





MANATEE COUNTY

LOCAL MITIGATION STRATEGY PLAN

2024 UPDATE

Public Safety Department
Division of Emergency Management

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CURRENT OFFICIALS

of

MANATEE COUNTY, FLORIDA

Carol Ann Felts, District 1

Amanada Ballard, District 2

Tal Siddique, District 3

Mike Rahn, District 4

Robert McCann, District 5

Jason Bearden, Chair, At Large

George W. Kruse, At Large

County Commissioners

Charlie Bishop

County Administrator

Preface

This volume contains the Local Mitigation Strategy Plan (LMS) of Manatee County, Florida, as adopted by the Manatee County Board of County Commissioners. The source material used in the preparation of this volume was the Local Mitigation Strategy Plan, first adopted October 19, 1999, and resolutions subsequently adopted by the Board of County Commissioners.

The source of each section is included in the ***Source*** note appearing either within the body of the text, or at the end thereof. By use of the Historical Evolution of the Plan, (appearing in the back of the Preface), the reader can locate any section of the Plan, as supplemented, and any subsequent ordinance included herein.

Page Numbering System

The page numbering system used in this volume is a prefix system. The numbers to the left of the colon or dash represents a certain section of the volume. The number to the right of the colon or dash represents the number of the page in that section.

HISTORICAL EVOLUTION OF THE PLAN

The tables below provide a complete account of the Plan's historical evolution regarding both annual and 5-year updates to the Plan.

The **Adoption History Table** allows users of the Manatee County Local Mitigation Strategy Plan to quickly and accurately determine which resolutions have been considered for each 5-year update.

Res No.:	Date Adopted	Jurisdiction	Purpose	FDEM approval
98-84	05/05/1998	Manatee County	Grant Award to Develop Unified LMS	
99-249	10/19/1999	Manatee County	Conception of LMS	
04-231	09/14/2004	Manatee County	5-year Update	
04-07	09/14/2004	City of Holmes Beach	5-year Update	
04-068	09/20/2004	City of Palmetto	5-year Update	
09-662	10/22/2009	City of Anna Maria Island	5-year Update	
10-037	02/23/2010	Manatee County	5-year Update	03/10/2010 & 12/6/2010
10-02	03/23/2010	City of Holmes Beach	5-year Update	09/7/2010
10-13	04/14/2010	City f Bradenton	5-year Update	06/24/2010
10-762	03/18/2010	City of Bradenton Beach	5-year Update	06/24/2010
2010-14	04/05/2010	Town of Longboat Key	5-year Update	06/24/2010
2010-11	05/17/2010	City of Palmetto	5-year Update	06/24/2010
15-123	8/11/2015	Manatee County	5-year Update	07/15/2015
15-712	09/10/2015	City of Anna Maria	5-year Update	07/15/2015
15-33	09/09/2015	City f Bradenton	5-year Update	07/15/2015
2015-20	08/24/2015	City of Palmetto	5-year Update	07/15/2015
15-842	08/20/2015	City of Bradenton Beach	5-year Update	07/15/2015
15-08	09/22/2015	City of Holmes Beach	5-year Update	07/15/2015
2015-22	10/5/2015	Town of Longboat Key	5-year Update	07/15/2015

20-086	6/16/2020	Manatee County	5-year Update	05/04/2020
20-761	07/16/2020	City of Anna Maria	5-year Update	05/04/2020
20-58	07/22/2020	City f Bradenton	5-year Update	05/04/2020
2020-13	07/20/2020	City of Palmetto	5-year Update	05/04/2020
20-930	06/18/2020	City of Bradenton Beach	5-year Update	05/04/2020
20-15	8/18/2020	City of Holmes Beach	5-year Update	05/04/2020
2020-20	6/30/2020	Town of Longboat Key	5-year Update	05/04/2020

The **Annual Update Summary Table** summarizes revisions, amendments or updates to the Plan as part of each annual update cycle.

Year	Summary of revision to the Plan
January 2028	
January 2027	
January 2026	
January 2025	LMS Work Group List updated - updated Initiatives Priority List – updated maps – updated RLP list
January 2024	LMS Work Group List updated - updated Initiatives Priority List – updated maps – updated RLP list
January 2023	LMS Work Group List updated - updated Initiatives Priority List
January 2022	LMS Work Group List updated - updated, Initiatives Priority List – updated data to reflect 2021 census numbers for County Profile
January 2021	LMS Work Group List updated - updated Initiatives Priority List – updated maps – updated RLP list – updated Hazard Analysis
January 2020	LMS Work Group List updated - updated Initiatives Priority List
January 2019	LMS Work Group List updated - updated Initiatives Priority List – updated RLP List – updated 20 maps – updated 2 maps
January 2018	LMS Work Group List updated- updated Initiatives Priority List – updated RLP List – updated Hazard Analysis – Sea Level Rise added, Critical Facilities List – updated 4 maps – updated, SLOSH map – removed
January 2017	LMS Work Group List updated - updated Initiatives Priority List – updated
January 2016	LMS Work Group List updated - updated, Initiatives Priority List – updated, Appendix F Community Guiding Principles & Implementation – updated to reflect LDC amendments, Appendix J Working Structure - updated
January 2015	LMS Work Group List updated - updated Initiatives Priority List – updated Flood Insurance Rate Maps – effective 3/17/14

The **5-Year Update Summary Table** summarizes substantial changes to the Plan as part of each 5-year update period.

2014 Update

Section/ Appendix	Summary of revision to the Plan
Section I	Updated the hurricane/storm information since 2009
Section IV	Updated demographic information from the 2010, the 2007 Florida Statistical Abstract, and Manatee County GIS
Section V	Updated the hazard analysis utilizing the most current information from NOAA National Climatic Data Center (NCDC), National Drought Mitigation Center, National Interagency Fire Center, and the Manatee County Emergency Management Department
Section VI	Critical facility definition, per the www.floridadisaster.org, was added to this section. All facilities were evaluated for compliance to the definition and a map created to show the correct facilities
Section VII	Goals and Objectives were assessed and streamlined to meet the current environment of Manatee County
Section VIII	Two columns were added to the LMS Initiatives List for clarification of the type of hazard that the initiative mitigates and the timeline for the project
Section IX	This section was updated to include the revised Evaluation and Appraisal Report (EAR) deadlines and, where provided, jurisdictional Comprehensive Plan Goals, Objectives, and Policies
Section X	Maps were updated to include the most current data
Appendix B & C	Addition information, since 2009, was included in this update
Appendix D	Updated to include the data from Tampa Bay Regional Planning Council's Statewide Regional Evacuation Study, Manatee County GIS, Labor Market Statistic Center and Manatee County Property Appraisers
Appendix F	The Community Guiding Principles and Implementation were assessed and streamlined by the Committee to meet the current environment of Manatee County
Appendix I	Each jurisdiction reviewed and updated their Hazard Mitigation Roles
Appendix K	Documentation is included to demonstrate how Manatee County reached out to the community and the LMS Committee

2019 Update

Section/ Appendix	Summary of revision to the Plan
Preface	New section added in its entirety.
Section I	Updated to adequately address and better describe *The Planning Process* regulations, as well as include more information on the topic of mitigation, what is LMS, and the connection Emergency Management activities. (Information formerly contained in Section I and II in 2014 Plan)
Section II	Minimal updates to census data and information. (Information formerly contained in Section IV in 2014 Plan)
Section III	Minimal updates to goals and objectives sub-section, to include the addition of new goal #6. Remainder of section updated to adequately address *Mitigation Strategy* regulations. (Information formerly contained in Sections VII and VIII in 2014 Plan)
Section IV	Substantial revisions, additions and updates to include the addition of vulnerable populations sub-section. Additional natural, technological and man-caused hazards are analyzed, and more robust *Risk Assessment* included. (Information formerly contained in Section V and Appendix D in 2014 Plan)
Section V	Minimal updates to adequately address *Plan Evaluation and Maintenance* regulations. (Information formerly contained in Section IX in 2014 Plan)
Section VI	Addition of subsection regarding supporting material provided as part of Certified Meeting Minutes. (Information formerly contained in Section III in 2014 Plan)
Appendix A	Latest working group list provided.
Appendix B	Updated to include hazard events since 2014 Plan.
Appendix C	Latest list provided.
Appendix D	New appendix added in its entirety. (Appendix D formerly contained Risk Analysis in 2014 Plan. Risk Analysis information moved to Section IV with 2019 Plan Update.)
Appendix E	No change.
Appendix F	No change.
Appendix G	No change.
Appendix H	Minimal updates.
Appendix I	No change.
Appendices J-M	New appendices added in their entirety.

2024 Update

Section/ Appendix	Summary of revision to the Plan
Preface	Updated Current Officials. Appropriately updated Historical Evolution.
Section I	Minimal updates to Incorporation of Existing Plans and Reports.
Section II	Minimal updates to census data and information.
Section III	Minimal updates to goals and objectives.
Section IV	Separated Drought/Heat Wave into two hazards: Drought and Extreme Heat, updates to statistics for more relevant information, all maps and graphs updated to reflect current information, expanded on *Probability* of Natural Hazards to include climate change impacts, inclusion of data and information for HHPD requirements.
Section V	Minimal updates to demographic and development changes.
Section VI	Minimal Updates
Appendix A	Latest working group list provided.
Appendix B	Updated to include hazard events since 2019 Plan.
Appendix C	Removed lists, included Flood Zone maps and RL information.
Appendix D	Updated to reflect updates since 2019 Plan
Appendix E	No change.
Appendix F	No change.
Appendix G	Minimal updates.
Appendix H	No change.
Appendix I	Minimal updates.
Appendix J	No change.
Appendix K	Removed.
Appendix K	Included The 2022 Regional Resiliency Action Plan *(formerly Appendix L)*
Appendix L	No change. *(formerly Appendix M)*

SECTION I

INTRODUCTION TO LMS –
THE PLANNING PROCESS

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Section I

Introduction to LMS – The Planning Process

A. BACKGROUND

The State of Florida boasts almost 1,500 miles of ocean coastline and over 8,000 miles when tidal inlets are included, a continually growing population, which has soared to 22.63 million residents - with 72 percent living in coastal counties - and a history of hurricanes, tropical storms, tornadoes, and other natural disasters. Per the U.S. Global Change Research Program's 2018 Fourth National Climate Assessment Volume II: Impacts, Risks, and Adaptation in the United States:

> "America's trillion-dollar coastal property market and public infrastructure are threatened by the ongoing increase in the frequency, depth, and extent of tidal flooding due to sea level rise, with cascading impacts to the larger economy. Higher storm surges due to sea level rise and the increased probability of heavy precipitation events exacerbate the risk. Many coastal communities will be transformed by the latter part of this century, and even under lower scenarios, many individuals and communities will suffer financial impacts as chronic high tide flooding leads to higher costs and lower property values. Actions to plan for and adapt to more frequent, widespread, and severe coastal flooding would decrease direct losses and cascading economic impacts."



Since 1851, Florida has been affected by 500 tropical or subtropical cyclones. The cumulative impact from the storms total over $216.1 billion in damage, primarily from Hurricanes Andrew, Irma and Michael in the 1992, 2017 and 2018 seasons. Prior to Hurricane Andrew in 1992, which incurred over $30 billion in recovery costs, the state's formula for dealing with natural disasters was to clean up the mess and rebuild. However, following that disaster, state emergency managers and community planners realized not only that the "destroy-rebuild-destroy" formula was dangerous, but that it could devastate the state's economy. Hurricane Katrina in 2005 further

supported this effort with estimated damages of $81 billion and a death toll that exceeded 1,500.
Hurricane Andrew was the catalyst for a rethinking of the "destroy-rebuild-destroy" methodology since the Lake Okeechobee Hurricane of September 1928. This was further supported by the Storm of the Century ~ Hurricane Opal; flooding spawned by El Niño; Hurricane George; and the deadliest hurricane ~ Katrina. The decision was made that there was a growing need to break the increasingly costly cycle of devastation and rebuilding.

This led to the birth of the Manatee County Local Mitigation Strategy Plan.

B. MITIGATION

Disasters can cause loss of life; damage building & infrastructure; and have devastating consequences for a community's economic, social & environmental well-being. Hazard mitigation reduces disaster damages and is defined as *sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards*. Outreach programs that increase risk awareness, projects to protect critical facilities, and the removal of structures from flood hazard are all examples of mitigation actions.



For mitigation to be effective, action needs to be taken through a community wide effort - analyzing risk, reducing risk, and insuring against risk. Local governments have the responsibility to protect the health, safety, and welfare of their citizens. Proactive mitigation policies and action help reduce risk and create safer, more disaster-resilient communities. Mitigation is an investment in your community's future safety and sustainability.

According to FEMA, effective mitigation requires that *all* understand local risks, address the hard choices, and invest in long-term community well-

being. Without mitigation actions, safety, financial security and self-reliance is jeopardized.

- Disasters can happen at anytime and anyplace; the human and financial consequences are hard to predict.
- The number of disasters each year is increasing but only 50% of events trigger Federal assistance.
- FEMA's mitigation programs help reduce the impact of events—and our dependence on taxpayers and the Treasury for disaster relief.

Mitigation is a means to decrease demands for disaster response and recovery resources. This enables our community a quicker lifesaving response and long-term economic recovery because the community infrastructure remains intact. Additionally, it reduces the societal impacts of disaster as a result of less disruption of the social environment. Mitigation is the foundation of sustainable community development.

C. WHAT IS A LOCAL MITIGATION STRATEGY PLAN?

The LMS focuses not only on risk of flooding and hurricanes, but with ALL hazards to which a community might be vulnerable, including natural, technological, and societal hazards. Having a multi-jurisdictional plan offers an opportunity for each sector of a community to plan and prepare for a safer future.

This pre-planning will enable local government to mitigate repetitive damages and be ready to get the community "back on its feet" should a disaster occur. That said, LMS is not something to be done only when disaster strikes - rather it is an ongoing process which must be a part of the community's everyday business. As the population continues to grow and the necessary infrastructure is erected, the impact of disaster multiplies.

LMS, a Multi-Jurisdictional Plan
What is it & why do we need it?

The Disaster Mitigation Act of 2000 (Section 322) addresses mitigation planning and requires state and local governments to prepare multi-hazard mitigation plans as a precondition for receiving FEMA mitigation project grants.

By having a plan, local government can become pro-active rather than reactive.

It reduces the cost of disasters by identifying mitigation initiatives and locating funding sources for those initiatives.

LMS requires planning and being prepared for something which is not a daily occurrence. It begins with a "blueprint" through which a community can assess its vulnerability to and threat of hazards and begin planning its response for loss reduction.

The LMS provides a framework to reduce losses by breaking the cycle of "disaster event – rebuild – disaster event
– rebuild."

D. EMERGENCY MANAGEMENT ACTIVITIES



LMS is a natural extension of the duties of Manatee County's Department of Public Safety - Division of Emergency Management, as well as other associated county and local emergency management agencies. The cycles Emergency Management Activities are:

Mitigation. Sustained actions taken to reduce or eliminate long-term risk to life and property from hazards.

Prevention. Actions necessary to avoid, prevent, or stop an imminent threat or actual act of terrorism.

Protection. Actions necessary to secure the homeland against acts of terrorism and manmade or natural disasters.

Preparedness. Actions taken to plan, organize, equip, train, and exercise to build and sustain the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from those threats that pose the greatest risk to the security of the Nation.

Response. Actions necessary to save lives, protect property and the environment, and meet basic human needs after an incident has occurred.

Recovery. Actions necessary to assist communities affected by an incident to recover effectively.

When one thinks of hazards and emergency planning in Florida, it's logical to immediately think hurricanes, tropical storms, wind and flooding; however, the threat is much larger. As such, the LMS must consider and plan for every contingency. Some of the hazards to consider include:

- Natural and Manmade: Hurricanes and coastal storms; sea level rise, harmful algal bloom, severe storm/weather events; severe storms

(lightning, hailstorms, etc.); severe winds; tornadoes; floods/severe rain events; coastal and riverine erosion; winter storms/freezes; droughts/heat wave; sinkholes/landslides; wild fires; earthquakes; tsunamis; volcanoes; civil disturbance; mass shooting; terrorist acts; and mass migration.

- Technological: Hazardous materials release; dam/levee failures; airplane crash; cyber incidents; critical infrastructure disruption; urban conflagration; train derailment; terrorism; and power failure.

E. LMS IN MANATEE COUNTY

In October 1999, Manatee County developed and adopted the first multi-jurisdictional plan that served as a strong foundation for protection of lives and property in Manatee County. In 2004 the LMS was updated as required by the Disaster Mitigation Act of 2000. Currently, the Code of Federal Regulations, 44 CFR §201.6 – Local Mitigation Plans, (eCRF.gov, 2014) requires that the LMS be reviewed and revised every five (5) years. The commitment has continued during the 5-year update cycles of 2004, 2009, 2014, 2019, and 2024.

It is not a self-sufficient or one-time document. Rather, it is a living, ever changing strategy for the benefit of all County residents. The goal of risk reduction is to reduce the risk to life and property, which includes existing structures and future construction, in the pre- and post-disaster environments. The LMS document itself consists of several areas which, when taken together, provide the County with a framework to develop and implement hazard mitigation measures. These areas include:

- The identification of the community's "guiding principles" - These are the laws, ordinances, resolutions, codes, and other guidelines by which the County and the municipalities operate. The adoption of a comprehensive framework of guiding principles will serve the planning process effectively through the years, (including in post-disaster redevelopment), an important part of LMS. (See Appendix F)

- The analysis of mitigation initiatives which are already in place to determine their effectiveness - This provides guidance as to whether they should be continued, changed, or discontinued and replaced by more effective measures. This is an ongoing process and helps to determine what additional mitigation initiatives are required. Once initiatives are determined to be necessary, the next step is to prioritize them for implementation. (See Appendix G)

- The prioritizing mitigation initiatives - Here consideration must be given to risk factors such as whether the entire community, a substantial portion, several areas, or one small area of the community is at risk, economic risk, potential for loss of life and property, etc., as well as the extent and expense of projects. Funding cycles must be watched, so initiatives may be classified as immediate, ongoing, at next fiscal cycle, as State or Federal funding is available, etc. (See Appendices G & H)

- The identification of funding for mitigation initiatives (projects and studies). - To accomplish this task, initiatives must be prioritized, analyzed, and re-prioritized on an ongoing basis as community needs change, population grows, and land development make review of mitigation priorities necessary. Emergency situations can develop, which cause change in priorities, as well as post-disaster situations that can necessitate re-prioritizing initiatives. As funding is located and initiatives are completed, additional initiatives may be added to the list. The list must be prioritized according to the current needs of the community at that time. This is a continuing planning process. (See Appendix G)

F. THE PLANNING PROCESS

Jurisdictional Representation – Including Stakeholders:



The Manatee County unified multi-jurisdictional plan is a result of coordination and partnership among governmental agencies, business partners, and citizen groups. (See Appendix A) In addition to Emergency Management, acting as representative for Manatee County, a partnership exists between the cities of Anna Maria, Bradenton, Bradenton Beach, Holmes Beach, Palmetto, the Town of Longboat Key, and unincorporated area of Manatee County. Ensuring the success of the planning processes for all-hazards and floodplain management planning for the respective communities within the county and with the National Flood Insurance Program Community Rating System also relies on the close involvement of public and private sector organizations and state and federal agencies. Neighboring jurisdictions were invited and attended the planning meetings. Although, not a comprehensive list of participants who were invited and attended, some included: Port Manatee, Sarasota Manatee Airport Authority, Florida Forest Service, and Southwest Florida Water Management District. Relief organizations that were invited to be represented were Manatee Housing Authority, School District of Manatee County, Centerstone of Florida, Inc., and Manatee County Rural Health Services.

Jurisdictional Roles:

Since its adoption in 1999 and through to the approved update in 2019, updating of the LMS is an ongoing process and is performed on an annual basis pursuant to Florida Administrative Code (FAC) 27P-22.004(4)(e). The 2024 update utilized the 2019 major revision as a baseline for this year's LMS update. A contractor was not used for this process, so the plan is as realistic as possible using the limited resources that are available to our county. No jurisdiction opted out of the planning process this revision cycle, therefore, each group was tasked with maintaining and increasing community participation in the LMS Working Group through contact with community and business organizations throughout the year. The LMS Working Group coordinated many resources for the update, in addition to being tasked with assisting with the development of the plan, reviewing revisions and updates for accuracy, identifying potential mitigation projects, assisting with project prioritization, reviewing and providing concurrence with proposed risk assessments, and adoption of the plan for their jurisdiction. (See Appendix I)

These records include details of many of the aspects that are incorporated in the required five-year update and include:

- Sub-committee reports
- Updates on continuity planning and critical facilities and infrastructure
- Training announcements
- Updated Project Initiatives List (proposed and completed projects)
- Reports or modifications to the LDC and Comprehensive Plans as they relate to mitigation – Peril of Flood Act
- Available funding and grant application cycles

Preparation of the Plan:

During the most recent 5-year update cycle, the LMS Working Group utilized FL Review Crosswalk Comparison Tool to compare the current LMS against the FEMA crosswalk and produced a suggested timeline of what needed to be updated/revised in each section. It was decided that three sub-committees (Data & Information, Governance, and Goals & Objective - each consisting of a minimum of three technical employees), were to be formed so that small groups could make recommendations of suggested updates. Simultaneously, one of the Public Safety Department Emergency Management Coordinators was tasked with updating the Hazard Risk and Vulnerability Assessment (See Section IV). This was done with stakeholder participation and feedback with those included in the

Manatee Emergency Operations Workgroup. (See Appendix D – Participation, for a narrative description of the meeting process, meeting minutes, and attendance participation)

In addition to the regularly scheduled LMS Working Group Meetings held quarterly every year, each of the sub-committees held multiple meetings to review the information and how to best proceed with the most recent 5-year update of each section. The revised sections were sent to the LMS Working Group for comment, suggested revisions, deletions or additions. Each jurisdiction was represented and participated in the planning process. All suggestions, revisions and corrections were considered in the final document. Upon completion of the tasks, Emergency Management conducted a final review of the LMS using the new criteria and verified the components against the required Mitigation Plan Review Checklist. Emergency Management believes that the Manatee County LMS was/is compliant with the new Federal criteria and submitted the Plan to the Florida Division of Emergency Management for review.

Public Involvement:

Our primary focus is to ensure public involvement in developing and continually updating the Local Mitigation Strategy. Not only has the Federal Emergency Management Agency, as the lead governmental body, expressed this, but logic dictates that it is in the best interest of the general public to be aware of hazard threats, vulnerability, and mitigation. It is recognized that this participation is crucial to the economic recovery of a community following a disaster. Government entities use the input of the private sector to gain the perspective and insight necessary to adequately address the needs of the business and industry. For local governments in Florida, public notice, involvement, and participation is a mandatory element of governance known as "Government in the Sunshine." Section 286.011, Florida Statutes, requires that "all meetings of any board or commission of any state agency or authority at which official acts are to be taken are declared to be public meetings open to the public at all times…" In fulfillment of this requirement, all meetings of the LMS Working Group are duly noticed. In addition, notices are provided to adjacent counties and regional agencies, such as the Tampa Bay Regional Planning Council and Southwest Florida Water Management District, the Airport Authority, School District, all Fire Districts, Manatee Chamber of Commerce and economic development agencies.

To broaden the public and Non-Governmental Organization's access to LMS information and involvement in the process, Manatee County has a webpage dedicated to Hazard Mitigation information on the Manatee

County website. Notice of meetings, agendas, and funding opportunities are posted on this webpage, in addition to posting meetings on the County calendar. The public is welcome to attend and make comments at any of these meetings or utilize the e-mail address on the LMS webpage. During the planning process specific to the 5-year update cycle, additional opportunities are provided to the public to provide comments, suggested revisions, additions and deletions to the updated plan. These additional opportunities are in the form of in-person open house public workshops held in the evening at the public library, as well as on-line review periods. Notice of these additional opportunities are provided on the website, newspaper, and posted at the County Administration Building. (See Appendix D)

The following list captures events and successful outreach activities during 2020-2024.

Utilized Manatee County Emergency Management website to provide hazard and mitigation education, information, funding sources and links to additional information.
Used the following forms of notification to bring public awareness regarding both online and in-person public viewing/comment opportunities regarding the 5-year update to the LMS: Flyer distribution, Public Notice on website and County calendar, advertisement and/or social media posts on Facebook, Instagram and Twitter, and email notifications to large community/stakeholder groups such as, but not limited to, Planning Task Force, Review Agency Meeting group and Homeowners Associations.
Provided an in-depth report to the Board of County Commissioners during one of their regular meetings and welcomed public comment
Held a 1-day workshop – Increasing Community Resilience – to facilitate discussions about SLR, nature-based adaptation options, socio-cultural vulnerability and community resiliency factors not currently addressed in most vulnerability assessments.
Held quarterly LMS Workgroup meetings, each open to the public.
Provided weekly and monthly educational information graphics through social media avenues such as Facebook, Twitter and Instagram.
Published 74,000 copies of English and Spanish annual Disaster Planning Guides, which were distributed to public buildings, grocery stores, post office, many home owner association groups and other public access points.
Mailed notices to repetitive loss property owners.

Conducted 82 presentation/outreach events, including a first ever 1-day event with Girls Scouts of Gulfcoast Florida – Hurricane Heroes Preparedness Badge Day (an all hazards, disasters and severe weather preparedness event).

Review and Incorporation of Existing Plans and Reports:

During the early phases of the update process, the LMS Working Group conducted a preliminary review of the existing plans and reports. Each of the participating jurisdictions reviewed their respective Comprehensive Plan, Land Development Code, and Evaluation and Appraisal Report, for their effectiveness with hazard mitigation. Emergency Management conducted a comprehensive review of the Manatee County Comprehensive Emergency Management Plan, and Community Wildfire Protection Plan, while the Manatee County Floodplain Manager conducted one of the National Flood Insurance Program and Community Rating System.

The Manatee County Comprehensive Emergency Management Plan (CEMP), as well as the Comprehensive Plan serve as companions to detail actions in the period following the disaster. The LMS, along with the various codes, ordinances and plans, provide detailed actions pre-disaster to facilitate in mitigation and post-disaster to assist in the recovery. The post-disaster redevelopment strategy looks at the mitigation during the post-recovery period through the process of building resiliency into the community in preparation for future events.

To ensure the full and complete implementation of the Manatee County LMS, all participating local governments shall incorporate references to the LMS into their respective Comprehensive Plan following the procedures outlined in 163.3191, FS. Such incorporation shall be reflected in the forthcoming preparation of the required Evaluation and Appraisal Reports (Section 163.3191, FS) and adhere to the following due dates:

- Unincorporated Manatee County – September 1, 2025
- City of Anna Maria – December 1, 2026
- City of Bradenton – September 1, 2026
- City of Bradenton Beach – July 1, 2026
- City of Holmes Beach – February 1, 2027
- Town of Longboat Key – December 1, 2026
- City of Palmetto – December 1, 2026

Local governments within Manatee County shall use the provisions of Section 163.3178, FS, to review and update mitigation strategies post-event, considering post-event interagency hazard mitigation reports.

Consistent with the provisions for identifying and funding capital improvement projects found in Section 163.3177, FS, local governments shall continue to develop funding mechanisms which could be used for approved county-wide mitigation initiatives.

Consistent with the provisions of Section 163.3177, FS, local governments shall emphasize mitigation goals during the annual preparation of capital improvement budgets, with special attention paid to the prioritization of regional, interlocal, and local projects.

Participating local governments shall emphasize mitigation funding during the annual budget process pursuant to the provisions of Section 163.3177, FS.

Manatee County

Manatee County has many plans, other than the Comprehensive Plan, that implement hazard mitigation activities including pre-disaster mitigation, event coordination and post disaster redevelopment. In 2004, the Local Mitigation Strategy became the Floodplain Management Plan. The following plan have been developed and adopted:

- Community Rating System (CRS)
- Local Mitigation Strategy (LMS)/Floodplain Management Plan
- Community Emergency Management Plan (CEMP)
- Community Wildfire Protection Plan (CWPP)
- Post Disaster Redevelopment Plan (PDRP)

The Manatee County Comprehensive Plan, Coastal Section states:

Policy: 4.4.1.1 Develop and implement provisions for increasing the rate of evacuee mobilization, in coordination with other local governments within Manatee County and other adjacent counties.

Implementation Mechanism(s):

Coordination between the Tampa Bay Regional Planning Council (TBRPC) and other appropriate Emergency Support Functions (ESF) departments and agencies to:

- Prepare and annually update the Comprehensive Plan (CEMP) in coordination with other local governments. The CEMP, incompliance with Florida Statutes and Florida Administrative Code, shall contain measures for hurricane preparedness, response, and mitigation.

- Distribute bilingual annual disaster guides free of charge to the public which identify emergency preparedness procedures and evacuation shelters. Distribution should include the possibility of mailing disaster guides to all residents in the Hazard Vulnerability Area of the County.

- Implement the Local Mitigation Strategy.

Policy 4.4.2.4. Implement policies and actions of the Local Mitigation Strategy.

Implementation Mechanism(s):

a) Coordination with other member agencies to achieve policy compliance.

b) Interagency hazard reports review and inclusion during development if the Local Mitigation Strategy.

Manatee County was a participant in a pilot program to develop a Post Disaster Redevelopment Plan (PDRP). This plan set up short-, medium-, and long-term redevelopment guidelines. The PDRP was adopted by the Manatee County Board of County Commissioners on August 6, 2009. Since that time and using a consultant in August 2017, Manatee County's PDRP was audited by the University of Florida – Resilient Communities Initiative Department, resulting in recommendations for possible improvements to the current PDRP to suit County's comprehensive planning and emergency management documents. The audit's overall recommendations, as outlined in Appendix K, were:

1. Prioritize repetitive loss properties for adaptive relocation of existing use activities and explore the legality and means by which this can best be accomplished.
2. Adaptation Action Areas as part of the next PDRP update.

3. Include an environmental and/or habitat impact analysis as part of the vulnerability assessment.
4. Conduct an analysis of future sea level rise (SLR) inundation and current assessment methodologies.
5. Expand the scope of criteria included in the capacity assessment, thereby improving the PDRP capacity score.
6. Add tasks to the Recovery and Redevelopment Strategy and Action Plan to reduce disaster vulnerability through land use and development policy and regulations.
7. Combine and reconfigure the Recovery and Redevelopment Strategy and the Recovery and Redevelopment Action Plan to improve the administrative fluidity from goals, objective, policies, and strategies to actions/tasks.
8. Identify a task force of historic and cultural professionals to, *inter alia*, identify significant individual sites, prioritize them by community interest and vulnerability, and advise the County on the results of its tasks.
9. Reevaluate the 34 seats currently allocated to the PDRP task force to assure that every participant has a relevant role and streamline procedures to increase effectiveness and efficiency.
10. Recognize the increased use of social media and websites to improve public involvement in implementing and maintaining the PDRP.
11. Revamp the PDRP Communications Plan to enhance its efficacy by providing processes for accomplishing recovery and redevelopment tasks.
12. Detail how to fund the necessary communications systems.
13. Update the existing funding source list, detailing specifically how to handle potential food and water distribution shortages, including overall food and water systems assessments.
14. Synthesize (and hyperlink) the current documents into one (1) comprehensive planning and emergency management document in two (2) versions—a complete digital and print document including appendices, and a “bare bones” handout version for use in an actual emergency—structurally organized to accord with the NATIONAL PREPAREDNESS SYSTEM.

City of Anna Maria

The City of Anna Maria participates in the Local Mitigation Strategy.

City of Anna Maria Comprehensive Plan, Coastal and Conservation Element states:

Objective 3.2	Reconstruction and redevelopment strategies shall be considered to promote hazard mitigation during the annual re-evaluation of the Manatee County Local Mitigation Strategy.	
	Policy 3.23.1	The City shall continue to be an active participant in the identification and evaluation of initiatives contained in the Manatee County Local Mitigation Strategy.
	Policy 3.2.2	The City shall diligently pursue the identification and securing of funding for the implementation of those local mitigation strategy initiatives identified by the City for inclusion in the Manatee County Local Mitigation Strategy.

Intergovernmental Coordination Element

Objective 1.1	Policy 1.1.1010	The City shall continue to cooperate and coordinate with the Manatee County Division of Emergency management in the development, implementation, and refinement of the County's Local Mitigation Strategy program.

City of Bradenton

The City of Bradenton participates in the Local Mitigation Strategy.

City of Bradenton Comprehensive Plan, Coastal Management and Conservation Element states:

Objective 6.4		Update Local Mitigation Strategy and coordinate with Manatee County its implementation.
	Policy 6.4.1	Land Use Development Regulations (LUDR). Maintain policies, standards and procedures in the LUDR which reflect the implementation of the Local Mitigation Strategy.

City of Bradenton Beach

The City of Bradenton Beach participates in the Local Mitigation Strategy.

City of Bradenton Beach Comprehensive Plan, Coastal and Conservation Element states:

Objective 3.2	Policy 3.2.1	The City shall continue to be an active participant in the identification and evaluation of initiatives contained in the Manatee County Local Mitigation Strategy.
	Policy 3.2.2	The City shall diligently pursue the identification and securing of finding for the implementation of those local mitigation strategy initiatives identified by the City for inclusion in the Manatee County Local Mitigation Strategy.

Intergovernmental Coordination Element

Objective 1.1	Policy 1.1.11	The City shall continue to cooperate and coordinate with the Manatee County Division of Emergency management in the development, implementation, and refinement of the County's Local Mitigation Strategy program.

City of Holmes Beach

The City of Holmes Beach participates in the Local Mitigation Strategy.

City of Holmes Beach Comprehensive Plan, Coastal Management and Conservation Element states:

Objective 3.4	Reconstruction and redevelopment strategies which will be considered to promote hazard mitigation during the annual re-evaluation of the Manatee County Local Mitigation Strategy.	
	Policy 3.4.1	The City shall continue to be an active participant in the identification and evaluation of initiatives contained in the Manatee County Local Mitigation Strategy.
	Policy 3.4.2	The City shall diligently pursue the identification and security of funding for the implementation of those local mitigation strategy initiatives identified by the City for inclusion in the Manatee County Local Mitigation Strategy.

Intergovernmental Coordination Element

Objective 1.1	Policy 1.1.12	The City shall continue to cooperate and coordinate with the Manatee County Division of Emergency management in the development, implementation, and refinement of the County's Local Mitigation Strategy program.

Town of Longboat Key

Town of Longboat Key participates in the Manatee County Local Mitigation Strategy.

Town of Longboat Key Comprehensive Plan, Coastal Management and Conservation Element states:

CCM OBJECTIVE 3.2: Prepare and maintain disaster response plans and programs.

CCM Policy 3.2.3:	Adopt and comply with a Short-Term Post-Disaster Redevelopment Plan.
CCM Strategy 3.2.3.1:	The Town's Short-Term Post-Disaster Redevelopment Plan shall define the circumstances under which the plan shall apply, the procedures required to authorize the implementation of the plan, and the scope of authority permitted.
CCM Strategy 3.2.3.2:	The Town's Short-Term Post-Disaster Redevelopment Plan shall facilitate and accelerate short term recovery efforts to repair and restore structures and facilities that are potential public health, safety or welfare hazards.

CCM OBJECTIVE 3.3:	Prepare and maintain post-disaster redevelopment plans and programs.
CCM Policy 3.3.1:	Coordinate with Manatee and Sarasota Counties on long-term post-disaster planning.
CCM Strategy 3.3.1.1:	The Town shall require that reconstructed properties be brought into compliance with the FBC, FEMA requirements and the LDC to the extent practicable.

City of Palmetto

The City of Palmetto participates in the Local Mitigation Strategy.

City of Palmetto Comprehensive Plan, Coastal Management Element states:

Objective 8.8	Policy 8.8.1	The City of Palmetto adopted the Local Mitigation Strategy Plan on November 1, 1999. The Coastal Management Plan shall be amended to include appropriate plan strategies and policies in the next round of plan amendments after adoption of the City's Comprehensive Plan.

H. ACKNOWLEDGMENTS OF THE LMS WORKING GROUP

The LMS Working Group acts under the direction of the Public Safety Department, Emergency Management Division. As an added level of balance in the review of programs and projects associated with the LMS, there is equal diligent effort and mutual cooperation between many County departments, the six municipalities of Manatee County, fire districts, Lakewood Ranch Inter District Authority, Tampa Bay Regional Planning Council Comprehensive Resiliency Planner, USF – Sarasota Emergency Management, Clerk of the Circuit Court, and Sheriff's Office.

An important component of the LMS and the success of the hazard mitigation initiatives is the participation of both the public and the private sector in the planning process. It is recognized that this participation is crucial to the economic recovery of a community following a disaster. Government entities use the input of the private sector to gain the perspective and insight necessary to adequately address the needs of business and industry. In turn, businesses and industries gain an increased awareness of the importance of preparedness and mitigation and receive technical assistance for business continuity planning, valuable support, and contact information for additional information. The working group encourages participation from the Manatee Chambers of Commerce, economic development agencies, Sarasota-Bradenton International Airport, Health Department, private utilities and communications companies and large employers. These companies then provide service, technical assistance and outreach to their commercial accounts.

