing in Key Areas:** The Village and Jungle Queen areas underwent roadway resurfacing, ensuring greater resilience of the road system in flood-prone areas. This effort aimed to enhance road durability and reduce the impacts of tidal flooding and stormwater runoff on daily mobility.
- **2024 Longboat Key Village Stormwater and Flood Mitigation Project (Phase 1) Grant Application:** The Town of Longboat Key submitted an application to FDEM-HMGP to fund this project.
  - Road reconstruction and drainage improvements in Longboat Key Village, an area with approximately 2.2 miles of roadway centerline below 2.6 feet NAVD88, susceptible to sea level rise, King Tides, and flooding.
  - Phase 1 targets about 3,000 feet of the lowest road segments, including Broadway Street, Bayside Drive, Lois Avenue, and others. The plan includes elevating roads by up to 1.1 feet and installing a stormwater management system with inlets, pipes, nutrient separation boxes, and Tideflex® valves.
- Pump stations were found unfeasible for current conditions in certain areas such as Norton Street. A vault is built for future pump installation that is deferred until deemed feasible.

ACTION 5:

PLAN FOR FUTURE STORMWATER MANAGEMENT OPERATIONS

Three drainage improvements projects

PROPOSED TIMEFRAME Long Term (<20 Years)

PROPOSED ACTION

The 2022 Longboat Key Adaptation Plan outlined a strategy to transition from passive (gravity-driven) to active (mechanically-driven) stormwater management in neighborhoods such as the Village and Sleepy Lagoon, particularly as environmental conditions change.

2022- 2025 PROGRESS

- The **2024 Longboat Key Village Stormwater and Flood Mitigation Project (Phase 1) Grant Application** previously mentioned also represents progress made towards accomplishing Action 5, as the project includes drainage improvements in Longboat Key Village. The plan includes elevating roads by up to 1.1 feet and installing a stormwater management system with inlets, pipes, nutrient separation boxes, and Tideflex® valves.
- Suggested solutions for issues in the Sleepy Lagoon neighborhood have been developed. **Phase 1 of the planned project focuses on Norton Street**, which could cost about $1.35 million. Plans were expected to be complete around November 5, 2024 and construction is planned to begin around March 31, 2025.
    - The project will raise Norton Street by up to 1.3 feet and improve stormwater management by installing inlets and pipes, reducing sunny day flooding (King Tides) and improving check valve functionality.

ACTION 6:
MONITOR INFILTRATION AND CONTINUE ACTIVE UTILITY SYSTEM PRESERVATION PROGRAMS

100% of infiltration events monitored through SCADA system

Replacement of compromised conveyance systems in progress

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The original proposed strategy focused on mitigating the issue of infiltration in wastewater pipes, where groundwater seeps into cracks, joints, or damaged manholes. The 2022 plan emphasized the need for active maintenance and replacement of compromised wastewater conveyance systems to ensure they function correctly. In areas experiencing repetitive or permanent saltwater inundation, corrosion of infrastructure materials such as steel in concrete and metals in utility equipment can lead to accelerated deterioration, posing further risks. It is recommended that The Town utilizes their Supervisory Control and Data Acquisition (SCADA) System to track infiltration as a reportable metric to FDEP.

2022- 2025 PROGRESS

Significant progress has been made in Longboat Key's efforts to reduce infiltration and inflow (I&I) in the wastewater system:

- **Lift Station E Wet Well Re-lining:** A major re-lining project was completed for Lift Station E, which handles the second-highest wastewater flows on the island. This work preserved the integrity of the wet well and significantly reduced infiltration into the system.
- **Mainland Wastewater Force Main Lining:** In 2023, the Town completed a 6,400-linear foot re-lining of the mainland wastewater force main. This project strengthens the system, minimizing the risks of infiltration and protecting water quality ($2.72 million.)
- **New subaqueous force main pipe**: The Town of Longboat Key is planning to install a new 16" HDPE wastewater force main to replace an existing force main that conveys all Town effluent from the island to the Manatee County Wastewater Treatment Facility. 2024 construction estimates for the underwater portion are close to $30 million.
- **Rehabilitation of Lift Stations A, B, and C:** Lift stations along Gulf of Mexico Drive received extensive rehabilitation. These stations are vital to the island's wastewater management, and their restoration has improved system efficiency while reducing infiltration risks.
- **2023 Environmental Action Plan:** The Environmental Action Plan aligns with these efforts under Goal 2: "Reduce human impacts on LBK's natural environment." Specifically, the plan calls for the installation of a redundant underwater wastewater line under Sarasota Bay to provide additional system protection and for the assessment and repair of wastewater infrastructure to further reduce infiltration and inflow.
- **Ongoing System Rehabilitation**: The Town continues to actively rehabilitate its utility systems, including wet wells, manholes, and pipes. These efforts are aimed at reducing infiltration, optimizing pump efficiency, and cutting energy use.
- **SCADA System:** The Town utilizes SCADA to monitor and manage water and wastewater infrastructure. This system enables real-time tracking of parameters such as sewer flow rates, infiltration levels, rainfall amounts, and wet well elevations, thereby enhancing operational efficiency and facilitating prompt responses to potential issues.

ACTION 7:
AMEND STORMWATER MANAGEMENT STRATEGY

90% of existing outfalls retrofitted with tidal valves (Action 1)

$515,000 invested to adapt stormwater infrastructure

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 Longboat Key Adaptation Plan recommended amending the Town's stormwater management strategy to address challenges posed by sea level rise and ensure that current policies remain effective. As sea levels rise, stormwater drainage systems will face increased demands from additional floodwaters, and soil infiltration capacity will be diminished. If these systems are already at or near capacity, future flooding in vulnerable areas could exceed their designed performance levels.

To adapt, several best practices were recommended:

- **Retrofit Outfalls with Tidal Valves:** To maintain the level of service, installing tidal valves on outfalls is advised to prevent backflow from rising tides, along with investing in infrastructure that needs adaptation.
- **Temporary Relaxation of Standards:** In areas where tidal flooding is currently managed passively, there may be a need to temporarily lower the level of service expectations as an adaptation measure.
- **Updated Stormwater Design Criteria**: Future stormwater projects should incorporate current and projected tailwater conditions to ensure systems can manage evolving flood risks effectively.
- **Incorporate Sea Level Rise Maps:** The use of 2040 and 2070 Intermediate High Sea Level Rise (SLR) inundation maps is recommended for drainage adaptation planning, providing a foundation for long-term infrastructure improvements.
- **Capture and Maintain Critical Elevation Data:** Whenever stormwater assets are accessed or surveyed, rim and invert elevation data should be recorded and stored in a GIS database.

2022- 2025 PROGRESS

- As mentioned, **the 2024 Longboat Key Village Stormwater and Flood Mitigation Project (Phase 1) Grant Application** includes drainage improvements in Longboat Key Village. The plan includes elevating roads by up to 1.1 feet and installing a stormwater management system with inlets, pipes, nutrient separation boxes, and Tideflex® valves.
- $515,000 invested to adapt stormwater infrastructure

Objective 3: Protect Public Assets and Natural Areas

Actions #9- 15

ACTION 9:

INCREASE RESILIENCE OF DUNE SYSTEM AS PART OF REGULAR BEACH MANAGEMENT PLAN UPDATES

Two dune restorations or walkover projects completed

PROPOSED TIMEFRAME Mid Term (5-10 Years)

PROPOSED ACTION

The 2022 Resilience Plan proposed increasing the elevations of low points in the dune systems to strengthen Longboat Key's natural shoreline defenses against flooding and storm surges. The primary objective was to fortify these low-elevation areas, which pose a risk of allowing water to breach the dunes and reach inland infrastructure. By elevating the dune crests, the shoreline can better withstand rising tides and reduce inland inundation. In addition to raising elevations, the plan recommended other methods to improve the resilience of dune systems, including widening berm crest widths and increasing placement fill densities.

2022- 2025 PROGRESS

Since the 2022 Resilience Plan, significant progress has been made toward increasing the resilience of Longboat Key's dune systems:

- **2021 Beach Re-nourishment and North End Structural Stabilization Project**: This major project added significant dune plantings to the north end of the island. These plantings have strengthened the dunes by stabilizing sand.
- **2023 Greer Island Sand Spit Dredge:** The dredged material from Greer Island was used to buttress the north end beaches, further reinforcing the dune system and shoreline. This material helped to elevate and stabilize the low-elevation dune areas.
- **2023 Conservation & Coastal Management Element Update:** In September of 2023, the Town adopted updates to its Comprehensive Plan to emphasize the protection and restoration of native coastal habitats, including dunes.
- **2023 Environmental Action Plan:** The Environmental Action Plan emphasizes the importance of protecting and maintaining beaches and dunes in line with their design function, as outlined in the Beach Management Plan, with a focus on enhanced dune plantings and sustainable practices like avoiding wrack raking.
- **2024 New Pass Structure Maintenance Project:** This project, completed on the south end of the island, contributed to the overall resilience of the coastal infrastructure by maintaining structural defenses that support nearby dune systems.
- **2024 FDEP- HRRGP Hurricane Restoration Reimbursement Grant Program:** In 2024, the Town submitted an application for the Gulfside Road Interim Beach Renourishment Project, with a funding request of $4,750,000.00.
- **Ongoing Storm Surge Protection for Gulfside Road:** The Town is actively working on short-term storm surge protection measures through beach fill projects for the Gulfside Road Segment. Meanwhile, a long-term solution is being developed to reduce erosion rates in the area, which will include bolstering dune systems.
- **Dune Walkovers:** Two dune walkover projects (100 Broadway St. and 3495 Gulf of Mexico Drive) are in design. A Post-Hurricanes Helene & Milton FEMA Category G Design Analysis was completed in December 2024 to obtain post disaster relief funds for continued dune maintenance activities.