The LMS Working Group assesses risks within the County and maintains an updated list of potential mitigation initiatives that will reduce risks associated with hazards that are most likely to occur in respective communities. The working group meets no less than four times a year (meetings held quarterly) with additional meetings scheduled as dictated by need. All business conducted by the working group is submitted for approval to the active members and is passed or defeated by majority vote. To be considered a participant of the group, members are required to sign-in (documentation retained) and many commit to additional time and resources to develop a mitigation strategy that protects life, property and the environment as well as strategies that contribute to the economic well-being of the County. The Hazard Mitigation Planning and Hazard Mitigation Grant Program dictate that each of the jurisdictions and representatives must show participation in the planning process to qualify for HMGP, Pre-Disaster Mitigation Program (PDM) and Flood Mitigation Assistance Program (FMA) funding.

The Florida Division of Emergency Management (FDEM) and the Federal Emergency Management Agency (FEMA) define local mitigation strategy requirements. The State requires Manatee County Local Mitigation Strategy provide the processes for application, project selection and distribution of funds under the Hazard Mitigation Grant Program. Under Florida Administrative Code, the Local Mitigation Strategy Working Group must meet several conditions to maintain compliance. Requirements include:

1. The LMS Working Group shall be charged with the responsibilities of designating a Chairperson and Vice-Chairperson; developing and revising the Local Mitigation Strategy as necessary; setting an order of priority for local mitigation projects and submitting an annual LMS update to the FDEM by the last working weekday in January of each year.
2. No later than the last working weekday of each January, the Chairperson of the Board of County Commissioners shall submit to the Florida State Division of Emergency Management, a list of the members of the LMS Working Group and its designated chairperson and vice-chairperson.
3. The Working Group shall include, at a minimum, representatives from various agencies of county government, representatives from all interested municipalities in the county, representatives from interested private and civic organizations, Native American tribes or organizations, trade and commercial support groups, property owners associations, water management districts, regional planning councils, independent special districts and non-profit groups.
4. The County shall submit documentation that indicates that within the preceding year it has issued a written invitation to each group as specified above in the previous bullet.
5. As required under State Statute, meetings are open to the public.
6. All stakeholders are invited to be part of the LMS process from conceptualization to implementation. Stakeholders are invited in a variety of mediums with the intent on reaching as many individuals as possible. Care has been taken to avoid the “digital divide” by not just relying on electronic means to communicate LMS activities. Methods of communication of LMS activities include but are not limited to:

    - Newspaper advertisements
    - Publication on the Manatee County Calendar
    - Email list notification
    - Social media

- Public Notice and/or signage posted at the County Administration Building
- Notifications made through neighborhood groups (e.g. Homeowners Associations)
- Presentations made at local conferences in subject disciplines directly related to mitigation
- Information exchange with non-profit groups working in the discipline of mitigation related activities

This effort could not have been accomplished without the support of the Manatee County Board of County Commissioners and the City Councils/Commissions of Anna Maria, Bradenton, Bradenton Beach, Holmes Beach, Longboat Key, and Palmetto.

During the latest update period (2024/25) of the Manatee County LMS, the active membership of the Working Group was led by:

Chair: Joel Richmond, Manatee County Public Safety Department – Emergency Management Division, EM Coordinator, Deputy Incident Commander

Vice-Chair: Tom Gerstenberger, Manatee County Public Works Department – Engineering Division, Division Manager

Appendix A contains the annually updated list of the committee members and their jurisdiction/association.

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SECTION II

PROFILE OF MANATEE COUNTY

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Section II

Profile of Manatee County

A. NATURAL FEATURES AND TOPOGRAPHY

Manatee County is located in west-central Florida, bounded on the north by Hillsborough County, the south by Sarasota County, the east by Hardee and DeSoto Counties and the west by Tampa Bay, Sarasota Bay, and the Gulf of Mexico. The County is approximately 25 miles in length from north to south, 45 miles wide from east to west, and contains a total of 893 square miles. Of this 743 is land and 150 is water (55 inland, 46 coastal, and 49 territorial). In addition, there are 150 miles of waterfront and 27 miles of beaches. The average elevation is 12 feet.



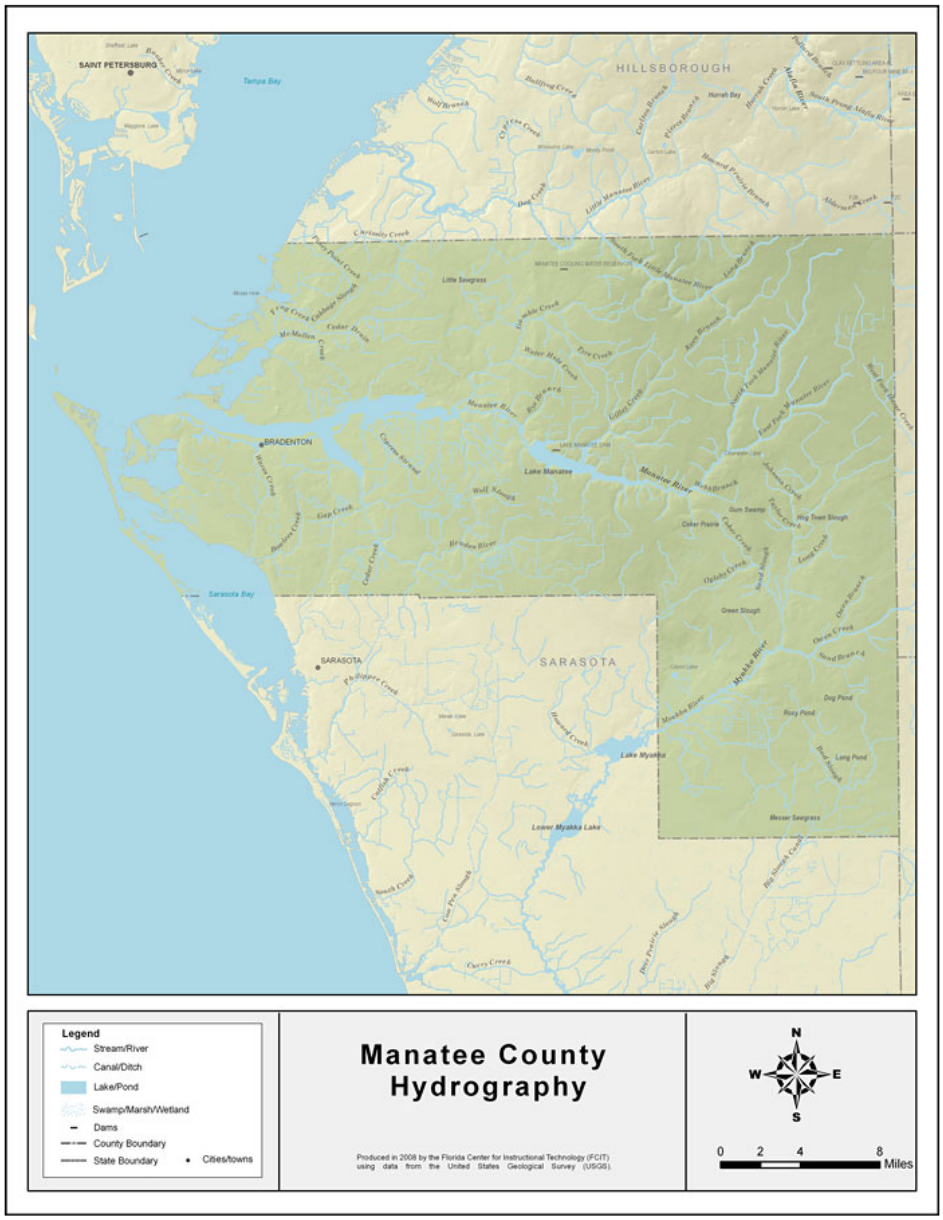
There are six incorporated jurisdictions in Manatee County: Anna Maria, Bradenton, Bradenton Beach, Holmes Beach, Longboat Key (a portion of which is also located in Sarasota County), and Palmetto. Bradenton is the largest in terms of both size and population. There are also several recognized unincorporated areas in the county: Ellenton, Myakka City, Oneco, Parrish, Terra Ceia, and Lakewood Ranch.

According to the Southwest Florida Water Management District there are three physiographic regions within the County. The areas west of Lake Manatee and the southwest corner of the County lie within the Gulf Coastal Lowlands. The northeast corner of the county is located in the Polk Upland zone with the remaining central and southeast sections within the

DeSoto Plain. The Coastal Lowlands are composed of nearly level plains below 40 feet mean sea level while the Polk Upland and DeSoto Plain have a gently rolling topography.

As a result of its subtropical climate and variable hydrology, Manatee County supports a rich and diverse complement of natural resources. There are three major rivers in the County: Manatee River, Braden River, and Myakka River. In addition, a portion of the watershed for the Little Manatee River is in the northeastern corner of the County.

Florida Waterways: Manatee County, 2008



The County is rich in water resources. Along Tampa Bay and Sarasota Bay are several recognized aquatic areas: Terra Ceia Bay, Palma Sola Bay, and Bishops Harbor. Bishops Harbor and Terra Ceia Bay are–recognized as aquatic preserves. It should also be noted that located immediately to the north in Hillsborough County is the Cockroach Bay aquatic preserve. Three man-made bodies of water are also worth noting. Lake Manatee, formed by the damming of the Manatee River, serves as the primary source of potable water for Manatee County and a portion of Sarasota County. The Evers Reservoir, formed by the damming of the Braden River, serves as the primary potable water source for the City of Bradenton. Lake Parrish serves as the cooling pond for Florida Power and Light's Manatee generating station. It is also worth noting that most of the coastal waters within Manatee County are also designated as Outstanding Florida Waters (OFW) by the State of Florida. OFW are waters designed worthy of special protection give their natural attributes.

Given its geology, Manatee County does not receive any significant amount of potable water from the Floridan Aquifer. The County does offer two benefits to its residents. The first benefit is economic in the eastern portions of the County - rich with deposits of phosphate rock can be found. Secondly, the County's geology is not favorable to the formation of sinkholes. Within the 17 counties, which comprise the Southwest Florida Water Management District (SFWMD), sinkholes develop more frequently north of Tampa Bay where the limestone base is closest to the land surface and the supporting sand and clay layers are thin. All of Manatee County falls in the area identified as an area where sinkholes are a rare occurrence.

B. DEMOGRAPHICS

In 2018 the United States Census determined Manatee County's population to be 349,855 while the County's six jurisdictions were: 1,749 Anna Maria; 57,644 Bradenton; 1,278 Bradenton Beach; 4,261 Holmes Beach; 7,362 Longboat Key (total based of entire jurisdiction located in both Manatee and Sarasota Counties); and 13,717 Palmetto.

Manatee County has experienced a 12% increase in growth since 2018. Current population is estimated to be 441,095 (Manatee County, FL, 2023 U.S. Census Bureau July 2023 Estimate), and making Manatee County the 16th largest county in Florida. The Metropolitan Planning Organization's 2035 Long Range Transportation Plan estimates approximately 1,500 dwelling units will be built each year through to 2035. Approximately 80% of the County's population resides in the unincorporated areas, leaving 20% under city jurisdiction.

AREA, POPULATION AND DENSITY BY JURISDICTION

Jurisdiction	Area (per sq. mile)	Population (2023)	Persons (per sq. mile)
Anna Maria	0.86	1,008	1,172
Bradenton	17.16	57,076	3,327
Bradenton Beach	1.19	918	1,092
Holmes Beach	1.91	3,044	5,814
*Longboat Key	16	7,488	468
Palmetto	5.75	13,577	2,361
Manatee County	893	441,095	494

**Numbers based on entire jurisdiction located in both Manatee and Sarasota Counties.*
Source: *United States Census Bureau, Population Estimates Program (2023)*

POPULATION DISTRIBUTION BY AGE

Age Group	Population	Percentage %
Under 9	39,006	8.8
10 - 19	43,931	10
20 – 29	43,184	9.8
30 – 39	48,437	11
40 – 49	47,432	10.8
50 - 59	53,678	12.2
60 - 69	71,662	16.3
70 - 79	62,897	14.3
80 +	30,868	7

Source: *U.S. Census Bureau, Census Reporter (2023)*

The median age in Manatee County is 49.5 years.

As the County continues to grow and thrive, it remains vulnerable to a wide range of natural, technological and man-made hazards. Natural hazards include hurricanes, floods, tornadoes, storm surge, lightning, high winds, sinkholes, wildfires and drought. Technological hazards include electrical failures, sewer failures, radiologic exposures, cyber incidents, and chemical exposures. Human-made hazards include terrorism, mass casualties, bomb threats, hostage situations and workplace violence. Manatee County and its population of over 440,000 residents need to prepare for all of them.

Identifying both the physical and the cultural geographic features of a region are vital in order to understand and prepare for the impact of the various types of hazards. Section II builds a profile of Manatee County in an effort to identify, understand, and make available information to its citizens to be used to prepare residents to mitigate, respond, and to recover from various types of hazards.

C. HOUSING MIX

The greatest population concentration in Manatee County exists in the areas most vulnerable to impact from specific hazards, such as hurricanes, tropical storms, and transportation/hazardous material spills. Identifying high hazard areas and assessing the number of dwelling units and people living in those threatened areas will indicate how susceptible Manatee County is to displacement following a large-scale disaster.

According to the United States Census Bureau Population Estimates Program (PEP), updated annually, there are 220,657 housing units in Manatee County. This is a 6.2% increase from the 2020 Census. Of the 220,657 units, 80.1% (176,772) were owner-occupied, which grew from the previous year of 76.9%. Furthermore, approximately 15,000 or 7.7% of the dwelling units are located within a high hazard area. The average household size is 2.36 for owner-occupied and 2.51 for renter occupied.

Manatee County has seen a growing interest in multi-family homes. Since 2020 the number of 2-unit homes increased by an astounding 70%; whereas 1-unit structures only had a 20% increase. Property value since 2020 has also boomed by average 130%. The average value for housing units based on the U.S. Census Bureau for 2023: in Bradenton Beach is $419,400, in Longboat Key is $909,700 in Palmetto is $219,700, and countywide is $453,600. No Census information was located for Anna Maria, Bradenton City, or Holmes Beach. The following tables provides a breakdown of housing units by jurisdiction for 2022:

HOUSING OCCUPANCY BY JURISDICTION

Description	Manatee County	City of Anna Maria	City of Bradenton	City of Bradenton Beach	City of Holmes Beach	*Town of Longboat Key	City of Palmetto
Total Housing Units	220,657	1,577	28,187	1,872	4,202	9,708	6,906
Occupied Housing Units	176,772	486	22,161	444	1,590	4,171	4,957
Vacant Housing Units	3,885	1091	6,026	1,428	2,612	5,537	1,949
Homeowner vacancy rate	1.5	9.8	2.0	13.0	6.3	3.9	0.9
Rental vacancy rate	15.8	95.20	14.2	80.9	79.3	65.5	8.0

**Numbers based on entire jurisdiction located in both Manatee and Sarasota Counties.*
***Source**: American Community Survey, U.S. Census Bureau - 2022 data*

HOUSING UNITS IN STRUCTURE BY JURISDICTION

Description	Manatee County	City of Anna Maria	City of Bradenton	City of Bradenton Beach	City of Holmes Beach	*Town of Longboat Key	City of Palmetto
Total Housing Units	220,657	1,577	28,187	1,872	4,202	9,708	6,906
1-unit, Detached	114,877	1,343	12,249	348	1,869	2,252	2,268
1-unit, Attached	15,875	38	2,072	72	241	443	448
2 Units	7,383	140	788	247	524	86	263
3 or 4 Units	5,717	40	1,514	223	374	242	115
5 to 9 Units	11,134	10	3,346	163	293	647	50
10 or More Units	23,922	6	6,938	586	823	5,638	1,746
Mobile Home/RV/Boat	29,360	0	1,280	233	78	399	2,016

**Numbers based on entire jurisdiction located in both Manatee and Sarasota Counties.*
***Source**: American Community Survey, U.S. Census Bureau - 2022 data*

D. ECONOMIC PROFILE

Majority of the industrial activity in the County is generally associated with, or near Port Manatee - located in the northwestern corner of the County adjacent to Hillsborough County, along the U.S. 41 & 301 corridors, and south of the Manatee River. Additional industrial sites can be found east of U.S. 41 in the area of the Tropicana Products, Inc. Plant. Although not classified as an industrial activity, phosphate mining and associated industries can be found in the eastern portions of the County. Office space is primarily located within the central business district of Bradenton, in downtown Palmetto and near Lakewood Ranch Boulevard and University Parkway. Malls like Ellenton Premium Outlets showcase how commercial activity primarily consists of strip-mall throughout the County.

CIVILIAN LABOR FORCE STATISTICS

Category	County	Florida	USA
Labor Force	195,951	11,095,400	171 million
Labor Force % of County Population	45.66%	n/a	n/a
Unemployment Rate	3.3%	3.3%	3.39%

***Source:** United States Bureau of Labor Statistics, May 2024*

Manatee County has over 30 companies that employ more than 250 people. Some of these major employers include the School District of Manatee County, Manatee County Government, Blake Medical Center, Manatee County Sheriff's Office, Manatee Memorial Hospital, Bealls Inc., IMG Academy, IMG Academy, and Tropicana Products Inc. The two tables below list the major private and public sector employers within the County.

LARGEST EMPLOYERS

Private Sector	**Full-Time employees**
Bealls Inc	2,100
Tropicana Brands Group	1,050
IMG Academy	902
Pierce Manufacturing, Inc.	630
Feld Entertainment	562
TriNet	500
SYSCO West Coast Florida, Inc.	468
Sun Hydraulics, Inc.	468
Public Sector	**Full-Time employees**
Manatee County School District	7,000
Manatee County Government	2,300
Manatee Memorial Hospital	1,900
Manatee County Sheriff's Dept	1,300
Blake Medical Center	1,471
City of Bradenton	550
State College of FL Manatee Sarasota	500
Source: *Bradenton Area Economic Development Corporation*	

Per the U.S. Census County Business Patterns 2021 dataset, 86.9% of establishments within the County employ less than 50 employees and 90.5% employ less than 500. The ones that employ 500 or more are mostly involved in manufacturing, transportation/warehousing, construction, educational services, health care and assistance, professional, and food services. The following table indicates the employment by industry type for Manatee County:

EMPLOYMENT ESTIMATES BY TYPE OF INDUSTRY

Employment Sector	**# of Businesses**	**# of Employees**
Agriculture, forestry, fishing & hunting	27	1,217
Mining, quarrying, oil and gas	1	Not avail
Utilities	14	227
Construction	1,295	9,231
Manufacturing	294	8,329
Wholesale trade	428	3,993
Retail trade	1,354	20,212
Transportation/Warehousing	228	4,220
Information	133	1,517
Finance and insurance	563	3,337
Real estate, rental and leasing	826	2,788
Professional, scientific and technical	1,260	5,128
Management of companies & enterprise	73	2,114
Administrative support	846	8,078
Educational services	141	2,477
Health care and social assistance	1,084	15,966
Arts, entertainment and recreation	178	2,653
Accommodations and food services	711	13,165
Other services (except public admin)	919	4,505
Industries not classified	10	13
Total for all sectors	10,368	109,279

Historically, agriculture has played an important role in the County's economy. Agricultural activity is concentrated primarily east of the I-75 corridor. The Florida Department of Agriculture and Consumer Services' 2022 Florida Agriculture by the Numbers Reported, has the following information for Manatee County:

2007, 2017 and 2022 Florida Statistical Abstract			
	2007	2017	2022
Active Farms	794	753	637
Acres in Production	225,101	192,630	156,600
Acre Distribution:			
Cropland	77,299	71,172	76,790
Woodland	25,9416		25,022
Timberland		362	
Pasture	92,184	162,568	117,483
Other Uses	29,672		
Reported Income	$239,624,000	$360,119,000	$321,817,000

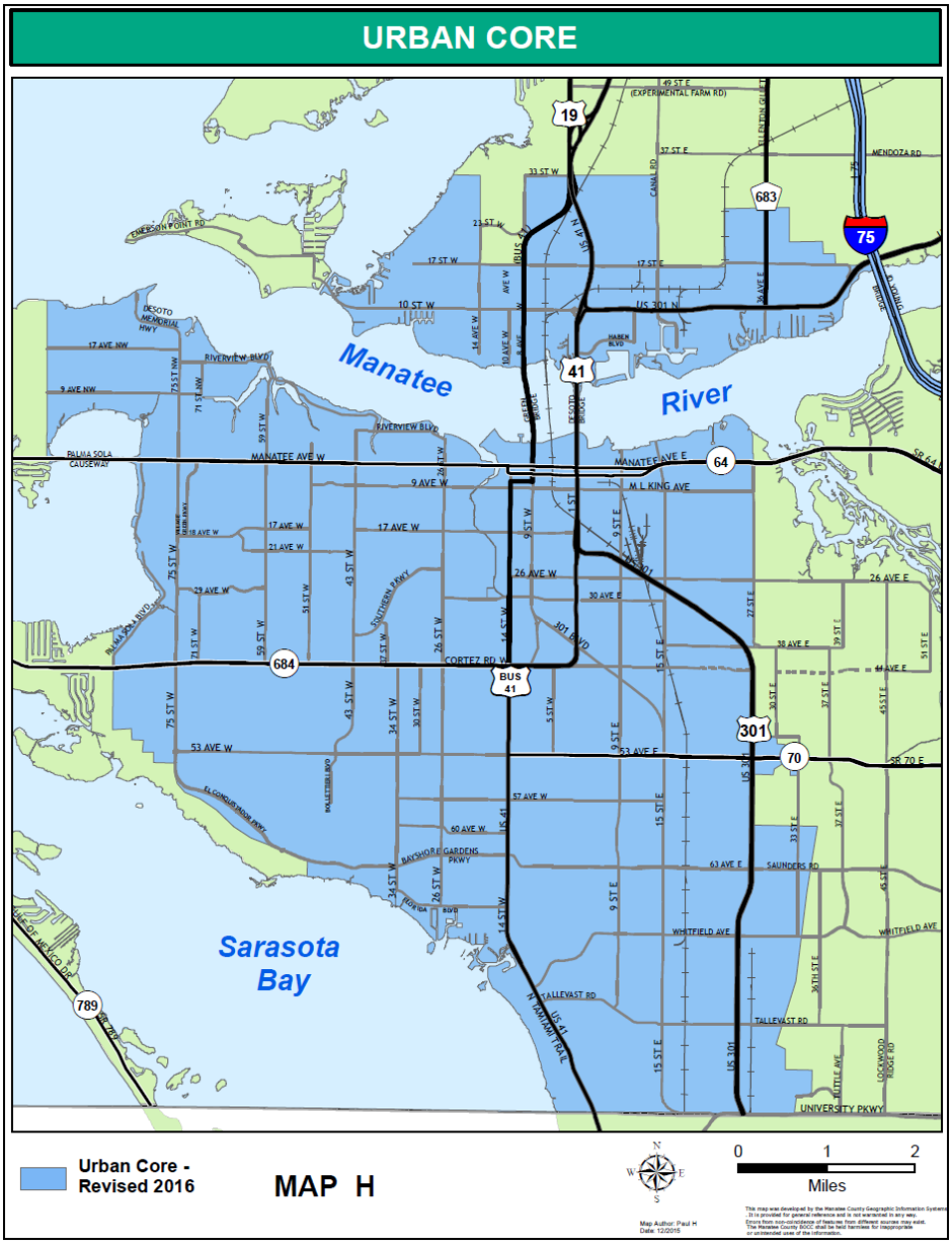
Statistical Report	**Unit type**	**County Rank in Florida**
Citrus (production -all types)	3,282,000 boxes	9th
Commercial Citrus	16,231 acres	9th
Citrus Trees	2,110,000 trees	9th
Milk Cows	4,100	7th
Cattle and Calves	31,500	19th
Beef Cows	16,300	14th
Source: *Florida Department of Agriculture and Consumer Services' 2022 Florida Agriculture by the Numbers Report*		

E. FUTURE LAND USE

In 2003 the County published a vision document entitled *Imagine Manatee: A Vision for Manatee County.* It is not possible to anticipate the County's future growth without an understanding of its historic growth trends. The following observation was taken from Imagine Manatee: *"The County's population progressively filled in the areas between the barrier islands and the cities of Palmetto and Bradenton, creating Manatee County's present-day urban core. As the resident population grew, agricultural lands were increasingly replaced by suburban development. Today, the county continues to draw new residents attracted to the county's climate, lower taxes and overall cost of living, availability of housing, proximity to regional markets, and abundant recreational resources. The local economy has developed around tourism, retirement living, retail trade and real estate development."*

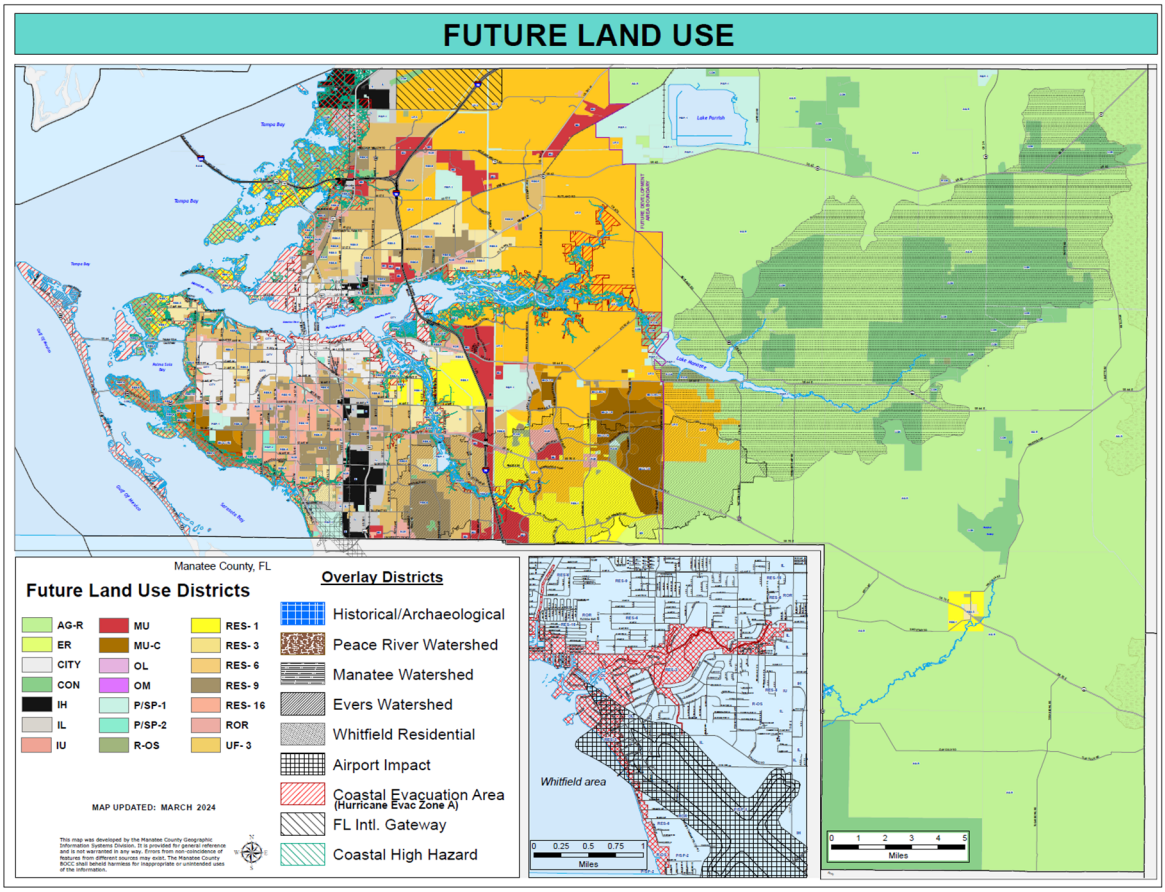
With the enactment of Florida's growth management efforts, the County made a concerted effort to ensure that an urban service boundary was

established. As seen in the following map, in 2016 the County updated the area established as the Urban Core:



Growth has expanded areas east of Lakewood Ranch past the Future Development Area Boundary, where the eastern portion of the County was primarily rural. Subdivisions have been approved over the last few years extending infrastructure past the FDAB and encroaching on agricultural lands. The developing area (closer to the I-75 corridor) is now transitioning to more suburban uses while the older urban core continues to see development and investment. This development pattern is also reflected on the County's adopted Future Land Use Map.

The County has taken steps to protect the Lake Manatee and Evers Reservoirs and Peace River watersheds through the establishment of land use overlay districts. The purpose of these overlays is to limit the type and intensity of development within the watersheds. To protect the rural character of the eastern portions of the County, the Comprehensive Plan was amended to include provisions intended to recognize and protect the character of the unincorporated communities of Parrish and Myakka City. To further protect the rural and agricultural character of the eastern portions of the County, the County is reviewing its Comprehensive Plan to ensure that new large-scale development does not occur in the rural area.



What will the future conditions be in Manatee County? In their 2023 projection publication, the Bureau of Economic Business Research (BEBR) estimates that Manatee County's population in the year 2050 could increase to 614,600 – an increase of 291,767, or 52.5%, since 2010.

In February 2013 the County published a report document analyzing alternative growth plans and their impact on infrastructure and service delivery entitled *How Will We Grow? A Conversation with the Community*. The How Will We Grow? project came about from the challenges that arose from the boom and bust economy during the years 2000-2005. As new

leaderships developed, they began questioning the reasoning behind many growth policies as some of the regulations seem to be having the opposite effect.

The County has remained predominately rural with agricultural lands accounting for approximately 53 percent of the County's land area. Urban (developed) land exists primarily in the western portion of the County and includes commercial, government, industrial, institutional, recreation, and residential land uses. These uses have steadily increased and account for approximately 43 percent of the County. There are approximately 245,632 acres of vacant land with an Agricultural/Rural Future Land Use designation which is outside the utility service area for central potable water and wastewater.

EXISTING LAND USES (2024)

Future Land Use Category	Acres	% of Total
Ag (AG-R)	245,632	52.6
Commercial (OL, OM, ROR)	5,532	1.2
Government (50% of PSP-1, PSP-2 / 15,510ac)	9,165	2.1
Industrial (IL, IH, IU))	9,117	2.1
Institutional (CON)	54,217	11.6
Recreation (ROS)	2,200	0.4
Residential (ER, RES, UF-3)	115,003	24.6
Utilities (50% of PSP-1, PSP-2)	9,165	1.6
Total Acres – unincorporated county	466,626	
Note: *MU and MU-C account for 16,596 (3.5%) acres and are divided as follows:* *70% residential (11,610 ac)* *15% commercial (2,470 ac)* *5% industrial (840 ac)* *10% recreation (1,680 ac)*		
Source: *Manatee County Government - GIS Systems Analyst and Manatee County Property Appraiser*		

The results of How Will We Grow? generally recognized that past practices of restricting the County to low-rise and low-density development types is not a recipe for a community that wants to attract better employment opportunities, businesses, and a younger and more educated workforce. The report also identified some actions that should be done, no matter what alternative is chosen. The County has already begun to address changes in its land development regulations to provide greater opportunities for growth, to include more locations for greater building heights and density, increasing the variety of land uses in developing areas and allowing the free market to work more in the community.

Based on historical trends remaining in place, most of the population will reside in the unincorporated portions of the County, generally in the area east of I-75 corridor and the area north of the Manatee River.

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SECTION III

THE BLUEPRINT TO –

MITIGATION STRATEGY

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Section III

The Blueprint to Mitigation Strategy

A. GOALS AND OBJECTIVES

The Local Mitigation Strategy (LMS) is Manatee County's program developed to reduce or eliminate all forms of loss from natural or man-made disasters. The goal is to establish and maintain an ongoing process that continually assesses potential disasters, develops corresponding mitigation techniques and incorporates preparedness and response into the consciousness of the entire community. The County's LMS's process has produced the assessed vulnerabilities of the community to a variety of hazards, identified a comprehensive list of plans, programs and projects to decrease the magnitude of those vulnerabilities and prioritized the implementation of respective initiatives.

The preparation of the goals and objectives was undertaken by the LMS Working Group, comprised of staff from both the County and participating local governments. As a result, a wide range of technical expertise was available to provide input into the development of the LMS goals and objectives. In preparing the LMS goals and objectives, the Working Group drew upon information contained in each jurisdiction's Local Government Comprehensive Plan (adopted pursuant to Chapter 163, Part II, Florida Statutes), Community Rating System, Flood Plain Management Plans, Repetitive Loss Initiatives, and other relevant documents. By drawing upon the adopted local government Comprehensive Plans, the LMS effort ensures that the goals and objectives are reflective of the County's and its jurisdictions' long-term vision. In accomplishing its work, the LMS Working Group strove to ensure that the LMS goals and objectives were consistent with, not in conflict with, and/or furthered existing statutory and regulatory requirements. Furthermore, the goals and objectives were structured in a more generalized manner, since to one degree or another, all the jurisdictions in Manatee County are susceptible to the hazardous events described in this LMS. This approach allows for flexibility in the way the participating local governments implement the goals and objectives.

The LMS Workgroup discussed and decided the following goals and objections were not to change for the 2024 Update.

The following list of goals and objectives are the guiding principles that are used to develop the overall strategy of the LMS and to evaluate initiatives for implementation:

Goal 1:	**Maximize hazard prevention and mitigation efforts.**
Objective 1.1	Encourage structure retrofit programs to address identified flood, wind, evacuation vulnerabilities. (maybe by level of risk, income, etc.)
Objective 1.2	Regularly review and update list of vulnerable existing public and private critical facilities and encourage pre-disaster retrofit.
Objective 1.3	Identify post-storm redevelopment options and where feasible, purchase land in known vulnerable areas to prevent future loss to life or property. Purchased land through FEMA's Hazards Mitigation Grant Program or by the County depending upon potential uses.
Goal 2:	**Minimize adverse effects of a disaster/hazard event on the residents and properties of Manatee County.**
Objective 2.1	Develop strategies to address the special needs populations of the county.
Objective 2.2	Encourage disaster planning training through collaborative programs with appropriate government agencies and the private sector.
Objective 2.3	Continue to develop training and improve communication of mitigation knowledge between all Emergency Support Function (ESF) agencies.
Objective 2.4	Promote and expand CERT training and service opportunities throughout the county.
Objective 2.5	Periodically evaluate and update new communication technologies with the public and internal response agencies.
Goal 3:	**Reduce the number of repetitive loss properties.**
Objective 3.1	Explore funding opportunities to retrofit, relocate, or acquire properties susceptible to repetitive flooding.
Objective 3.2	Require systematic maintenance programs for stormwater management systems.
Objective 3.3	Look to limit residential development to low density only in repetitive flood loss areas.

Goal 4:	**Strengthen incentives to protect vulnerable properties and encourage development in less vulnerable areas.**
Objective 4.1	Monitor floodplain regulations and enforcement to assess effectiveness.
Objective 4.2	Develop and support economic incentive programs for both public and private sectors promoting benefits of structural retrofitting.
Objective 4.3	Discourage variances and exceptions in flood hazard areas as identified by Flood Insurance Rate Maps, storm surge, and historical flooding.
Objective 4.4	Promote the Florida Building Code standards requiring new developments and construction to meet applicable wind load standards for the county.
Objective 4.5	Promote regulations for new structures in 100-year flood areas to be elevated in conformance with or exceeding current Florida Building Code.
Objective 4.6	Ensure consistency across plans, ordinances and regulations regarding mitigation strategies and initiatives.
Objective 4.7	Encourage enforcement and enhancement of current standards and initiatives.
Objective 4.8	Strengthen existing land use regulations and policies through enhancement of review procedures and enforcement.
Objective 4.9	Review and consider policies to assure more permeable area in development, by limiting construction of paved surfaces and decreasing run-off.
Objective 4.10	Promote and support incentives to encourage higher standards of protection to structures and facilities from hazards.

Goal 5:	**Increase the level of disaster awareness through enhanced public education.**
Objective 5.1	Provide education and information to the public and business community about local efforts in mitigation techniques, planning and programming (i.e. events such as Hurricane Expo and general presentation to community group).
Objective 5.2	Utilize print media, television, radio and computer technology to educate the public on mitigation.
Objective 5.3	Annually provide outreach specifically to properties immediately adjacent to the repetitive loss properties as part of the Community Rating System outreach and repetitive property owner outreach programs.
Objective 5.4	Educate the public that are living or working in defined hazard areas so they understand their vulnerability and know appropriate techniques.
Objective 5.5	Encourage interested individuals to participate in hazard mitigation training.
Goal 6:	**Encourage a disaster-resistant economy that embraces a broad socioeconomic spectrum.**
Objective 6.1	Establish programs, facilities and resources to support business resumption activities by impacted local businesses.
Objection 6.2	Consider the needs of key employers in the County Emergency Management Plan (CEMP) and Post-Disaster Recovery Plan (PDRP).
Objection 6.3	Encourage community businesses to make their facilities and operations disaster resistant.

B. EXISTING POLICIES, PROGRAMS, AND RESOURCES

As the population continues to grow in Manatee County, hazard mitigation regulations must address new structures being built in areas susceptible to unusual occurrences either through prohibition, limitation, or strong codes to reduce potential losses.