ACTION 10:

COORDINATE TO MAINTAIN EVACUATION ROUTES

Plans to elevate Gulf of Mexico Drive in progress

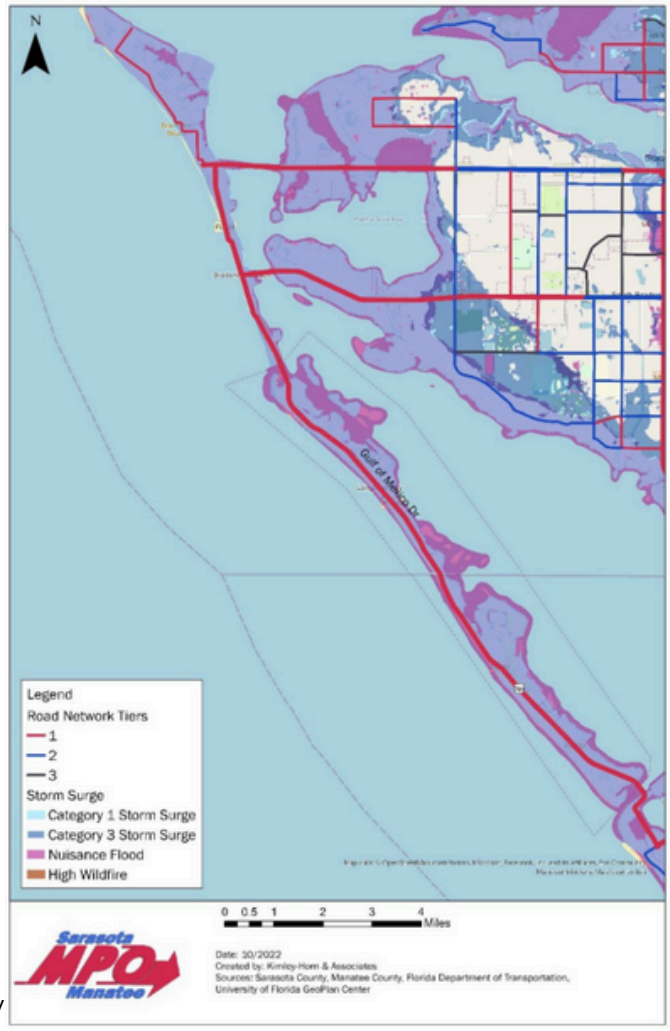
PROPOSED TIMEFRAME

Mid Term (5-10 Years)

PROPOSED ACTION

The 2022 Resilience Plan identified SR789/ Gulf of Mexico Drive (GMD) as Longboat Key's sole evacuation route, highlighting its critical importance during storms or flooding events. An evaluation of the road's elevation revealed that certain segments are below 4 feet NAVD, making them vulnerable to current storm surges and compound flooding risks by 2040 due to sea level rise and increased tidal flooding.
The proposed action recommended:

- Advocating for GMD's inclusion in the Florida Department of Transportation's (FDOT) long-term resilience studies, as part of the state's transportation planning efforts.
- Incrementally raising road elevations as part of regular maintenance or during larger repair projects to improve flood resilience.
- Engaging with the Sarasota Manatee Metropolitan Planning Organization (MPO), which is conducting a vulnerability assessment of regional roadways.



Map of Gulf of Mexico Drive (State Road 789) Road Network Tiers from the 2023 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase I

2022- 2025 PROGRESS

The 2023 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase I identified SR 789 (Gulf of Mexico Drive) as a critical evacuation route and proposed a series of resilience measures to protect the road from rising sea levels, storm surges, and other climate-related hazards. These measures were categorized in a mitigation strategy matrix and a menu of options based on the road's risk level and criticality as part of the tier I facilities. The suggested strategies within the 2023 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase I for improving SR 789's resilience include:

- **Retrofitting and Hardening:** Strengthening adjacent seawalls and elevating the road in vulnerable areas to protect against storm surges and high tides.
- **Drainage Improvements:** Enhancing drainage systems adjacent to and beneath the road, especially in locations where the road has been elevated, to ensure that floodwaters are properly managed and don't pool on the roadway.
- **Intersection Replacement:** Replacing signalized intersections with roundabouts at key locations, such as Broadway Street and Longboat Key Club Drive, to allow continuous traffic flow even during power outages.

- **Removal of Australian Pines**: Australian Pines along portions of SR 789 (Gulf of Mexico Drive) have been known to fall during storms, blocking access for emergency services to critical areas on Longboat Key. These trees posed a significant risk to public safety by obstructing this vital evacuation route. In response, Longboat Key has taken proactive steps to remove troublesome Australian Pines along the corridor. The plan recommends replacing them with native plantings like palms and grasses to stabilize the roadside, buffer wind, filter runoff, and enhance aesthetics.
- **Underground Utilities:** Burying utilities underground to protect power lines from wind damage and prevent downed lines from blocking the road during storms.
- **Constructing Natural Features:** Building living shorelines along the corridor to reduce erosion, stabilize the coastline, and provide habitat that improves overall coastal resilience. Natural solutions like Envirolok are being proposed to stabilize shorelines and raise road elevations through living retaining walls.

Photo of Wilco Electrical crews working in Longbeach Village (the Observer)

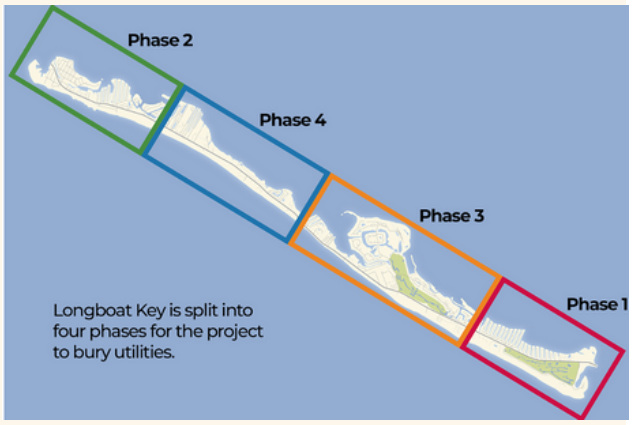


Photo of Underground Utility Project Phases (the Observer)

The 2023 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase I also outlines relevant SR 789 projects for Longboat Key that have been flagged in the **Transportation Improvement Plan (TIP), Long Range Transportation Plan (LRTP), the Sarasota Local Mitigation Strategy (LMS), and the Manatee Local Mitigation Strategy (LMS).**

Plan	Description	Jurisdiction	Amount (including CST funding)	Construction Year
TIP	Sarasota County Line to Longboat Pass. Resurfacing	Town of Longboat Key	$5,145,858	2025
LRTP	At Broadway Street. Roundabout	Town of Longboat Key	$4,860,000	2030
LRTP	At Longboat Club Road. Roundabout	Town of Longboat Key	$4,860,000	2030
Manatee LMS	Australian Pines removal. Problem with trees being easily uprooted and causing blockage of evacuation routes	Town of Longboat Key	$12,0000	Not provided
Sarasota LMS	Provide additional drainage and retention in suitable locations	Town of Longboat Key	$600,000	Not provided
Manatee LMS	Streeting drainage improvements for flood mitigation	Town of Longboat Key	$1,600,000	Not provided

The 2024 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase II focused on refining the high-priority road segments identified in Phase I by working closely with stakeholders and learning from recent hurricanes like Ian and Idalia. The goal was to develop specific mitigation strategies for these high-risk areas and find existing projects in the **2024 Long-Range Transportation Plan (LRTP)** that could be eligible for resilience funding. Eighteen high-priority road segments where identified, including SR 789 from Harborside Drive to SR 64/Manatee Avenue. This road segment also ranked as high vulnerability in the Florida Department of Transportation's Resilience Action Plan (RAP). Key strategies and mitigation measures identified for the evacuation route include the following:

- **Replacement:** The Longboat Pass bridge, found along this segment, needs to be replaced. The bridge was originally constructed in the 1950s and has outlived its useful life. The existing bridge does not include emergency shoulders or separate bicycle facilities. Constructing a new bridge that meets current design standards would minimize the risk of future disruptions and improve evacuation and recovery times.
- **Retrofitting/Hardening:** Interviews with local official revealed that nuisance flooding and standing water is a persistent issue in certain areas. Elevating the roadway in these areas will help extend the roadway's useful life and prevent disruptions.
- **Drainage Improvements:** Another way to address issues with nuisance flooding and standing water is to improve stormwater drainage along to the roadway and underneath the roadway in some cases where the roadway has been elevated. Upgrading the capacity of the pump stations in the area can allow the stormwater system to accommodate larger volumes of water and more quickly clear out flooded areas.
- **Replacement:** Replace signalized intersections with roundabouts for continued movement during power outages at key locations, such as Broadway Street and Longboat Key Club Drive.

All projects from the **2045 Long Range Transportation Plan (LRTP)**were reviewed to see if they included resilience elements and were then compared to the 18 high-priority road segments identified in Phase II. The overlap highlighted the top priority projects that provide the best opportunity for the Sarasota/Manatee MPO to tackle hazard impacts:

Town of Longboat Key					
I5	SR 789/Gulf of Mexico Drive	at Broadway Street	Roundabout	2030	$4,860
I6	SR 789/Gulf of Mexico Drive	at Longboat Club Road	Roundabout	2030	$4,860
MM11	SR 789/Gulf of Mexico Drive	on LBK	Complete Street	2030	$18,388

In late 2022, the Town drafted the **Gulf of Mexico Drive (GMD) Complete Streets Corridor Plan, with significant input from FDOT,** as a guiding document for future improvements and funding requests for the roadway. The Town worked with FDOT to include identified priorities within the Corridor Plan within FDOT's Fiscal Year 2024 Work Plan.

In 2024, the Florida Department of Transportation (FDOT) adopted the **Five-Year Work Program**. This plan spans from fiscal year 2024-25 to fiscal year 2028-29 and includes three major projects highlighted within the 2024 Sarasota/Manatee MPO Resiliency Vulnerability Assessment and the 2045 LRTP, that total over $20 million.