The process of developing the LMS includes an assessment of current programs that are associated with hazard mitigation with an emphasis to coordinate and unify mitigation policies and programs into a single approach. The establishment of goals and objectives is critical to the development of the LMS. It is emphasized that any statement of a goal or an objective is subject to revision based upon a broad range of considerations. Economics, political influences and changing demographic factors will influence the environment within which the LMS is developed. Continuing review of goals and objectives to accommodate these factors is essential to the effectiveness of the LMS and its future development. The purpose of this review is to specifically evaluate the effectiveness of current mitigation processes in the context of goal and objectives implementation, as identified, in the LMS planning process.

As part of the adopted growth management initiatives, floodplain management strategies and the countywide Emergency Management Plan, this review is also part of a continuing assessment performed by local governments of current policies, programs and plans. Section I, along with this section, list the current regulations, plans/policies and/or programs within the County and municipalities. Appendix F – Guiding Principles and Implementation, identifies how the participating municipalities have incorporated mitigation into their planning processes, policies and/or ordinances. The County and communities within continue to strive to expand and improve upon their mitigation measures as is illustrated below, in Appendix F and with the extensive listing of mitigation initiative projects identified in Appendix G.

Guided by the stated goals and objectives, Manatee County and the participating jurisdictions, currently have processes that are effective with respect to hazard mitigation. The understanding of these processes assists in the development of the LMS as well as with maintaining continuity among local growth management and emergency management plans, land-development regulations, building codes and other ordinances and programs. Further development of these programs will bring together the County processes through coordination of programs within County government and through inter-agency coordination with all local governments and businesses within the County.

The following key points are areas where greater attention is required to strengthen regulatory frameworks and better integrate other similar processes:

Regulatory Review:

Local regulatory procedures manage growth through the development review process. These regulations are principally associated with mitigating the impacts of development associated with floodplains/floodways, wetlands and coastal high-hazard areas. The current regulatory framework continues to address certain issues and techniques that may assist in furthering hazard mitigation initiatives that are listed below. Some of these topic issues include items that may be better established first through policy within the Comprehensive Plan and then drafting and modifying regulations for consideration to be provided through development-review and building-permitting functions.

At a minimum the following items should be addressed:

a) Watershed alteration
b) Alternatives to redevelopment in high hazard areas
c) Development review and building permitting processes that incorporate hazard mitigation alternatives, potential flooding from hurricane storm-surges, and associated wind and wave action
d) Redevelopment of, or the prohibition of, non-conforming uses after a disaster (an economic analysis may be required)
e) Development/redevelopment in areas associated with repetitive losses due to natural disasters
f) Storm surge/severe winds of greater magnitude storms

Plans and Policy Implementation:

Comprehensive Plans are used to guide growth based upon factors such as: development limitations, public-service provision and environmental resource protection. Additionally, the County and municipalities have adopted other plans for use in mitigating hazards and in the development review process.

These plans are principally associated with mitigating development by:

a) Limiting development density through limiting public-service provision for various areas within the County – some of which are associated with hazard prone areas
b) Prioritizing areas for protection and implementing a preservation or conservation value
c) Minimizing (non-mitigated) development within high-hazard coastal areas

d) Identifying the need to retrofit and improve stormwater systems
e) Maintaining adequate level-of-service capacities associated with public infrastructure and services
f) Implementing procedures of the Comprehensive Emergency Management Plan

At a minimum, the following additional items should be addressed:

a) Redevelopment of existing properties after a disaster to ensure mitigation strategies that would minimize the number of non-conforming uses are considered
b) Modify the Comprehensive Plan to recognize strategies approved within the LMS, per Chapter 163, Florida Statutes and 9J-5, Florida Administrative Code and Post-Disaster Redevelopment Plan (PDRP)
c) Update the Comprehensive Emergency Management Plan to use hazard mitigating strategies as identified through the Local Mitigation Strategy and Post-Disaster Redevelopment Plan (PDRP)
d) Establish a policy direction that encourages removal of septic tanks or hazardous sites from high hazard areas throughout the county after a catastrophic event
e) Establish policy direction to ensure evacuation shelters are addressed per the direction of the CEMP

Program Implementation:

The County has implemented programs that are effective in mitigating hazards, which mostly address the hazards associated with flooding at this time. Currently, some of the plans are not seamless with one another. One of the principal purposes of the LMS is to connect these programs and "identify areas for strengthening" to ensure implementation of the LMS. Plans principally associated with mitigating development that are becoming better integrated are:

a) Post Disaster Redevelopment Plan (PDRP)
b) Greenways and environmental lands acquisition – some areas identified for acquisition may serve a dual purpose (recreation/preservation and hazard mitigation)
c) National Flood Insurance Program and the Community Rating System criteria that provide for the provision of flood insurance
d) Floodplain Management and Stormwater drainage programs – these programs have been established to minimize and mitigate flooding hazards

At a minimum the following items should be continued:

a) Development of more monitoring systems to measure flood levels
b) Expansion of acquisition programs to acquire more hazard prone areas
c) Review of allowances made for nonconforming uses to re-build
d) Update the Comprehensive Emergency Management Plan to include a definition of critical facilities as defined within the Local Mitigation Strategy
e) Review repetitive-loss cases to better examine historical patterns of repetitive damage to determine whether the policy should be expanded or modified to other areas
f) Establish a permanent funding source for mitigation projects within the Capital Improvements Program
g) Identify alternatives (and incentives) in building techniques for development within high hazard areas
h) Identify all potential hazards in the review of new development

Capabilities:

Strengthening the Role of Local Governments
As has been described earlier in this document, local governments in Manatee County have taken steps to strengthen themselves both in terms of capital facility improvements and ordinances, regulations, and programs. Becoming more disaster-resistant is not limited to just hardening of structures. There are a number of activities that the County and municipalities can undertake to strengthen the role of local governments to lessen the impacts resulting from
emergency events that do not require expending money on capital projects. Plans can be modified, laws and regulations can be amended, informational materials published and distributed, and professional training augmented. Ideas were generated from a variety of sources: interviews with local jurisdictions, and information generated from LMS Survey forms, the LMS Workgroup and sub-committees, and discussions with local governments. The suggestions for countywide projects resulting from the various discussions with local government include:

1. Projects on the LMS should be incorporated in local government comprehensive plans, capital improvement elements (CIE), at the time the CIEs are on an annual basis in accordance with Section 163.3177 (3) (a), Florida Statutes (F.S.).
2. As permitted under Section 163.3177 (7) (h) & (l), F.S., local governments could incorporate optional comprehensive plan element for public safety, or a hazard mitigation/post-disaster redevelopment plan.

3. Integrate the LMS into the Comprehensive Emergency Management Plan as appropriate and within the state specified guidelines.
4. Assess existing CRS programs to determine ways to strengthen and improve the local jurisdiction's CRS rating and support non-CRS communities to join the program.
5. Recommend that public building construction, whether it be new construction or renovation of older public structures, incorporate hazard mitigation building practice, whenever financially feasible.
6. Recommend to the appropriate authorities, the incorporation of safe room requirements in the local building code.
7. Update existing PBC post-disaster redevelopment plans and prepare a model plan as a guide for local jurisdictions.
8. Support in the continuing effort of coordination and mutual support between the County, local, and business community, before, during, and after a disaster event.
9. The LMS WorkGroup should work with the partner communities and the County to continue ongoing funding and staffing for the continuation of LMS.
10. Recommend emergency building permit procedures to local authorities and jurisdictions.
11. Seek avenues to provide technical assistance in grant writing and engineering for local jurisdictions in the support of LMS projects.
12. Develop a model CEMP mitigation element as a guide for local jurisdictions in mitigation plan development.
13. Seek opportunities and potential funding sources to bury electrical wires, especially in multi-jurisdictional projects.
14. In order to increase shelter capacity countywide, support the retrofitting of all appropriate structures suitable for use as shelters. Develop and disseminate multi-media outreach program countywide that will support the goals of LMS.

Capability assessments examine existing gaps or weaknesses within ongoing government activities that could preclude mitigation activities and possibly exacerbate community hazard vulnerabilities. Each municipality is unique in its planning, regulatory, fiscal, political, and outreach capabilities; however, each city has adopted the county Comprehensive Emergency Plan, Emergency Operations Plan and Floodplain Management to expand on and improve their existing capabilities and identify mitigating actions. The capabilities and gaps have been identified for each municipality identified in the table below.

Manatee County Capabilities

Plan/Ordinance	Unincorporated County	Municipalities					
		City of Anna Maria	City of Bradenton	City of Bradenton Beach	City of Holmes Beach	Town of Longboat Key	City of Palmetto
Local Mitigation Strategy	✓	✓	✓	✓	✓	✓	✓
Comprehensive Plan	✓	✓	✓	✓	✓	✓	✓
Zoning Ordinance	✓	✓	✓	✓	✓	✓	✓
Subdivision Ordinance	✓	✓	✓	✓	✓	✓	✓
Floodplain Ordinance	✓	✓	✓	✓	✓	✓	✓
Erosion, Sedimentation, and Pollution Control Ordinance	✓	✓	✓	✓	✓	✓	✓
Other Special Purpose Ordinance	✓	✓	✓	✓	✓	✓	✓
Building Code	✓	✓	✓	✓	✓	✓	✓
Stormwater Management Plan	✓	✓	✓	✓	✓	✓	✓
Site Review Requirements	✓	✓	✓	✓	✓	✓	✓
Captial Improvement Plans	✓	✓	✓	✓	✓	✓	✓
Local Emergency Operations Plan	✓	✓	✓	✓	✓	✓	✓
Flood Insurance Study	✓	✓	✓	✓	✓	✓	✓
Elevation Certificates	✓	✓	✓	✓	✓	✓	✓

C. NATIONAL FLOOD INSURANCE PROGRAMS (NFIP)

In addition to the potential for injury or loss of life from coastal or inland flooding is potential property loss. As of September 2019, Florida residents purchased 35% of all NFIP policies in the Unites States, 12.8% of those being for residents in Manatee County. This illustrates that Manatee County is very vulnerable to coastal and inland flooding.

Manatee County and the jurisdictions within its borders have committed to participating in the NFIP. To ensure continued compliance with the NFIP, each participating community will:

1. Conduct outreach projects for repetitive loss structure owners.
   a) Integrate new NFIP information and mapping into already existing strong community presentations
   b) Incorporate Flooding information into every Emergency Management presentation to the public.
   Implemented by: County and Municipal CRS Coordinators
2. Flood protection information.
   a) At each public library and development municipal building
   Implemented by: County and Municipal CRS Coordinators and emergency Management.
3. Public outreach on Flood Insurance Rate Maps (FIRM) and changes.

a) Provide information related to flood hazards, flood maps, etc., to the public upon request.
   Implemented by: County and Municipal Floodplain Managers

4. Promote the purchase of Flood Insurance by all property owners.
   a) Increase and continue outreach presentations to community and homeowners associations
   b) Incorporate flood insurance outreach into every emergency management presentation, increasing the reach of the message throughout the county and municipalities.
      Implemented by: County and Municipal CRS Coordinators and Emergency Management
5. Enforce Land Development Code and Flood regulations on new construction and monitor existing construction for compliance.
   a) Inform the community by news releases and open public meeting Community Outreach County Public TV
      Implemented by: County and Municipal Floodplain Managers and Building Officials
6. Mitigate existing stormwater structures to alleviate flooding.
   a) Review existing plans and continue to develop solutions to alleviate flooding.
      Implemented by: County and Municipal Floodplain Managers and/or CRS Coordinators and Engineering Department, in collaboration with Storm Water and Utilities departments.

Since flooding, both coastal and inland, is considered the most critical hazard facing the county, all jurisdictions participate in the NFIP, have a floodplain management program and participate in the Community Rating System (CRS). The following table establishes the initial involvement of the communities with the NFIP, current map information and the Community Rating System ranking, while also identifying communities and the county demonstrating compliance with the National Flood Insurance Program.

NFIP PARTICIPATION BY JURISDICTION

Jurisdiction	Joined NFIP	RLP	Current Effect. Maps	Last Community Assist. Visit	CRS Class
Anna Maria	02/01/1984	Appx. C	08/10/2021	03/25/2024	7
Bradenton	06/01/1981	Appx. C	08/10/2021	03/25/2024	6
Bradenton Beach	06/11/1971	Appx. C	08/10/2021	03/25/2024	6
Holmes Beach	06/11/1971	Appx. C	08/10/2021	03/25/2024	6
Longboat Key	04/20/1970	Appx. C	08/10/2021	03/25/2024	6
Palmetto	09/02/1981	Appx. C	08/10/2021	03/25/2024	7
Manatee County	06/26/1971	Appx. C	08/10/2021	03/25/2024	5

Source: *NFIP Flood Insurance (Jan 2025)*

CRS provides flood insurance premium discounts to NFIP-participating communities that take extra measure to manage floodplains above the minimum requirements. A point system is used to determine a CRS rating from 10 to 1, with the lower score indicating better ratings. The more measures a community takes to minimize or eliminate exposure to floods, the more CRS points are awarded, the lower their CRS Class Rating and the higher the discount on flood insurance premiums.
Below is the current information on the number of policies and the amount of the insurance in-force as of December 18, 2024.

NFIP POLICY INFORMATION

Community Name	Policies In-Force	Insurance In-Force Whole $	Written Premium In-Force $
Anna Maria	1,133	$338,123,200	$3,277,288
Bradenton Beach	1,537	$325,763,800	$2,435,904
Bradenton	4,244	$1,133,401,400	$4,100,744
Holmes Beach	3,364	$854,210,200	$6,919,208
*Longboat Key	9,725	$2,324,518,00	$10,880,966
Palmetto	2,093	$524,675,600	$2,339,230
Manatee County	22,203	$6,492,035,200	$17,319,917

** This information reflects the portion of Longboat Key, Florida located within Manatee County, as a portion of the town is located in Sarasota County*

Source*: http://www.fema.gov/policy-claim-statistics-flood-insurance (Dec 2024)*

As of October 1st, 2010, Manatee County has maintained a CRS Class 5, giving residents a 25% discount on their flood insurance premiums. The jurisdictions within Manatee County have maintained a CRS Class of 6-7, giving their residents 20% and 15% discounts on flood insurance premiums.

The County and its jurisdictions strive to reduce their vulnerability to flooding and actively seek to assist homeowners and businesses elevate or flood proof their structures.

D. RANGE OF PROJECTS FOR EACH HAZARD

Manatee County has developed a comprehensive range of different types of projects. Each of the LMS projects can be divided into 6 broad categories:

1) **Education, Awareness & Communication** - Actions to educate and inform citizens, officials, business owners, and property owners about the potential risk from hazards and ways to mitigate against them (e.g. providing mitigation education reading materials, outreach programs, etc.).

2) **Structural Retrofits & Additions** - Actions to modify and/or add to existing structures to mitigate against potential risks from hazards (e.g. storm shutters, back-up generators, etc.).

3) **Governmental Prevention** - Governmental actions that influence the way existing/future property and structures are built and developed to help bring forth mitigation goals (e.g. adopting a fire prevention ordinance, building codes that promote hazard mitigation, etc.).

4) **Technology** - Actions that require technological advancements to move mitigation goals forward (e.g. special GIS hazard layers, improved communication devices, etc.).

5) **Study, Research & Updated Information** - Actions that develop new information on risks, vulnerability, etc. to help with mitigation goals (e.g. stormwater drainage efficiency study, survey on how much citizens know about hurricane evacuations, etc.).

6) **Infrastructure Improvements** - Actions that improve infrastructure before and after hazardous events (e.g. new stormwater drainage systems, fixing road wash-out areas, etc.).

Manatee County currently has 85 main mitigation action items (projects) on the Project Priority Initiatives List, and with these, at least 22 projects which mitigation efforts address all identified hazards for the County. Reference Appendix G to see the projects, which incorporate the various hazards, and to see which jurisdiction each project considers.

It is worth noting that at least 32 mitigation action items (projects) address outreach and public education, as well as through all mitigation action items (projects) every category is touched thus making a well-rounded list of mitigation projects. To see which project(s) belongs to each category, view Appendix G.

E. CRITERIA FOR SCORING AND PRIORITIZING

With the creation of the LMS, the sponsoring governments, agencies, and departments developed the initiatives, then prioritized them using a scoring matrix developed by the LMS Working Groups. (See Appendix G)

The sponsor's prioritized initiatives were then presented to the Technical Working Group. The Working Group then reviewed, discussed, revised, and voted on each of the initiative, assigning them with a score and a ranking using the scoring matrix.

The list was then reviewed and revised by the Advisory Working Group. Following further discussion, the decision was made that like initiative should be scored alike and grouped. For this purpose, the scores derived from the matrix would be used as a guide to the grouping, and initiative not grouped would retain their original scores derived from use of the matrix.

In grouping the initiatives, in addition to using the scores derived from the matrix as a guide, considerations such as useful life of the initiative, cost-effectiveness, funding capability, and time required to implement and complete the project were factored.

F. PLANNING MECHANISMS

Manatee County and the communities within have other plans that will be reviewed and integrated into the LMS as they undergo regular updates. As previously mentioned in Section I, each of the participating jurisdiction, including Manatee County, have amended their Comprehensive Plan per the approved Evaluation Appraisal Report (EAR). The following is a list of plans and codes that have, and will continue to, be integrated into the Manatee County LMS.

- Manatee County Comprehensive Plan (2024)
- Manatee County Land Development Code (2024)
- Manatee County Comprehensive Emergency Mgmt Plan (2018)
- Manatee County Stormwater Master Plan (2021)
- Community Wildfire Protection Plan (2015)

The municipalities have also established:

- Emergency Management Plans that provides the procedures for all activities of each municipality before, during and after emergencies.
- Storm Water Management Plans that integrate with each other, focused on flood-related hazards and defines relevant mitigation goals and prioritizes these goals in their Action Plans.
- Floodplain Management Plans that are based on mitigation and enforcement of land and building development in the floodplain.
- Comprehensive Growth Management Plans that focus on controlling growth and development within municipalities and the county.

G. HISTORY OF PLAN INTEGRATION

One of the methods to most effectively implement the LMS is to propose and implement initiatives that will further the goals and objectives in the LMS. Initiatives, when implemented, will serve to mitigate existing issues. Other current plans, when reviewed and updated will be compared to the initiatives and objectives of the LMS to ensure that all planning activities work toward the common goal. Some identified planning mechanisms that have been utilized in the past include (but have not been limited to) floodplain ordinances, county and municipal comprehensive plans and land development codes, as well as comprehensive emergency management plan. Manatee County's Public Safety Department Emergency Management Division has oversight of the process for incorporating the LMS into other local government planning mechanisms. Some plans, such as the Comprehensive Emergency Management Plan (CEMP) and Continuity of Operations Plan (COOP), have prescribed processes that provide the opportunity for integration of LMS goals and objectives at scheduled intervals. During these planning cycles, Emergency Management reviews the LMS for consistency and identifies opportunities to link the LMS to the revised plans. As an example, information collected for the LMS risk assessment has been used to update the CEMP.

As part of the planning integration process, Emergency Management staff also continuously seeks plan-development opportunities that are not part of existing planning cycles but are relevant to the goals and objectives of the LMS. The process for linking the LMS is not only relevant to County planning projects, but also to all participating jurisdictions, includes

identifying mitigation- related elements in the plans under development, and assuring that policies and initiatives in the LMS are considered and addressed. Strategic planning is an example of this, as the process includes looking at both short- and long-term needs and addressing gaps and initiatives through policy and budget.

The LMS goals are used to help strengthen vulnerable critical facilities by using other grants, funding opportunities, and policy. The State Homeland Security Grant has been used to strengthen interoperable communication systems that are used during disasters. In addition, these grants have strengthened capabilities of the Emergency Operations Center (EOC) to provide redundant communications with other EOCs in the region and the State of Florida EOC in Tallahassee, Florida.

The Building and Development Services Department uses strict building codes to prevent loss from fires, natural disasters, as well as man-made events. Strict planning and building codes are used to minimize the vulnerability of newly constructed buildings throughout Manatee County.

The LMS Working Group looks to implement the Local Mitigation Strategy Plan through other plans and programs including updates to the Comprehensive Emergency Management Plan (using the hazards/risk assessment), and comprehensive future land use plans of Manatee County and municipalities. During the updating process, both of these documents will be revised to limit development in hazard areas, etc. These examples demonstrate that each participating jurisdiction is committed to incorporating mitigation principles and concepts into their normal operations and activities via their existing planning and programming processes. (See Appendix F)

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SECTION IV

HAZARD RISK & VULNERABILITY ASSESSMENT

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Section IV

Hazard Risk & Vulnerability Assessment

This section of the LMS includes the critical element that is the Threats and Hazards Risk Assessment (THIRA), which is a comprehensive and accurate assessment of the overall risk of all hazards and threats, and to determine vulnerability, and predict adverse impact that could potentially affect Manatee County and its communities. To minimize the losses suffered from disasters we must understand the type and severity of hazards that have the potential to affect Manatee County. Although the losses cannot be eliminated, much can be done to reduce the negative impact of a disaster. The THIRA is a tool used to gain the understanding needed to identify hazards, understand their potential severity and plan strategies to lessen the intensity, or mitigate, the damage due to the forces of and aftermath of a disaster. These mitigation strategies are used to develop and maintain the county-wide program called the Local Mitigation Strategy (LMS), as well as to how mitigation initiatives are determined and prioritized.

Consistent with Federal and State Plans and the County Comprehensive Emergency Management Plan (CEMP), the Manatee County LMS reflects an "All-Hazards" approach to mitigation. Consequently, the LMS Working Group researched technological, human-caused, and natural hazards that may affect the County. The THIRA includes the type and severity of hazards and the areas and populations affected. The information was compiled by one of the Public Safety Department Emergency Management Coordinators, along with stakeholder participation and feedback with those included in the Manatee Emergency Operations Workgroup.

The Plan addresses those natural and technological hazards as required by FEMA and the State of Florida. Based on meteorological, geological and topological research, two of these hazards – landslides and volcanoes - do not pose any significant threat to Manatee County.

For hazards which posed a credible risk to Manatee County and/or any of its six municipalities, discussion includes background, location, vulnerability, extent of impacts and probability. Rationale for omissions of hazards that are commonly recognized to have little to no effect on Manatee County and its six municipalities are included in subsection H of this Section, Section IV.

A. VULNERABLE POPULATIONS

A major goal of the LMS is to be able to reach every person in a community prior to, during and following an emergency event or disaster. To determine the means to provide effective support to the at-risk groups, we need to know which groups are at risk, where the people in these groups live or work, and the best ways they receive information.

Social vulnerability is defined in terms of the characteristics of a person or group that affect their capacity to anticipate, cope with, resist, and recover from the impact of a disaster in nature or society. A person's vulnerability to disaster is influenced by many factors such as, but not limited to; socioeconomic status, age, gender, race and ethnicity, English language proficiency, medical issues, and disability. Identifying some of these at-risk groups within the community, that could be disproportionately affected by disasters, is key to building a more resilience community profile. ~ Keeping in mind that many people may fit more than one category.

Socioeconomic status is one of the key factors of social vulnerability. It includes employment, income, housing (e.g., homelessness), and education level. People with lower socioeconomic status more likely lack resources needed to follow emergency preparedness instructions. By identifying at-risk groups ahead of time, you can plan more efficient evacuations or those who are unable/unwilling to lose a day's pay, identify people who need resources (e.g. food kits), and identify those who need transportation or special assistance.

Housing:

The greatest population concentration in Manatee County exists in the areas most vulnerable to impact from specific hazards, such as hurricanes, tropical storms, and transportation/hazardous material spills. Identifying high hazard areas and assessing the number of dwelling units and people living in those threatened areas, will indicate how susceptible Manatee County's is to displacement following a large-scale disaster.

According to the United States Census Bureau Population Estimates Program (PEP), updated annually, there are 220,657 housing units in Manatee County. This is a 6.2% increase from the 2020 Census. Of the 220,657units, 80.1% (176,772) were owner-occupied, which grew from the previous year of 76.9%. Furthermore, approximately 15,000 or 7.7% of the dwelling units are located within a high hazard area.

The average household size is 2.36 for owner-occupied and 2.51 for renter occupied. Manatee County has seen a renewed interest in multi-family rental products since 2012. The following table provides a breakdown of housing units by jurisdiction for 2022.

HOUSING OCCUPANCY BY JURISDICTION

Description	Manatee County	City of Anna Maria	City of Bradenton	City of Bradenton Beach	City of Holmes Beach	*Town of Longboat Key	City of Palmetto
Total Housing Units	220,657	1,577	28,187	1,872	4,202	9,708	6,906
Occupied Housing Units	176,772	486	22,161	444	1,590	4,171	4,957
Vacant Housing Units	43,885	1,091	6,026	1,428	2,612	5,537	1,949
Homeowner vacancy rate	1.5	9.8	2.0	13.0	6.3	3.9	0.9
Rental vacancy rate	15.8	95.2	14.2	80.9	79.3	65.5	8.0

**Numbers based on entire jurisdiction located in both Manatee and Sarasota Counties.*
***Source**: American Community Survey, U.S. Census Bureau -2022 data*

HOUSING UNITS IN STRUCTURE BY JURISDICTION

Description	Manatee County	City of Anna Maria	City of Bradenton	City of Bradenton Beach	City of Holmes Beach	*Town of Longboat Key	City of Palmetto
Total Housing Units	220,657	1,577	28,187	1,872	4,202	9,708	6,909
1-unit, Detached	114,877	1,343	12,249	384	1,869	2,252	2,268
1-unit, Attached	15,875	38	2,072	72	241	443	448
2 Units	7,383	140	788	247	524	86	263
3 or 4 Units	5,717	40	1,514	223	374	243	115
5 to 9 Units	11,134	10	3,346	163	293	647	50
10 or More Units	23,922	6	9,938	586	823	8,638	1,746
Mobile Home or RV	29,360	0	1,280	233	78	399	2,016

**Numbers based on entire jurisdiction located in both Manatee and Sarasota Counties.*
***Source**: American Community Survey, U.S. Census Bureau -2022 data*

The average value for housing units, based on the U.S. Census Bureau for 2022, in Palmetto is $219,700, in Bradenton $252,400, in Bradenton Beach $419,400, in Holmes Beach $662,900, in Longboat Key $909,700 and countywide $398,200. No information was located for Anna Maria.

Evacuation Levels and Flood Zones:

The at-risk population living within the County designated evacuation levels (the area that is at risk for severe storm surge flooding during a storm event) or flood zones (the geographic areas that FEMA has defined according to varying levels of flood risk) is shown in the two tables below.

POPULATION BY EVACUATION LEVELS

2020	Level A	Level B	Level C	Level D	Level E
Site-built Homes	77,215	20,675	42,222	55,667	37,163
Mobile/Manuf. Homes	18,519	2,095	2,767	2,860	2,209
TOTAL	95,734	22,770	44,989	58,527	39,372
2025	**Level A**	**Level B**	**Level C**	**Level D**	**Level E**
Site-built Homes	86,281	23,103	47,202	62,207	41,466
Mobile/Manuf. Homes	18,519	2,095	2,767	2,860	2,209
TOTAL	104,800	25,198	49,969	65,067	43,675

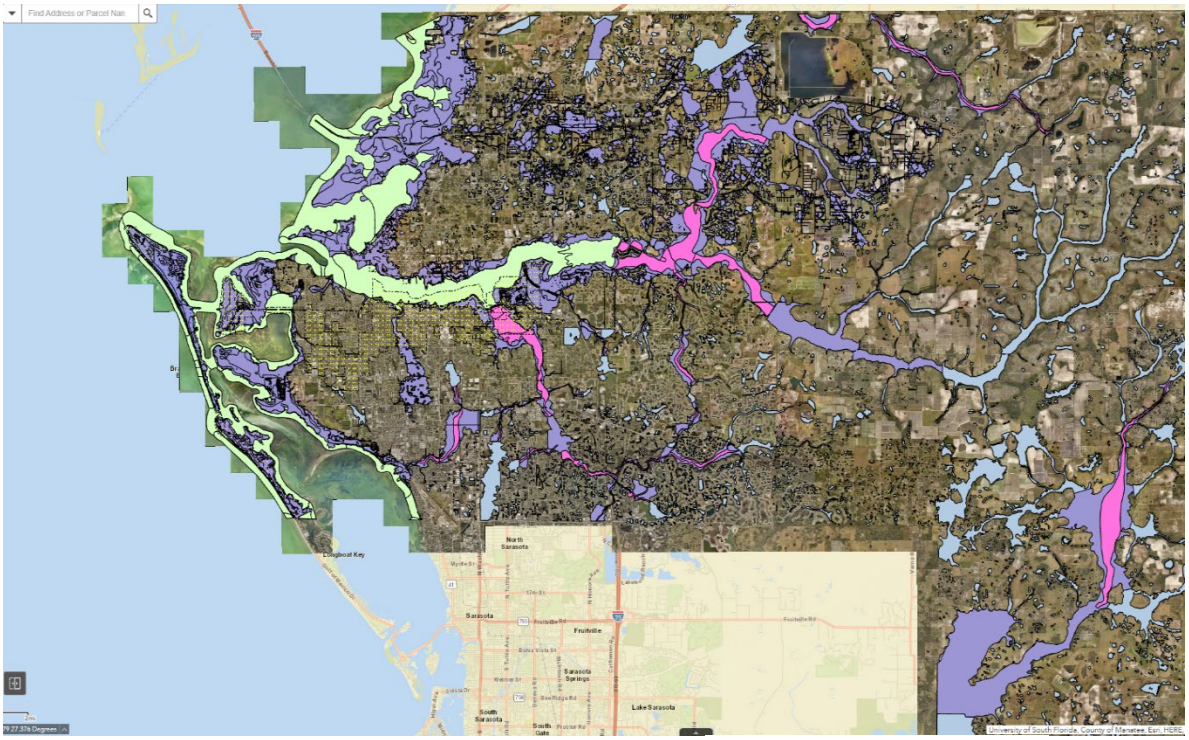
Source: *Florida Statewide Regional Evacuation Study Program – Evacuation Transportation Analysis (2025 update)*

BUILDING BY FLOOD ZONES

Land Use Category	High Risk (A or V)	Low Risk (X)
Residential	30,886	92,726
Mobile Homes	6,291	9,217
Multi-Family	29,582	38,873
Commercial	9,161	6,474
Industrial	1,485	2,389
Agricultural	3,425	893
Institutional	1,322	1,666
Government	1,987	1,533
Mixed	2,375	876
Other	3,133	2,380

Source: Manatee County GIS, 2024

The following maps are interactive and searchable by address, produced by Manatee County and is public for residents as well as all jurisdictions to utilize. Many jurisdictions include a link to both FEMA's Flood Hazard Layer as well as Manatee County's interactive Flood map on their website. Anyone within Manatee County can search their address and receive specific feedback on their flood and evacuation zones, pulled directly from the property appraiser.



Legend

FEMA Flood Zones

2021 DFIRM Floodway

2021 DFIRM Flood Zones

FLOOD ZONE

- A
- AE
- VE

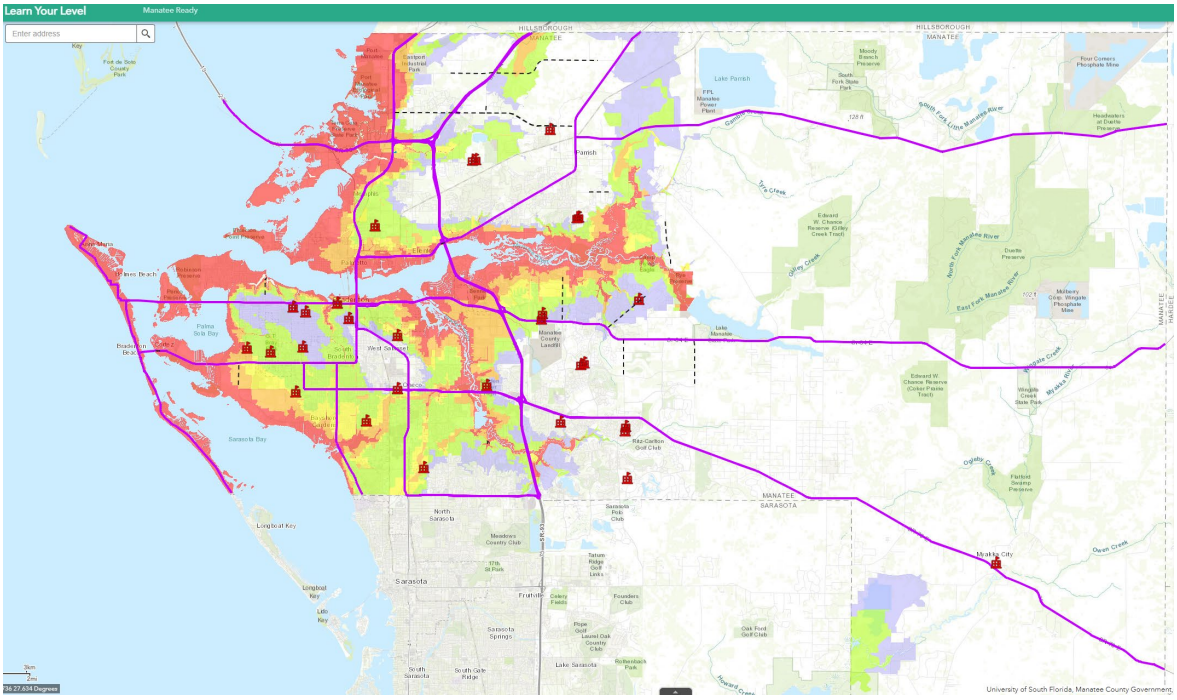
Evacuation Shelters

- Closed
- Open

Evacuation Routes

Evacuation Levels

- Level A
- Level B
- Level C
- Level D
- Level E



Seasonal Population:

Manatee County also has a regular influx of seasonal population which includes tourists, short-term or long-term visitors, persons who live here part of the year which includes migrant farm workers. The coastal areas experience concentration of tourist during the winter months. As per the 2020 U.S. Census, Manatee County has 28,386 vacant units as seasonal, recreational, or occasional use.

The Elderly:

Older adults are more likely to have medical problems that put them at an increased risk during a disaster. They might have chronic health problems, limited mobility, limited sight, hearing issues, or limited cognitive ability. Any of these health issues can limit their capacity to follow instructions. Older adults might also have reduced income, putting them at increased risk because of their limited resources. Some older adults are also isolated by their living situations or limited mass media use, making communication with this group difficult.

Over 28 percent of the County's population is of the age 65 and above, out of which 3 percent is above the age of 85 (12,838). Moreover, the 65 years and above population has increased by 2 percent since 2020. Most of the 65 year and older population is concentrated along, and west of, the US 41 corridor located both north and south of the Manatee River in Bradenton and Palmetto, as well as the US 301 N. corridor in Ellenton. Majority of the minority low-income elderly are concentrated primarily

along the US 41 corridor between Manatee Avenue and Cortez Avenue, as well as east of US 41 in Palmetto. Disasters usually affect older people more disproportionately. As mentioned in a Center for Disease Control (CDC) report, more than 70 percent of those who died as a result of Hurricane Katrina were elderly. Many of the 200 people who died as a result of the hurricane in Mississippi were also older adults. People above 65 years of age are specifically vulnerable due to both physical and financial reasons. In addition, according to the American Medical Association, there is a greater probability that seniors may be more susceptible to fraud and financial exploitation than other populations during times of crisis.

Children:

Young children are also more at risk, as they have yet to develop the resources, knowledge, or understanding to effectively cope with disaster, and they are more susceptible to injury and disease. Young children also are more vulnerable when they are separated from their parents or guardians, for example, at school or in daycare. Children are usually extremely vulnerable due to their high susceptibility to disease and post-disaster contamination. FEMA states that children are particularly vulnerable to post-disaster stress and anxiety and would require special and prolonged care. Also, having children that need to be cared for affects the ability of parents to resume their jobs/businesses in the recovery phase.

Approximately 17.1% of Manatee County's current population is under the age of 18 and 4.3% is below 5 years of age.

Disabled Persons:

Persons with a disability include those with a cognitive, physical, or sensory impairment that limits major life activities. People with physical impairments might include those with limited sight, hearing, or mobility or those who are dependent on electric power to operate medical equipment. For many people with medical conditions and disabilities, their ability to hear, understand, or respond to a warning is impaired. This group also includes those with access and functional needs, irrespective of diagnosis or medical conditions (e.g. cancer).

Approximately 15% of the County's population has some form of disability. As of May 2024, almost 1,600 persons were registered with the Manatee County Special Needs Registry (SPNR) for evacuation transportation or shelter assistance. Roughly 79% of the people registered (1245 people) are either in the hurricane evacuation areas (Level A through E) and 9.5% of the people registered (149 people) are in a mobile home in the County.

Recognizing a significant number of disadvantaged and disabled persons living in the County, the Emergency Management Division prepared a unique outreach packet for those who may require special assistance during a time of disaster, including finding a place to shelter and transportation during evacuation. A Special Needs Disaster Preparedness Packet includes a registration form, Special Needs Shelter Fact Sheet, and information the resident would need if driving themselves to the shelter.

Note: The U.S Census Bureau defines disability as a long-lasting sensory, physical, mental, or emotional condition or conditions that make it difficult for a person to do functional or participatory activities such as seeing, hearing, walking, climbing stairs, learning, remembering, concentrating, dressing, bathing, going outside the home, or working at a job.