- **Roundabout Redesign**: The Town has included a roundabout redesign at the intersection of Broadway Street and GMD in its 2024 budget and FDOT included $1,685,000 in the five-year work plan to go toward construction of the roundabout. The **Sarasota/Manatee Metropolitan Planning Organization (MPO)** previously set aside $4.8 million for the town's roundabout project in its "**Transform 2045" Long Range Cost Feasible Plan"**. These funds were identified for 2030, but as of August 2024, will now be available for fiscal year 2025 or 2027. For the town to receive funding in the MPO's FY25 budget, it would need to be under contract for the project by June 30, 2025.
- **Replacement of the Longboat Pass Bridge:** Longboat Pass Bridge has been determined "functionally obsolete" by FDOT. The town commission has recommended a mid-level bridge rebuild option (mid-level bascule at 36 feet high) with a reduced width of the bridge to give the Northgate complex more space. As of early October 2024, the project is under study; a decision is expected in late 2025.
- **Resurfacing of the Longboat Key Section of GMD:** Manatee County's resurfacing will take place in 2026, and Sarasota County will follow in 2027.

ACTION 11:

MAINTAIN CONDITION OF AND ACCESS ON ROADS IN AREAS EXPERIENCING TIDAL FLOODING AND SEEPAGE

$280,000 in studies

$2,800,000 in grant requests to elevate critical roads

PROPOSED TIMEFRAME Mid Term (5-10 Years)

PROPOSED ACTION

In the 2022 Resilience Plan, the recommendations for maintaining the condition and access of roads in areas experiencing tidal flooding and seepage included several key actions:

- **Monitoring Flood-Prone Roads**: The plan emphasized the need for regular monitoring of roads that experience tidal flooding, especially those in low-lying neighborhoods like the Village.
- **Elevating Critical Roads:** While most roads were not expected to require immediate adaptation, the plan suggested mid-term planning for the elevation of critical access roads. The plan recommended gradual road elevation projects to address future sea level rise impacts.
- **Incorporating Road Resilience into Maintenance:** The plan suggested integrating resilience strategies into regular road maintenance, especially in areas where flooding is recurrent. This could include reinforcing roadbeds and using flood-resistant materials to prolong the lifespan of the roads and reduce the need for frequent repairs.
- **Prioritizing Long-Term Adaptation:** The 2022 plan advised that while short-term actions may involve monitoring and minor repairs, a long-term adaptation strategy should be developed for roads projected to be highly vulnerable by 2040. This would involve comprehensive planning and budget allocation for future road elevation and floodproofing efforts.

2022- 2025 PROGRESS

Since the 2022 Resilience Plan, significant advancements have been made toward improving the resilience and functionality of Longboat Key's roadways:

- **Lyons Lane Flood Mitigation:** Following the 2018 valve installations, Lyons Lane was raised and tilted to redirect water flow and reduce flood risks. This area had been identified as vulnerable, and town officials have confirmed that the improvements have been effective in mitigating flood impacts, with the redesigned road serving its purpose well.
- **Advocacy for FDOT Bridge Replacement Projects:** The Town has actively supported FDOT Bridge Replacement Projects as part of the Barrier Island Traffic Study (BITS). These efforts aim to reduce congestion, improve traffic flow, and incorporate multi-modal transportation options, ensuring continuous access to evacuation routes in emergency situations.
- **2022 Florida Division of Emergency Management -Pre-Disaster Mitigation Grant:** The Town was awarded $350,000 in 2022 for the Town of Longboat Key Flood Mitigation Project (Project Scoping) Norton Street Earmark.
- **2022 Flooding Assessments in Buttonwood and Sleepy Lagoon**: Comprehensive Flood Assessments were completed in the Buttonwood Harbour and Sleepy Lagoon neighborhoods, which continue to face persistent flooding risks. In 2022, the town identified the Buttonwood Harbour and Sleepy Lagoon neighborhoods as areas of continued concern. In response, Longboat Key hired the engineering firm Kimley-Horn to conduct a comprehensive study to explore further flood mitigation solutions for these neighborhoods, including additional infrastructure improvements and enhancements to the stormwater management system. The final report presented in December 2022 proposed phased solutions, starting with raising roads and optimizing drainage systems.

Projects are in the design phase, with construction expected to begin in 2025. In August 2024, the Town of Longboat Key requested resident reports of recurring flooding in the low-lying areas of Sleepy Lagoon, Buttonwood and the Village to be included in the ongoing drainage projects and upcoming grants. Residents are asked to share details such as water depth from intrusion into homes and garages from Hurricane Debby.

- **Planned projects include:**
  - **Sleepy Lagoon:** Suggested solutions for issues in the Sleepy Lagoon neighborhood centered on reconstructing roads to a higher elevation and were broken into phases:
    - Phase 1: Norton Street, which could cost about $1.35 million
      - Plans are expected to be complete around November 5, 2024 and construction is planned to begin around March 31, 2025.
      - In 2024, the Town submitted a grant application to the Florida Department of Emergency Management (FDEM) under the Hazard Mitigation Grant Program (HMGP) for Hurricane Ian-related mitigation efforts to fund this project.
      - The project will raise Norton Street by up to 1.3 feet and improve stormwater management by installing inlets and pipes, reducing sunny day flooding (King Tides) and improving check valve functionality. The project will require close coordination with property owners to avoid negative impacts on adjacent properties due to elevation changes.
    - Phase 2: Bayview Drive and Penfield Street, which is projected to cost $1.86M
    - Phase 3: General Harris Street and Marbury Lane, which is projected to cost $1.72M
    - Phase 4: Da Narvaez Drive and Juan Anasco Drive, which could cost about $1.15M
  - **Buttonwood Harbour:** Suggested solutions consisted of six projects and projects 1-3 were suggested to be completed simultaneously to maximize benefits.
    - Project 1: Buttonwood Drive and Winslow Place road reconstruction, which is expected to cost $1.48 million
      - The Town was awarded 4673-109-R, Town of Longboat Key, Buttonwood, Flood Risk Reduction – Phase I grant for $975,290.
      - In 2024, the Town submitted a FDEM-HMGP application to fund this project.
      - The project will raise the road at key low points, divert stormwater from the Buttonwood ditch, and optimize the ditch with improved drainage, including the installation of a check valve to reduce backflow. The improvements will mitigate flooding during high tides and rain events and provide additional capacity for future stormwater needs.
    - Project 2: Flow diversion, which is estimated to cost $540,000
    - Project 3: Ditch optimization, which is estimated to cost $540,000
    - Project 4: Longview shoreline stabilization and reconstruction, which is expected to cost $510,000
    - Project 5: Buttonwood shoreline stabilization, which is expected to cost $84,000
    - Project 6: Monroe Street saltwater marsh, which is estimated to cost $104,000
- **2024 Roadway Resurfacing in Key Areas:** The Village and Jungle Queen areas underwent roadway resurfacing, ensuring greater resilience of the road system in flood-prone areas. This effort aimed to enhance road durability and reduce the impacts of tidal flooding and stormwater runoff on daily mobility.
- **2024 Longboat Key Village Stormwater and Flood Mitigation Project (Phase 1) Grant Application:** The Town of Longboat Key submitted an application to FDEM-HMGP to fund this project.
  - Road reconstruction and drainage improvements in Longboat Key Village, an area with approximately 2.2 miles of roadway centerline below 2.6 feet NAVD88, susceptible to sea level rise, King Tides, and flooding.
  - Phase 1 targets about 3,000 feet of the lowest road segments, including Broadway Street, Bayside Drive, Lois Avenue, and others. The plan includes elevating roads by up to 1.1 feet and installing a stormwater management system with inlets, pipes, nutrient separation boxes, and Tideflex® valves.

ACTION 12:
MAINTAIN BEACH ACCESS POINTS

Three beach access points elevated

PROPOSED TIMEFRAME Mid Term (5-10 Years)

PROPOSED ACTION

The initial action in the 2022 plan emphasized the importance of maintaining beach access points to prevent surge propagation and reduce flood risks. It recommended evaluating the condition and elevation of these access points, as well as considering future elevation needs for parking areas adjacent to beach access points. Maintaining these areas is crucial to preserve eligibility for state grant funds from the Beach Management Funding Assistance Program. In the long term, adaptation may require elevating parking spaces to avoid risks of permanent inundation due to sea level rise and storm surges.

2022- 2025 PROGRESS

- The Florida Coastal Management Program Grants provided funding through the FDEP Coastal Partnership Initiative Grant (CZ717), specifically for a Planning Grant that supports **ADA-compliant beach access improvements at Broadway and Poseidon Beach Access Dune Walkovers**. The primary focus of this grant is to enhance accessibility while protecting the natural dune environment. The improvements involve designing walkovers that allow beach access for individuals with disabilities, while ensuring minimal impact on the sensitive dune ecosystems**.**
- Three beach access points have been elevated since 2022, including one at North Shore, one at Gulfside, and one at Neptune due to over wash.

ACTION 13:
INCREASE WATER QUALITY MONITORING NEAR SEPTIC SYSTEMS AT JEWFISH KEY

Managed by Sarasota County and Sarasota Bay Estuary Program with Town's support

PROPOSED TIMEFRAME

Mid Term (5-10 Years)

PROPOSED ACTION

The 2022 plan identified a key issue related to septic systems on Jewfish Key, where flooding can cause septic tank oversaturation. To prevent contamination, the plan recommended stricter and more consistent monitoring of septic systems in the area, as well as the surrounding waters. The Town of Longboat Key was also encouraged to promote private adaptation by transitioning from traditional septic systems to individual on-site wastewater treatment options. This transition could help mitigate future water quality issues by providing more resilient wastewater management solutions.

2022- 2025 PROGRESS

- **2023 Post-Hurricane Idalia Cleanup:** In collaboration with Manatee County, the Town worked to remove large amounts of seaweed and debris that accumulated on Longboat Key beaches. This effort helped reduce potential water contamination from decaying organic material and waste after the storm.
- **2023 Greer Island Sand Spit and Canal 1A Dredge:** This project enhanced the flushing tidal prism of the lagoon, which is crucial for maintaining water quality and supporting important ecosystems such as seagrasses and Manatee habitats. Approximately $1.1 million.
- **2023 Environmental Action Plan:** The Environmental Action Plan emphasizes reducing wastewater pollution and includes a specific goal to prohibit the use of septic tanks, except on Jewfish Key. On Jewfish Key, the plan encourages the adoption of advanced septic systems to mitigate risks of wastewater leakage and protect water quality.
- **Annual support for NPDES:** The Town continues its annual efforts to comply with the National Pollutant Discharge Elimination System (NPDES), which plays a vital role in preventing water pollution by regulating stormwater discharge.

ACTION 14:
PLAN FOR MANGROVE ADAPTATION

100% of areas protected/ mitigated

Six initiatives/ projects implemented to protect areas

PROPOSED TIMEFRAME

Mid Term (5-10 Years)

PROPOSED ACTION

The 2022 Resilience Plan recommended mangrove protection and restoration along Longboat Key as a key green adaptation strategy. Mangroves provide numerous benefits, such as reducing coastal erosion, dampening waves and storm surges, and supporting critical habitats and ecosystem services. To ensure mangroves can continue to offer these benefits, the plan recognized that natural adaptation—such as migration inland or sediment accumulation—would not occur without deliberate intervention. Therefore, the proposed action included the development of a mangrove adaptation plan that would:

- Identify priority mangrove areas for protection.
- Determine the appropriate timing for adaptation efforts.
- Include pilot projects to test mangrove adaptation strategies, such as sediment supplementation or habitat expansion.
- Incorporate long-term monitoring criteria to evaluate the success of these efforts.

2022- 2025 PROGRESS

Several key actions have been taken to advance the mangrove adaptation strategy proposed in the 2022 Resilience Plan:

- **2022 Green Initiatives Program:** Initiatives are broken down into categories including shoreline protection, water quality, environmental/energy efficiency, infrastructure and educational outreach.
- **2022-2023 Comprehensive Plan Updates:** The Town continued processing updates to the Conservation & Coastal Management Element of the Comprehensive Plan. These updates support the long-term resilience of native coastal habitats, including mangroves. The final batch of updates is currently under state review, reinforcing the Town's commitment to integrating mangrove protection into its broader coastal management strategy.
- **2023 Environmental Action Plan:** The Town of Longboat Key finalized its Environmental Action Plan in October 2023, which includes explicit goals for conserving and restoring ecological biodiversity. Specific goals related to mangroves include:
  - Educating waterfront property owners about mangrove trimming regulations and best practices, ensuring that mangroves are protected from improper trimming or damage.
  - Exploring the possibility of delegating mangrove protection enforcement from the Florida Department of Environmental Protection (FDEP) to the Town, which would allow for more localized oversight and enforcement of mangrove regulations.
- Additional efforts include town-wide mangrove mapping, mangrove planting in Greer Island, and mangrove protection elements within the Code of Ordinances 154:300.

ACTION 15:

EVALUATE OPPORTUNITIES TO INTEGRATE GREEN INFRASTRUCTURE

Seven projects implemented and two in progress with green infrastructure elements

PROPSED TIMEFRAME

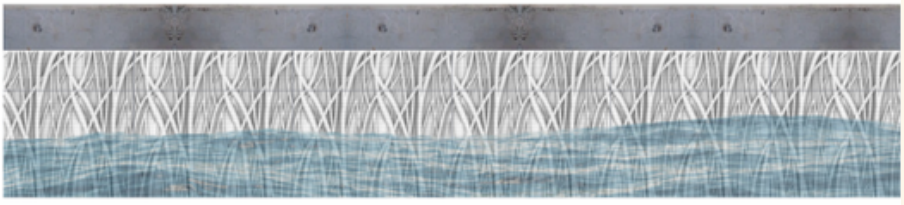
Near Term (0-5 Years)

PROPOSED DESCRIPTION

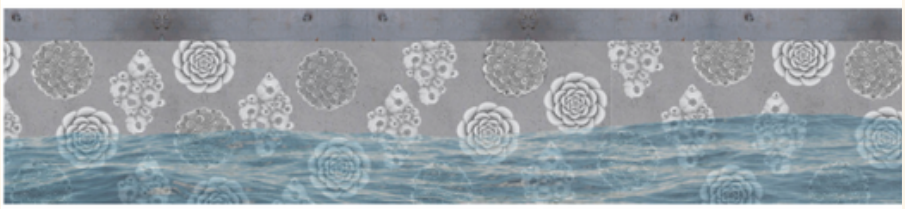
The 2022 Resilience Plan recommended evaluating and integrating green infrastructure as part of the Town's adaptation strategies to address the impacts of flooding, heat, and ecosystem degradation. The key action proposed was for Town administration to incorporate green infrastructure into project development criteria. This included reducing impermeable surfaces to minimize runoff and enhance water absorption. Planting vegetation with high absorption capacity and considering financing opportunities for environmental restoration early in project planning.

2022- 2025 PROGRESS

- **2023 Town Center Phase 2 Completion:** The completion of Town Center Phase 2 includes the Karon Family Pavilion, a pervious walkway, large grassy areas, and a master stormwater treatment system for future development. These elements showcase the integration of green infrastructure by managing stormwater through permeable surfaces and reducing runoff, contributing to improved water absorption.
- **2023 Environmental Action Plan:** The finalized Environmental Action Plan sets clear goals for green infrastructure, including:
  - Replacing or modifying seawalls on Town properties with natural or living seawalls to create habitat, in collaboration with agencies like SBEP and FDEP.
  - Installing green infrastructure (low-impact development) on Town properties and encouraging private property owners to adopt similar strategies through incentives.
- **2024 Longboat Key Bayfront Park Shoreline Project:** In 2024, Sarasota Bay Estuary Program (SBEP) allocated $500,000 towards constructing a "living seawall" over the existing vinyl seawall at Bayfront Park and requested design proposals. Kind Designs, Kearns Construction Company, and Cummins Cederberg are working together to create custom Kind Tiles™ to be attached to the existing vinyl seawall. Kind Tiles™ are designed to enhance seawalls by creating habitats and providing aesthetic benefits.



Continuous design



Organic layout

Kind Tiles™ Attached to Existing Concrete Seawalls- Product Spec Sheet

- Participation in the vertical oyster garden program, which aims to improve water bay and canal water quality through the attraction of organisms that naturally filter water.
- Additional efforts include town-wide mangrove mapping, a utility meter replacement, and Jackson Way Habitat restoration.
- **Planned Seagrass Mitigation:**
  - For the subaqueous force main pipe project, the town is required by the Florida Department of Environmental Protection and the U.S. Army Corps of Engineers to undertake 8 acres of seagrass mitigation.
  - For the upcoming canal dredging project, seagrass mitigation, estimated at around $3.6 million, is required since certain canals have seagrasses that would be impacted by the dredging.
- **Planned Saltwater Marsh:** As part of the planned Buttonwood Harbour projects, Project 6 will include a saltwater marsh on Monroe Street.

Objective 4: Leverage Redevelopment to Implement Adaptation Strategies

Action #17

ACTION 17:
CONTINUE TO SUPPORT RESILIENCE STANDARDS IN POLICIES

Ordinance 2023-01 updated the Town's Comprehensive Plan

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 Resilience Plan emphasized the importance of continuing to support and implement resilience policies that guide private adaptation and complement physical resilience strategies. The following measures were proposed to ensure that policies remain effective in promoting resilience:

1. **Permit Review for At-Risk Areas:** Continue requiring that permit applications for new developments or modifications are reviewed for proximity to flood-prone areas.
2. **New Drainage Permits for Redevelopment:** Maintain the requirement for obtaining new drainage permits for redevelopment projects.
3. **Comprehensive Plan Updates:** Continue updating the Town's comprehensive plan to align with the Peril of Flood legislation.

2022- 2025 PROGRESS

- **Ordinance 2024-07:** This ordinance determines the allowable Freeboard height based on a property's average elevation in relation to NAVD (North American Vertical Datum), which is a standardized elevation reference point. Specifically, this ordinance applies to properties with an average elevation of 3.5 feet NAVD or below and permits owners to add up to 5 feet of Freeboard (an extra height added above the base flood elevation to reduce flood risk).
- **2022-2023 Comprehensive Plan Updates:** The Town has continued processing updates to its Comprehensive Plan, specifically the Conservation & Coastal Management Element, as part of the 2022 batch updates. **Ordinance 2023-01** updated the Town's Comprehensive Plan Recreation & Open Space and Conservation & Coastal Management Comprehensive Plan Elements. These updates ensure that the plan remains aligned with resilience policies, including flood risk mitigation, and continue to comply with the Peril of Flood legislation. The final batch of updates is currently in the state review process.
- **Florida Building Code and FEMA Compliance:** The Town has consistently administered the Florida Building Code and FEMA requirements to ensure that all new construction and infrastructure projects are designed to withstand flood risks. This includes the requirement for buildings in flood-prone areas to be elevated above designated flood zones, enhancing their resilience to rising sea levels and storm surges.
- **Town Code Enforcement:** The Town has maintained its policy of requiring new construction to exceed FEMA Base Flood Elevation (BFE) by 3 feet. This policy further ensures that developments are built with an additional margin of safety against flooding, making the community more resilient to future climate risks.