Homeowner vs. Rental Population:

Understanding the percentage of renters in a community is essential as not owning a home makes this group extremely mobile and most likely to leave the County in the event of a major disaster. According to the 2020 U.S. Census, approximately 26% of the County's population lives in renter occupied housing units.

Losing population following a catastrophic event can have severe impacts on the County's economy making it increasingly difficult to recover quickly. This is a major concern for Manatee County especially since the County has seen a substantial increase of more than 225% in renter occupied housing units from 2000 to 2010 and has continued to grow.

Income:

A strong socio-economic status enables communities to quickly absorb and recover from losses whereas a weak one hampers their recovery and return to normalcy. As per the U.S. Census Bureau 2022 American Community Survey 1-year Estimates, approximately 14% of Manatee County households had a household income less than $25,000 and around 5.3% had less than $10,000. Moreover, in 2022 approximately 10.2% of the population was below the poverty line in comparison to 13.4% in 2017.

Low-income and lack of enough affordable housing choices are two factors that can drastically limit our ability to recover quickly from a major disaster. Low-income households are most likely to suffer greater relative losses and face difficulty in finding enough shelter options after a disaster as the available housing stock becomes limited, uninhabitable, or too costly to afford.

B. ECONOMIC VULNERABILITY

Describing vulnerability in terms of potential dollar loss provides the local government, State, and federal government with a common framework with which to quantitatively measure the effects of hazards on the community and more accurately determine the benefit-cost ration of investments in mitigation activities. It is an essential component to risk assessment and the ability to implement a strategy to prevent or reduce future losses. In Florida, it is a vital tool for decision-makers who must make the sometime difficult decisions regarding growth-management, land development regulations, and funding for infrastructure and mitigation projects.

Identifying employers located within high hazard areas and assessing the number of people employed by each will indicate how susceptible Manatee County's economy is to a large-scale disaster. To understand our economic vulnerability, employer distribution within the County was studied using data from U.S. Census Bureau, American Community Survey Estimates (2022).

The data outputs determined that approximately 500 businesses (that employ approximately 4,000 employees) exist in the high hazard areas.

The vast majority of industrial activity in Manatee County is generally associated with, or in close proximity to Port Manatee. The port is located in the northwestern corner of the County adjacent to Hillsborough County, along the U.S. 41 & 301 corridors, and south of the Manatee River. Additional industrial sites can be found east of U.S. 41 around the Tropicana Products, Inc. Plant. Although not classified as an industrial activity, phosphate mining and associated industries can be found in the eastern portions of the County. Office space is primarily located within the central business district of Bradenton, in downtown Palmetto, near Lakewood Ranch Boulevard and University Parkway. Malls like Ellenton Premium Outlets showcase how commercial activity primarily consists of strip-malls throughout the County.

CIVILIAN LABOR FORCE STATISTICS

Category	Manatee County	Florida	United States
Labor Force	195,951	11,095,400	171 million
Labor Force % of County Population	45.66%	n/a	n/a
Unemployment Rate	3.3%	3.3%	3.9%
Source: *United States Bureau of Labor Statistics, May 2024*			

Manatee County has over 30 companies that employ more than 250 people. Some of these major employers include School District of Manatee County, Manatee County Government, Blake Medical Center, Manatee County Sheriff's Office, Manatee Memorial Hospital, Bealls Inc., IMG Academy, and Tropicana Products Inc. The two tables below list down the major private and public sector employers within the County.

LARGEST EMPLOYERS

Private Sector	**Full-Time employees**
Bealls Inc	2,100
Tropicana Brands Group	1,050
IMG Academy	902
Pierce Manufacturing, Inc	630
Feld Entertainment, Inc	562
TriNet	500
SYSCO West Coast Florida, Inc	468
Sun Hydraulics, Inc	468
Public Sector	**Full-Time employees**
Manatee County School District	7,000
Manatee County Government	2,300
Manatee Memorial Hospital	1,900
Manatee County Sheriff's Dept	1,300
Blake Medical Center	1,471
City of Bradenton	550
State College of FL Manatee Sarasota	500
Source: *Bradenton Area Economic Development Corporation*	

Small businesses are at greater risk of not recovering from a major disaster. This is a key concern for Manatee County as a majority of the County's establishments are small businesses. The U.S. Census County Business Patterns (2021 Business Patterns dataset) show that 86.9% of establishments within Manatee County employ less than 50 employees and 90.5% employ less than 500. The ones that employ 500 or more are mostly involved in manufacturing, transportation and warehousing, construction, educational services, health care and assistance, professional, and Food Services. The following table indicates the employment by industry type for Manatee County.

EMPLOYMENT ESTIMATES BY TYPE OF INDUSTRY

Employment Sector	**Total Establishments**	**# of Employees**
Agriculture, forestry, fishing & hunting	27	1,217
Mining, quarrying, oil and gas	1	Not avail
Utilities	14	227
Construction	1,295	9,231
Manufacturing	294	8,329
Wholesale trade	428	3,993

Retail trade	1,354	20,212
Transportation and warehousing	228	4,220
Information	133	1,517
Finance and insurance	563	3,337
Real estate, rental and leasing	826	2,788
Professional, scientific and technical	1,260	5,128
Management of companies & enterprise	73	2,114
Administrative support	846	8,078
Educational services	141	2,477
Health care and social assistance	1,084	15,966
Arts, entertainment and recreation	178	2,653
Accommodations and food services	711	13,165
Other services (except public admin)	919	4,505
Industries not classified	10	13
Total for all sectors	10,368	109,279
Source: *United States Census Bureau, 2021 County Business Patterns*		

Historically, agriculture activity, concentrated primarily east of the I-75 corridor, has played an important role in the County's economy. The Florida Department of Agriculture and Consumer Services' 2022 Florida Agriculture by the Numbers Report, has the following information for Manatee County:

AGRICULTURAL ACTIVITY

Statistical Report	**Unit type**	**County Rank in FL**
Citrus (production -all types)	1,094,000 boxes	10th
Commercial Citrus	9,266 acres	10th
Citrus Trees	1,310,700 trees	10th
Milk Cows	4,400	7th
Cattle and Calves	39,000	13th
Beef Cows	16,000	16th
Source: *Florida Department of Agriculture and Consumer Services' 2022 Florida Agriculture by the Numbers Report*		

2007, 2017 and 2022 Florida Statistical Abstract			
	2007	2017	2022
Active Farms	794	753	637
Acres in Production	225,101	192,630	156,600
Acre Distribution:			
Cropland	77,299	71,172	76,790
Woodland	25,946		25,022
Timberland		362	
Pasture	92,184	162,568	117,483
Other Uses	29,672		
Reported Income	$239,624,000	$360,119,000	$321,817,000

DETERMINING ECONOMPIC IMPACT

Based on the type and severity of the hazard, the charts below, provided by Manatee County Property Appraiser, 2023 Final Taxing Authority Report, can assist with the general determination of economic impact.

City of Anna Maria			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	89	$53,708,786	$603,469
Single Family Residential	1,288	$1,773,931,302	$799,910
Multi-Fam (less than 10 units)	123	$138,700,314	$1,127,644
Condominium	82	$37,035,801	$451,656
Vacant Commercial	6	$3,728,442	$621,407
Improved Commercial	63	$51,467,493	$816,944
Institutional	7	$9,835,546	$1,405,078
Government	27	$39,760,501	$1,472,611
Miscellaneous	6	$5,199	$866

City of Bradenton			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	1158	$40,848,082	$35,274
Single Family Residential	12,397	$2,615,715,472	$210,995
Mobile Home	2	$27,584	$13,792
Multi-Fam (less than 10 units)	631	$127,804,325	$202,542
Multi-Fam (10 units or more)	44	$839,476,080	$19,079,001
Condominium	6,599	$1,251,329,315	$189,624
Cooperatives	426	$20,456,076	$48,018
Ret. Home and Misc Res.	578	$2,534,311	$4,384
Vacant Commercial	243	$31,146,191	$128,173
Improved Commercial	849	$846,665,500	$997,250
Vacant Industrial	1	$10	$10
Improved Industrial	99	$127,220,681	$1,285,057
Agriculture	9	$74,073	$8,230
Institutional	211	$428,292,995	$2,029,824
Government	296	$302,968,503	$1,023,542
Miscellaneous	61	$2,884,721	$47,290

City of Bradenton Beach			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	134	$29,172,002	$217,701
Single Family Residential	275	$292,167,182	$1,062,426
Multi-Fam (less than 10 units)	150	$124,682,066	$831,213
Condominium	1,035	$456,806,021	$441,358
Ret. Home and Misc Res.	118	$20,215,924	$171,321
Vacant Commercial	2	$258,811	$129,405
Improved Commercial	51	$69,296,621	$1,358,757
Institutional	5	$4,434,616	$886,923
Government	48	$89,565,872	$1,865,955

City of Holmes Beach			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	143	$56,204,533	$393,038
Single Family Residential	1,768	$1,719,047,716	$972,312
Multi-Fam (less than 10 units)	320	$297,556,775	$929,864
Condominium	1,692	$1,010,615,766	$597,290
Ret. Home and Misc Res.	272	$1,898,538	$6,979
Vacant Commercial	4	$1,315,187	$328,796
Improved Commercial	172	$114,290,702	$664,480
Improved Industrial	1	$1,844,038	$1,844,038
Institutional	12	$21,139,439	$1,761,619
Government	39	$12,172,883	$312,125
Miscellaneous	35	$813,771	$23,250

Town of Longboat Key			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	162	$75,817,252	$468,007
Single Family Residential	850	$986,943,014	$1,161,109
Multi-Fam (less than 10 units)	37	$71,605,091	$1,935,272
Condominium	2,480	$1,406,546,752	$567,155
Ret. Home and Misc Res.	143	$246,356	$1,722
Vacant Commercial	16	$3,925,830	$245,364
Improved Commercial	42	$86,046,469	$2,048,725
Institutional	5	$13,670,421	$2,734,084
Government	56	$23,521,046	$420,018
Miscellaneous	21	$306,662	$14,602

City of Palmetto			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	428	$31,537,740	$73,686
Single Family Residential	2,773	$676,878,300	$244,096
Mobile Home	150	$16,436,410	$109,576
Multi-Fam (less than 10 units)	128	$28,098,907	$219,522
Multi-Fam (10 units or more)	13	$55,067,789	$4,235,983
Condominium	944	$250,076,890	$264,911
Cooperatives	595	$52,561,976	$88,339
Ret. Home and Misc Res.	162	$4,088,008	$25,234
Vacant Commercial	109	$20,303,313	$186,268
Improved Commercial	450	$233,448,759	$518,775
Vacant Industrial	16	$3,527,878	$220,492
Improved Industrial	135	$78,326,165	$4580,193
Agriculture	11	$1,199,419	$109,038
Institutional	111	$99,926,122	$900,235
Government	111	$120,153,865	$1,082,467
Miscellaneous	30	$2,139,057	$71,301

Manatee County (unincorporated)			
Property Type	**No. of Lots**	**Assessed Value**	**Average Value**
Vacant Residential	19,587	$1,027,645,056	$52,465
Single Family Residential	98,309	$31,909,884,963	$324,587
Mobile Home	4,531	$372,338,060	$82,175
Multi-Fam (less than 10 units)	3,064	$661,446,684	$215,876
Multi-Fam (10 units or more)	113	$2,171,884,965	$19,220,220
Condominium	22,641	$3,928,473,520	$173,511
Cooperatives	5,804	$419,537,032	$72,284
Ret. Home and Misc Res.	11,590	$68,127,073	$5,878
Vacant Commercial	913	$210,563,181	$230,627
Improved Commercial	2,399	$3,468,704,063	$1,445,895
Vacant Industrial	343	$66,286,987	$193,256
Improved Industrial	1,266	$1,711,428,029	$1,351,838
Agriculture	2,074	$389,281,883	$187,696
Institutional	530	$1,062,788,018	$2,005,260
Government	1,314	$1,173,477,923	$893,057
Miscellaneous	873	$75,080,289	$86,002
Non-Agriculture Acreage	414	$256,628,136	$619,874

DESCRIPTION OF HAZARDS

C. NATURAL HAZARDS

Natural hazards are threats stemming from naturally occurring processes that produce a negative impact on life, property, and/or the environment. These processes have been occurring for much of earth's history, however they are typically only considered to be dangerous if they have a negative impact on humans and their way of life. Natural hazards can occur with a rapid onset with little to no warning or can take place over a prolonged period of time.

According to NOAA's National Centers for Environmental Information (NCEI), 2023 was the warmest year in NOAA's 174-year climate record. Especially when related to natural hazards, the threats and impacts of climate change will need to be assessed and addressed therefore will be included in probability of climate related natural hazards.

1. Hurricanes and Coastal Storms



Background: These storms called "tropical cyclones" which forms over tropical or subtropical waters. It is a rotating low-pressure weather system that has organized thunderstorms but no fronts (a boundary separating two air masses of different densities). Tropical cyclones with maximum sustained

surface winds of less than 39 miles per hour are called “tropical depressions”. Those with maximum sustained winds 39 miles per hour or higher are called “tropical storms”. When a storm’s maximum sustained winds reach 74 miles per hour, it is called a “hurricane”. The higher the category, the greater the hurricanes potential for property damage. Hurricanes originate in the Atlantic basin, which include the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico.

On average, seven hurricanes strike the United States every four years per the NOAA Technical Memorandum NWS TPC-5. Eighteen states along the east and gulf coasts, Hawaii, the U.S. Virgin Islands, the Territories of Guam and American Samoa, and the Commonwealths of Puerto Rico and the Northern Mariana Islands are all affected by hurricanes. More than 50 million people reside along hurricane-prone coastlines with 36 million residing along the Gulf of Mexico and Atlantic coast (Multi-Hazard Identification, FEMA 1997). Powerful wind is only one of the dangerous forces associated with a hurricane. Storm surges, storm tides and heavy rains may lead to flooding and tornadoes. According to the NOAA Technical Memorandum NWS TPC-5, Hurricane Katrina demonstrated that depending on the point of impact, a category 3 storm can be as or more devastating than a category 5. This hurricane was the costliest storm event ever recorded in the United States with $81 billion of damage. Katrina is ranked third in two categories, the third highest number of deaths (1,500) and the third lowest central pressure ever noted at 920 millibars. An event like Hurricane Katrina can help a community analyze its vulnerability to hurricanes. Hurricane Sandy (unofficially known as “Superstorm Sandy”) was the deadliest and most destructive hurricane of the 2012 Atlantic hurricane season, as well as the second costliest in United States history, at the time, at $65 billion. Much of the impact in the United States was to the Mid-Atlantic and New England States with major impacts to New Jersey and New York coastlines.

Regarding the county’s ever-changing development, Manatee County and its jurisdictions understand that with increasing development and population density, particularly on the coastlines, vulnerability increases. However, improved building codes throughout the jurisdictions increases the number of resilient infrastructure and can mitigate damage and improve community preparedness.

Probability: Due to Manatee County’s subtropical location and long coastline, the entire county is particularly susceptible to hurricanes and tropical storms and could experience a Category 5 storm with winds of 156 mph or greater. According to Colorado State University 2024 research on Tropical Cyclone Impact Probabilities, Manatee County has a 37% average probability of having impacts by any named storm, 18% average

probability of impacts of a Hurricane, and 8% average probability of impacts of a Major Hurricane (cat 3+).

According to the Center for Climate and Energy Solutions, climate change is worsening hurricane impacts in the United States by increasing the intensity and decreasing the speed at which they travel. Scientists are currently uncertain whether there will be a change in the number of hurricanes, but they are certain that the intensity and severity of hurricanes will continue to increase. These trends are resulting in hurricanes being far more costly in terms of both physical damage and loss of life.

Hurricane Wilma caused wind damage with 143 insurance claims. Hurricanes Jeanne, Frances, and Charley in 2004 caused flooding and wind damage to homes and businesses. Tropical Storm Gabrielle in 2001 had rain up to 9 inches, flooding roads, homes, and businesses from Anna Maria Island to Parrish with many downed trees and power lines. Hurricane Gordon flooded homes and businesses in Bradenton Beach. Tropical Storm Josephine in 1996 caused flooding, the heaviest on Anna Maria Island along with road damage in Longboat Key and Bradenton Beach. Tropical Storm Marco in 1990 had up to 6.14 inches of rain, causing flooding with damage to both public and private properties.

Hurricane Debby brought historic flooding with upwards of 18 inches of rain. This flooding happened in X Flood Zones and areas that see flooding regularly. Debby was about 120 miles off shore of Manatee County at its closest. Hurricane Helene brough 4-6 feet of storm surge. This surge is the largest in recent history causing catastrophic damage to the barrier islands and coastal areas. Again, Helene was about 120 miles off shore when the surge came to the county. After these two storms, Hurricane Milton came ashore with the northern eye wall being over the county with winds up to 120mph at its peak casing wind damage throughout.

The greatest threat posed by a hurricane or tropical storm to Manatee County is storm surge along the barrier islands, wind damage to homes, businesses, and coastal lands and inland flooding. Storm surge relating to the storms between January 1998 and June 2012 caused $8.050M in property damage in Manatee County and its jurisdictions. (National Climatic Data Center, NOAA). In 2024, both Hurricane Milton and Helene caused over $350 million in property damage to Manatee County's coastal regions due to 100year record storm surges and 100mph winds. Depending on location within the County, storm surge could vary from 19' at the barrier islands, 18.9' at Manatee Memorial Hospital along Manatee River and 8.8' at Lake Manatee Dam.

SAFFIR/SIMPSON HURRICANE WIND SCALE

Category	Sustained Winds	Types of Damage Due to Hurricane Winds
Tropical Depression	<38 mph	Winds can produce some damage
Tropical Storm	39 to 73 mph <64 kt <119 km/h	Dangerous winds can produce some damage
1	74-95 mph 64-82 kt 119-153 km/h	Very dangerous winds will produce some damage: Well-constructed frame homes could have damage to roof, shingles, vinyl siding, and gutters. Large tree branches will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last several days.
2	96-110 mph 83-95 kt 154-177 km/h	Extremely dangerous winds will cause extensive damage: Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.
3	111-129 mph 96-112 kt 178-208 km/h	Devastating damage will occur: Well-constructed framed homes may incur major damage or removal of roof, decking, and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.
4	130-156 mph 113-136 kt 209-251 km/h	Catastrophic damage will occur: Well-constructed framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted, and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5	157 mph or higher 137 kt or higher 252 km/h or higher	Catastrophic damage will occur: A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
Source: *http//www.nhc.noaa.gov/climo*		

DEPTH AND STORM SURGE AT SELECTED POINTS OF REFERENCE

Location	Elevation	C1 Depth[1]	C2 Depth	C3 Depth	C4 Depth	C5 Depth	C1 Surge[2]	C2 Surge	C3 Surge	C4 Surge	C5 Surge
North approach to Desoto Bridge	6.7	0.0	1.7	4.9	8.3	11.3	3.7	8.3	11.6	14.9	18.0
South approach to Desoto Bridge	15.3	0.0	0.0	0.0	0.0	2.7	3.2	8.8	12.0	15.2	18.0
East approach to Manatee Ave. – Lift Bridge	8.4	0.0	0.3	4.0	7.1	10.4	4.8	8.7	12.4	15.5	18.8
West approach to Manatee Ave. – Lift Bridge	10.1	0.0	0.0	2.2	5.3	8.6	4.8	8.7	12.4	15.4	18.7
East approach to Cortez Bridge	11.7	0.0	0.0	0.9	4.0	7.3	5.0	8.9	12.6	15.7	19.0
West approach to Cortez Bridge	9.7	0.0	0.0	2.8	5.9	9.2	5.0	8.8	12.5	15.6	18.9
Manatee Memorial Hospital	5.3	0.0	2.9	5.8	9.2	12.8	2.3	8.2	11.1	14.5	18.1
Anna Maria City Hall	5.5	0.0	2.9	6.3	9.5	12.7	4.6	8.3	11.8	15.0	18.1
City of Bradenton Beach City Hall	4.0	1.0	4.8	8.4	11.6	14.8	5.0	8.8	12.5	15.6	18.8
City of Bradenton City Hall	9.5	0.0	0.0	1.1	6.4	8.5	3.7	7.2	10.6	15.9	18.0
Manatee County Administration Center	14.8	0.0	0.0	0.0	1.3	3.2	2.7	5.6	9.0	16.1	18.0
City of Palmetto City Hall	15.3	0.0	0.0	0.0	0.5	2.8	3.1	7.9	12.0	15.8	18.1
Lake Manatee Dam	4.4	0.0	0.0	0.0	0.0	4.4	0.8	2.0	2.8	3.6	8.8
City of Holmes Beach City Hall	3.3	1.2	5.2	8.8	11.9	15.1	4.6	8.6	12.1	15.2	18.5
DeSoto Square Mall	16.2	0.0	0.0	0.0	0.0	1.0	0.8	2.0	2.8	13.1	17.2

[1] Depth refers to depth of inundation at the site (storm surge value minus the ground elevation)
[2]Surge refers to the storm surge value from the SLOSH Model

Source: *Florida Statewide Regional Evaluation Study Program, Storm Tide Atlas, Manatee, 2010*

Heavy rain associated with a tropical storm or hurricanes can cause flooding of riverine and low-lying areas. Hurricane Debby, a Category 1 that passed Manatee about 50mi off the coast and made landfall 200mi north in Aug 2024, dropped 13.49 inches of rain in 48hrs – barely below the 100-year flood NOAA prediction of 14.2 inches. The county is still calculating the damages from this event, estimated over $55 million.

Vulnerability: The barrier islands between northern Longboat Key and Anna Maria Island are most susceptible to the effects of storm surge created by tropical systems and severe winter storms. The combination of high tides and wind action can create coastal flooding and saltwater inundation of the barrier islands and is considered a significant risk factor. Secondary areas susceptible to these same impacts are the low-lying areas along the Manatee and Braden Rivers. Storm surge can range from 6 feet for a Category 1 storm to 28 feet for a Category 5 storm. Based on the

study done by Tampa Bay Regional Planning County, storm surge could go as far inland as Lake Manatee, with a surge of almost 9 feet.

Storm surge, enhanced by a squall line, of 3.0 to 4.0 feet above astronomical tides caused flood damage to 50 homes and pushed a few dry-docked boats into coastal streets, flooding portions of coastal road on Longboat Key, causing $200K in damage in January 1999. Hurricane Dennis, July 10, 2005, produced a storm surge of approximately 3 feet at Port Manatee, with waves eroding an estimated 20 percent of the shoreline on Anna Maria Island. Storm surge from Hurricane Ike in September 2008 caused minor flooding of roads in Holmes Beach. Storm surge and waves associated with Tropical Storm Debby in June 2012 eroded half the sand dunes at the south end of Anna Maria Island, an estimated $5.9M in damage.

EVACUATION LEVELS AND STORM SURGE
(FEET IN NAVD 1988)

Legends	Evacuation Levels	Instructions	Storm Surge Height
	Level A	Evacuate red areas and all manufactured homes	Up to 9 ft.
	Level B	Evacuate red and orange areas and all manufactured homes	Up to 14 ft.
	Level C	Evacuate red, orange and yellow areas and all manufactured homes	Up to 17 ft.
	Level D	Evacuate red, orange, yellow and green areas and all manufactured homes	Up to 21 ft.
	Level E	Evacuate red, orange, yellow, green and blue areas and all manufactured homes	Up to 24 ft.

***Source**: Florida Statewide Regional Evacuation Study Program, TBRPC*

The damage from the storm itself is related to wind speed and the accompanying "pressure" exerted on structures. Wind damage may also occur from hurricane spawned tornadoes. Tornadoes often form on the leading edge of a hurricane and have the potential to cause more destruction than the hurricane itself. Tornadoes are a threat in conditions ranging from tropical storms to the most powerful hurricanes. All of Manatee County is in danger from the cyclone winds of tornadoes, tropical storms, and hurricanes. The greatest threat is to the large number of manufactured homes, 31,252 based on information provided by the Manatee County Property Appraisers, throughout the County and to the numerous structures constructed prior to building code changes that resulted from the devastation created by Hurricane Andrew.

The coastal regions of the United States are associated with intense winds from tropical storms and thunderstorms. It is not uncommon to have winds that exceed 100 mph within these areas. Florida, including Manatee County, is susceptible to winds of greater than 100 mph on a regular basis. According to data from the American National Standards Institute – (1982), the Tampa Bay area is identified as having winds in excess of 100 mph return at an annual probability of 0.2% (a 50-year storm event). The probability is greater for occurrence of a storm with 70 mph winds.

The National Weather Service will issue a wind advisory with sustained winds at 31-39 mph for at least one hour or any gusts to 46-57 mph; a high wind warning will be issued with sustained winds 40-73 mph for at least one hour or any gusts greater than 58 mph. On the National Climatic Data Center website, the strongest wind gusts were 81 mph in 1969 and 1977.

Tropical Storm Colin made landfall in rural Taylor County, Florida on June 7, 2016, which resulted in 1.3 inches of rain and winds up to 50 mph for Manatee County. Anna Maria Elementary School was closed for one day, private property damage exceeded $300,000, County property damage exceeded $300,000 and the city of Bradenton reported over $200,000 in damages. Hurricane Hermine intensified into an 80 mph Category 1 hurricane just before making landfall in the Florida panhandle September 2, 2016. As a result of Hermine, Manatee County precipitation totals generally ranged from 5 to 10 inches, inundating streets in the eastern parts of the county. Residents in Bradenton, located in the western side of the county, evacuated their homes due to freshwater flooding. Coastal flooding also occurred due to tides of 2–3 ft above average. Winds reached tropical storm force at the Sarasota–Bradenton International Airport, with damage to roofs and porches, especially in Bradenton and Ellenton. Throughout the county, impacts from the storm left 72 homes with minor damage and 21 others with major impact. Damage in Manatee County reached $5.1 million. Tropical Storm Emily was a “pop up” storm on July 31, 2017, which formed and made landfall with 45 mph winds on Anna Maria Island. Local heavy rain caused flooding and a weak tornado caused minor damage. On September 10th/11th, 2017, Hurricane Irma weakened to a Category 3 prior to making landfall in Marco Island, Florida, which dissipated into a Category 2 or 1 by the time the eye wall was near Myakka City. This storm caused Manatee County to open all shelters (first time in history) and dispense the highest number of sandbags ever. This was also the first time in history that Manatee Memorial Hospital was evacuated. There were over 330 structures damaged or destroyed, 85% of the residents went without power for 10 days past the storms occurrence and there was one direct casualty from the storm. Before making landfall near Mexico Beach, Florida, as a Category 5 hurricane, Michael skirted the west

coast of Florida. This storm brought wind gusts below 40 mph with high wind surf and rip tide warnings to Manatee County.

In 2024 Hurricane Debby passed by the county 50 miles away and dropped almost 18 inches of rain causing an estimated $56 million in damages

Future Impacts: As we see storms rapidly intensify and become larger in span, we can expect worsening surge, wind, and rain from these systems. Additionally, with the 2024 season changing the topography of the barrier islands, surge could intrude further than before.

2. Severe Storm (Thunder, Lightning, Hail, etc.)

Background: Severe weather is any dangerous meteorological phenomenon with the potential to cause damage, serious social disruption, or loss of human life. These vary depending on the latitude, altitude, topography, and atmospheric conditions. High winds, hail, excessive precipitation, and wildfires are forms and effects, as are thunderstorms, downbursts, tornadoes, waterspouts, tropical cyclones, and extratropical cyclones. It has been estimated by FEMA that the nation receives approximately 100,000 thunderstorms annually with approximately 10% identified as severe. Florida leads the country with the number of thunderstorms and lightning strikes; however, Florida's thunderstorms are shorter in duration than thunderstorms that develop over western states (Arizona, Utah, and Nevada). Thunderstorms in Florida routinely last approximately 30 minutes and rarely affect an area greater than 15 miles. However, in other areas of the country, multiple storms can develop together and act as a singular system. These types of systems have been tracked for approximately 600 miles.



Hazardous conditions associated with thunderstorms include tornadoes, lightning, hailstorms, downburst and microburst winds and flooding. Strong "downburst" (winds) exist with thunderstorms. These winds are concentrated, straight-line, winds created by falling rain and sinking air and can have winds that exceed 125 mph. A separate wind phenomenon is the "microburst," which is comprised of narrowly concentrated downdrafts that can exceed speeds of 150 mph. Lightning occurs in all

thunderstorms and can strike anywhere (air and ground). The air through which lightning passes reaches temperatures of up to 50,000° F.

Hail is a form of precipitation that occurs when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere when they freeze into balls of ice. Hail can damage aircraft, homes, and cars, and can be deadly to livestock and people.

Lightning is a giant spark of electricity in the atmosphere between clouds, the air, or the ground. In the early stages of development, air acts as an insulator between the positive and negative charges in the cloud and between the cloud and the ground. When the opposite charges build up enough, the insulating capacity of the air breaks down and there is a rapid discharge of electricity that we know as lightning. Lightning can occur between opposite charges within the thunderstorm cloud (intra-cloud lightning) or between opposite charges in the cloud and on the ground (cloud-to-ground lightning). Lightning is one of the oldest observed natural phenomena on earth. It can be seen in volcanic eruptions, extremely intense forest fires, surface nuclear detonations, heavy snowstorms in large hurricanes, and obviously, thunderstorms.

As development increases throughout Manatee County and its jurisdictions, exposure to risks of severe storms increases. Adherence to new building codes and increasing notification and forecasting, vulnerability could decrease.

Probability: The probability of a thunderstorm occurring depends on atmospheric and climatic conditions. Information collected by the National Weather Service states that the Manatee County has between 100 and 110 days per year with thunderstorms. The principal season for thunderstorms is similar to that associated with hurricanes – the warmer tropical climate results in unstable air, which is conducive to the development of thunderstorms. It is predicted the frequency and intensity of severe storms will increase with climate change.

Manatee County's location on the Gulf of Mexico contributes to a high probability of severe thunderstorms, especially in the summer months. The beaches, extensive outdoor parks, and recreation areas, Lecom Park, airport, and golf courses are all areas where lightning strikes are more likely to impact residents and tourists alike. Further, lightning is a leading cause of wildfires in the more rural areas of the County. Manatee County's almost 32,000 mobile homes are highly vulnerable to high winds experienced during severe thunderstorms. While hail does not usually cause infrastructure damage, larger sized hail can impact open areas, windows, vehicles parked in open parking lots, and airplanes outside of their hangars.

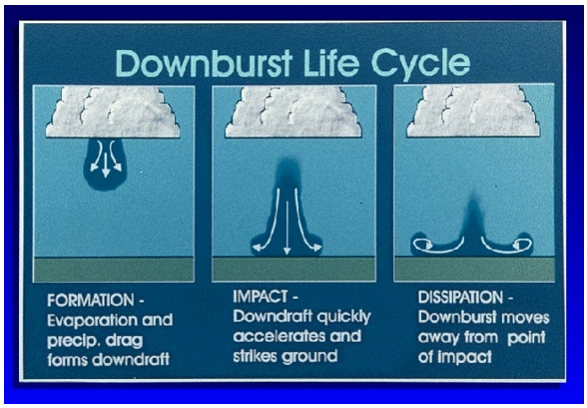
THUNDERSTORM CLASSIFICATIONS

Types Characteristics	Single Cell Storm	Multi-Cell Cluster	Multi-Cell Line (Squall Line)	Super-Cell
Severe Weather Occurs As:	Brief, isolated downburst; small hail; heavy rain; weak tornadoes	Downbursts, moderate size hail; flash floods; weak tornadoes	Downbursts; small-moderate sized hail; occasional flash floods; weak tornadoes	Strong downbursts; large hail; occasional flash floods; weak-violent tornadoes
Severe Event Predictability	Low	Moderate	Moderate	High (Once identified as Super-Cell)
Danger to Public	Low	Moderate	Moderate	Extreme
Source: *National Oceanic and Atmospheric Agency*				

Manatee County has about 11-13 lightning strikes per square kilometer a year, about 27,800 a year mainly from June - August based on information from the National Weather Service in Ruskin, FL.

Manatee County could experience hail as large as ping pong ball size or 1-1/2" in diameter. The National Weather Service rates the probability for damaging hail in Manatee County as low, with less than a 1% chance per year, as demonstrated on the NCDC website with only 2 reports of damages due to hail in 45 years, from 1969 to 2019.

Vulnerability: Manatee County is vulnerable to thunderstorms due to the availability of the ingredients needed to create thunderstorms. There is plenty of sunlight which warms the air, and updraft caused by approaching fronts or a sea breeze boundary off the Gulf of Mexico and many inland rivers, creeks, sloughs and lakes to provide a source of water vapor to feed thunderstorms.



As a result of its subtropical climate, Manatee County is also susceptible to damaging winds associated with thunderstorm activity. These damaging winds can be associated with either tornadoes or downburst (straight-line winds). Both forms of wind can cause a similar degree of damage. Tornado damage is often highly concentrated over a narrow width in relation to its damage length. Downburst damage is normally spread over a broader width but has a shorter damage length. In either case, both can cause substantial damage to structures.

When the right climatic conditions are present, severe thunderstorm/wind events can occur at almost any time during the year in any part of the County. Surprisingly, some of the most severe storms have occurred during the winter due to the dramatic climatic conditions that can arise between warm and cold weather systems. Therefore, it is not surprising that the NCDC reported that between August 14, 1958, and June 27, 2014, there were 115 severe storm/wind events in Manatee County. This is a 48% chance of occurring in a given year. These events resulted in one death and more than $2.63M in property damage.

In addition to heavy rains, winds and tornadoes, there are two additional damaging components of a severe thunderstorm – hail and lightning. Hailstorms occur in every state, but primarily within the mid-western area of the United States. Hailstorms cause more than one billion dollars of damage each year. In Florida, hailstorms occur mostly with the more severe thunderstorms, which occur from early summer through fall. Florida does not routinely receive hailstone greater than two inches in diameter. Large hailstones can be damaging to property and at times life threatening.

Lightning is an extremely dangerous threat to the residents of Manatee County. Lightning striking an individual or property is nearly a totally unpredictable event, and it can occur with or without the presence of a storm event. Lightning can occur anywhere in the County.

The greater the number of thunderstorms and/or their duration, the higher the number of lightning and hail occurrences. According to the NOAA National Climatic Data Center (NCDC), central Florida (including portions of the Tampa Bay area) has the greatest probability of lightning strikes within the continental United States and is known as “Lightning Alley”. In Manatee County the most dangerous severe storm period is from

June 1st through November 30th. It is during this period that the majority of lightning strikes occur. Injuries or deaths from lightning strikes have occurred primarily on golf courses or while fishing at the beach.

Lightning is an everyday occurrence with Florida's thunderstorms, which can result in property damage, injury, and death. Since September 10, 1996, the NCDC reports 33 lightning strikes directly related to over $8.7M in property damage, $40,000 in crop damage, 12 injuries, and three deaths in Manatee County.

TORRO HAILSTORM INTENSITY SCALE

	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m2	Typical Damage Impacts
H0	Hard Hail	5	0-20	No damage
H1	Potentially Damaging	5-15	>20	Slight general damage to plants, crops
H2	Significant	10-20	>100	Significant damage to fruits, crops, vegetation
H3	Severe	20-30	>300	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	>500	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	Wholesale destruction of glass damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		Bodywork of grounded aircraft dented; brick walls pitted
H7	Destructive	55-75		Severe roof damage, risk of serious injuries
H8	Destructive	60-90		Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100		Extensive structural damage. Risk of severe/fatal injuries to persons caught in the open
H10	Super Hailstorms	>100		Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

*Approximate range (typical max size in bold), since other factors (e.g. number and density of hailstones, hail fall speed and surface wind speeds) affect severity.

HAIL DIAMETER AND SIZE DESCRIPTION

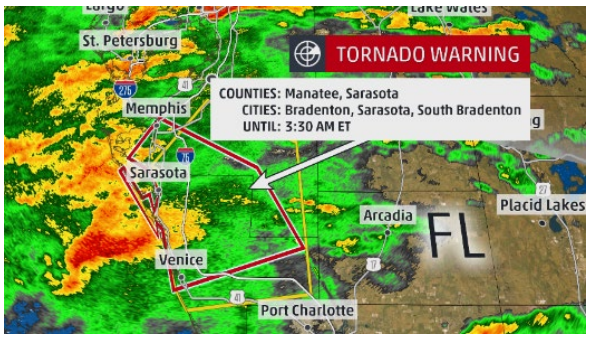
Hail Diameter	Size Description
1/4”	Pea size
1/2”	Mothball size
3/4"	Penny size
7/8”	Nickel size
1” (severe criteria)	Quarter size
1-1/4”	Half Dollar size
1-1/2”	Walnut or Ping Pong Ball size
1-3/4”	Golf Ball size
2”	Hen Egg size
2-1/2”	Tennis Ball size
2-3/4”	Baseball size
3”	Teacup size
4”	Grapefruit size
4-1/2”	Softball size
***Source**: National Weather Service*	

According to the NCDC, between May 27, 1969, and June 25, 2014, there were 56 hail events reported in Manatee County. Hail can occur anywhere in Manatee County. On May 20, 2009, quarter size hail was reported in downtown Bradenton and penny size reported in west Bradenton. January 17, 2011, quarter size hail was reported near Parrish. June 8, 2012, nickel to half dollar size hail was reported in West Samoset. May 25, 2014, nickel size hail was reported near the City of Bradenton. The worst occurrence of hail was reported as ping pong sized hail on May 4, 1996. This caused significant crop damage from Parrish southeast to Lake Manatee and north to the Hillsborough County line. Most of the cucumber, bell pepper, green bean and tomato crop was destroyed by the large hail.

Future Impacts: While there is no way to know exactly what the future impacts are, which expanding growth in the county, we could see more flooding and damage from severe weather.

3. Tornadoes

Background: A tornado is a violently rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. Tornadoes come in many shapes and sizes, but they are typically in the form of a visible condensation funnel, whose narrow end touches the earth and is often encircled by a cloud of debris and dust.



Tornadoes materialize at the trailing edge of large frontal cyclones that result from the clash of high pressure and low-pressure weather systems moving at continental scales across North America. Because of climatic difference, southern states like Florida experience their most violent tornadoes in winter. A tornado event is not limited to winter, they can also be generated during the summer in association with afternoon thunderstorms. Most tornadoes are of short duration and do not touch down as the Category 4 or 5 events that make national headlines.

As development moves to the east, where Manatee County and its jurisdictions are more vulnerable to tornados, the risk increases. Enforcing building codes to standards of high wind thresholds and implementing early warning systems help lower the risk of impacts from tornados.

ENHANCED FUJITA SCALE FOR TORNADOS

Rating	Wind Speed	DAMAGE
EF-0	40 to 72 MPH	**Light Damage:** Branches broken from trees; chimneys damaged; shallow-rooted trees pushed over; signs and billboards damaged.
EF-1	73 to 112 MPH	**Moderate Damage:** Surface peeled off roofs; mobile homes pushed off of foundations or overturned; moving vehicles pushed off roadways.
EF-2	113 to 157 MPH	**Considerable Damage:** Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
EF-3	158 to 206 MPH	**Severe Damage:** Roofs and walls torn off well-constructed homes; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown.
EF-4	207 to 260 MPH	**Devastating Damage:** Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.
EF-5	261 to 318 MPH	**Incredible Damage:** Strong frame homes lifted off foundations and carried large distance to disintegrate; automobile size missiles fly through air in excess of 300
Source: *National Weather Service*		

Probability: According to the NOAA website the United States averages approximately 800 tornadoes per year. Over the last two decades there have been more than 106 federally declared disasters due to tornado damage. Although Florida has between 50 and 100 tornadoes annually, it is not considered within "Tornado Alley." It should be noted that during severe storms, multiple tornadoes can form. Using probabilities of tornadoes based on the total number of tornadoes reported may be somewhat higher than by using the number of storms in which a tornado formed.

The National Weather Service ranks the Tampa Bay area as one of the highest areas in Florida for the occurrence of tornadoes. One of the deadliest tornado events in Tampa history occurred on October 3, 1992 when four people died and more than $100M in property damage occurred. In Manatee County the probability for an F0/F1 tornado is high, but most are the width of a house and on the ground for less than 1 mile, mainly in June-August. The probability of an F3/F4/F5 is very low during the dry season and the probability of an F2/F3 tornado is medium during tropical storms and hurricanes according to the National Weather Service in Ruskin, Florida.

There is a 2% chance in any given year that Manatee County will experience a tornado. While an F5 is possible during a hurricane, Manatee County historically has experienced up to F3 tornadoes.

Since 1955, the National Climate Data Center has recorded 88 tornadoes in Manatee County. These tornadoes resulted in two deaths, 25 injuries and nearly $4.25M in property damage.

According to the Storm Prediction Center, NOAA/NWS, the state of Florida has recorded approximately 3,478 tornadoes since 1950, with 172 fatalities and 3,413 injuries.

The most recent occurrences of tornados for Manatee County and its jurisdictions are located in Appendix B.

The northern portion of the Gulf Coast, between Tampa and Tallahassee as well as the Panhandle region has generally experienced more tornadoes. This is primarily due to the high frequency of thunderstorms making their way east through the Gulf of Mexico.

An analysis provided by Climate Central states that when excluding the weakest events, the overall number of U.S. tornadoes each year hasn't changed since 1970. Tornado activity has become concentrated in more frequent outbreaks (days with multiple tornadoes). The frequency of U.S. tornado outbreaks is increasing faster for the most extreme outbreaks. There is also evidence that tornadoes are getting more powerful in the U.S. and that fall tornado activity is increasing especially in the Southeast. Since 1979 "Tornado Alley" has shifted eastward, with increased tornadic activity observed in the South, Southeast, and Ohio Valley. However, there's no clear connection between these observed trends and climate change.

Vulnerability: As storm events with wind speeds ranging from 40 mph to greater than 318 mph, tornadoes can be expected to inflict a considerable amount of damage over a wide area. Consequently, tornadoes generate a tremendous amount of debris, which becomes airborne and creates

additional damage to other structures. Because of extreme winds and the amount of airborne material generated, people living in manufactured or mobile homes are most exposed to damage from a tornado. Pillared and/or unanchored businesses and residential units are at greater risk of damage from a tornado as well. All of Manatee County and its jurisdictions are susceptible to the possibility of a tornado.

The following observation from the State of Florida Enhanced Hazard Mitigation Plan, August 2013, is particularly relevant to Manatee County, especially considering the County's anticipated continued growth, particularly in those unincorporated areas east of I-75.

There have been many tornadoes in Florida that could have killed scores of people and caused millions of dollars in property damage, but most of these tornadoes did not hit heavily populated areas. On January 17, 2016, a tornado touched down near Albritton Road and 66th Street NW in Myakka/Duette. There were 7 people injured with one deceased. Damage was estimated at $173,876. The deadliest tornado event in the state's history occurred on February 22 and 23, 1998, in which 45 people were killed. As the state's population continues to increase, particularly in the interior part of the state, the threat of a devastating tornado event grows.

Future Impacts: With the county growing, more infrastructure equals more destruction possible from tornadoes throughout Manatee County and all its jurisdictions. The newer buildings however have a higher wind threshold which would give resistance to these systems.

4. Floods



Background: A flood is a general or temporary condition of partial or complete inundation of normally dry land from the overflow of inland or tidal waters, or the unusual and rapid accumulation or runoff of surface waters from any source. Floods can occur in most communities in the United States. Flooding can result from the overflow of major rivers and their smaller tributaries, storm surge from hurricanes and other coastal storms, or inadequate local drainage. Historically, floods have been a factor in over 80 percent of all Presidential-declared disasters. The Nation's strategy for reducing flood damages has evolved from a reliance almost solely on structural flood control projects to a more comprehensive approach that emphasizes non-structural measures such as local land-

use planning and zoning, building codes, and acquisition or relocation of flood prone buildings.

The importance of a sound flood management policy is evident when flood and water related damage account for 75% of Federal disaster declarations.

The National Flood Insurance Program (NFIP) has played a critical role in fostering and accelerating this change. NFIP was established by the National Flood Insurance Act of 1968, which makes federally backed flood insurance available in those states and communities that agree to adopt and enforce floodplain management measures that meet or exceed minimum Federal criteria. The NFIP was broadened and modified by the Flood Disaster Protection Act of 1973, which requires the purchase of flood insurance as a condition of receiving any form of federal or federally related financial assistance. The National Flood Insurance Reform Act of 1994 strengthened NFIP by providing for mitigation insurance and establishing a grant program for state and community flood mitigation planning and projects. Forty percent (40%) of the total flood insurance policies are within Florida, with 12% of flood claims made throughout the state. In Manatee County and the incorporated cities, there are 37,806 policies in force, with coverage in excess of 10.5 billion. This information was from the Policy and Claim Statistics for Flood Insurance on the Federal Emergency Management Agency (FEMA) website at https://www.fema.gov/policy-claim-statistics-flood-insurance/policy-claim-statistics-flood-insurance/policy-claim-13.

As development and urbanization in Manatee County and its jurisdictions continues to increase, this reduces natural water absorption and changes stormwater flows, which could increase risk in areas that previously did not have flooding risk. Development and implementation of better stormwater management and requirements in building codes throughout the jurisdictions, has helped mitigate those potential problems.

Probability: Manatee County, due to its topography, has suffered from island flooding from hurricane strength storms and numerous tropical systems since 1922. In addition, severe winter weather systems have caused significant coastal and inland flooding. In Manatee County, flooding can occur from the ocean or rising water of the Manatee River, Little Manatee River, Bowless Creek, Wares Creek, Terra Ceia Bay, Palma Sola Bay, and Sarasota Bay. The majority of the land east of I-75 comprises part of the Manatee River Valley floodplain.

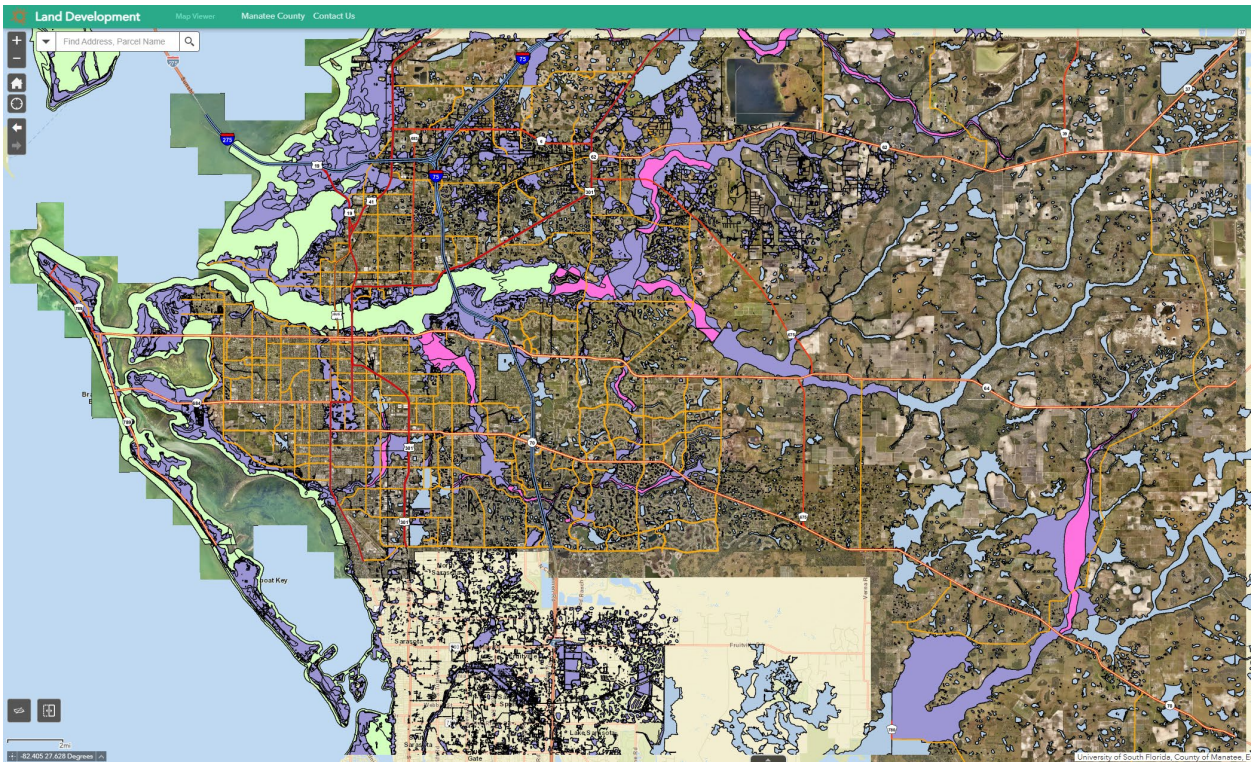
Localized flooding, based on probability, happens about 4 times a year within Manatee County and its jurisdictions.

The type of flooding events that have occurred within Manatee County include short duration flooding, freshwater flooding, drainage, and coastal tidal.

- Short duration flooding – this is typical of a frontal system, short period of rain, or very intense thunderstorm.
- Freshwater flooding – this type of flooding may occur when an excessive amount of rainfall accompanies a tropical storm or hurricane.
- Drainage – the topography and high-water table of Manatee County can make a small amount of rainfall very significant. Man-caused alterations to the land have disrupted natural flow patterns and can lead to shallow flooding over a large area.
- Coastal tidal – this type of flooding is generated from high tides and wind action and is a chronic problem within the coastal shoreline of Manatee County.

FLOOD ZONES

Zone	Description
A	An area inundated by the 1% annual chance flooding, for which no Base Flood Elevations (BFEs) have been determined. Depth for the 1% probability is not provided on the Flood Insurance Rate Map (FIRM), Flood depths range from 6 to 94 feet North American Vertical Datum of 1988 (NAVD 1988) which are elevations above mean sea level.
AE	An area inundated by the 1% annual chance flooding, for which BFEs have been established. Depth for the 1% probability is provided on the FIRM. Depths range from 6 to 94 feet NAVD 1988 depending on the area being reported.
VE	An area inundated by 1% annual chance flooding with velocity hazard (wave action). The BFEs have been determined. Depths for 1% probability event range from 10 to 17 feet NAVD 1988.
X500	An area inundated by 0.2% annual chance flooding.
X	An area that is determined to be outside the 1% and 0.2% annual chance flood plains



Vulnerability: Heavy rains and flooding have long been a factor of life in Manatee County. In the past, most residents were familiar with Florida Weather patterns, and built their homes accordingly – at least somewhat elevated with shutters. With the population explosion in the past half century, developers have come to Manatee County with little knowledge of its terrain and weather and have, as a result, created serious flooding problems throughout the County. The influx of new residents to the new development areas, have caused a strain on the infrastructure, and drainage problems have resulted countywide. Although coastal areas of the County have had requirements to elevate structures since the mid-1970s, no such restrictions were placed on inland development. Manatee County is experiencing more widespread flooding in residential areas and increased residential flooding due to a combination of rapid development, insufficient infrastructure, and ground-level homes being built in the newly developing areas.

Severe weather over August 26th and 27th of 2017 caused flooding after 23.28 inches of rain fell within a 24-hour period. Over 130 buildings were impacted, a small tornado struck the County Public Work Compound on 26th Ave E, and there was over $1 million in damage to canals and stormwater pipes. Over a 7-day period in August 2019, heavy rain brought upwards of 10 inches to portions of the County that filled storm drains and flooded one home.

In 2024 Hurricane Debby passed by the county 50 miles away and dropped almost 18 inches of rain causing an estimated $56 million in damages

Future Impacts: Growth in the county continues which can introduce more strain to stormwater systems. With this, we could see older areas experiencing flooding when they have not before. Additionally, areas that did not see flooding before could see more impacts.

5. Coastal and Riverine Erosion

Background: Coastal or riverine erosion is defined as the gradual wearing away of the earth's surface by the natural forces of wind and water. In Manatee County, erosion along the Gulf of Mexico, Tampa Bay, Sarasota Bay, and river shorelines is most noticeable after a significant rain and/or tidal surge event. In general, erosion is the horizontal displacement of soil. Although this is a natural effect, shoreline development is at risk when erosion occurs at a rate greater than the natural rate of soil replenishment.

Manatee County and its jurisdictions are a coastal and riverine county. Increasing population and development would cause increased risks to effects of erosion, but developmental projects like stabilization and buffer zones, to protect the coast and riverine areas, help mitigate risks.

Probability: Erosion rates and occurrences vary by area and with time. However, the probability of erosion is identified as having a return period directly related to the return period of a coastal storm or tropical cyclone – 100-year storm event.

On Anna Maria Island, based on historical measurements going back to 1993, there has been on average of a 10 feet horizontal retreat of the mean high tide line (equating to beach loss) per year (Manatee County Parks and Natural Resources Department).

One storm event, depending on wind direction and surge, could erode up to 350,000 cubic yards on Anna Maria Island (Manatee County Parks and Natural Resources). In 2013, Tropical Storm Debby eroded approximately 348,000 cubic yards of beach, on average 20-30 feet of width approximately 3 feet deep along the 7-mile-long island. The impacts cost the state and Federal government an additional $37.5 million to restore the dunes and vegetation along with the beach sand. It has been estimated that by the year 2040 the cost on the re-nourishment projects could increase to as much as $1.7 billion due to the rate of sea level rise, not taking into account severe weather that could cause greater increases.

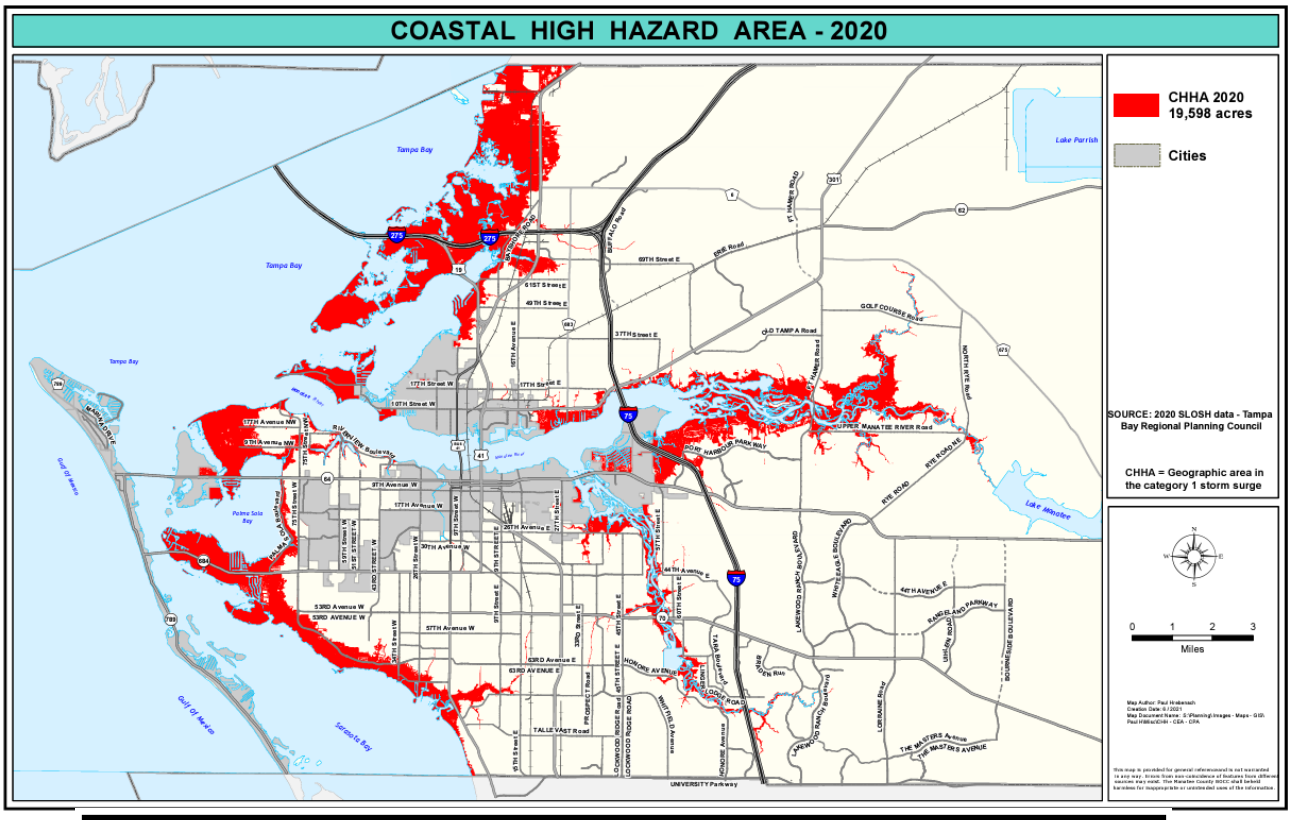
Hurricane Helene brought 4-6 ft of storm surge and pushed the sand onto the island with depths of 3-5 ft. This eroded the shoreline about 10-15 ft back.

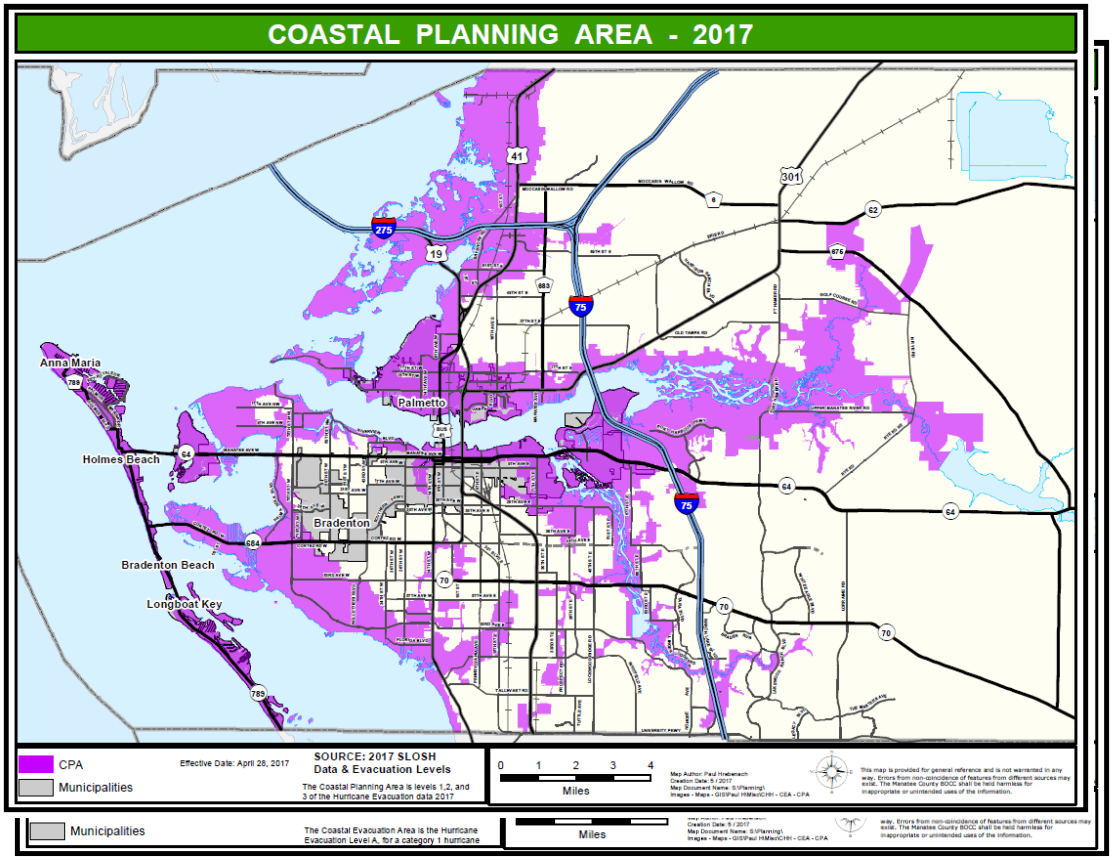
Riverine erosion has a 1% chance of occurring in any given year, up to 2 feet per year.

Climate change has an indirect impact on coastal and riverine erosion due to the increasing number of storms and rising sea levels, erosion still needs to be considered with other risks analyzed.

Vulnerability: While erosion itself is not an imminent threat to public safety, it does impact the quality of life through damage to buildings, roads/bridges, and infrastructure (lifeline systems). Because of the relationship of flooding to erosion, the same structures affected by one are affected by the other.

The local governments in Manatee County identified the areas of greatest risks of erosion within their respective adopted Local Government Comprehensive Plans as follows: Coastal High Hazard Area; Coastal Planning Area; Coastal Evacuation Area; areas found along the Manatee, Braden, and Little Manatee Rivers and associated tributaries; Bowless Creek, Wares Creek; and areas illustrated as being within the velocity zones on the Federal Insurance Rate Maps.


COASTAL HIGH HAZARD AREA - 2020
CHHA 2020
19,598 acres
Cities
SOURCE: 2020 SLOSH data - Tampa Bay Regional Planning Council
CHHA = Geographic area in the category 1 storm surge
0 1 2 3
Miles


COASTAL PLANNING AREA - 2017
Anna Maria
Holmes Beach
Palmetto
Bradenton
Bradenton Beach
Longboat Key
CPA
Municipalities
Effective Date: April 28, 2017
SOURCE: 2017 SLOSH
Data & Evacuation Levels
The Coastal Planning Area is levels 1,2, and 3 of the Hurricane Evacuation data 2017
0 1 2 3 4
Miles
Municipalities
The Coastal Evacuation Area is the Hurricane Evacuation Level A, for a category 1 hurricane
Miles

The County has experienced several severe storms in the last 25-years: Tropical Storm Debby in 2012 caused significant damage to county beaches. Since Tropical Storm Debby, roughly 600,000 cubic yards were eroded on the County beaches. Thirty to forty feet of beach, 2-3 feet deep was lost along Anna Maria Island during Tropical Storm Debby alone. In 2014, 1.2 million cubic yards were placed with a nourishment project according to the County Parks and Natural Resources Department which oversaw the project. Hurricanes Dennis caused 250,000 cubic yards beach erosion. Hurricane Gordon in 2000 eroded an estimated 100 feet of beach. In 2015, the County started a $4.41M project to replace the groins in the water off Cortez Beach near Coquina Beach. These groins will protect the sand (short term) and keep it in place during storms.

Areas along Braden River in Lakewood Ranch overflow caused the erosion of the banks. In 2013, after Tropical Storm Andres, the Community Development District (CDD) brought in 400 tons of fill dirt to cover the slope and mounted articulated concrete, a mat of black blocks on top of the fill dirt to slow down the erosion at the Greenbrook Adventure Park. Over a ten-year period, the banks of Pearce Canal in the Garden Lakes community lost eight feet in the back yards of the over-55 community located south of State Road 70 East. Manatee County has reinforced the bank with riprap and concrete blocks.

Future Impacts: After Hurricane Helene in 2024, the topography of the coast has changed which could lead to more intrusion from coastal and riverine flooding within Manatee County and all of its jurisdictions.

6. Winter Storms.



Background: A winter storm is an event in which wind coincides with varieties of precipitation that only occur at freezing temperatures, such as snow, mixed snow and rain, or freezing rain. In temperate continental and subarctic climates, these storms are not necessarily restricted to the winter season, but may occur in the late autumn and early spring as well. A snowstorm with strong winds and low visibility is called a blizzard. Severe winter storms can affect the Tampa Bay area. Although Manatee County is not affected by snow, significant freezes have occurred and are expected to occur again. Winter storms are accompanied by other hazards, such as coastal flooding, strong winds (tornadoes), wind-chill, and power outages. These effects disrupt commerce, transportation and may result in the loss of life. The winter "No-Name" storm that affected Tampa Bay in March 1993, is considered one of the worst non-tropical storms in United States history. Equivalent

to a Category 2 hurricane, it caused a significant amount of flooding and power outages within the Tampa Bay area and accounted for more than $2 billion of damage across the eastern United States. In Manatee County, the storm caused over $1.75M in damage throughout the entire county. In Manatee County, freezes are caused by a dip in the jet stream allowing a cold Canadian front to descend with a strong northeast wind producing wind chills.

The National Weather Service will issue Winter Weather Advisory for any amount of freezing rain, or when 2 to 4 inches of snow (alone or in combination with sleet and freezing rain), is expected to cause a significant inconvenience, but not serious enough to warrant a warning. A Winter Storm Warning is issued when a significant combination of hazardous winter weather is occurring or imminent. Significant and hazardous winter weather is defined as a combination of:

1) 5 inches or more of snow/sleet within a 12-hour period or 7 inches or more of snow/sleet within a 24-hour period

AND/OR

2) Enough ice accumulation to cause damage to trees or powerlines.

AND/OR

3) a life threatening or damaging combination of snow and/or ice accumulation with wind.

With increasing population and development within Manatee County and its jurisdictions, the vulnerability to impacts of a winter storm also increases. Early monitoring and warning systems help increase the likelihood of prevention of risks to reduce disruption of critical infrastructure and grids.

Probability: According to the National Climatic Data Center, the chances of a winter storm in Manatee County are rare, typically less than 1% per year. Winds can reach as high as 100 mph, but more typically not higher than 60 mph. Temperatures could get as low as 20 degrees Fahrenheit, but it is noted that typically the winters are mild with low temperatures ranging around 50 degrees. Freezing temperatures can occur on one to two mornings per year during December through February. In some years no freezing temperatures occur. Snowfall is very rare. A wind chill advisory is issued by National Weather Services for wind chills of 26-35 degrees Fahrenheit for 3 or more hours, and a wind chill warning is issued for wind chills of 25 degrees Fahrenheit or lower for 3 or more hours.

Most of the research surrounding climate change discusses a warming climate while also acknowledging more moisture in the air can result in harsher winters, as experienced in the Midwest and Northeast US. The National Climate Assessment recognizes that winter storms and their varying trends remain an active research area.

While all of Manatee County and its jurisdictions are susceptible to winter storms, highest vulnerability is generally away from the coastline, eastern county.

Potential Winter Storm Impacts	
	No Impacts Impacts not expected.
	Limited Impacts Rarely a direct threat to life and property. Typically results in little inconveniences.
	Minor Impacts Rarely a direct threat to life and property. Typically results in an inconvenience to daily life.
	Moderate Impacts Often threatening to life and property, some damage unavoidable. Typically results in disruptions to daily life.
	Major Impacts Extensive property damage likely, life saving actions needed. Will likely result in major disruptions to daily life.
	Extreme Impacts Extensive and widespread severe property damage, life saving actions will be needed. Results in extreme disruptions to daily life.

Vulnerability: Freezing temperatures in the County have their impact on the citrus and agricultural industry located generally in the northern portion of the County and east of I-75. If temperatures reach freezing level for extended periods of time, combined with other climatic factors, crop damage may occur. This would have a significant impact on the economy and employment base. According to the NCDC, since January 1996, the County has experienced 33 freeze events, seven of which caused crop damage estimated at $15.26M. This amounts to 39% chance of a freeze in any given year. In January 2010, Manatee County experienced an extended period of nights below 40 degrees (14 nights below 40 degrees) with Myakka City as low as 21 degrees and in December 2010 there were two nights that broke records at the Sarasota/Bradenton International Airport with temperatures of 31 and 27 degrees. Myakka City recorded 27 degrees and Duette 20 degrees at that time. Damage estimates to crops

was $6.9M. On February 26, 2010, temperatures as low as 27 degrees caused $900,000 in crop damage in East Manatee County. In December 2010, sub-freezing temperatures for 2 to 5 hours, the lowest 23 degrees in Duette caused $4.32M in crop damage. Also, consumer demand for electricity during periods of extreme cold weather may require the electric utility to implement rolling blackouts to selected areas in order to avert a total electrical grid overload. In winter of 2023-2024 three winter storms brought strong winds and localized flooding. While damage was small, there was about $1 Million in damages.

According to Suncoast Partnership to End Homelessness, with the help of Turning Points, Manatee County has 1,150 homeless as of 2023. At times of extreme cold, The Salvation Army opens its doors to single men and the Family Lodge in Bradenton opens up for single women.

Future Impacts: It is unknown how winter storms will impact Manatee County and all its jurisdictions in the future, but, we could assume that more growth in the county and its jurisdictions will increase impacts to our critical systems.

7. Droughts/Heat Wave



Background: A drought is a deficiency in precipitation over an extended period, usually a season or more, resulting in a water shortage causing adverse impacts on vegetation, animals, and/or people. Drought is a normal phenomenon of all climates. The technical identification is a water shortage caused by a deficiency of rainfall. A drought can also be aggravated by other factors, such as high temperatures, high winds and low humidity. The severity of drought depends on a multitude of factors, which include duration, intensity, geographic extent, water supply of the region, and demands by the local community on the existing water supply. FEMA has identified four types of droughts: meteorological, hydrologic, agriculture and socioeconomic.

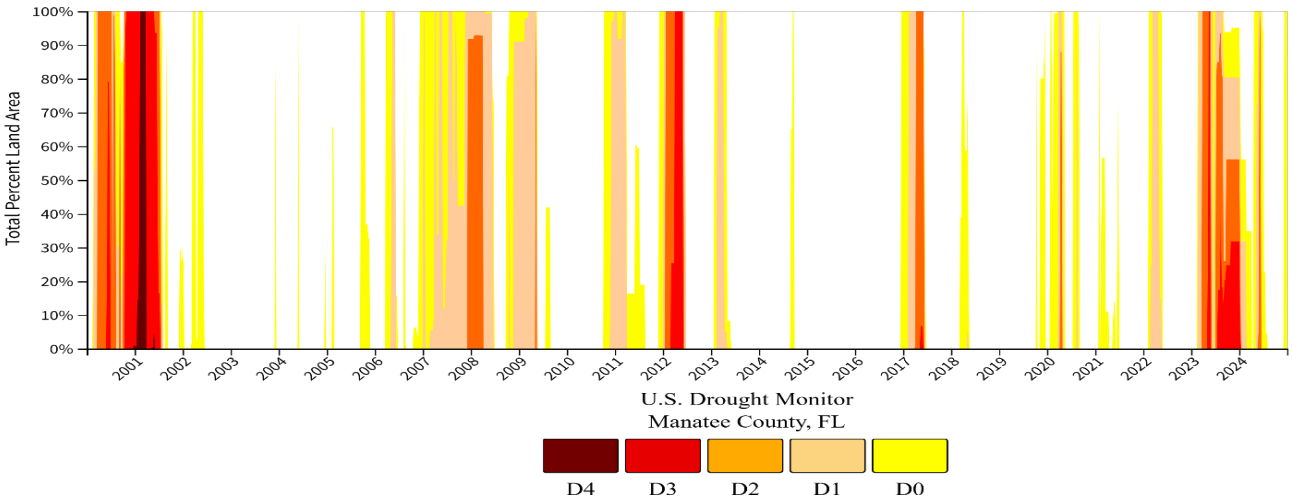
As population, development, and agricultural demand increase in the County and its jurisdictions, the likelihood of drought risks also increase. To reduce vulnerability, Manatee County and its jurisdictions strive to increase development and implementation of water-saving technologies, Building Codes, and response initiatives.

Probability: There are no common techniques for determining the return of a drought event. For Manatee County, droughts are becoming more common, with a 40% chance of occurring per year. The area has

experienced several drought events over the last twenty years. The National Drought Mitigation Center indicates that there was a drought that began in 2000 and did not end until 2003 ranging from mild to 14 months at the extreme level. In subsequent years 2004-2014, Manatee County went through cycles of normal to drought and then back to normal status with 2010 with 8 months of incipient dry spell and 17 months of mild to moderate drought beginning in 2011 and ending in 2012. Most recent event of drought was in 2023 where the county ended up in a Burn Ban local state of emergency. A few wildfires occurred and watering restrictions were in place for a few months before entering the rainy season.

According to Drought.gov, the Southeast region generally receives substantial precipitation and is often considered water rich. However, the region is increasingly experiencing record-breaking droughts, highlighting competing water demands. Drought conditions can develop rapidly in the Southeast, especially when the lack of rain and high temperatures combine to increase evapotranspiration of water in the soils. Location specific information for Manatee County regarding the effects of climate change on drought conditions should continue to be monitored to see how they may impact this hazard moving forward.

HISTORICAL DROUGHT PERIODS FOR MANATEE COUNTY



PALMER DROUGHT SEVERITY INDEX (PDSI)

Classifications	
4.0 or more	Extremely Wet
3.0 to 3.99	Very Wet
2.0 to 2.99	Moderately Wet
1.0 to 1.99	Slightly Wet
.05 – 0.99	Incipient Wet Spell
0.49 to -0.49	Near Normal
-.50 to -0.99	Incipient Dry Spell
-1.0 to -1.99	Mild Drought
-2.0 to -2.99	Moderate Drought
-3.0 to -3.99	Severe Drought
-4.0 or less	Extreme Drought
Source: *National Drought Mitigation Center, http://drought.unl.edu/Planning/Monitoring/ComparisonsIntro/PDSI.aspx*	

Based on previous occurrences, Manatee County could see a drought of -4.0 on the PDSI for up to two years and temperatures as high as 105 degrees Fahrenheit.

Manatee County has a low probability, less than 1% chance, of experiencing a heat wave due to the sea breeze off the Gulf of Mexico as a coastal county. With that, all of Manatee County is susceptible to Droughts/Heatwaves.

Vulnerability: Droughts are weather events affecting Manatee County with some degree of regularity. Prolonged dry periods have spurred wildfires, a reduction in the water table, rationing of water, endangerment of wildlife and loss of crops. Economic impact to the community includes reduced farm revenue, and increased prices for produce and other farm-related items. In addition to a drought's social and economic risks, there is also the potential increase in the formation of sinkholes.

According to the 1992 Atlas of Florida, Florida is erroneously thought of as a state with excessively high temperatures. High maximum temperatures are far more frequent in the interior than along either coast. High temperatures are most frequent on the southwest side of the peninsula, where the warm season is long and distance from the Atlantic Ocean is relatively great. The National Weather Service at Ruskin states that we rarely get heat waves in Manatee County. They will issue a "heat warning" when the "heat index" is expected to reach 113 F or higher. The criteria are higher in Florida than the rest of the country as we are acclimated to the heat. Our Heat Index reaches 105 F most days in the summer, but rarely higher than that.