Objective 5: Engage Community to Build Resilience

Actions #19-22

ACTION 19:
ENCOURAGE PRIVATE ADAPTATION

Four ordinances implemented to encourage private adaptation

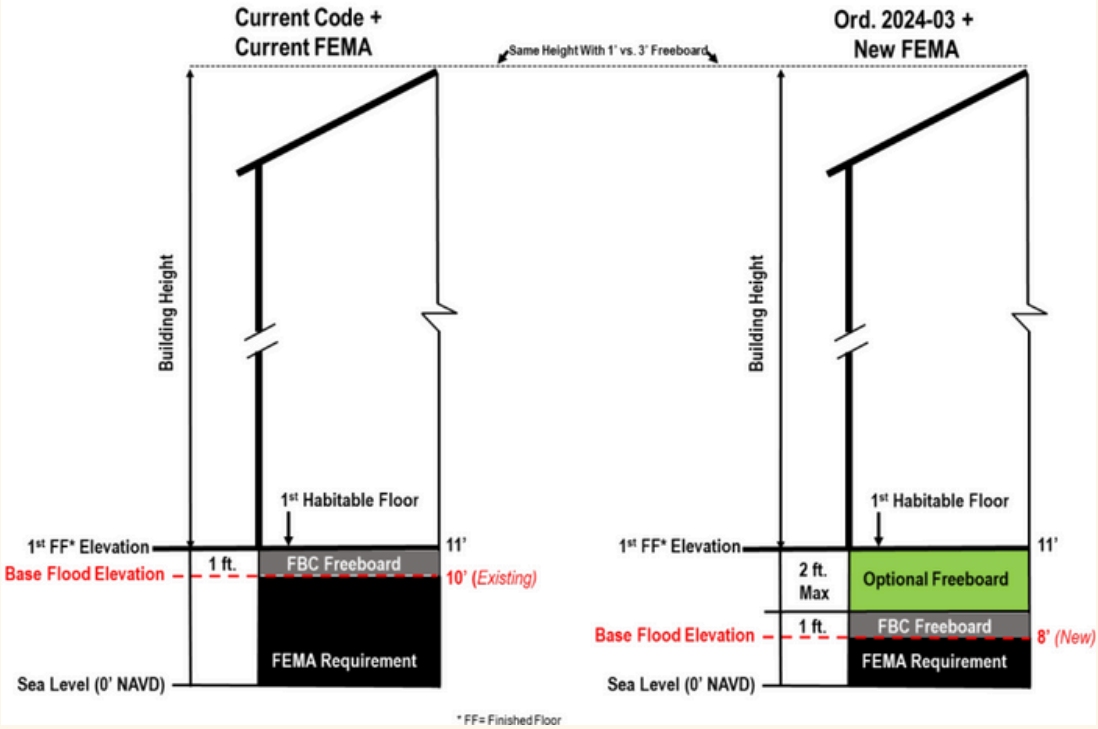
TIMEFRAME
Mid Term (5-10 Years)

DESCRIPTION
The 2022 plan highlighted the need for private adaptation efforts to address much of the vulnerable infrastructure on Longboat Key, which is privately owned. To facilitate this, the Town proposed supporting private adaptation through policy measures and planning guidance. This **included implementing the tidal flood barrier requirement (Action 2)** and setting minimum elevation standards for barriers.

2022- 2025 PROGRESS

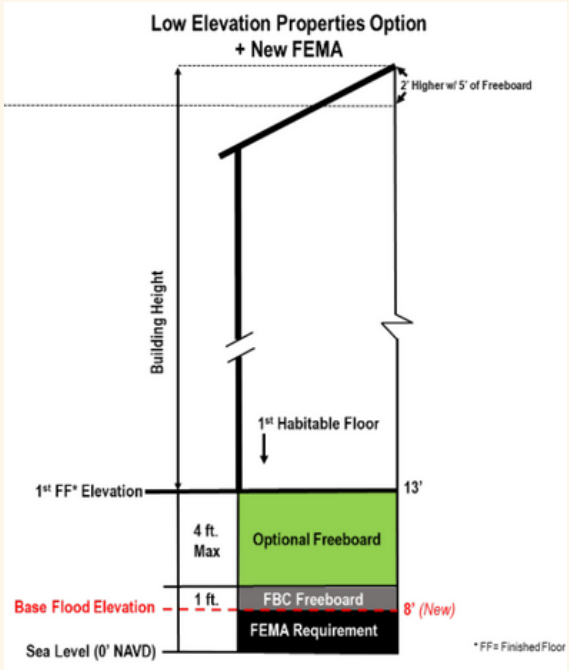
- **2023 Environmental Action Plan**: The finalized Environmental Action Plan sets goals that support private adaptation, including:
  - **Goal 1:** Conserve and Restore Ecological Biodiversity and Resilience- The plan encourages and educates the public to replace or modify privately owned seawalls and other hard shoreline structures with natural shorelines or living seawalls. These green alternatives help create habitat and improve ecological resilience, reducing the negative impacts of traditional seawalls on coastal ecosystems.
- **2024 Ordinances**
  - **Ordinance 2024-01: Adopting Updated Sarasota County FEMA Flood Map:** This ordinance updates the flood control section of the Town Code to reflect the latest FEMA flood map changes for Sarasota County, effective March 27, 2024. The revisions primarily update the Town's regulations on flood hazard areas. The changes are necessary for the Town to continue participating in the NFIP, allowing property owners to maintain access to flood insurance discounts.
  - **Ordinance 2024-03: Optional Freeboard Height, Townside:** This ordinance allows property owners the option to include up to 3 feet of Freeboard in their building designs. Freeboard is measured above the FEMA Base Flood Elevation (BFE) and includes any additional height provided for flood protection. The ordinance permits property owners to add up to 2 extra feet of freeboard beyond the existing

mandatory 1-foot requirement, effectively maintaining the same maximum building heights allowed under prior FEMA flood maps. This adjustment is necessary because the new FEMA BFE levels for both Manatee and Sarasota counties are generally 2 feet lower than the previous maps, which were in effect before the 2021 and 2024 updates. Allowing these additional feet of Freeboard will ensure that buildings can still meet prior height allowances while adhering to the new flood elevation standards.



Ordinance 2024-03, Amending Ch. 154, Flood Control & Ch. 158, Zoning Code
Town Commission 2nd Reading- April 1, 2024

- **Ordinance 2024-04: Increased the maximum allowable seawall height from 4.5 feet to 6 feet above sea level.**
- **Ordinance 2024-07: Optional Freeboard Height in Areas <3.5 ft NAVD:** As mentioned, this ordinance allows property owners with an average property elevation of 3.5 feet NAVD or below to opt for up to 5 feet of Freeboard. This ordinance follows Ordinance 2024-03, which permits property owners across the town to include up to 3 feet of Freeboard. The purpose of Ordinance 2024-07 is to maintain the same maximum building heights allowed under previous FEMA flood maps.



Ordinance 2024-07, Amending Chapter 158 Zoning Code Town Commission 2nd Reading/Public Hearing- June 28, 2024

ACTION 20:

MAINTAIN OR IMPROVE COMMUNITY RATING SYSTEM GRADE

CRS Class 6 has been maintained

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 plan recommended that the Town Administration strive to increase its CRS Class rating by implementing additional mitigation planning and floodplain management activities to earn more points.

2022- 2025 PROGRESS

As of 2025, the Town of Longboat Key has maintained its Community Rating System (CRS) score of Class 6 under the National Flood Insurance Program (NFIP), effective since May 1, 2020. This CRS score has provided property owners in the town with a 20% discount on flood insurance premiums. The town's floodplain management practices, which exceed NFIP's minimum standards, have contributed to retaining this CRS classification. These practices include ongoing efforts to manage flood risks through comprehensive floodplain management strategies and the town's participation in FEMA's Community Rating System.

Key Factors Maintaining CRS Class 6:

1. Floodplain Management: The town has consistently implemented measures to protect insurable properties from flood damage, such as maintaining compliance with FEMA regulations, flood control ordinances, and managing areas prone to stormwater runoff.
2. Community Education and Outreach: Longboat Key has conducted regular community outreach on flood risks and preparedness, including annual surveys and workshops, ensuring residents understand the importance of flood mitigation efforts.
3. Ordinances and Policies: Regular updates to floodplain management policies, as seen in ongoing amendments, have kept the town aligned with FEMA's evolving requirements.

Improvements that Could Help Achieve CRS Class 5:

Town of Longboat Key is very close to becoming a Class 5 municipality, which would provide property owners in the town with a 25% discount on flood insurance premiums. If the freeboard ordinance (Ord. 2024-03) would become a requirement rather than something that's optional, the points achieved through the ordinance would push the town to the Class 5 rating. As previously mentioned, the Senate Bill 250 (extended in 2023) currently restricts municipalities within 100 miles of Hurricanes Ian or Nicole's landfall from enforcing more restrictive land development ordinances, requiring that the freeboard ordinance remain optional. If not extended, the bill will expire in 2026, and the town's CRS reevaluation in 2028 may then allow for a mandatory freeboard ordinance if conditions permit.

ACTION 21:
CONDUCT COMMUNITY OUTREACH

Eight community outreach events hosted

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 plan emphasized the importance of community outreach as a critical component in gaining support for new projects and resilience strategies. Outreach efforts include workshops, presentations, and focus groups to engage the community and gather feedback. Specifically, outreach was recommended to build support for initiatives such as road harmonization, utility hardening, and policy development, as well as securing right of ways for road adaptation and easements for water storage.

2022- 2025 PROGRESS

Through frequent public meetings, workshops, and surveys, the Town ensures that citizens have opportunities to engage with ongoing projects and policies, particularly those focused on addressing climate risks and infrastructure upgrades.