In Manatee County, the average high in June is 90 degrees Fahrenheit, July and August 91 degrees Fahrenheit. In 1998, Manatee County experienced an 18-day period with temperatures 5 -10 degrees above normal and a heat index reaching 110 F. This information was located on

the Southern Region Headquarters for National Weather Service website at www.srh.noaa.gov/tbw/?n=tampabayoriginalclimatepage.

Heat waves can be deadly. NOAA reported that in a normal year, about 175 Americans succumb to the demands of summer heat. Among the large continental family of natural hazards, only the cold of winter, not lightning, hurricanes, tornadoes, floods, or earthquakes, takes a greater toll. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation.

As outlined in the Risk Assessment found within Subsection G of this section, when comparing over 30 hazards that the County has the potential to experience impacts from, doubts/heat wave was determined to have an overall risk ranking of 21 when prioritizing hazards compared against others.

In May 2017, the County saw the driest dry season in the past 103 years, which recorded an 11-inch rainfall deficit. rivers and streams are the most impacted, flowing at the lowest rates in about five years.

As Manatee County's population increases and areas east of I-75 becoming more urbanized, such as Lakewood Ranch, the possibility of experiencing the urban heat island effect will increase. This will have to be monitored over the coming years.

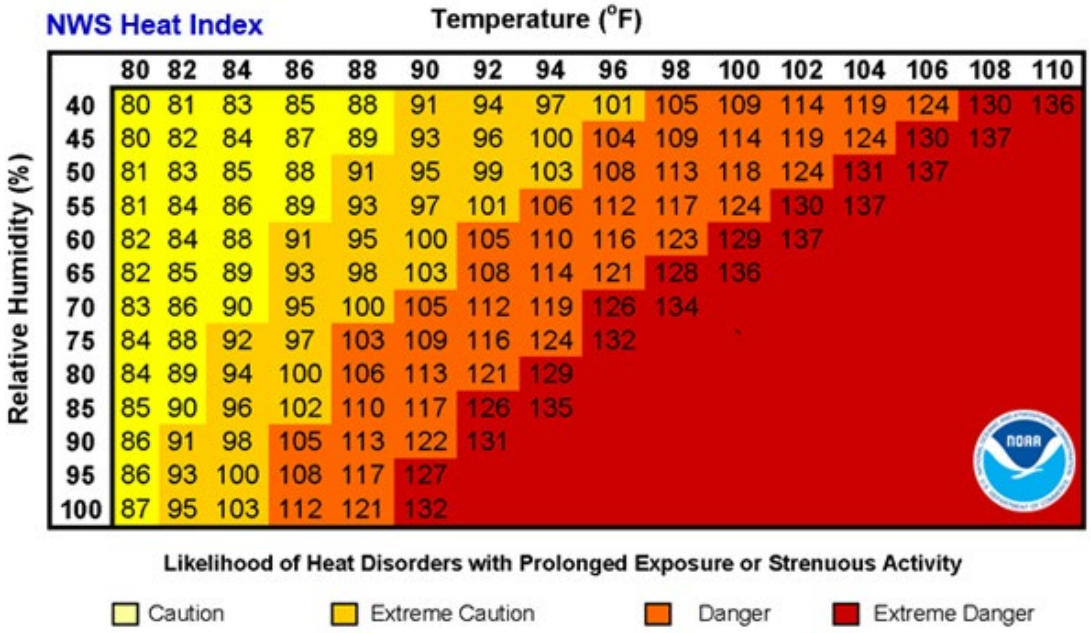
Future Impacts: As growth continues in the county, we will need more water for residents and businesses which would increase impacts from a drought scenario to the entire county and region.

8. Extreme Heat

Background: Extreme Heat focuses on the individual impacts of high temperatures, where-as Drought focuses on the environmental impacts of high temperatures. Due to the differences in the effects of these two hazards, Manatee County Division of Emergency Management has made the decision to separate Drought/Heat Wave and rename Heat Wave to Extreme Heat moving forward. The 2024 THIRA still includes Drought/Heat Wave as one and does not include Extreme Heat; these hazards are currently being evaluated for the 2026 THIRA update and will be scored appropriately.

The National Weather Service and Florida Climate Center define that Extreme Heat is classified by temperatures at or above 95° or when the Heat Index is over 105° for two consecutive days or more. Heat Index is a measure of how hot it really feels outside, relative to humidity in the air. For instance, the highest Florida Heat Index recorded was May 15th, 2024

when Key West tied its highest at 115°. The air temperature was only 96° at this time, but it felt like 115° outside. The National Weather Service also recorded 115° August 12, 2023 at Sarasota-Bradenton. Manatee County, though central and coastal, is still at risk for extreme heat.



In 2024 Manatee County notified the public of 6 different Heat Advisories, none as strong as the 2023 Excessive Heat Warning, but still ranging up to 110° heat index.

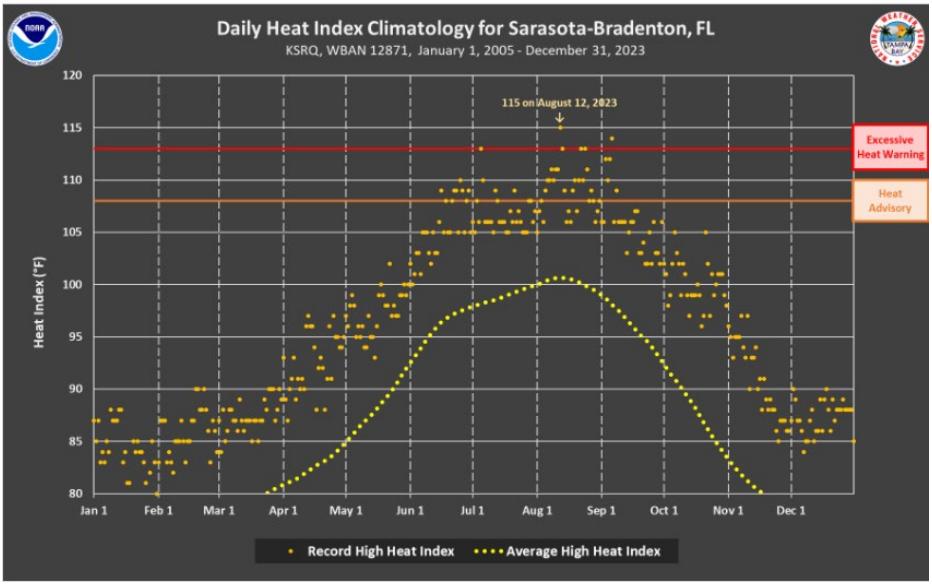
The University of Florida recorded 215 heat-related deaths in Florida between 2010 and 2020. From the data they collected 3% were of those were from Manatee County.

As the population, industrialization, and development increase in Manatee County and its jurisdictions, the risk to human life due to extreme heat increases. By implementing notification systems and bettering rapid emergency response, those risks could be mitigated.

Probability: The hottest months in Manatee County are June – September. Between 2005 and 2023 there were 27 cases that a Heat Advisory would have been in place and 6 cases where Excessive Heat Warning would have been in place, according to today's standards.

The likelihood of these numbers increasing, both in frequency and in strength, are high. The Florida Climate Center projects that by 2070 there will be an increase by 40 days per year above 95° due to the changes in climate.

While all of Manatee County and its jurisdictions are susceptible to Extreme Heat, urban areas generally have a higher risk of this hazard.



Vulnerability: According to FEMA, people living in urban areas may be at greater risk from the effects of extreme heat than people living in rural regions. An increased health problem, especially for those with respiratory difficulties, can occur when stagnant atmospheric conditions trap pollutants in urban areas, adding unhealthy air to excessively hot temperatures. In addition, asphalt and concrete store heat longer and gradually releases heat at night, which produces significantly higher nighttime temperatures in urban areas known as the "urban heat island effect."

Manatee County must also take proximity to the water into account for vulnerability to extreme heat. Our urban areas are closer to the water and sea breeze, where our rural areas do not benefit from that cool air. The "heat island" effect is still relevant to our urban areas, but comparatively, our eastern, rural areas are more likely to be above 95° on any given day.

Heat Illness refers to the signs the body will show when exposed to heat for too long. Heat Illness occurs when the body temperature increases too quickly to cool itself down, or when too much fluid or salt is lost through dehydration or sweating. Young children, older adults, and those who are overweight or sick are more likely to experience heat illness.

Classification	Heat Index	Effect on the body
Caution	80°F - 90°F	Fatigue possible with prolonged exposure and/or physical activity
Extreme Caution	90°F - 103°F	Heat stroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
Danger	103°F - 124°F	Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity

Future Impacts: Due to more areas turning into urban areas, we would see larger impacts from extreme heat in more areas throughout Manatee County and all its jurisdictions.

9. Sinkholes

Background: For the residents of Florida, the sudden appearance of sinkholes is not an unusual occurrence. The potential magnitude of these occurrences is exemplified by the creation of Paynes Prairie at Gainesville, the loss of the automobile repair facility in downtown Winter Park and the recent de-watering of Lake Jackson north of Tallahassee. Fortunately, most sinkholes are not of the size of these examples. Even so, the destruction resulting from even the smallest sinkhole cannot be underestimated.

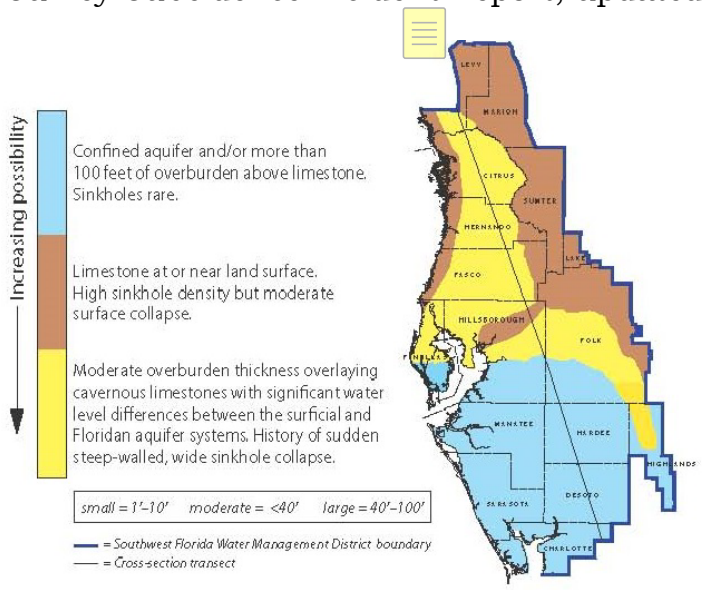
Taken from an Issue Paper, the Southwest Florida Water Management District (SWFWMD) noted that sinkholes are "as common in Florida as lakes, rivers, and warm weather. In fact, many lakes in central Florida were formed by sinkholes." As the name suggests, sinkholes result from the ground "sinking" and creating a depression. The cause of the depression is underground in the porous limestone base. As rainfall is filtered through the ground to the limestone, it erodes and dissolves the soluble rock and creates cavities in the subsurface. Another cause of sinkholes is the lowering of underground water levels, either by lack of rainfall or over-pumping for water supply. In this case, the water in the underground cavities helps support the layers holding up the land surface.

As increased development and population occur, the use of groundwater and unregulated construction play a role in increased risks to loss of life and property of Manatee County and its jurisdictions. Though our overall risk for sinkholes are low, ensuring proper development codes are followed and regulations of water usage help reduce those risks.

Probability: Within the 17 counties which comprise SWFWMD, sinkholes develop more frequently north of Tampa Bay where the limestone base is closest to the land surface and the supporting sand and clay layers are thin. The following graphic identifies the increasing possibility of sinkhole activity within the SWFWMD. And as also seen in the following graphic, all

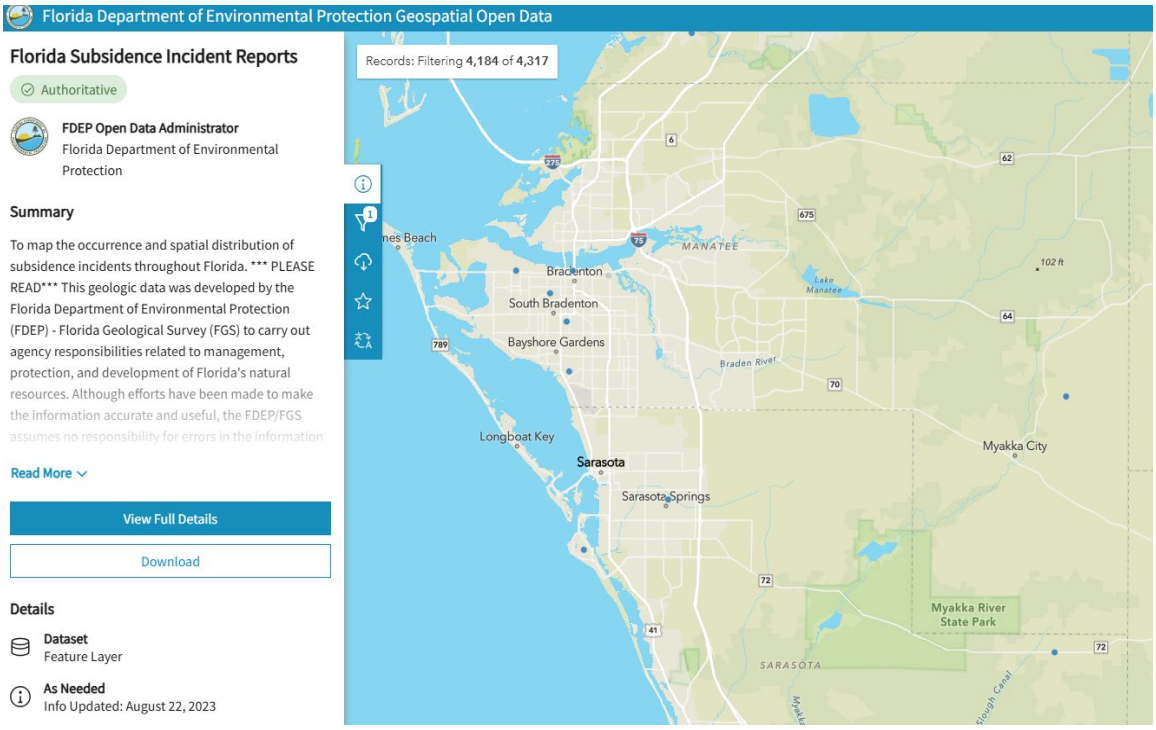
of Manatee County falls in the area identified as an area where sinkholes are a rare occurrence having a less than 1% chance of occurring in any given year. When they do occur, they are typically 10' in diameter and 6-10 feet in depth though larger ones could occur.

This is validated by the fact that Manatee County has 7 reported sinkholes, according to the Florida Department of Environmental Protection/Florida Geological Survey Subsidence Incident Report, updated August 2023.



Source: *Southwest Florida Water Management District, 2008*

A sinkhole reported June 20, 1981, in West Bradenton was caused by drought or low water table and measured less than 10 feet in diameter. In May 1988, in southwest Manatee County, a sinkhole was reported, caused by drought or low water table. This sinkhole measured at 20' x 20' with a depth of 1' and caused subsidence to the home, with damage estimated at $6,000. On June 1, 1988, a sinkhole was reported. While drilling a well in Myakka City, they hit a cavity and caused a sinkhole that measured 80' x 80' and a depth of 10'. On November 15, 2002, a sinkhole was reported in the incorporated City of Bradenton that measured 10' x 10' with a depth of 15'. The impact to the house was listed as drought or low water table and there was no impact the house on the property. On June 28th, 2011, a sinkhole was reported by a private residence in south Bradenton in their back yard with unknown dimensions claiming it was affecting their patio. April 22nd, 2014 a resident reported a very shallow 6' x 6', 0.3' deep subsidence affecting their driveway in west Bradenton. Most recently, August 5th, 2024, a resident reported a 4' diameter sinkhole with unknown depth just south of the manatee river.



Vulnerability: Sinkholes may impact structures, damaging them. To date only one structure has been impacted, causing the home to subside, walls and floor cracking. The home was repaired. The difficulty in emergency planning for sinkholes is not being able to know exactly where and when they will occur. Geologists have a good idea where sinkholes are likely to form geographically, but it's much more difficult to accurately predict specifically where sinkholes will occur. While the damage could range from low to high, it is almost impossible to predetermine in Manatee County which individual property could be affected by sinkhole activity.

Future Impacts: Since our probability for sinkholes is low, it is expected to see the same impacts that we currently have in the future.

10. Wildfire



Background: As people search for a place to live, they often desire two conflicting conditions: Live in the country but have urban services readily available. This desire for urban/rural living has been given the name "wildland/urban interface." As described by the Florida Forest Service, the wildland/urban interface "refers to that geographical point where two diverse systems, wildland and urban meet and affect each other and give rise to conflicts between societal values and expectations concerning the

management of natural resources." The major problem resulting from the wild/urban interface is wildfire.

Wildfire is the term applied to any unwanted, unplanned, damaging fire burning in forest, shrub, or grass and is one of the most powerful natural forces known to people. While sometimes caused by lightning, looking back over the last 20 years in Manatee County, seven out of ten wildfires are human caused. Many factors are involved as to why the number of acres burned including past fire suppression policies which allowed for the accumulation of fuel in the form of fallen leaves, branches, and excessive plant overgrowth in forest and wildland areas; increasingly dry, hot weather; changing weather patterns across the country; and increased residential development in the wildland/urban interface. (Source: smokeybear.com)

Per the National Interagency Fire Center, which started officially recording in 1983 through 2024, there have been over 3.4 million wildfires which have destroyed over 190.4 million acres of land. This is an average of 82,926 wildfires and 4.65 million acres burned per year.

Wildfires in Florida are not an unusual occurrence. According to the Department of Agriculture and Consumer Services website, from 1981 to 2018, there have been 89 recorded significant wildfires, burning over 2.4 million acres of land.

Wildfires can be a natural occurrence and costly for example the Mallory Swamp fire in May 2001 was started by a lightning strike, burning more than 60,000 acres, and causing over $10 million in timber losses. The 2007 Bugaboo Scrub Fire raged from April to June, becoming the largest fire in both Georgia's and Florida's history, burning over 600,000 acres, forcing closure of three major highways and blanketing areas from central Florida to Atlanta, Georgia, with heavy smoke.

Between 1980 and 2013, Manatee County has experienced 1,250 wildfires which burned a total of 34,335.1 acres. During 2001, over 2,000 acres were lost to wildfires per the Florida Forest Service Reporting System. Manatee County has a three percent (3%) chance any given year of experiencing a wildfire. In recent years, the average size of the wildfires in Manatee County have been kept relatively small. This is in a large part because of the very active prescribed burning program on both public and private lands. These burns are necessary for the ecological health of the preserves and ranches and also reduce the buildup of accumulated fuel on these lands making wildfire control much easier.

As residential and urban areas expand into the wildlands of Manatee County and its jurisdictions, people in these communities are increasingly vulnerable to being impacted by wildfires. Increasing stringent building regulations to fire-resistant construction, regulation and oversight of controlled burns for defensible spacing, as well as development and implementation of early warning systems can lessen the damage caused by wildfires.

Probability: As the population of unincorporated Manatee County continues to grow, particularly east of I-75, the number of residents residing within the wildland/urban interface also grows. The University of Florida's Institute of Food and Agricultural Science has identified the fire characteristics of nine ecosystems found in Florida's wildland/urban interface. There is a 50% chance in any given year a wildfire could occur. A 100-acre fire is realistic for populated areas where residents could be threatened within the wildland/urban interface. A wildfire could grow to 500-acres, but this would be in one of the parks or preserves and would not involve structures at risk (Florida, Forest Service, Florida Department of Agriculture and Consumer Services).

WILDFIRE BY ECOSYSTEM

Ecosystem	Frequency (yrs.)	Wildfire Hazard
Scrub Pine	10 - 1000	Extreme
Pine Rockland	3 - 10	Extreme
Pine Flatwood	1 - 8	Extreme
Dry Prairie	1 – 4	High
Marsh	1 – 5	High
High Pine/Sandhill	1 – 8	Medium
Swamp	5 – 200	Medium
Hardwood Hammock	30 – 50+	Low
Hardwood Rockland/Tropical Hammock	59+	Low
Note: *Three of these ecosystems can be found in Manatee County: Pine Flatwood, High Pine/Sandhill, and Swamp.*		

Fire events are a recurring threat in Manatee County, with approximately 49 fires on average occurring between 1981 and the end of 1999. Prior to 1981, Manatee County recorded 127 fires in 1977 impacting 3,354.6 acres; 54 fires in 1978 impacting 268.1 acres; 55 fires in 1979 impacting 1,566 acres; and 63 fires in 1980 impacting 553.3 acres. Since 2010 the number of Wildland fires are as follows:

WILDLAND FIRES IN MANATEE COUNTY

Year	Number of fires	Acres
2010	22	161
2011	28	236
2012	26	463
2013	11	119
2014	21	60
2015	11	483
2016	12	146
2017	28	153
2018	23	211
2019	52	541
2020	18	88
2021	16	106
2022	31	521
2023	53	1020
***Source**: Florida Department of Agriculture & Consumer Services, Division of Florida Forest Service*		

A wildfire burned five acres along I-75 northeast of SR 64 on March 13, 2009. While unsure of the cause, it was felt that it might have been a cigarette butt or spark from a passing vehicle. The fire came within 500 feet of homes in the Heritage Harbour subdivision. The Verna Bethany Fire on March 2, 2011, was started by an unattended campfire and burned 19 acres in a wooded area surrounded by 8 homes. Thirty acres were burned by wildfire causing the evacuation of 10 homes in Myakka City on April 15, 2012.

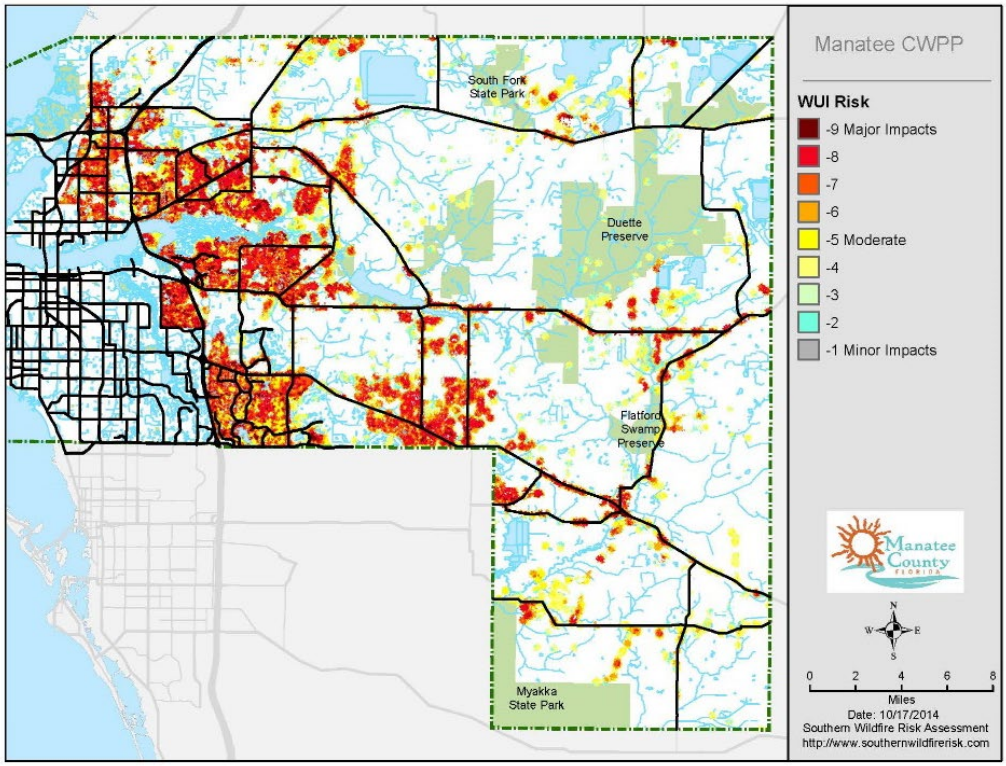
Florida State University's Florida Climate Center has recognized that wildfire activity is intimately linked with temperature and precipitation patterns, though research is still ongoing on the impact climate change has on wildfire occurrences.

Vulnerability: While the conditions favorable for wildfires are well known, where and when they will occur cannot be predicted. The three principal ingredients for wildfires are topography, fuel, and weather. According to the Florida Forest Services, Florida is unique in that weather and topography are different from other parts of the country. Florida has a relatively flat terrain and abundant rainfall. These factors normally afford firefighters an opportunity to control interface fires in a timely and effective manner. When rainfall is below normal, a killing frost has decimated vegetation or vegetation can accumulate, the likelihood for a wildfire increase.

Manatee County, particularly east of I-75 in both North County and South County, is susceptible to wildfires throughout the year, particularly during the months with minimal rainfall amounts. The major cause of brush and forest fires is due to lightning and occurs during the months with higher

thunderstorm activity. In recent years, homes and businesses have been threatened by encroaching wildfires. Manatee County is developing a Community Wildfire Protection Plan, and this area is generally from I-75 east to CR 675 and from University Parkway to Moccasin Wallow Road. This area includes approximately 88,215 acres with an estimated population of 76,727. The Wildfire Urban Interface area of the County has fifty-one percent of the land in the moderate to high-risk areas and 69.7% of the population resides in these moderate to high-risk areas. Roughly 15.6% of the total value of structures within the County lies within areas classified as moderate to high risk.

RISK ASSESSMENT MAP



***Source**: Manatee County Wildfire Protection Plan, 2015*

WILDLAND URBAN INTERFACE RISK TABLE

Class	Acres	Percent
-9 Major Impacts	3,750	3.9%
-8	22,678	23.8%
-7	18,908	19.9%
-6	8,354	8.8%
-5 Moderate	12,669	13.3%
-4	15,455	16.2%
-3	7,892	8.3%
-2	4,943	5.2%
-1 Minor Impacts	479	0.5%
Total	95,128	100.0%

SOURCE: Southern Wildfire Risk Assessment Summary Report

FIRE BY CAUSES

Years 1980-2013				
Cause	**Fires**	**Percent**	**Acres**	**Percent**
Campfire	31	2.48	268.2	0.78
Children	50	4.00	399.6	1.16
Debris Burn*	255	20.40	8,330.9	24.26
Debris Burn-Authorized Broadcast/Acreage	8	0.64	422.4	1.23
Debris Burn-Authorized Piles	13	1.04	94.5	0.28
Debris Burn-Authorized Yard Trash	3	0.24	20.5	0.06
Debris Burn-No auth Broadcast/Acreage	3	0.24	21.5	0.06
Debris Burn-Non auth Piles	28	2.24	49.8	0.15
Debris Burn-Non auth Yard Trash	4	0.32	42.0	0.12
Equipment Use*	42	3.36	559.00	1.63
Equipment-Agriculture	13	1.04	150.6	0.44
Equipment-Logging	0	0	0.0	0
Equipment-Recreation	5	0.40	80.5	0.23
Equipment-Transp.	15	1.20	214.4	0.62
Incendiary	162	12.96	4,309.4	12.55
Lightning	281	22.48	11,903.1	34.67
Miscellaneous-Breakout	5	0.40	73.6	0.21
Miscellaneous-Elec. Fence	0	0	0.0	0
Miscellaneous-Fireworks	1	0.08	1	0.00
Miscellaneous-Power Lines	6	0.48	17.0	0.05
Miscellaneous-Structure	0	0	0.0	0
Miscellaneous-Other	140	11.20	3,621.2	10.55
Railroad	5	0.40	4.5	0.01
Smoking	65	5.20	1,543.4	4.5
Unknown	115	0.20	2,207.3	6.43
Total	**1,250**		**34,335.1**	
Years 2014-2019				
Campfire	5	4.72	10.3	.91
Children	3	2.83	3.8	.33
Debris Burn*	0	0	0	0
Debris Burn-Authorized Broadcast/Acreage	3	2.83	49	4.31
Debris Burn-Authorized Piles	5	4.72	28.5	2.51
Debris Burn- Authorized Yard Trash	4	3.77	2.2	.19
Debris Burn- Non auth Broadcast/Acreage	2	1.89	13	1.14
Debris Burn-Non auth Piles	15	14.15	187.3	16.46
Debris Burn-Non auth Yard Trash	6	5.66	14	1.23

Equipment Use*	0	0	0	0
Equipment-Agriculture	10	9.43	69.6	6.12
Equipment-Logging	0	0	0	0
Equipment-Recreation	4	3.77	29.4	2.58
Equipment-Transp.	5	4.72	43.9	3.86
Incendiary	4	3.77	1.7	.15
Lightning	24	22.64	627.7	55.17
Miscellaneous-Breakout	2	1.89	6	.53
Miscellaneous-Elec. Fence	0	0	0	0
Miscellaneous-Fireworks	0	0	0	0
Miscellaneous-Power Lines	2	1.89	4.5	.4
Miscellaneous-Structure	0	0	0	0
Miscellaneous-Other	6	5.66	22	1.93
Railroad	0	0	0	0
Smoking	0	0	0	0
Unknown	6	5.66	24.8	2.18
Total	**106**		**1,137.7**	
Years 2020-2024				
Campfire	0	0	0	0
Children	1	.7	1	0
Debris Burn*	0	0	0	0
Debris Burn-Authorized Broadcast/Acreage	0	0	0	0
Debris Burn-Authorized Piles	3	1.9	16	.7
Debris Burn- Authorized Yard Trash	4	2.4	2.7	.1
Debris Burn- Non auth Broadcast/Acreage	1	.7	2	.1
Debris Burn-Non auth Piles	27	16.5	242	11.8
Debris Burn-Non auth Yard Trash	5	3	10.5	.5
Equipment Use*	0	0	0	0
Equipment-Agriculture	4	2.4	32	1.6
Equipment-Logging	0	0	0	0
Equipment-Recreation	6	3.7	33.5	1.5
Equipment-Transp.	4	2.4	36.3	1.5
Incendiary	4	2.4	1.7	0
Lightning	36	22.1	1378.3	62.2
Miscellaneous-Breakout	39	24	140.3	7.8
Miscellaneous-Elec. Fence	0	0	0	0
Miscellaneous-Fireworks	1	.7	5.5	.2
Miscellaneous-Power Lines	10	6.1	70	3.4
Miscellaneous-Structure	0	0	0	0
Miscellaneous-Other	5	3	41	2
Railroad	0	0	0	0
Smoking	1	.7	2.5	.1
Unknown	12	7.3	36.7	1.5
Total	**163**		**2,051**	
Source: *Florida Forest Service, FL Depart. of Agriculture and Consumer Services*				

Future Impacts: More land being taken up by development will decrease the area where wildfires can occur, however, this means more human interaction with the wildland area which could start more fires.

11. Space Weather

Background: This is a relatively new field of science dedicated to the understanding of interactions between the sun and Earth, and to the forecasting of solar flares, magnetic storms, and other space-related phenomena.

The sun is the main source of space weather. Space weather can produce electromagnetic fields that induce extreme currents in wires, disrupting power lines, and even causing wide-spread blackouts. Severe space weather also produces solar energetic particles, which can damage satellites used for commercial communications, global positioning, intelligence gathering, and weather forecasting. According to the National Weather Service Space Weather Prediction Center, Manatee County has not experienced effects of space weather, but the potential exists. Loss of critical systems could severely hinder normal activities in the County.

Manatee County Emergency Management has begun monitoring space weather. As information becomes more available, this will be incorporated into the Local Mitigation Strategy.

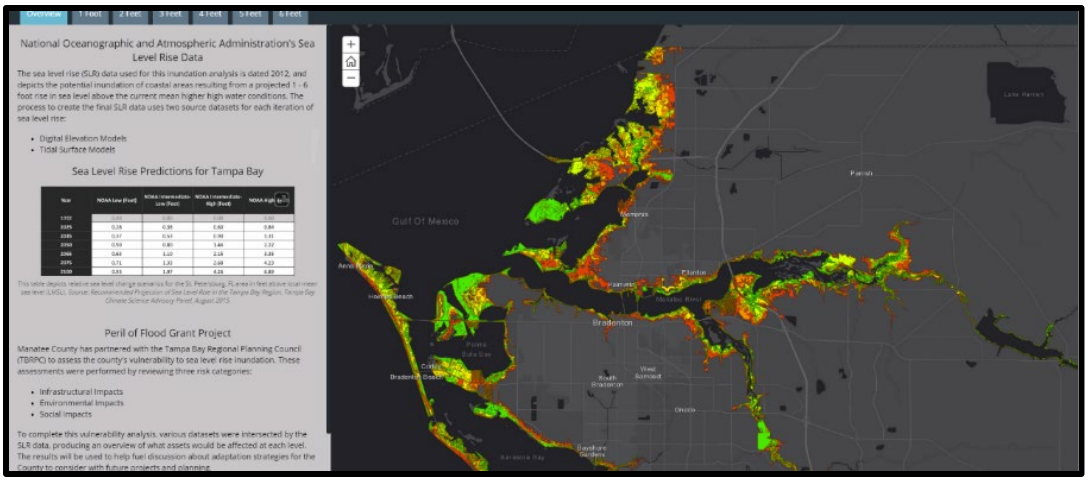
Increasing population and development within Manatee County and its jurisdictions, along with increased reliance on satellite technology, would greater the risk if a large space weather event were to occur. Hardened technologies and grid maintenance and improvement would increase resilience and lessen risk.

Future Impacts: As more growth and critical infrastructure is put in place, we would expect to see more impacts to the infrastructure due to solar energy.

13. Sea Level Rise

Background: Sea level rise can have serious adverse effect to our coastal communities and ecosystems. Melting glaciers and ice sheets, contributing to an increase rate of sea level rise, together with expansion of warmer ocean, are causing coastal extreme events to increase in frequency and be more severe. The total amount of water on the earth is not increasing but

as the atmospheric temperature rise the temperature of the oceans does also and it causes it to expand.



It is understood that coastal development in Manatee County and its jurisdictions would have the most vulnerability to sea level rise. Coastal defenses, mitigation, and adherence to building codes help lower the risks.

Probability: As a coastal community, Manatee County is concerned with the changes in the Gulf of Mexico thus we are monitoring SLR. While SLR has risen globally, it is currently rising more than twice as fast – 3.6 mm per year – and accelerating. Manatee County has already experienced about 7 inches of SLR over the past 67 years of records. Even small amounts of SLR make rare floods more common by adding to tides and storm surge. Climate Central has estimated risk by combing local sea level rise projection with historical flood statistics from the NOAA water level station at St. Petersburg, FL, 26 miles from the center of Manatee County. The extreme values analysis indicates that the 100-year flood height is 4.9 feet above local mean higher high water (high tide line). The highest observed flood at this location, in records from 1994 to 2015, reached 4 feet MHHW in 1985. Taken all together, these values suggest that floods above 5 feet likely pose significant concerns.

(***Source:*** *Climate Central (2016). Sea level rise and coastal flood exposure: Summary for Manatee County, FL. Surging Seas Risk Finder file created July 21, 2016. Retrieved from http://ssrf.climatecentral.org.s3-website-us-east-1.amazonaws.com/Buffer2/states/FL/downloads/pdf_reports/County/FL_Manatee_C)*

WHEN COULD A 5-FOOT FLOOD HAPPEN?

Year	Likelihood
by 2030	20-28%
by 2050	46-71%
by 2100	93-100%
Source*: U.S. National Climate Assessment, 2017 NOAA Technical Report*	

From a report by the Florida Oceans and Coastal Council, over the past 20 years the rate of sea-level rise has been about 80% faster than the best estimate from the United Nations' Intergovernmental Panel on Climate Change. This is assumed to be due to the increasing contribution of water from melting ice reservoirs, due to the increasing temperature of the planet. It is recognized that climate change has and will continue to greatly affect sea-level rise.

Vulnerability: As sea level rises, the coastal areas and areas around the Manatee River, Braden River, Palma Sola Bay, Terra Ceia Bay and our island community are most at risk. Approximately 31,000 people in the County live on exposed land below 5 feet. Some island nations are likely to become uninhabitable due to climate-related ocean and cryosphere change. These areas are shown to be impacted by 24-inches of rise in sea level by 2030 based on the NOAA models.

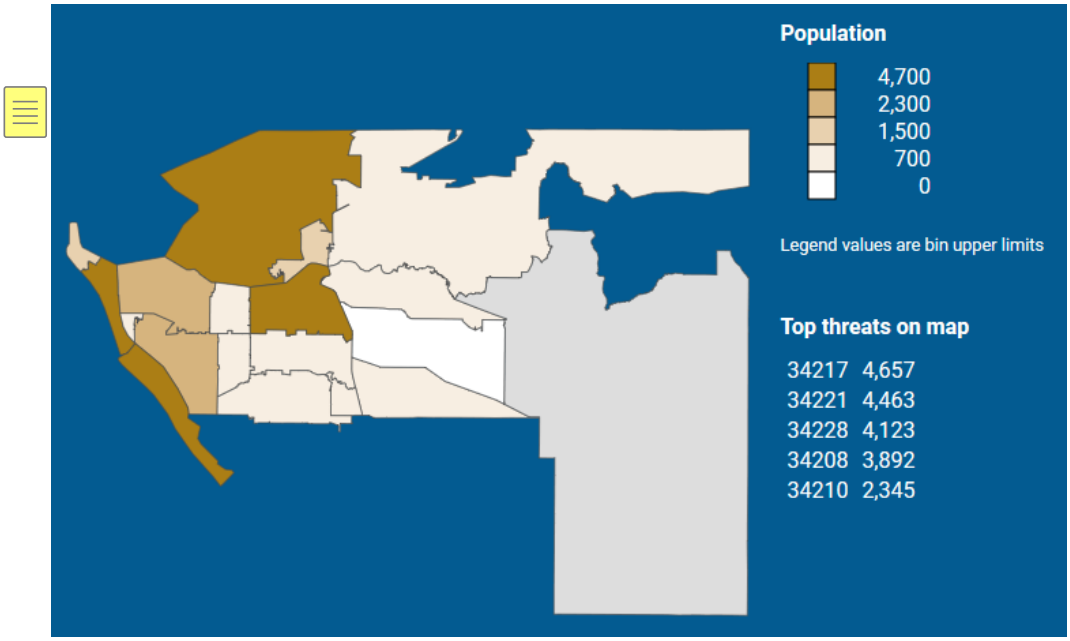
WHAT'S AT RISK ON LAND BELOW 5 FT IN MANATEE COUNTY

Population	Total in people
Acres of land	16,663
Population Total	30,978
Housing units	23,020
Property value ($ billions)	9.2
High social vulnerability population	8,133
Road miles	210
Schools	2
Hazard waste sites	7
Source: *U.S. Census, raw population data, elevation data, lidar*	

The Center for Climate Integrity states that the fiscal threat that climate change and the impacts of sea level rise could cause the need for upward of almost $2 billion in new sea walls for Manatee County by 2040. As outlined in the Risk Assessment found within Subsection G of this section, when comparing over 30 hazards that the County has the potential to experience impacts from, sea level rise was determined to have an overall risk ranking of 17 when prioritizing hazards compared against others.

Future Impacts: Due to increased population and topography changes, we would see larger flooding scenarios along the coastline.

TOTAL POPULATION BELOW 5 FT IN COUNTY BY ZIP CODE



Source: *U.S. Census, raw population data, elevation data, lidar*

14. Epidemic

Background: Biological hazards are those associated with insect, animal, or pathogen that could pose an economic and/or health threat. There is the possibility of an adverse effect to the general population through naturally occurring pathogens (i.e. influenza, emerging infectious diseases or by way of a terrorist action). Manatee County is potentially vulnerable to influenza outbreaks due to the large annual influx of seasonal residents and tourists. Also, as of July 22, 2016, the Florida Department of Health had identified 321 Zika virus disease cases among Florida residents and visitors, all occurring in either travelers from other countries or territories with ongoing Zika virus transmission or sexual contacts of recent travelers; however, aggressive mosquito control efforts, including aerial adulticide and larvicide, contributed to a decrease in Zika virus transmission. As of 2017, there have not been any reported cases in Manatee County.

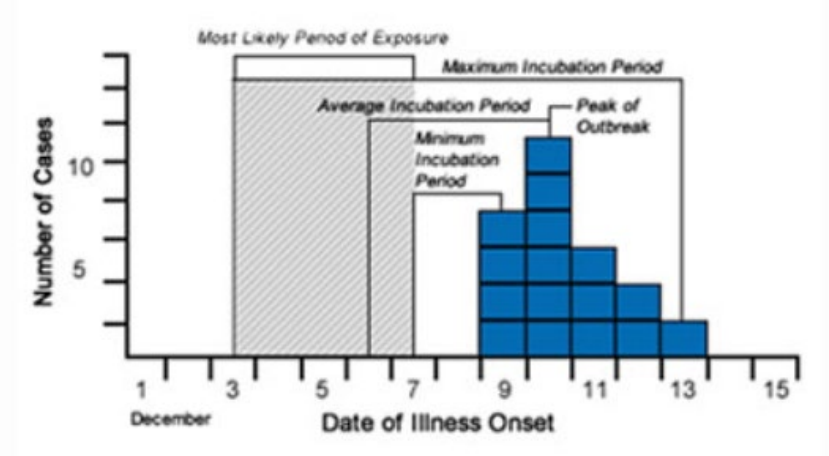
Increasing population density and urban development is recognized by Manatee County and its jurisdictions as the largest risk to epidemic outbreaks and transmission of diseases. Having a strong public health infrastructure and codes/regulations of response are imperative.

Probability: As a coastal community with beaches, Manatee County has a large number of visitors. Accounting for visitors and seasonal residents,

outbreak potentials are moderate to high with an estimated 20% occurrence rate per year. The seasonal residents tend to be older in age and therefore are more susceptible to viruses and diseases. The main issues lie with the visitors possibly carrying harmful pathogens. These pathogens could then affect all of the public in service industry thus creating an outbreak.

EPIDEMIC VELOCITY FROM TIME-SERIES DATA

Most Likely Period of Exposure



Source: *CDC.gov*

Vulnerability: The most vulnerable population in Manatee County are the elderly, infantile, and workers close to tourists. These populations would most likely be the first to either contract a virus or disease or be more susceptible to the effects of them. With annual tourism and seasonal residents increasing, Manatee County will face more issues with disease and viruses. Increased temperatures later in the year can result in the longevity of disease carrying insects increasing the vulnerability to the population.

Although the United States has made progress in preparing for an influenza pandemic, considerable challenges remain regarding preparations for populations who's individual and community-level risks lead to vulnerability in health and health care quality. Protection of these populations is essential to effective prevention and mitigation of an influenza pandemic. Because influenza is a highly contagious disease that is spread from person to person, inadequate preparedness, or untimely response in vulnerable populations group, can increase the risk of infection for the general population.

Our vulnerable populations are at increased risk for severe epidemic infection because of underlying health conditions commonly associated with these groups. For example, persons with disabilities and our homeless population depend on support from others and may not be vulnerable if they have sufficient support – the loss of support, access to private space, and lack of financial resources for health care, medications, and basic nutritional resources places them at greater risk.

In July 2016, there was one case of the Zika Virus found in Manatee County. The cause was identified as travel related.

A drug epidemic was on the rise in 2019 when Manatee saw 601 overdoses and 61 deaths — more than twice as many deaths as reported during the year prior. As outlined in the Risk Assessment found within Subsection G of this section, when comparing over 30 hazards that the County has the potential to experience impacts from, an epidemic was determined to have an overall risk ranking of 8 when prioritizing hazards compared against others.

First identified in December 2019 as emerging from Wuhan, China, a novel strain of coronavirus (COVID-19) was declared the an outbreak and Public Health Emergency of International Concern on January 30, 2020 and a pandemic on March 11, 2020. Local transmission of the disease had occurred in most countries as an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease has since spread globally, resulting in more than 3.24 million cases being reported across 187 countries and territories, resulting in more than 230,000 deaths. On March 1, 2020, the Florida Department of Health (FDOH) announced that the first resident with a confirmed laboratory positive test result in Florida, resided in Manatee County. As of April 30, 2024, Manatee County had 134,307 positive cases and 2,008 deaths.

While the majority of cases result in mild symptoms, some progress to viral pneumonia, multi-organ failure, or cytokine storm. The virus is primarily spread between people during close contact, often via small droplets produced by coughing, sneezing, or talking. People may also become infected by touching a contaminated surface and then touching their face. On surfaces, the amount of virus declines over time until it is insufficient to remain infectious, but it may be detected for hours or days. It is most contagious during the first three days after the onset of symptoms, although spread may be possible before symptoms appear and in later stages of the disease.

Recommended measures to prevent infection include frequent hand washing, maintaining physical distance from others (especially from those with symptoms), covering coughs, and keeping unwashed hands

away from the face. Currently, there is no available vaccine or specific antiviral treatment for COVID-19.

On April 1, 2020, the Governor of Florida issued Executive Order #20-91 which limited the movement of Florida residents and their personal interactions outside of their home to only those necessary to obtain or provide essential services or conduct essential activities. On April 29, the Governor issued Executive Order #20-112, which supersedes much of EO #20-91 and includes Phase 1 of the plan to re-open Florida. The Executive Order contained these elements:

- opens restaurants (up to 25% capacity)
- opens retail, museum, and libraries (up to 25% capacity)
- allows elective surgeries to resume

During the timeframe of mid-March to late-April, the Manatee County Board of County Commissioners and all participating jurisdictions took many actions to help mitigate the spread. Mitigation measures such as, but not limited to, closing public beaches, boat ramps, basketball and tennis courts, skate parks, playgrounds, libraries, public government buildings, gyms, etc., in addition to enacting a temporary curfew to limit movement between the hours of 11:00 p.m. and 5:00 a.m. for a span of 18 days.

Manatee County in coordination with FDOH, operated a minimum of three drive-through testing facilities during the month of April and early-May, in additional to a State operated testing facility on the grounds of the UTC Shopping Center.

The County opened two vaccination sites in 2021 that ran through May of 2021. At least 200,000 individuals were vaccinated during this time.

Future Impacts: Due to increases in populations, we would likely see higher rates of spread from an epidemic.

15. Harmful Algal Blooms (HABs)



Background: Harmful algal blooms (HABs) occur when algae — simple photosynthetic organisms that live in the sea and freshwater — grow out of control while producing toxic or harmful effects on people, fish, shellfish, marine mammals, and birds. There are many kinds of HABs, caused by a variety of algal

groups with different toxins. The HABs in fresh and marine waters are usually very different, but they overlap in low salinity estuaries (places where rivers meet the sea). The human illnesses caused by HABs, though rare, can be debilitating or even fatal. Manatee County has seen annual blooms in the form of Red Tide (the largest from a discoloration of seawater caused by a bloom of toxic red dinoflagellates) -one of the largest occurring for two months in 2018.

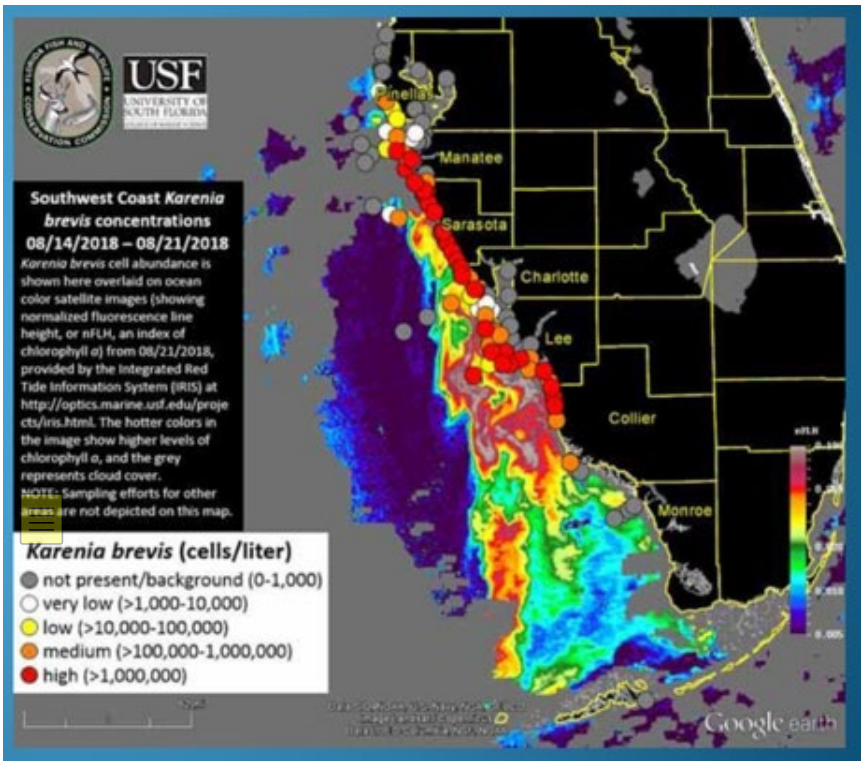
As development increases, paired with raising water temperatures, Manatee County and its jurisdictions recognize the increased vulnerability to people, property and the environment that harmful algal blooms could cause. By improving wastewater treatment development, stormwater runoff systems, and regulating fertilizer use, the risks associated with harmful algal blooms decrease.

Probability: Being a coastal county in the Gulf of Mexico the probability of occurrence is moderate to high with an estimated 20% occurrence rate per year. Gulf waters contain the correct balance of organisms for blooms to occur, especially in summer months when waters are the warmest.

United States Environmental Protection Agency (EPA) acknowledges that climate change is leading to higher air temperatures which will correspond in raising water temperatures that, paired with increased stormwater runoff, result in favorable conditions for algal blooms. The EPA states that harmful algal blooms can occur more often, in more fresh or marine water bodies, and can be more intense with increasing temperatures of climate change.

FWC LEVEL RATINGS OF ALGAL BLOOM

Description	K. brevis abundance	Possible effects
Not present - background	background levels of 1,000 cells or less	no effects anticipated
Very Low	> 1,000 - 10,000 cells/L	possible respiratory irritation; shellfish harvesting closures when cell abundance equals or exceeds 5,000 cells/L
Low	> 10,000 - 100,000 cells/L	respiratory irritation; shellfish harvesting closures; possible fish kills; probable detection of chlorophyll by satellites at upper range of cell abundance
Medium	> 100,000 - 1,000,000 cells/L	respiratory irritation; shellfish harvesting closures; probable fish kills; detection of surface chlorophyll by satellites
High	> 1,000,000 cells/L	as above, plus water discoloration
Source: *https://myfwc.com/research/redtide/statewide/*		



Source: *http://ocgweb.marine.usf.edu/*

Vulnerability: The highest vulnerabilities come to those communities along the coast, bay and near estuaries, as well as the population of those living in these communities or part of the County. In 2018, the severity of the red tide and the impacts on fish and wildlife greatly affected the economy in the County, as well as many other counties in Florida. Hotels and restaurants depend on clean air and water to bring visitors to their businesses, and the health concerns created by harmful algal blooms (HABs) kept people away. Residents in these areas suffer when the toxins get blown into the air, constricting the lungs' bronchioles and sending people with asthma and other health issues to emergency rooms with coughs and shortness of breath. While usually not fatal, the HABs can cause serious health concerns and respiratory issues for humans.

The vulnerability in economic loss comes to those that rely on tourism and seafood for income due to lack of marine life and tourism. Even algal blooms that don't release toxins can harm wildlife by depleting oxygen from coastal waters, causing massive fish kills in numbers too vast to count – this is devastating to marine wildlife.

Between August 1st and September 10th, 2018, Manatee County's coastline experienced negative impacts from Red Tide. Over 315 tons of debris was removed from the beaches into dumpsters and transferred to the County

landfill. While the economic damage may be hard to calculate — a single, definitive source is lacking — but informal local and state studies show the environmental disaster caused by the harmful algae inflicted millions of dollars in damages to Manatee businesses and took a toll on Florida's tourism. Not-surprisingly, the industries most impacted by the event were rentals such as vacation homes and charter boats, hotels and restaurants. Those restaurants, real estate agents, vacation rentals, marine-based businesses and other establishments reported about $9 million in losses.

The Red Tide event receded after months of significant damage to marine life and coastal businesses. While scientists do not anticipate a return of Red Tide impacts of this magnitude in the near future it is highly likely to impact Florida communities again in the coming years as harmful algal blooms are a regular occurrence in Florida due to combined pollution from septic tanks, fertilizer runoff (from lawns and agriculture) and increased development which all put pressure on the ecosystem.

As outlined in the Risk Assessment found within Subsection G of this section, when comparing over 30 hazards that the County has the potential to experience impacts from, harmful algal blooms was determined to have an overall risk ranking of 10 when prioritizing hazards compared against others.

Future Impacts: We would expect to see larger blooms causing harm in the future as we see increased oceanic temperatures earlier coupled with increase in use of fertilizers.

16. Animal Disease Outbreak

Background: Biological hazards are those associated with insect, animal, or pathogen that could pose an economic and/or health threat to the agricultural community. The possibility exists for the importation of pathogens that could have a widespread effect on the livestock industries. In addition, there is the possibility of an adverse effect to the general population through naturally occurring pathogens (i.e. influenza, emerging infectious diseases or by way of terrorist action). Due to the large agricultural interests in the northern and eastern portions of the County, there may be vulnerability to animal-borne diseases such as Mad Cow and Foot and Mouth Disease; in addition to mosquito and other insect borne diseases. Emerging diseases that little to no counter measures currently exist also pose a serious threat to wildlife and livestock in the County.

As population and development increase in Manatee County and its jurisdictions, the risk of the spread of animal disease outbreak increases to those areas, but the number of agricultural farms will likely decrease with this development, which would lower the overall risk of occurrences.

Probability: Manatee County is not home to a large amount of livestock as neighboring counties are, thus there is a low probability of an outbreak an estimated 14% probability rate. Most animal agriculture is located in the eastern part of the County leaving less interaction with humans. This decreases the chances of pathogens transferring to livestock. The animals would most likely contract disease from insects. The part of the county that is home to livestock is very rural thus water management systems have not been installed creating the increased likelihood of large amounts of insects being able to breed rapidly. The County does target the areas with adulticide and larvicide to decrease amounts.

OUTBREAK CONTROL AREAS

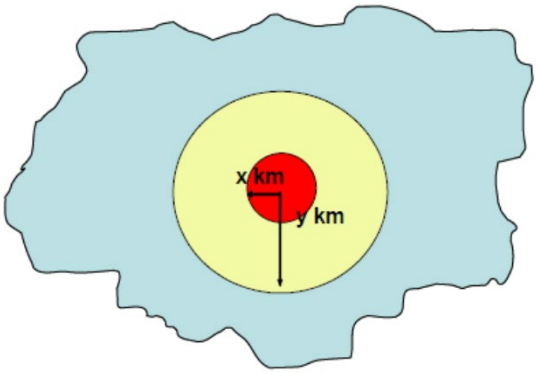


Figure – Illustration of movement control areas centered on a disease outbreak indicating an infected zone around an outbreak.

***Source**: OIE World Organization Protection Animal Health*

Vulnerability: With increased aerial insecticide in the rural areas, the most vulnerable populations of livestock are in the areas less treated. These would be the most likely to contract diseases and spread them.

The distribution of infectious animal disease and the timing and intensity of disease outbreak is often closely linked to climate. Climate change may affect livestock disease through several direct, and indirect paths:

a) Pathogens: higher temperatures and greater humidity generally increase the rate of development of parasites and pathogens. Changes to wind can affect spread of pathogens. Flooding that follows extreme climate events provides suitable conditions for many water-borne pathogens. Droughts have a tendency to affect most pathogens.
b) Vectors: vector-borne diseases are especially sensitive to climate change. Changes in rainfall and temperature regimes may affect

both the distribution and the abundance of disease vectors, as can changes in the frequency of extreme events.

c) Hosts: climate stress (heat, inadequate food and water) can also lower immunity.
d) Ecosystem services: climate change can also influence disease transmission by altering ecosystem structure and function.
e) Humans: peoples' behavior may change as the result of climate change and this may affect how they keep animals, which in turn may affect the exposure or vulnerability of animals to pathogens.

The direct effects of climate on animal disease are likely to be most pronounced for disease that are vector-borne, soil associated, water or flood associated, rodent associated, or air temperature/humidity associated.

Over the past 20 years, headlines have documented an increasing number of emerging diseases; most have an animal source (zoonoses). Recent examples include West Nile virus, severe acute respiratory syndrome (SARS), avian influenza, and monkeypox. While some emerging diseases occur among both humans and animals, others affect only animals or only humans. Nevertheless, all these new or reemerging infections have societal implications, often tied to local and national economies. The economic losses caused are proportional to the scale of farming; (e.g. the greater the farm size, the higher are the losses.) The share of livestock income in total farm income is around 50%, which makes this sector vital to the survival of the farming community, especially the small farmers.

As outlined in the Risk Assessment found within Subsection G of this section, when comparing over 30 hazards that the County has the potential to experience impacts from, animal disease outbreak was determined to have an overall risk ranking of 29 when prioritizing hazards compared against others. There have been no previous recorded occurrences of animal disease outbreaks in Manatee County.

Future Impacts: Due to increased growth of infrastructure, we would likely see a decrease in an outbreak as there is less agricultural areas. There is an increase in outbreak for each specific farm as they lose areas from selling for development.

D. TECHNOLOGICAL HAZARDS

A technological hazard is a direct result of the failure of a man-caused system or the exposure of the population to a hazardous material. Technological hazards may affect a large segment of the population and/or interfere with critical government, law enforcement, public works, and public health/medical functions. Several things occur daily within the County which could produce a threat to the population or produce widespread unmet needs. Each of these potential hazards requires a coordinated and speedy response, as well as attention to the short- and long-term effects. The hazards associated with this category include airplane crash, critical infrastructure disruption/failure, dam/levee failure, hazardous materials release, power failure, radioactive release, train derailment, major transportation incident and urban conflagration.

a. Hazardous Materials

Background: There are a large number of sites in Manatee County where hazardous materials are stored, processed, used for industrial purposes, and otherwise handled. A large concentration of hazardous materials can be found associated with Port Manatee and at Tropicana. Smaller amounts can be found associated with such commercial establishments as dry cleaners, pool services and hardware stores.

Industrial growth near urban areas and waterways pose an increasing risk of accidental releases that could affect both the population and environment. Manatee County and its jurisdictions recognize this and strive to continue regulating safety protocols and invest in safer technologies to reduce vulnerability and protect communities and the environment.

Probability: Industry has taken great steps to minimize the risk associated with the storage and transportation of hazardous materials. Although every precaution is taken and all safety and reporting regulations followed, spills, seepage and leaks can still occur as a result of human error or natural phenomena. For Manatee County, the probability of a hazardous material spill or release is high based on the County's transportation system and the type of industries located within the County requiring transportation.

Vulnerability: Hazardous material releases pose short and long-term toxicological threats to humans, to terrestrial and aquatic plants and to wildlife. Toxic materials affect people through inhalation, ingestion and/or direct contact. The population directly impacted by a hazardous materials accident will be dependent upon the specific location of the accident and

the climatic conditions at the time of the accident. Since these are unknown factors, mitigating the extent of the area impacted requires continued dialogue between industry and emergency responders.

Future Impacts: With increased areas of development both residential and industrial, we would expect to see more materials traveling and storing in the county creating a higher risk of an incident.

b. Dam/Levee Failures

Background: Dam/Levee failure is a collapse or breach in the dam or levee. When the term "dam" is used, it is normal to think only of structures associated with the impounding of rivers for use as drinking water reservoirs, the production of electricity or flood control. In Florida, the term can take on an additional meaning, that of impounding clay settling ponds or phosphogypsum stacks associated with the mining and processing of phosphate. Both types of dams can be found within Manatee County.

The Lake Manatee Dam is located along the Manatee River, approximately 10 miles east of I-75. Built between 1965 and 1967, this dam forms the 2,400-acre Lake Manatee Reservoir. With a depth of 40 feet and containing approximately 7.5 billion gallons of water, this reservoir serves as the primary source of drinking water for approximately 330,302 residents of Manatee County (U.S. Census Bureau 2012 estimate) and Sarasota County.

In August 2003 following several days of intense rainfall, a flood gate at the Manatee River Dam jammed opened. This resulted in the evacuation of several residences downstream as a precautionary action. While roads and some yards flooded, there was no reported flood damage to buildings.

Located south of SR 70, the 359-acre Bill Evers Reservoir was built in 1939 to serve the water needs of the City of Bradenton. The reservoir was created by the construction of Ward Dam across the Braden River. Ward Dam is located approximately five miles south of the junction of the Braden and Manatee Rivers.

Located approximately five miles east of US 301 and one-half mile north of SR 62 is the Florida Power and Light Manatee generative facility. Constructed in 1977, Lake Parrish is a 4,000-acre diked lake which serves as the cooling pond for this facility.

Phosphate mining activities can be found in the eastern portions of the County. As noted above, phosphate mining and processing requires the need for dams to impound water associated with clay settling ponds. The

only phosphogypsum stack in the County is located at the closed Piney Point processing plant.

As population and development increase in Manatee County and its jurisdictions, the likelihood that a dam/levee failure could impose more vulnerabilities on property and life increase. By implementing modern engineering and proper maintenance, along with higher building code standards, the risks decrease.

Probability: The construction and safety of dams and levees in Florida is governed by 62-672 FAC and 373, FS. There have been no threats of failure associated with Ward Dam. In 2014, contract engineers inspecting Lake Manatee Dam, determined the dam to be in a severely distressed state due to erosion and has since been repaired at a cost of $15 million. This remediation should extend the life of the dam 50 years. Phase 1 was the emergency phase which required the re-establishment of the core of the dam and was completed 2014. Phase 2 will address downstream issues but is not considered emergency remediation. This work has be defined and started in November 2021.



***Source**: www.srh.noaa.gov/.../photos/manatee%20dam.jpg*

Active phosphate mining areas in Manatee County are in the Lake Manatee watershed area, specifically clay settling areas and there is no mining within the Evers Reservoir watershed. It is unlikely that a dam failure would impact the watersheds of Lake Manatee or the Evers Reservoir.

The closing of the Piney Point processing plant has raised concerns regarding the maintenance of the phosphogysum stack. Of particular concern is the capacity of the stack being exceeded following major or long-duration rainfall events.

Per the Florida Department of Environmental Protection (FDEP) the closure activities will be complete by 2010. The owner "...will take over long-term care responsibilities as portions of the stack system are closed."

According to information from Manatee County Utilities Department, Lake Manatee Dam holds enough water to flood approximately 14.5 square miles of land in the event of a dam breach. Flood elevations range from 21 feet above the banks of Manatee River at the Rye Bridge crossing as the topography at this location is deeply incised. As the water moves downstream the topography becomes flatter and the flood depth becomes

much less (Map 29). Lake Parrish is located in an area that even a full breach of the dyke would not pose a flooding impact to residents.

Vulnerability: County residents living downstream from the Lake Manatee and Ward Dams are the most vulnerable should there be a dam failure. The number of residents affected by such an event would depend on the degree of the failure. Due to their isolated locations, there is little likelihood that the failure of a clay settling pond would adversely impact county residents. The same would apply to a dike failure at Lake Parrish. The number of residents affected by such an event would depend on the area of the dike which failed and the direction of flow.

Concerns with the Piney Point phosphogypsum stack are centered primarily on the potential for the contaminated water flowing into Tampa Bay and its subsequent environmental impacts.

The FDEP reported the following "summary of key activities that have been completed and current status:

- All of the ponded process water that was contained within the compartments of the phosphogypsum stack system has been removed and disposed. The water was treated and discharged using a combination of traditional double lime treatment, and reverse osmosis treatment technologies. All phosphogypsum stack compartments have

- been lined with a synthetic, high-density polyethylene (HDPE) liner. Stack side slopes have been amended and grassed for routing stormwater runoff to the outfall structures. The stack compartments can serve as reservoirs with a total storage capacity of up to 1.3 billion gallons for future environmental or compatible uses that may be beneficial to the State or local community.

- The discharge of treated process water to waters of the state from Outfall 003, ended on March 31, 2007. One of the lined compartments is currently being used for treatment of remnant process water that results from seepage collected at the base of the stack system. The seepage water is afforded the necessary pretreatment prior to being discharged into the Manatee County Sewer System.

- The at-grade cooling ponds previously used for the storage, cooling and recirculation of process water, have been lined with HDPE, covered with clean soil and grassed. Upon completion of all other closure activities, the NCP, which holds lime sludge used in treatment of process water, will be capped with a liner, covered with clean soil and grassed as the rest of the ponds.

- Plans for closure of the last portion of the Piney Point "plant area watershed" that includes the return channel and seepage ditch west of the OGS, the footprint of Aeration Ponds A-D, and the watershed area immediately north of Outfall 003 (and immediately east of the SCP Process Water Sump) have been prepared by the geotechnical engineering consultant Ardaman & Associates, Inc. These plan drawings reflect the full scope of work and can be used for HRK's review as well as CDM's initial quantity take-offs and pricing evaluation.

- A bentonite slurry cut-off wall has been installed on the North, and south property boundary, along Buckeye Road to isolate groundwater within the former process area. A wire fence with wood posts has been constructed between the road and the slurry wall to ensure security.

- Under the supervision of HRK personnel, the former chemical plant has been demolished and clean-up activities are ongoing. The maintenance building is undergoing renovation to serve as a trucking terminal."

Future Impacts: with more growth, we would expect to see more impacts the build environment due to a failure.

c. Port Vessel Collision or On-Water Hazardous Materials Spill

Background: Manatee County is susceptible to the impacts associated with port vessel collisions or on-water hazardous material spills. This conclusion is based on its location at the mouth of Tampa Bay, amount of Gulf coastline, site of a major deepwater port, and location adjacent to the main shipping channel into the Port of Tampa. As a consequence of the latter two items, there is a substantial amount of maritime shipping involving ocean and barge traffic carrying a wide variety of hazardous materials such as fuel oil, gasoline, aviation fuel, and ammonia.

Probability: Because Port Manatee is an active port, two factors are present which contribute to the need for vigilance. First, hazardous materials will always be present, either in transit or storage. Second, the potential for accidents is always present, either in the transfer of hazardous materials from ship-to-shore, storage, or transfer to storage to overland transport. Given the amount of hazardous materials at the port and its location, should a spill or fire/explosion occur, the impact on the surrounding population and natural environment could be catastrophic.



Vulnerability: As the home to a major deepwater port, the probability of an accident involving hazardous materials does exist. However, mitigation measures for in-route transportation are in place to minimize exposure to the general populace and to the environment. Thus, the probability of a serious event is considered to be low.

Future Impacts: With more vessels entering the port and throughout the waterways, we have an increased risk of spills. The type and severity also increase.

d. Utility Failure/Power Outages

Background: As growth continues in Manatee County, there is an increasing demand for electrical power. Through the 10-year Site Plan process, Florida Power and Light (FP&L) addresses growth in their expansion plans. Still, there may be situations where their power generating capability may not meet total demand during extreme weather conditions or after a severe storm.

As Manatee County and its jurisdictions population increases with development, the risk to power outages also increases. Prioritizing grid modernization and backup systems will help with the increased risks.

Probability: It is difficult to predict when a power outage may occur, as the northeast power failure showed in 2003. What can be predicted are the types of situations which could contribute to such a failure. This situation was highlighted during the Christmas weekend of 1989 as the extremely cold weather caused extended outages throughout the state. Although the cold weather scenario is the only most likely to result in power shortage emergencies, similar problems may occur during extremely hot weather as well.

Vulnerability: While a power failure is most likely to occur during an extreme weather event, local governments and FP&L must be prepared to respond in order to maintain the public safety and health and welfare of the County's residents.

Future Impacts: With increased growth we would expect to see more impacts to the residential and business populations as the grid expands. This would also increase risk to the medically sensitive population

e. Airplane Crash

Background: Manatee County is home to an international airport. The Sarasota-Bradenton International Airport is split between Manatee and Sarasota Counties. Any incident would result in life safety issues, economic issues, and transportation issues. These types of incidents do

not solely have to do with malfunction. They can be associated with terrorism, human error, and even sabotage.

Increased air traffic because of population and development increases throughout Manatee County and its jurisdictions increases the overall vulnerability of risk to human life and property. Advances in aviation safety protocols and emergency responses help reduce those risks.

Future Impacts: With increased growth we would likely see more human and infrastructure loss due to a crash threatening life and property.

f. Critical Infrastructure Disruption

Background: Critical infrastructure is the body of systems, networks and assets that are so essential that their continued operation is required to ensure the security of a given nation, its economy, and the public's health and/or safety. Energy, water and wastewater systems, and transportation systems are a few examples of Manatee County's critical infrastructure. Loss or disruption in any system can result in life safety and economic issues.

Manatee County and its jurisdictions recognize the correlation between the importance of critical infrastructure and its interconnectivity, but the increased vulnerability it poses to those critical infrastructures and the cascading effects it could have on the County as a whole. Utilizing enhanced redundancy and regular maintenance can improve system recovery and resilience.

Future Impacts: Increased growth would increase need for critical infrastructure. Failure of these systems could cause increased public health and safety issues.

g. Radiological Releases

Background: Radiological releases pertain to any release of radiological material into the air, water, or land. These incidents are of great concern to public health and the environment and can have lasting effects on the community.

Manatee County and its jurisdictions understand that Nuclear/medical/radiological technology expansions, along with increasing population, raise the possible risk of radiological releases. By implementing and continually reviewing safety standards and emergency preparedness regarding radiological issues, risks can be minimized.

Future Impacts: Increased growth would cause the impacts from a release to hurt more people and structures. Additionally, as more urban areas increase, the impacts increase that more individuals and structures would be in the area of the release.

h. Train Derailment

Background: A derailment occurs when a vehicle such as a train runs off its rails. Although many derailments are minor, all result in temporary disruption of the proper operation of the railway system and they are potentially seriously hazardous to human health and safety. Tropicana and other industrial companies regularly use trains to transport and receive goods. The largest concern for an incident would be that of a derailment involving hazardous materials. These incidents would affect public and economic health as well as transportation systems.

As Manatee County and its jurisdictions population and development grow, the risks of train derailment increase. There are currently no plans for train track expansion, but regular track maintenance and increased safety protocols and emergency responses help mitigate those risks.

Future Impacts: Due to increased growth, more population and structure would likely be impacted if a train would derail.

i. Major Transportation Incidents

Background: Manatee County has two major transportation lines (Interstate 75 and US-41). These major roads provide transportation to public and commercial entities. Any major incident gives concern to life safety and economic loss for the County and region. Additionally, public safety uses these roads for response.

With increasing population and development Manatee County and its jurisdictions see expanded transportation networks which can increase the risk of major transportation incidents to property and life. Effective traffic and transportation systems with increased safe technologies in vehicles and incident response help reduce the risk.

Future Impacts: Increased growth increases the chances of major transportation incidents and would likely impact more persons, structures, and increase disruption of critical infrastructure.

j. Urban Conflagration

Background: A conflagration is a large and destructive fire that threatens human life, animal life, health, and/or property. It may also be described

as a blaze or simply a large fire. A conflagration can begin accidentally, be naturally caused wildfire, or intentionally created arson. Arson can be for fraud, murder, sabotage or diversion, or due to a person's pyromania. A very large fire can produce a firestorm, in which the central column of rising heated air induces strong inward winds, which supply oxygen to the fire. Conflagrations can cause casualties including deaths or injuries from burns, trauma due to collapse of structures and attempts to escape, and smoke inhalation. The County has very little areas where wildland and urban interfaces are joined lowering concern for wildfire to urban conflagration.

Manatee County and its jurisdictions experiencing increased population and development throughout its borders increase the risks of all types of urban conflagration, natural or manmade. Enforcing fire codes, fire hydrant networks, and controlled burns to reduce fire spread are all things that help lower the risks.

Future Impacts: Increased urban area interfacing with wildland increases the chance of conflagration. This would impact persons, structure, and critical infrastructure.

E. HUMAN-CAUSED

Human-caused incidents result from several origins, but all incidents have human behavior, technological/industrial mistakes, or intentional acts of an adversary as their root cause. Lack of knowledge regarding technology, human error, the inability to identify potential cascading effects, or simply deficient response systems for technological catastrophes are common drivers of the incidents. Humans targeting other humans with acts of violence or disruption is another common source of human-caused incidents.

a. Terrorism/Homeland Security

Background: The events on September 11th, 2001, has shown, the United States is no longer exempt from the threat of terrorist attack on its home shore. While there are no major facilities of national importance in the County, Manatee County is located near MacDill Air Force Base with Central Command and Special Operations, and the Port of Tampa which must be considered potential terrorist targets. While the types of weapons a terrorist may use are varied, the most fearful are those classified as weapons of mass destruction. Of these, the greatest threat comes from those classified as NBC or nuclear, biological, and chemical.

Conventional wisdom is that obtaining the material to create nuclear weapons would be difficult for a terrorist group. Still, it is possible of obtain sufficient qualities of radioactive material to make what are known as "dirty bombs." Similarly, the chemical agents or biological agents are relatively easy to obtain, and thus pose a greater threat than that associated with nuclear material weapons. The availability and the impact of chemical and biological threat materials are both high and can have potentially devastating impacts.

Expanding critical infrastructures and increasing urban development create more potential targets for terrorist attacks, Manatee County and its jurisdictions recognize the vulnerabilities. Modernized security systems, surveillance technology, and rapid response capabilities help reduce those risks.

Probability: As 9/11 and subsequent worldly events have shown, there is no way of predicting when, where, or how a terrorist attack may occur.

Vulnerability: The devastation of a nuclear attack is clearly understood. A terrorist attack using a dirty bomb or chemical or biological agents could prove to be equally devastating. In addition to the large numbers of people either killed or injured, there is also the long-term economic impact of such an attack. Large sections of a community could be contaminated for an extensive period of time.

Post 9/11 has placed a greater urgency on the need for vigilance and preparation. Federal, state, and local law enforcement, public safety, and emergency management officials and agencies are working in greater cooperation to coordinate pre-event preparation and potential post-event response.

Future Impacts: Increased growth makes more people, structure, and critical infrastructure in areas becoming more vulnerable to attacks.

b. Civil Disturbance

Background: Civil disturbance, also known as civil disorder or civil unrest, is an activity arising from a mass act of civil disobedience (such as a demonstration, riot, or strike) in which the participants become hostile toward authority, and authorities incur difficulties in maintaining public safety and order, over the disorderly crowd. These incidents give rise to concerns of life safety and property.