- **2022 GMD Corridor Plan Public Outreach Workshop:** The town held a workshop in May 2022. Significant amount of public input surrounded improving pedestrian crossings along the Central section of the island near Bayport Condominiums and also Gulf Shores and Twin Shores mobile home parks. This also included input regarding potential speed reduction.
- **2023 Environmental Issues Survey (Annual Citizen Survey):** The Town included two questions on environmental issues in its annual survey to gather feedback on resident concerns regarding environmental sustainability and resilience.
- **Presentations to Home and Condo Associations**: Presentations were made to four major home and condo associations, focusing on flood mitigation and resilience efforts. These sessions engaged residents about the Town's long-term strategies for managing flood risks and improving infrastructure.
- **2023 FDOT Public Workshop:** In March 2023, FDOT hosted a public workshop discussing the SR 789 (Longboat Key) Project, specifically examining alternatives for bridge replacements and road improvements. This workshop provided an opportunity for residents to voice their opinions on critical transportation infrastructure impacting evacuation routes and daily mobility.
- **2024 Citizen Satisfaction Survey:** The Town conducted its 4th Annual Citizen Satisfaction Survey, inviting residents to provide feedback on quality of life, Town services, and policy priorities.
- **2023 Hurricane Disaster Preparedness Seminars:** The Town held multiple disaster preparedness seminars in 2023, including a Hurricane Preparedness Seminar and additional events addressing flood mitigation and storm readiness. These seminars, in collaboration with local organizations like the Longboat Key Chamber, aimed to equip residents with the necessary knowledge to prepare for natural disasters.
- **Town Commission Meetings and Ordinance Discussions:** Public participation was encouraged during Town Commission meetings, where important ordinances related to flood control, building height, and other matters were discussed. These meetings offered residents the opportunity to engage with proposed legislation before adoption.
- **Sarasota/Manatee MPO Resiliency Vulnerability Assessment Study Meetings (2022-2024):** The study consisted of Transportation Resiliency Advisory Group (TRAG) meetings, where members of the public were welcome and encouraged to participate during the public input portion.

ACTION 22:

CONTINUE INTERGOVERNMENTAL AND STAKEHOLDER COORDINATION

Twelve coordinated efforts with intergovernmental agencies

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 strategy emphasized the need for intergovernmental and stakeholder coordination to support the adaptation of critical infrastructure, natural areas, and green infrastructure, particularly in relation to evacuation routes and water storage.

2022- 2025 PROGRESS

- **2023 Sarasota County Floodplain Management Plan 2020-2025 Adoption:** The Town adopted the updated plan in 2023, aligning with regional efforts to manage flood risks and improve community resilience to future flood events.
- **Mobility-On-Demand Transit System:** The Town implemented a unified mobility-on-demand system in partnership with Sarasota County Breeze and MCAT, beginning in 2021, enhancing island transportation options and improving connectivity for residents and visitors.
- **GMD Complete Streets Corridor Plan:** The Town continues collaborating with FDOT and the Sarasota-Manatee MPO to secure funding for the Complete Streets Corridor Plan along Gulf of Mexico Drive (GMD). This plan focuses on enhancing multi-modal transportation with funding expected in 2026.
- **Post Disaster Redevelopment Plan Participation:** Longboat Key is actively involved in Manatee County's Post Disaster Redevelopment Plan update, ensuring the Town's needs are addressed in regional recovery planning.
- **2023 Environmental Action Plan:** The finalized plan emphasizes the Town's goal to build capacity for ecosystem conservation and restoration through collaboration with partners like local governments, the Sarasota Bay Estuary Program, and environmental NGOs.
- **2024 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase II |** As mentioned, the assessment identified SR 789 (Gulf of Mexico Drive) as a vital evacuation route for Longboat Key and proposed several resilience measures to safeguard the road from the impacts of sea level rise, storm surges, and other climate-related threats. The Town actively contributed to this effort by participating in Transportation Resiliency Advisory Group (TRAG) meetings, providing key stakeholder representatives to ensure that Longboat Key's unique vulnerabilities were considered in the planning and adaptation strategies.
- **2024 State of the Bay Update**: Dave Tomasko from the Sarasota Bay Estuary Program presented to the Town Commission in March 2024, providing updates on the health and status of Sarasota Bay, a vital ecosystem for Longboat Key.
- **2024 Sarasota County Vulnerability Assessment and Resilience Plan:** Sarasota County launched a comprehensive vulnerability assessment and resilience planning project, funded by the Florida Department of Environmental Protection under the Resilient Florida Grant Program. This assessment aims to identify and address flood and sea level rise risks to county assets. The resilience and adaptation plan will outline projects to mitigate these risks and support applications for additional funding to implement the recommendations. In July of 2024, a community meeting was held to review the assessment and plan. The plan has not been made publicly available as of 2024.

- **Sarasota County CDBG-DR Funded Resilient SRQ Action Plan and Housing Recovery Program (HRP):** The U.S. Department of Housing and Urban Development approved Sarasota County's Resilient SRQ Action Plan on November 21, 2023. This plan, funded with $201.5 million from the Community Development Block Grant–Disaster Recovery (CDBG-DR) Program, supports long-term recovery from Hurricane Ian. County staff has proceeded with building and launching the outlined programs and applications are open. Programs will focus on Infrastructure/Mitigation and Housing Recovery, with $55 million specifically allocated to the Housing Recovery Program for eligible homeowners to receive assistance with rehabilitation, reconstruction, and reimbursement.
- **2024 Manatee County Annual Action Plan, Program Year 2024/2025:** Manatee County, has identified goals, objectives and strategies for addressing housing and community development needs. For the Program Year 2024/2025 Annual Action Plan, the County anticipates an annual allocation which includes $1,795,567 in Community Development Block Grant (CDBG) funds,
- **Manatee County Local Mitigation Strategy (LMS) Working Group Meetings:** Manatee County's Local Mitigation Strategy (LMS) is a multi-jurisdictional plan aimed at reducing hazards within the county. The LMS is updated every five years to remain federally compliant and eligible for Hazard Mitigation Grant Program (HMGP) project grants. The most recent update was completed in 2019. Therefore, the next scheduled update is anticipated in 2024. The LMS Working Group, comprising members from the county, its six municipalities, fire districts, and the sheriff's office, holds quarterly meetings to discuss and update the LMS. These meetings typically occur in March, June, September, and December.
- **Sarasota County Local Mitigation Strategy (LMS) Working Group Meetings:** Sarasota County's Local Mitigation Strategy (LMS) is a multi-jurisdictional, multi-hazard plan that serves unincorporated Sarasota County, the City of Sarasota, the City of Venice, the City of North Port, and the Town of Longboat Key. The LMS is updated every five years to remain compliant with federal and state requirements. The most recent update was adopted in January 2021. Therefore, the next scheduled update is anticipated in 2026. The LMS Working Group, comprising representatives from various jurisdictions within the county, holds regular meetings to discuss and update the LMS.

Objective 6: Integrate Resilience in the Capital Improvement Program

Actions #24-25

ACTION 24:
PRIORITIZING RESILIENCE PROJECTS AFTER STORM AS APPLICABLE

$13,000,000 requested investment ($) via post storm grant applications

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 plan emphasized the importance of pre-planning for post-storm recovery to ensure smooth implementation of resilience projects. The proposed action also recommended that resilience projects be advanced for funding requests to support implementation of the resilience plan. County administration must be aware of the Town's priorities.

2022- 2025 PROGRESS

- **2023 Post-Storm Assessments:** After Hurricane Idalia, the Town conducted post-storm assessment visits with FEMA, FDEP, and FDEM to evaluate the hurricane's impacts. These assessments were followed by Post-Storm Surveys aimed at quantifying the damage and informing future resilience measures.
- **2023 Debris Removal:** The Town collaborated with Manatee County to clear large amounts of seaweed and solid waste debris from Longboat Key beaches, which accumulated after Hurricane Idalia. This effort was crucial in maintaining the health of local beaches and preserving the shoreline ecosystem.
- **2023 Hazard Mitigation Grant Application:** The Town is awaiting the results of the 2023 Hazard Mitigation Grant application cycle, which seeks funding for flood mitigation projects in Sleepy Lagoon, Buttonwood, and Village neighborhoods. These grants would help address recurring flood risks in these vulnerable areas.

ACTION 25:
SCHEDULE PROPOSED PROJECTS BASED ON URGENCY, FUNDING AVAILABILITY AND POTENTIAL FOR BUNDLING

$5,000,000 awarded

$5,800,000 pending

PROPOSED TIMEFRAME Near Term (0-5 Years)

PROPOSED ACTION

The 2022 plan recommended a comprehensive approach to managing vulnerable assets and implementing adaptation strategies for Longboat Key:

- Cost Estimates and Funding: Preliminary cost estimates for proposed capital improvement projects were provided, with an estimated $1.5 million annually required to fund the first 5 years of adaptation projects, including stormwater improvements in Sleepy Lagoon. The assessment highlighted potential for federal and state grants to help offset project costs.
- Local Data Collection: Maintaining a local tide gauge on Longboat Key was recommended to gather reliable data on water levels, flood extents, and rainfall, which would support the adaptation plan's flexibility and responsiveness to changing conditions.
- Proactive Adaptation: The assessment emphasized that proactive adaptation measures, including investments in resilient infrastructure, would mitigate the risks of future flood damage and help avoid rising maintenance costs. It also noted that projects protecting against storm surge would similarly address risks from sea level rise.
- Ongoing Efforts: The Town has already engaged in significant resilience efforts, including a Town-wide electrical undergrounding project and studies for highly vulnerable areas like the Village, Sleepy Lagoon, and Buttonwood.

2022- 2025 PROGRESS

The Town of Longboat Key continues to prioritize external funding and matching dollars as part of its 5-year Capital Improvement Plan (CIP) to support the implementation of Sea Level Rise (SLR) adaptation strategies. Relevant progress updates include:

- The Town has been pursuing external funding opportunities, applying for state and federal grants, including those from the Hazard Mitigation Grant Program (HMGP) to help finance key resilience projects in vulnerable neighborhoods like Sleepy Lagoon and Buttonwood.
- The Town has also set aside funding to meet matching grant requirements and is actively advancing engineering designs for infrastructure improvements in low-lying areas. These designs are being developed in accordance with sea level rise recommendations to ensure that future infrastructure projects are resilient to flooding and rising waters.

These efforts align with the broader strategy to schedule projects based on urgency, funding availability, and the potential for bundling projects to optimize resources and implementation. The Town is also coordinating with regional bodies like FDOT and MPO to ensure infrastructure improvements address critical resilience needs across multiple areas, further leveraging funding and project synergies.

IMPLEMENTATION SCHEDULE UPDATE, FUNDING OPTIONS, AND NEXT STEPS

IMPLEMENTATION UPDATES

Based on the progress achieved for each of the original 25 actions established in the 2022 plan, the suggested implementation schedule originally presented in the 2022 Adaptation Plan has been updated to reflect the current status and future targets. The core actions remain the same and the performance metrics set within this update continue to serve as benchmarks to track progress toward the Town's resilience goals and objectives. In response to documented progress, the specific recommendations for each action have been revised and refined to better propel the Town forward across near-term, mid-term, and long-term planning horizons. In addition, **the sequencing of a few actions has shifted based on progress made and the Town's evolving priorities; these adjustments are indicated with a star.** As the Town moves forward, this revised implementation schedule will serve as a dynamic framework, guiding adaptation actions to achieve resilience objectives while remaining responsive to ongoing assessments and community needs.

Near Term (2025-2030)

Action 1 Install and Maintain Tide Valves

- Perform yearly maintenance of tidal valves.
- Retrofit existing outfalls within priority areas- Sleepy Lagoon, the Village, Emerald Harbor, Buttonwood, Hideaway, and 4400-5300 GM,

Action 2 Amend Seawall Regulation to Address Tidal Flooding

- Track implementation of max height ordinance.
- Create a minimum seawall height ordinance of 3.5 ft in 2026 (once Senate Bill 250 expires).
- Add the following item on the permit review checklist: Verify that on-site drainage will still function with new barrier in place. To avoid flooding, sites with buildings or backyards lower than top of new barrier should plan for accommodation of rainfall runoff in a drainage system,
- Alter distance from wetland dictated in Code of Ordinances, Title 15 to support living shorelines. Evaluate need to support landward migration of wetlands with sea level rise or installation of tidal flood barriers as protection for living shorelines. Amend to increase difference in elevation between top of cap and ground to allow incremental adaptation.
- Prevent "flood trespassing" by enforcing public nuisance policy and avoidance,
- Require gaps between adjacent seawalls to be closed at time of replacement.

Action 6 Monitor Infiltration and Continue Active Utility System Preservation Programs

- Perform yearly maintenance on the new mainland wastewater force main.
- Complete the installation of the new subaqueous force main pipe.
- Include implications and indicators of infiltration and saltwater inundation in sewer system evaluation studies (SSES) and inspections.
- Perform yearly wastewater pipe inspections.

Action 7 Amend Stormwater Management Strategy

- Support Action 1 by performing yearly maintenance of installed tidal valves and retrofitting additional outfalls with valves.
- In areas where tidal flooding is currently managed passively, lower the level of service expectations as an adaptation measure.
- Incorporate current and projected tailwater conditions into future stormwater projects.
- Use the 2050 and 2080 Intermediate Sea Level Rise (SLR) inundation maps for drainage adaptation planning.
- Collect rim and invert elevation data (in GIS) when surveying stormwater assets.

Action 15 Evaluate Opportunities to Integrate Green Infrastructure

- Comply with FDEP seagrass mitigation requirements for planned projects including the subaqueous force main pipe project (8 acres) and the canal dredging project.
- Implement Project 6 (saltwater marsh on Monroe Street) as part of the planned Buttonwood Harbour projects, Project 6 will include a saltwater marsh on Monroe Street.
- Incorporate green infrastructure into project development criteria.

Action 16	**Adopt Policy Map Showing Sea Level Rise Projections**

- Add a sea level rise map depicting land areas that may experience flooding under the 2050 Intermediate Low, 2050 Intermediate, 2080 Intermediate Low, 2080 Intermediate scenarios to the Comprehensive Plan.
- Cross-referenced map in relevant sections of land use, stormwater, redevelopment and capital improvement policy.
- Update map and associated comprehensive plan sections every 5 years.

Action 17	**Continue to Support Resilience Standards in Policies**

- Continue requiring that permit applications for new developments or modifications are reviewed for proximity to flood-prone areas.
- Maintain the requirement for obtaining new drainage permits for redevelopment projects.
- Continue updating the Town's comprehensive plan to align with the Peril of Flood legislation

Action 18	**Consider Adaptation Needs in Evaluation of Redevelopment Impacts**

- Include a map of land areas that may experience tidal flooding or permanent inundation as a result of future sea level rise in technical sea wall height criteria (Action 16).
- Develop method to determine future costs of continued adaptation.
- Identify channels for sharing costs during redevelopment.

Action 19	**Encourage Private Adaptation** ★

- Track implementation of Ordinance 2024-03 (Optional Freeboard Height) and Ordinance 2024-07 (Optional Freeboard Height in Areas <3.5 ft NAVD).
- Support Action 2 by creating a minimum seawall height ordinance of 3.5 ft in 2026 (once Under Senate Bill 250 regulation expires) and encouraging adaptation.
- Identify additional methods of incentivizing adaptation such as prioritizing stormwater system improvements in areas where policy compliance is uniform,

Action 20	**Maintain or Improve Community Rating System Grade**

- Improve the Town's CRS grade to a Class 5 rating, when the Town undergoes its CRS reevaluation in 2028.
- In 2026, when Senate Bill 250 expires, consider making the freeboard ordinance (Ord. 2024-03) a requirement- points achieved through the ordinance would push the town to the Class 5 rating.

Action 21	**Conduct Community Outreach**

- Continue to conduct community outreach when considering new projects and strategies.
- Conduct the Citizen Satisfaction Survey annually.

Action 22	**Continue Intergovernmental and Stakeholder Coordination**

- Continue collaboration with intergovernmental agencies on projects including those within:
  - 2022 GMD Complete Streets Corridor Plan
  - 2023 Sarasota County Floodplain Management Plan
  - 2024 Sarasota/Manatee MPO Resiliency Vulnerability Assessment Phase II
  - 2024 FDOT Five-Year Work Program

Action 2	**Encourage Floodproofing of Electrical Charging**

- Floodproof the four lift stations with equipment below the 10-year storm surge elevation of 5.4 feet NAVD.

Action 24	**Prioritizing Resilience Projects After Storm as Applicable**

- Continue to conduct post-storm assessment visits with FEMA, FDEP, and FDEM and post-storm surveys after major storms to evaluate the hurricane's impacts and inform future planning.
- Continue to apply for post-storm grants, such as the Hazard Mitigation Grant, as needed.

★ Actions with adjusted sequences based on progress made and the Town's evolving priorities

Mid Term (2031-2035)

Action 8 Floodproof Vulnerable Electrical Equipment at Lift Stations

- Floodproof the identified vulnerable electrical equipment at lift stations by raising the electrical panels to above anticipated flood levels.

Action 9 Increase Resilience of Dune Systems as Part of Regular Beach Management Plan Updates

- Continue to increase elevations of low points in dunes, starting with Longbeach Village, private residences near 6851 and 6661 GMD, and Gulfside Road public access.

Action 10 Coordinate to Maintain Evacuation Routes

- Continue coordination with FDOT, the Sarasota Mantee Metropolitan Planning Organization (MPO) on planning and implementation projects to elevate and adapt the Gulf of Mexico Drive.
- Track progress made on priorities identified within the 2022 GMD Complete Streets Corridor Plan.
- Update the 2022 GMD Complete Streets Corridor Plan in 2032.

Action 11 Maintain Condition of and Access on Roads in Areas Experiencing Tidal Flooding and Seepage

- Monitor flood prone roads, in low-lying areas like the Village, during after major storm events.
- Perform regular road maintenance and integrate resilience strategies as applicable.
- Monitor recurrent repairs and areas of deterioration to inform the timing for a road adaptation or elevation project.
- Elevate additional critical low-lying roads in the Village as needed.
- Implement planned projects at Sleepy Lagoon, Buttonwood Harbour and the Village.

Action 12 Maintain Beach Access Points

- Maintain beach access points along the oceanfront shoreline and near parking spaces along General Harris Street.

Action 13 Increase Water Quality Monitoring Near Septic Systems at Jewfish Key

- Continue annual efforts to comply with the National Pollutant Discharge Elimination System (NPDES) and monitor water quality near septic systems at Jewfish Key.
- Encourage the adoption of advanced septic systems at Jewfish Key to mitigate risks of wastewater leakage and protect water quality, based on the goal established in the 2023 Environmental Action Plan that

Action 14 Plan for Mangrove Adaptation

- In support of ecological conservation goals stated within the Town's 2023 Environmental Plan, explore the possibility of delegating mangrove protection enforcement from the Florida Department of Environmental Protection (FDEP) to the Town, to allow for more localized oversight and enforcement of mangrove regulations.
- Generate a Mangrove Adaptation Plan that outlines mangroves areas that should be prioritized and when adaptation should occur and includes monitoring criteria for protection tracking.
  - Mangrove areas include partial acreage of the following Town-owned parks: Quickpointe Preserve, Durante Park, Lyons Lane, and Greer Island Park.

Action 25 Schedule Proposed Projects Based on Urgency, Funding Availability, and Potential for Bundling ★

- Continue to practice proactive adaptation and plan for critical asset protection projects.
- Maintain a local tide gauge on Longboat Key.

★ Actions with adjusted sequences based on progress made and the Town's evolving priorities

Long Term (2036-2046)	
Action 3	**Elevate Bayfront Roads and Install Pump Stations**
Elevate bayfront roads including the intersection of Longboat Drive and Russell Street by 2040. Project along Russell Street The installation of pump stations to actively pump water out through discharge outlets is no longer recommended as current studies by Kimley Horn do not indicate any benefit from doing so.	
Action 4	**Evaluate Performance of Dry Retention Areas, Wet Detention Areas, and French Drains**
• Evaluate performance of the Town's 10 retention areas, 4 wet detention systems and 216 linear feet of French drains. • Adapt features to increase performance by increasing in size of the feature, lining of the containment area with an impermeable barrier or the addition of a pump to discharge water.	
Action 5	**Plan for Future Stormwater Management Operations**
• Consider transitioning from passive (gravity driven) stormwater management to active (mechanically driven) stormwater management in the Village, Sleepy Lagoon, and similar elevation neighborhoods. • Consider implementing a stormwater management assessment fee and designate staff for operations and maintenance.	

FUNDING OPTIONS

To implement the recommended resilience and adaptation actions within the Longboat Key Adaptation Plan Update, the Town can leverage a range of funding sources through federal and state grants tailored to support coastal resilience, infrastructure upgrades, and ecosystem protection. Federal programs like FEMA's Building Resilient Infrastructure and Communities (BRIC) and Hazard Mitigation Grant Program (HMGP) provide essential funds for hazard mitigation projects, such as elevating critical roadways, installing tide valves, and floodproofing vulnerable infrastructure. Additionally, the NOAA Coastal Resilience Grants offer financial support for initiatives aimed at combating coastal erosion, flooding, and sea-level rise, making it suitable for projects like dune restoration and shoreline stabilization. The National Coastal Resilience Fund, managed by the National Fish and Wildlife Foundation (NFWF), provides grants for natural infrastructure projects, such as mangrove restoration and wetland conservation, which can help buffer the community from storm surge and flooding. State-level programs, such as the Florida Resilient Coastlines Program, further assist local governments with funding for vulnerability assessments, infrastructure improvements, and policy development that address climate impacts.

These funding opportunities come from diverse organizations, each designed to cover a wide variety of project types and needs within a comprehensive resilience strategy. Together, these sources represent a holistic approach to resilience, addressing both structural adaptations and environmental conservation measures essential for long-term sustainability in the Town of Longboat Key.

Federal Emergency Management Agency (FEMA)

Pre-Disaster

- Hazard Mitigation Grant Program (HMGP)
- Building Infrastructure and Communities (BRIC)
- Flood Mitigation Assistance (FMA) Program
- Pre-Disaster Mitigation (PDM) Program

Post-Disaster

- Public Assistance (PA) Program

U.S Department of Transportation (DOT)

- Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Discretionary Grants
- Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Program

Environmental Protection Agency (EPA)| EPA Gulf of Mexico Cooperative Agreement

U.S. Department of Housing and Urban Development (HUD)

Pre-Disaster

- Community Development Block Grant Mitigation (CDBG-MIT)

Post-Disaster

- Community Development Block Grant - Disaster Recovery (CDBG-DR)

National Fish and Wildlife Foundation (NFWF)| National Coastal resilience Fund

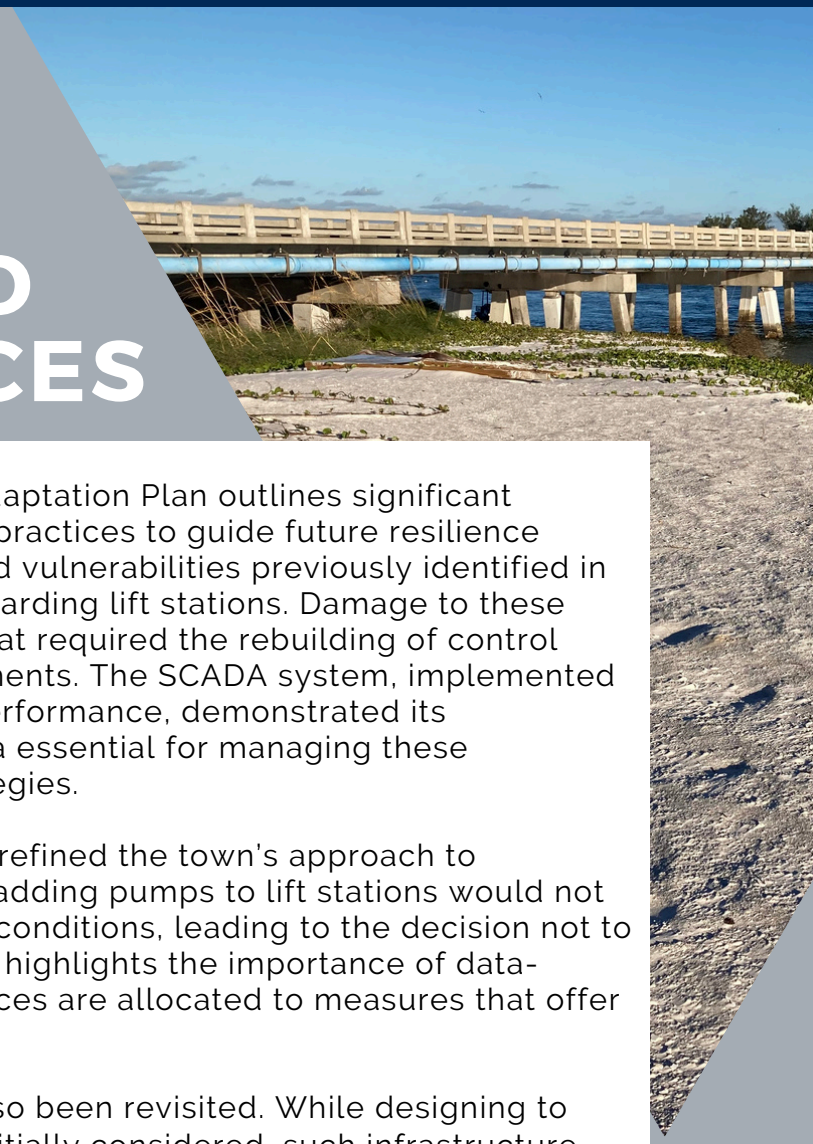
National Oceanic and Atmospheric Administration (NOAA)| Coastal Resilience Grants

U.S. Department of the Interior (DOI)| Fish and Wildlife Service Coastal Program

Florida Department of Environmental Protection (FDEP)

- Coastal Partnership Initiative Grant Program
- Florida Resilient Coastlines Program (FRCP) Planning Grants
- Resilient Florida Grants| Resilient Florida enables communities to implement adaptation strategies, such as shoreline protection, stormwater improvements, and resilience planning, ensuring that Florida's ecosystems and communities are better prepared to withstand environmental changes. The program has received continued legislative support, ensuring ongoing funding for adaptation efforts across Florida.
  - Planning Grants
    - Types of Projects: Vulnerability assessments, adaptation plans, peril of flood amendments,
    - 2021-2022 Funding Total: ~$20 million
  - Resilient Florida Implementation Projects
    - Types of Projects: Stormwater master plans, groundwater monitoring, infrastructure improvements, environmental preservation, infrastructure planning, conceptual designs.
    - 2021-2022 Funding Total: ~ $404 million

SUCCESSES, LESSONS LEARNED AND BEST PRACTICES



The 2025 update to the Longboat Key Adaptation Plan outlines significant achievements, critical lessons, and best practices to guide future resilience efforts. Recent storm events underscored vulnerabilities previously identified in the town's infrastructure, particularly regarding lift stations. Damage to these facilities, coupled with power outages that required the rebuilding of control panels, validated the town's risk assessments. The SCADA system, implemented for monitoring and tracking lift station performance, demonstrated its effectiveness by providing real-time data essential for managing these disruptions and informing recovery strategies.

Advanced modeling efforts have further refined the town's approach to adaptation. These models revealed that adding pumps to lift stations would not improve performance under anticipated conditions, leading to the decision not to pursue pump installations. This outcome highlights the importance of data-driven decision-making to ensure resources are allocated to measures that offer the most benefit.

Design standards for lift stations have also been revisited. While designing to withstand a 500-year storm event was initially considered, such infrastructure would present significant visual and spatial impacts. A decision has been made to design lift stations to a 100-year storm event standard, balancing functional resilience with aesthetic and community considerations. This approach reflects a practical and proportionate response to Longboat Key's adaptation needs.

Funding challenges remain a critical consideration, with the required local match for grant opportunities increasingly becoming a limiting factor in project implementation. However, the town has adopted a strategic approach, utilizing initial grant awards to establish project momentum and positioning for increased funding requests in subsequent phases. This method has proven effective in advancing critical adaptation initiatives while addressing financial constraints.

These successes, lessons learned, and best practices illustrate Longboat Key's commitment to proactive and informed adaptation planning. By leveraging technological advancements, refining infrastructure strategies, and navigating funding challenges, the town continues to build a resilient and sustainable future while serving as a model for similar communities.

NEXT STEPS

The 2025 Longboat Key Adaptation Plan Update builds on recent progress and identifies key areas for advancing resilience initiatives across the town. To ensure successful implementation, the following steps should guide the next phase of adaptation efforts.

1. **Finalize and Prioritize Action Plans:** Prioritizing actions based on risk, funding availability, and readiness will help streamline the deployment of critical projects, such as tidal valve installations, stormwater management improvements, and seawall adjustments.
2. **Secure and Leverage Funding:** Actively pursuing grant programs from federal, state, and regional sources will be essential for financing proposed projects. Potential sources include FEMA's Hazard Mitigation Grant Program, the Florida Resilient Coastlines Program, and NOAA Coastal Resilience Grants.
3. **Engage Stakeholders and the Community**: Building resilience requires broad community involvement and support. Conduct targeted outreach to inform residents, business owners, and stakeholders about planned adaptation actions, emphasizing local impacts and benefits.
4. **Monitor Progress and Adjust Strategies:** Implement a regular monitoring plan to track the measurable performance metrics for each action to ensure that adaptation efforts are effective and responsive to changing conditions. Continuous data collection on project outcomes, such as flood reduction and infrastructure resilience, will enable data-driven adjustments to the plan and inform future updates.
5. **Strengthen Interagency Partnerships:** Continue to collaborate with regional entities, including Sarasota and Manatee Counties, the Sarasota/Manatee MPO, and state agencies, to align adaptation initiatives and maximize regional resilience.

These steps will help the Town of Longboat Key address immediate risks, build resilience, and ensure the community's long-term adaptability in the face of climate change and sea level rise.

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