As urban development increases and population along with it in Manatee County and its jurisdictions, the risk of civil disturbance also increases.

Encouraging more community evolvement and engagement, as well as effective law enforcement, these disturbances could be mitigated.

Future Impacts: Increase in growth would increase the possibility of civil disturbances due to more people.

c. Coastal Oil Spill

Background: An oil spill is the release of a liquid petroleum hydrocarbon into the environment, especially the marine ecosystem, due to human activity, and is a form of pollution. The term is usually given to marine oil spills, where oil is released into the ocean or coastal waters, but spills may also occur on land. Spills not only can create public health issues but create long lasting economic issues for fishing and tourism.

Manatee County and its jurisdictions are aware of everchanging laws regarding offshore drilling and the risk that poses to increased vulnerability of our coasts. Industrial development along the coast also raises risk of contamination. Stricter environmental regulations and development codes could reduce the impact or likelihood of spills.

Future Impacts: With increase in infrastructure and people near the coastal areas, more impact to those people, structures,

d. Cyber Incidents

Background: Cyber-attacks include the use of electronic devices to attack, cripple or damage information systems held by governmental or private institutions, as well as individual citizens. Cyber-attacks are largely achieved through one of three means: 1) through wired and wireless Internet connections, 2) through the uploading of malicious software, and 3) through hardware transfer devices such as thumb drives. The sources of cyber-attacks include criminal groups seeking financial gain, nation states involved with espionage and plans to undermine foreign governments through a weakening of national defenses, activist groups bent on gaining public opinion or punishing those who disagree with their agenda as well as lone individuals seeking fame or fortune. Terrorist groups can also be a source of cyber-attacks; however, their current capabilities are somewhat limited. A sharp increase in the number of cyber intrusions into government and corporate computer networks has caused the United States to launch a number of new initiatives in cyber security. Many of the initiatives have focused on protecting critical infrastructure control and command systems, preventing access to sensitive government information, and thwarting acts of fraud and theft targeting business financial systems.

Manatee County and its jurisdictions understand that with greater reliability on the digital age and interconnectivity, the exposure to cyber threats also increases. Jurisdictional protocols and technologies strengthen those defenses and create a more resilient digital infrastructure.

Future Impacts: With rising need for network and computing data we are at and increasing risk for cyber incidents for residents, businesses, and our critical infrastructure.

e. Mass Migration

Background: Mass migration occurs when a large population moves from one regional area to another. These moves are not limited to country-to-country movement. They can be within countries and event within states. The issues of concern during these events are public health and economic hardships.

Increasing development and populations within Manatee County and its jurisdictions are a direct result of mass migration to the area. Increasing housing and traffic patterns along with integration to the community programs, the risk of upset decreases.

Future Impacts: Manatee County continues to see more people and businesses moving to the area annually. The increase has slowed since 2023 but with changing growth and increased hazards in other areas, we will continue to see this migration.

f. Sabotage

Background: Sabotage is a deliberate action aimed at weakening a policy, effort, or organization through subversion, obstruction, disruption, or destruction. One who engages in sabotage is a saboteur. Saboteurs typically try to conceal their identities because of the consequences of their actions. Sabotage can be linked to many different types of incidents.

With increased development in Manatee County and its jurisdictions, the risk of sabotage increases. Security systems, increased awareness, and rapid response help to lower the impacts of sabotage.

Future Impacts: With increased growth we will see higher impacts in the county.

g. Mass Shootings

Background: A mass shooting is an incident involving multiple victims of firearm violence (not necessarily death). There is no widely accepted

definition of the term shooting, but the FBI defines a "mass murder" as "four or more murdered during an event with no "cooling-off period" between the murders." The response to an event can span for a long period of time and the effects span even longer.

With increasing population and development in Manatee County and its jurisdictions, the risk of impacts from a mass shooting rise. Increasing security measures and availability of mental health services these risks could be lessened.

Future Impacts: With increased growth we will see higher impacts in the county.

h. Special Events

Background: Special events refer to any event not typically done regularly. These can include marathons, fairs, and parades. While the actual event doesn't necessarily cause major issues, the events within the event can give rise to life safety issues as well as transportation issues. Since these events are generally planned in advance, safety can be added into the planning process early.

As Manatee County and its jurisdictions development and population increase the likelihood of events also increase, therefore the risk is greater. With strategic planning, surveillance, and planned emergency responses, those risks are reduced.

Future Impacts: With increased growth we will see higher impacts in the county.

F. VULNERABILITY BY JURISDICTION

Attempting to access the vulnerability of multiple jurisdictions to natural and man-caused risks is a difficult task. To one degree or another, all the jurisdictions in Manatee County are susceptible to the hazardous events described in this LMS. The level of vulnerability is dependent upon a multitude of circumstances and conditions which are beyond the ability of this study to address. In order to provide additional clarity, the following is a brief description of the method used in determining the degree of vulnerability faced by the individual jurisdictions in Manatee County. A matrix of this information can be found at the conclusion of this section. Reference Appendix B for a list of historical events throughout the County.

- **Hurricane/Coastal Storms/Severe Winds**

  Due to their location on barrier islands, the cities of Anna Maria, Bradenton Beach, Holmes Beach, and Longboat Key and the coastal areas of the City of Bradenton, and unincorporated Manatee County are the most vulnerable to the effects of a hurricane or coastal storm. Depending on the severity of the storm, additional areas in Bradenton, Palmetto, and unincorporated Manatee County near the mouth of the Manatee River could also be vulnerable. All areas of the County are vulnerable to severe winds caused by thunderstorms.

- **Severe Storms**

  All jurisdictions in Manatee County are susceptible to the various components which comprise severe storms. As noted previously, the greatest threats come from lightning and strong winds. Although associated with severe thunderstorms, hail presents less of a threat.

- **Tornadoes**

  Manatee County all jurisdictions are susceptible to tornadoes, particularly during the threat of severe thunderstorms. In addition, the four barrier island communities are also susceptible to the threat of waterspouts. While a typical tornado in Florida is small when compared to those in the mid-west, recent history has shown that severe tornadoes can occur.

- **Floods/Severe Rain Events**

  To some degree, all jurisdictions in Manatee County are susceptible to flooding events. Naturally, properties adjacent to water bodies or in low lying areas would be expected to experience flooding. The severity of the flooding is directly related to the amount and duration of the rainfall event. The areas affected by flooding could increase. For the barrier island communities, should a severe rainfall event occur at the same time as high tide, onshore winds, or a combination of both, the severity of the flooding is compounded. In all of Manatee County, 38,768 buildings are within the high risk and mixed (high risk on property) zones and have the potential of experiencing the 1% chance flood event.

- **Coastal and Riverine Erosion**

  In Manatee County, coastal and riverine erosion is a possibility for those areas located along the Gulf of Mexico, Tampa Bay, Sarasota Bay, Manatee and Braden Rivers and Bowless and Wares Creeks. The severity of the coastal and riverine erosion is directly related to the amount and duration of the storm event. For the barrier island

communities, should a severe storm event occur at the same time as high tide, onshore winds, or a combination of both, the severity of the erosion is compounded. Given the mass area of possibility along the Gulf of Mexico, Tampa Bay, Sarasota Bay, Manatee and Braden Rivers and Bowless and Wares Creeks, this event could affect the planning area equally.

- **Winter Storms/Freezes**

  The same areas of Manatee County affected by hurricane and coastal storms are also affected by winter storms. Surprisingly, some of the most severe and destructive storm events in recent years have been associated with winter storms. The planning areas most affected by this event would be the agricultural areas of unincorporated Manatee County, as well as these same area in the cities of Bradenton and Palmetto.

- **Droughts/Heat Wave**

  All of Manatee County is affected by drought conditions. Drought conditions are occurring throughout Florida with increased regularity. It is not unusual for Manatee County to experience temperatures above normal during the summer. When combined with the natural high humidity, conditions associated with a heat wave can occur. Given that Manatee County is a coastal county with a sea breeze off the Gulf of Mexico, all jurisdictions within the planning area have an equal likelihood of less than a 1% chance of experiencing a heat wave.
  ***Source**: www.weather.gov/floodsafety/Drought-wh.jpg*

- **Extreme Heat**

  Manatee County and all of its jurisdictions ar affected by extreme heat. Extreme Heat affects individuals differently and all jurisdictions have residents that are more likely to suffer from heat-related illness. Those more likely to succumb to heat-related illness are children, elderly, sick, and overweight persons.

- **Sinkholes**

  As identified by the Southwest Florida Water Management District, the occurrence of sinkholes is a rare event in Manatee County. The only recorded sinkholes are located in the unincorporated county. As noted previously, the geologic structure of Manatee County does not lend itself to the formation of sinkholes. Thus, the locations reported as sinkholes by SWFWMD are considered ground subsidence in the form of washouts, potholes, and similar formations.

- **Wildfires**

  The areas of greatest threat to wildfires are in unincorporated Manatee County, primarily east of I-75. The area south of the Manatee River and east of I-75 is experiencing the greatest growth in what is considered the urban/rural interface. Though, all of Manatee County and its jurisdictions do have some degree of threat of wildfires.

- **Space Weather**

  Manatee County Emergency Management has begun monitoring space weather. As information becomes more available, this will be incorporated into the Local Mitigation Strategy.

- **Sea Level Rise**

  May be the result of climate change, which can have serious adverse effect to our coastal communities and ecosystems. As a coastal community, Manatee County is concerned with the changes in the Gulf of Mexico thus we are monitoring Sea Level Rise. As sea level rises, the coastal areas and areas around the Manatee River, Braden River, Palma Sola Bay, Terra Ceia Bay, and Anna Maria Island are most at risk.

- **Epidemic**

  All jurisdictions are vulnerable to epidemics. An epidemic is human based, and any persons can be exposed through multiple avenues. Although, all jurisdictions are vulnerable, those with lower and spread populations like Myakka City are less vulnerable than population dense areas.

- **Harmful Algal Blooms**

  The areas of direct vulnerability in the County are coastal communities. These include Anna Maria, Holmes Beach, Bradenton Beach, and Longboat Key. These jurisdictions would be directly affected with public health concerns as well as economic loss. The remaining jurisdictions would be indirectly vulnerable through economic loss.

- **Animal Disease Outbreak**

  Unincorporated areas in the far eastern portion of Manatee County are the most vulnerable to an outbreak due to the fact that livestock is kept in those areas. Most of these areas included are generally far east of interstate 75 in rural areas.

- **Hazardous Materials**

  Due to the fact that ground transportation is the primary method for the transport of hazardous materials, all areas of Manatee County are potentially susceptible to a hazardous material event. The greatest probability of such event would be in those areas with the highest concentration of hazardous material users. Such areas would include the Port Manatee areas of northwestern unincorporated Manatee County and the industrial areas east of US 41/301 in eastern Bradenton and unincorporated Manatee County.

- **Dam/Levee Failures**

  The areas of Manatee County vulnerable to a dam failure are located west of Lake Manatee and north of the Bill Evers Reservoir in the unincorporated county and the cities of Bradenton and Palmetto. There have been several minor events where limited evacuations have been necessitated due to dam overflows. The latest was in August 2003 when a flood gate jammed opened following several days of intense rainfall.

  The areas of Manatee County vulnerable to clay settling area (CSA) breaches are located east of Lake Manatee from the northern county boundary south to State Road 64.

  The area of unincorporated Manatee County near the Florida Power and Light Manatee Generating Station are vulnerable should the cooling pond known as Lake Parrish fail.

  A dam failure at Lake Manatee would also impact the municipalities as this is their drinking water supply. Failure at Bill Evers Reservoir would impact Bradenton and also some areas of the unincorporated area who receive their drinking water from that source.

- **Port Vessel Collision or Open Water Hazardous Material Spill**

  When considering port vessel collisions or open water hazardous material spills, it would be natural to narrow the potential vulnerability area to that in the immediate vicinity of Port Manatee. Taking this approach, the vulnerability area would be limited to northwest unincorporated Manatee County and southwest Hillsborough County. This area includes the Bishops Harbor and Terra Ceia Aquatic Preserves in Manatee County and the Cockroach Bay Aquatic Preserve in Hillsborough County. This approach does not take into consideration that much of northern Manatee County is exposed to Tampa Bay and the main shipping channel into not only Port Manatee but also the Port of Tampa and Port of St. Petersburg. As a consequence, should a vessel collision or open water hazardous material spill occur in the main

shipping channel west of the Skyway Bridge and climatic conditions be right, the unincorporated areas of Terra Ceia and Snead Island, the City of Anna Maria and the Palma Sola and the Perico Island areas of the City of Bradenton could be impacted. Should such an event occur west of Egmont Key, it is possible that in addition to Anna Maria, the cities of Holmes Beach, Bradenton Beach, and Longboat Key could also be impacted.

- **Terrorism/Homeland Security**

  With the exception of Port Manatee and the Florida Power and Light Manatee Generating Station, there are no facilities in the County which could be considered of strategic importance. Hence, the vulnerability to a terrorist attack would have to be considered low. However, as recent history has shown, this may in fact not be the case. It cannot be forgotten that Manatee County is located in proximity to MacDill Air Force Base and the main shipping channel for the Port of Tampa. Thus, while the threat of a direct attack may be considered low, the vulnerability to the effects of an attack on a target outside of the County must be recognized as a possibility.

- **Utility Failure/Power Outages**

  To some degree all of Manatee County is vulnerable to a utility failure or power outage. The actual extent of such vulnerability is dependent upon the cause and scope of the failure.

The table on the following page was developed based on local knowledge and historical occurrence of the jurisdiction's vulnerability of the identified natural and man-caused hazards.

HAZARD IMPACT BY JURISDICTION

Natural and Man-caused Hazards	Manatee County	Anna Maria	Bradenton	Bradenton Beach	Holmes Beach	Longboat Key	Palmetto
Hurricane/Coastal Storms	H	H	H	H	H	H	H
Severe Storms	H	H	H	H	H	H	H
Tornadoes	M	M	M	M	M	M	M
Floods	H	H	H	H	H	H	H
Coastal and Riverine Erosion	M	M	M	M	M	M	M
Winter Storms/Freezes	M	M	M	M	M	M	M
Drought/Heat Wave	M	M	M	M	M	M	M
Extreme Heat	M	M	M	M	M	M	M
Sinkholes	L	N	L	N	N	N	L
Wildfires	H	N	H	N	N	N	H
Earthquakes	N	N	N	N	N	N	N
Space Weather (no data to report)							
Tsunami	N	N	N	N	N	N	N
Sea Level Rise	H	H	H	H	H	H	H
Harmful Algal Bloom	M/H	H	M/H	H	H	H	M/H
Epidemic	M/H	M/H	M/H	M/H	M/H	M/H	M/H
Animal Disease Outbreak	M	L	L	L	L	L	L
Hazardous Materials	M	M	M	M	M	M	M
Dam/Levee Failures	L	N	L	N	N	N	L
Port Vessel Collision or Open Water Hazardous Material Spill	H	M	M/L	L	L	L	L
Terrorism/Homeland Security	L	L	L	L	L	L	L
Utility Failure/Power Outages	M	M	M	M	M	M	M

Key:

H = High – Likely to experience threat of vulnerability, effect, or reoccurrence of event. Most of the population affected, major damage to old, poorly maintained, and mobile home structures, some damage to newer structures built to code likely.
M = Moderate – Average to better than average likelihood of experiencing threat of vulnerability, effect, or reoccurrence of event. Around 50% of the population affected, mobile homes and poorly built or maintained structures most at risk.
L = Low – Below average likelihood of experiencing threat of vulnerability, effect, or reoccurrence of event. Special portions of the population affected, day-to-day operations not affected, minor cosmetic damage expected to some structures.
N – Very little or no likelihood threat will occur.

Source: *Manatee County Emergency Management, updated 10/1/2024*

G. RISK ASSESSMENT – THE ANALYSIS PROCESS

The risk assessment consists of three elements – conducting an analysis of hazards the community faces, an assessment of vulnerability related to each threat or hazard, and a review of the consequences and impact expect should an incident occur.

The creation of the **hazard profiles**, and other factors that influence the total risk score are detailed in the sections below while accounting for the research listed in the "Overview of Hazards" section of the Threat and Hazard Identification and Risk Assessment (THIRA). Research for this assessment involved the collection of both historical and statistical data, including review of available literature and interviews with professionals in various disciplines at the local-level and at the state-level. Information was then systematically analyzed for potential risk value. The threat analysis was scored by the workgroup based on: Frequency, Duration, Speed of Onset, and Magnitude.

Frequency:

A key factor in the risk of a hazard is the frequency with which it occurs. Some hazards have been relatively frequent in Manatee County while others have been only sporadic. For this hazard analysis, the frequency with which an event occurs is based on historical reports and query of subject matter experts from various state and local authorities as well as the number of County Disaster Declarations associated with each hazard. Using these criteria provides a wider variety of hazards than utilizing presidential declarations alone.

4	Highly Likely	95-100% certainty of occurring in the next year. Many county disaster declarations have occurred.
3	Likely	Between 10-95% chance of occurring in the next year, or at least one incident occurring in the next 10 years. Some county disaster declarations have occurred.
2	Possible	Between 1-10% chance of occurring in the next year or at least one incident occurring in the next 100 years. Very few disaster declarations have occurred.
1	Unlikely	Less than 1% probability of taking place in the next 100 years

Duration:

The incident duration also plays a critical role in the outcome of the disaster and may be defined as "time on the ground" or the time-period of response to a hazard or event. Transportation accidents may last a few hours whereas a tire fire may last a week and a flood several weeks. Duration, therefore, may not always be indicative of the degree of damage, but it remains an important planning factor.

5	Excessive	More than 30 days
4	Long	7 to 30 days
3	Medium	1 to 7 days
2	Short	12 to 24 hours
1	Minimal	Less than 12 hours

Speed of Onset:

How rapidly the incident takes to occur may affect all other factors due to lack of warning or time to prepare for impact. The lead-time required to protect lives and properties can vary greatly with each event. For instance, a slow-rising Manatee River flood may allow time to evacuate residents and begin flood fight measures, but flash floods can occur with little warning.

4	Short-None	Minimal to no warning
3	Short	6 to 12 hours
2	Medium	12 to 24 hours
1	Extended	More than 24 hours

Magnitude:

The magnitude of the hazard is the geographic dispersion of the incident it causes. For instance, comparing whole county being affected by a hurricane versus a transportation accident involving hazardous materials that takes place in one isolated location.

4	Catastrophic	76-100% of the county is impacted.
3	Critical	26-75% of the county is affected.
2	Limited	6-25% of the county is impacted.
1	Localized	0-5% of the county is affected.

Vulnerability:

Vulnerability is determined based on how prone the community's system is to impacts from the various hazards. The analysis was conducted based on how vulnerable the business community, humans, property, and the built environment are to the list of hazards. The focus of this section is community factors that result in higher risk to each hazard, rather than on the impact the event causes. Vulnerability manifests in a number of ways, including, but not limited to:

- Proximity to a possible hazardous event
- Population density in the area proximal to the event

- Scientific understanding of the hazard
- Public education and awareness of the hazard
- Existence or non-existence of early-warning systems and lines of communication
- Availability and readiness of emergency infrastructure
- Construction styles and building codes
- Cultural factors that influence public response to warnings

Business Vulnerability:

Business Vulnerability refers to the ability of the County and its residents to endure the economic impact of the hazard. Ability of supply chains to be maintained or not, the resiliency of the tax base, and overall economic vulnerability should be considered.

4	High	Economic systems and businesses systems are shut down or severely impacted across the county for at least 30 days.
3	Medium	Economic systems and businesses systems are shut down or severely impacted across the county for at least 14 days.
2	Low	Economic systems are severely impacted for a week.
1	Minimal	Economic systems are impacted but will recover without significant effort or outside help.

Impact on Humans:

This factor relates to the number of lives potentially lost and injuries that occur following a hazard occurrence.

4	High	Mass Fatality Event
3	Medium	Multiple deaths and/or severe injuries
2	Low	Some injuries, mostly minor
1	Minimal	Few minor injuries

Impact on Property:

This factor relates to the amount of property potentially lost to a hazard agent. This factor can vary between jurisdictions based on economics, geographic amount owned, and demographics of the populations, yet it plays an important role in the recovery process.

4	High	More than 50% of property is severely damaged
3	Medium	More than 25% of property is severely damaged
2	Low	More than 5% of property is severely damaged
1	Minimal	Less than 5% of property is severely damaged

Impact on Environment:

This factor considers the impacts from the hazard event to the air, water, land, and biomes in the County.

4	High	Catastrophic impacts to the environment as a result of the event and/or cascading effects. Environmental impacts could cause immediate and long-term health effects to people. Significant resources required for remediation.
3	Medium	Localized and temporary impacts to the environment as a result of the event and/or cascading effects. No immediate health threat to people and environmental remediation would restore the environment to acceptable limits.
2	Low	Impact to the environment would be minimal and only require a local response.
1	Minimal	Impact to the environment would not require remediation.

The **consequence analysis** further estimates the impacts to people, property and the environment by evaluating impacts to the Public, First Responders, Business Continuity, Public Confidence, Economy, Facilities/Infrastructure, and the Environment (estimated remediation required). Generally, these factors were considered for an average occurrence of the hazard.

Public:

This category considers the overall impact to the citizens of the State caused by the hazard. The short- and long-term impacts caused by the hazard were considered in addition to efforts at the State and local level to mitigate, prepare for, respond to and recover from the event. The ranking is a general reflection of the County's resilience to the hazard being evaluated.

3	High	Impacts to the public would likely exceed county and state resources, necessitating federal assistance. Impacts would include multiple casualties.
2	Medium	Impacts to the public would likely not exceed state resources. Some casualties and injuries would occur.
1	Minimal	Impacts to the public would be managed at the county level.

First Responders:

This category considers the impact of the hazard event to police, fire, Emergency Medical Technician (EMT), emergency management and other State and local officials that respond to the event. The threats to the health and safety of first responders posed by the hazard were considered in addition to staffing, training, and overall preparedness of first responders.

3	High	Extreme threat posed to first responders, which would likely exceed local and state resources.
2	Medium	Significant threat posed to first responders but would likely not exceed state and local resources.
1	Minimal	Threat posed by hazard would be managed at the county level.

Continuity of Operations:

This category considers the impact of the hazard event to county government's ability to continue or reestablish essential services.

3	High	Impacts to essential functions as a result of the hazard event and/or cascading effects would be catastrophic. This failure would have an immediate cascading effect to public health and safety.
2	Medium	Impacts to essential functions as the result of the hazard event and/or cascading effects would be significant, but localized and temporary. This impact would create delayed response to public health and safety, but no immediate concerns.
1	Minimal	Impact to essential functions would be minimal and only require a local response.

Facilities/Infrastructure:

This category considers the impacts of the hazard event to the built environment.

3	High	The hazard event would result in catastrophic damages to the built environment. Damage to the built environment would have cascading and long-term effects. Impacts would strain Federal resources and require extensive long-term recovery efforts.
2	Medium	The hazard event would result in significant damages to the built environment and likely require the need for state or federal resources to effectively recover.
1	Minimal	Effects to the built environment would be limited and likely not exceed the response and recovery efforts at the local level.

Economy:

This category considers the impact to the County's economy from the hazard event.

3	High	Cost to respond and recover from the event would quickly exceed Manatee County's capacity and would likely exceed the amount budgeted in the state and will likely require federal resources.
2	Medium	Cost to respond and recover from the event would likely not exceed the combined amount budgeted by the county and state.
1	Minimal	Cost to respond and recover from the event would likely not exceed county resources.

Environment:

This category considers the cost to remediate the environmental degradation caused by the event. The potential size, scope, and overall impact(s) to the environment should be considered.

3	High	More than 25% of property is severely damaged
2	Medium	More than 5% of property is severely damaged
1	Minimal	Less than 5% of property is severely damaged

Public Confidence:

This category considers the impact a hazard event of each type could have on the public's confidence in the government and emergency management community.

3	High	Significant negative impact. Downturn in public trust for the government's ability to respond to or recover from disaster.
2	Medium	Some negative impact. Public trust is eroded but recoverable as the recovery ensues.
1	Minimal	Little or no impact on the public trust.

The Manatee Emergency Operations Workgroup members (MEOW) were given the opportunity to provide feedback for each of the categories detailed in the Hazard Analysis, Vulnerability Analysis, and the Consequence Analysis sections of this report. For the 2019 update, 16 people from the MEOW group responded and provided feedback for each. The values from each of the respondents was averaged for each of the three sections.

To calculate the Total Risk score, a series of calculations were completed as detailed below.

1. Hazard Analysis Rating (H)

Hazard Score = (Duration + Speed of Onset + Frequency + Magnitude)/1.7

In this formula, 1.7 is a normalizing factor to adjust the scores to the model used in the FEMA Critical Asset Risk Management MGT-315, October 2016.

2. Vulnerability Analysis Rating (V)

Vulnerability Score = (Business + Human + Property + Environment)/2.2

In this formula, 2.2 is a normalizing factor to adjust scores to the scale for vulnerability ratings in FEMA Critical Asset Risk Management MGT-315, October 2016.

3. Consequence Analysis Value (C)

Consequence Score = (Public + First Responders + Continuity of Operations + Infrastructure +Economy Environment + Public Confidence)/2

In this formula, 2 is a normalizing factor to account for the three additional Manatee County factors included with the three FEMA factors used in FEMA Critical Asset Risk Management MGT-315, October 2016. This ensures that the scale will be in line with FEMA's scale.

4. Total Risk Value (R)

Probability Value = Threat Value x Vulnerability Value (P=HxV)

Total Risk = Probability Value x Consequence Value (R=PxC)

The table below provides the calculated results for each of the measures listed above. Throughout the series of calculations, the spreadsheet function rounds the values to one decimal for ease of display. The resulting risk total values allow hazards to be compared against each other to obtain a prioritization of hazards. Although this assessment considers the hazard analysis documented by Manatee County Emergency Management, the threats and hazards identified, and risk values determined in this report are used for planning purposes only.

Hazard	Total Risk Value (R)	Overall Risk Ranking	Probability Value (P)	Consequence Value (C)	Hazard/Threat Value (T)	Vulnerability Value (V)
Natural Hazards						
Hurricane	427.2	1	41.2	10.4	7.0	5.9
Flood	274.2	2	32.6	8.4	6.6	4.9
Tornado	153.1	17	22.3	6.9	5.3	4.2
Earthquake	75.5	30	12.2	6.2	4.0	3.0
Tsunami	82.4	27	13.9	5.9	3.8	3.6
Epidemic	249.8	5	28.6	8.7	6.4	4.4
Exotic Pests and Disease	108.3	24	17.1	6.4	5.0	3.4
Harmful Algal Blooms	157.4	15	23.8	6.6	5.8	4.1
Wildfire	194.2	11	26.8	7.2	6.1	4.4
Sea Level Rise	146.9	18	21.2	6.9	5.2	4.0
Severe Storms	131.7	20	21.8	6.0	6.1	3.6
Drought	223.0	7	30.5	7.3	6.6	4.7
Sinkholes	73.0	31	15.2	4.8	4.5	3.4
Animal Disease Outbreak	81.0	28	14.5	5.6	4.6	3.1
Coastal/Riverine Erosion	63.4	32	13.9	4.6	4.9	2.8
Space Weather	51.5	33	10.5	4.9	4.2	2.5
Winter Storm	31.2	34	7.5	4.1	3.0	2.5
Technological Hazards						
Dam/Levee failure	184.7	13	25.3	7.3	6.2	4.1
Hazardous Materials Release	206.3	9	27.1	7.6	5.8	4.7
Radiological Release	194.2	10	24.0	8.1	5.3	4.5
Critical Infrastructure Disruption	214.3	8	24.9	8.6	6.1	4.1
Airplane Crash	104.2	25	17.5	6.0	4.7	3.7
Major Transportation Incidents	125.9	21	20.3	6.2	5.6	3.6
Train Derailment	91.2	26	17.0	5.4	5.3	3.2
Urban Conflagration	113.9	23	17.5	6.5	4.6	3.8
Power Failure	191.6	12	25.5	7.5	6.8	3.8
Human Caused Hazards						
Terrorist Acts	259.3	3	28.8	9.0	5.9	4.9
Coastal Oil Spills	236.5	6	31.2	7.6	6.4	4.9
Mass Shooting	139.1	19	19.2	7.3	5.1	3.8
Sabotage	174.0	14	23.0	7.6	5.7	4.1
Cyber Incidents	257.4	4	29.1	8.9	6.9	4.2
Civil Disturbance	154.3	16	20.8	7.4	5.2	4.0
Special Events	80.3	29	14.2	5.6	4.6	3.1
Mass Migration	122.9	22	18.7	6.6	5.4	3.4

THIRA is updated every two years, the above most recent being 2024. Extreme Heat was not included in the 2024 THIRA update and will be scored appropriately and included for the 2026 update.

H. OMISSION OF HAZARDS

For purposes of hazard identification, the following hazards were not included based on the recommendation of the Emergency Management Coordinator and Manatee Emergency Operations Workgroup who conducted the hazards analysis. These events have never occurred or would have little to no impact if they did. These include:

- **Volcanic activity** - The nearest volcanic activity to Florida occurs on the island of the Caribbean basin and there is no probability of volcanic activity, it has been removed from the hazards.

- **Landslide** - Due to the generally flat nature of Manatee County, landslide has also been removed.

- **Earthquake** - Due to the location of tectonic plates of the Earth and the stability of the plate Florida rests on, Manatee County is at very marginal risk of an earthquake and therefore has been removed from hazards.

- **Tsunami** - Since Florida is not located along the convergent margins of the tectonic plates, there is no likelihood of earthquake-generated tsunamis affecting the west coast of Florida and has been removed from hazards.

I. REPETITIVE LOSS & SEVERE REPETIATVE LOSS INITIATIVE

As of September 2024, unincorporated Manatee County had 90 single family residences, 18 duplexes, 17 condominiums, 5 commercial and 2 municipal repetitive loss properties. These properties account for 376 flood insurance claims. One property was demolished by the owner in 2016. It is important to note that these numbers do not reflect impacts from the 2024 Hurricane season, in which Manatee County and its jurisdictions were impacted by 3 major storms (Debby, Helene, and Milton).

Repetitive Loss data by jurisdiction:

Jurisdiction	RL	Single Fam.	2-4 Fam.	Multi-Fam.	Comm-ercial	# of Claims
Anna Maria	32	22	9	1	0	243
Bradenton	66	55	5	4	2	215
Bradenton Beach	29	15	6	4	4	237
Holmes Beach	57	26	19	11	1	311
Longboat Key	101	87	8	2	4	485
Palmetto	8	8	0	0	0	196
Manatee County	130	90	18	17	5	417

Source: *NFIP Flood Insurance (Sept 2024)*

Severe Repetitive Loss data by jurisdiction:

Jurisdiction	SRL	Single Fam.	2-4 Fam.	Multi-Fam.	Comm-ercial
Anna Maria	7	5	1	1	0
Bradenton	17	13	1	2	1
Bradenton Beach	7	5	0	0	2
Holmes Beach	5	4	0	0	1
Longboat Key	25	20	3	0	2
Palmetto	2	2	0	0	0
Manatee County	29	24	2	3	0

Source: *NFIP Flood Insurance (Sept 2024)*

The areas with the highest number of repetitive loss locations per sq. mile are the geographic areas with the highest historic flooding. These include the barrier island communities. The distribution of the structures is presented in the table above; however, the list of repetitive loss properties is not available in documents given security and privacy regulations.

To mitigate repetitive loss, Manatee County and its jurisdictions have implemented a process to identify and regulate construction on homes within Flood Zones to comply with FEMA's 50% Rule. Unincorporated Manatee County, City of Bradenton, and City of Bradenton Beach utilize a specialized Floodplain Manager, while City of Palmetto, Town of Longboat Key, City of Homles Beach, and City of Anna Maria all utilize their Building Official as Floodplain Manager to comply with FEMA's 50% Rule. The FEMA 50% rule, also known as the "substantial improvement" rule, states that if the cost to repair damage to a structure exceeds 50% of its market value, the entire structure must be brought up to current floodplain management standards, essentially meaning it must comply with the same regulations as new construction in that area; this rule is part of the National Flood Insurance Program (NFIP) regulations managed by FEMA. (*FEMA, Substantial Improvement/Substantial Damage Desk Guide*)

The location of specific areas in the County where flooding continues to be an issue, allows planners to identify where mitigation efforts should be concentrated. For many of these areas, mitigation will involve significant property owner investment and will probably be delayed until redevelopment or reconstruction occurs.

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SECTION V

PLAN MAINTENANCE

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Section V

Plan Maintenance

The Manatee County Local Mitigation Strategy serves as a guide for hazard mitigation activities on a county-wide basis. The strategy is intended to be a dynamic document that will be updated regularly. In recognition of this fact, continual review and updating of the contents of the Manatee County LMS is necessary.

A. DEVELOPMENT CHANGES

The LMS Plan is not a self-sufficient or one-time document, so during the latest update, the Working Group reviewed how population growth, changes in demographics, and/or the evolution of land use policies affected the vulnerability of the planning area to the known hazards.

As modeling and mapping capabilities have improved, more information has been gathered to support a vulnerability assessment and potential impacts of climate change and sea level rise. With the latest update the Working Group was able to integrate this information into Section IV of the Plan, as well as Appendices supporting the Plan. The Working Group identified multiple projects in most participating jurisdictions which can address aging infrastructure in these vulnerable areas. County-wide, we continue to pro-actively include mitigation measures in development and redevelopment projects as the mapping efforts highlight these areas. Some of these development changes are outlined below:

Manatee County

Manatee County has experienced an incredible growth rate since 2012. Current 2023 population is estimated to be 441,0952 - rising from 258,211 in 2012 and making Manatee County the 16th largest county in Florida. The Metropolitan Planning Organization's 2035 Long Range Transportation Plan estimates approximately 1,500 dwelling units will be built each year through to 2035. Approximately 20% of the County's population resides in the county seat with most living in unincorporated areas.

In an effort for to maintain a more resilient community in the face of current and future climate stressors, the County has chosen to participate in the Tampa Bay Regional Resiliency Coalition as a partner through a Memorandum of Understanding with other Tampa Bay jurisdictions. (See Appendix K) The Coalition was formed to coordinate climate adaptation and mitigation activities across County lines and to advance local and

regional responses to and preparations for economic and social disruption projected to result from sea-level rise and other effects of climate change. The regional cooperation includes:

- Identifying common vulnerabilities and assessment methodologies; development of a Regional Resiliency Action Plan;
- Developing strategies and actions based on sound science and technical data provided by the Tampa Bay Science Advisory Panel;
- Developing legislative strategies and joint position statements recognizing the vulnerabilities of the Tampa Bay region; and
- Providing for community involvement opportunities for local businesses, organizations, associations and individuals in developing policies and recommendations which will be supported by these organizations in order to ensure successful implementation.

With the guidance of the Tampa Bay Resiliency Steering Committee, which consists of regional elected officials, and the Management & Policy Committee, multiple working groups have been initiated (Resilient Shorelines & Spaces and Geospatial Data) and the CSAP Recommended Projections of Sea Level Rise in the Tampa Bay Region (Tampa Bay Climate Science Advisory Panel, 2019) has been accepted. In November of 2022 the Regional Resiliency Action Plan was developed and is referenced in Appendix K.

The County has amended its comprehensive plan to ensure that new large-scale development does not occur in the rural area. Similarly, the County has taken steps to protect the Lake Manatee and Evers Reservoirs and Peace River watersheds through the establishment of land use overlay districts. The purpose of these overlays is to limit the type and intensity of development within the watersheds.

Over the past 7-12 years, the County recognized that past practices of restricting the County to low-rise and low-density development types is not a recipe for a community that wants to attract better employment opportunities, businesses, and a younger and more educated workforce. The County has already begun to address changes in its land development regulations to provide greater opportunities for growth, to include more locations for greater building heights and density, increasing the variety of land uses in developing areas and allowing the free market to work more in the community. The County recently amended their Land Development Code (LDC) to emphasize or encourage development around center of activities and along the urban corridors – development of well-designed communities containing a variety of uses, renewal and rehabilitation of blighted areas and contiguous urban expansion when warranted rather than sprawl.

City of Anna Maria

Due to the location as a barrier island, growth has been restricted for several years. As such, there are no development changes to report.

City of Bradenton

In recent years the City of Bradenton has seen an increase in redevelopment with an emphasis on affordable housing. These multiple family structures are built outside of the floodplain. However, stormwater management remains an issue due to aging infrastructure. The City is considering allowing the replacement of units in vulnerable areas with the intention of replacing aging structures with new FEMA compliant structures due to the FEMA 50% Rule.

City of Bradenton Beach

Bradenton Beach is over ninety percent built out, so growth has been restricted for several years. Due to our location on a barrier island, population densities have been reduced over the years. Additionally, over the past ten years, the population has transitioned from a permanent or semi-permanent population to short-term vacation rental properties. The City has recently adopted Comprehensive Plan amendments to address sea level rise and will be amending Land Development Regulations to implement the Plan. Due to the 2024 Hurricane Season developmental changes resulting in more FEMA compliant structures are expected arise because of the FEMA 50% Rule.

City of Holmes Beach

Due to the location as a barrier island and with a build-out rate exceeding 90 percent, growth has been restricted for several years. Of residential properties, the City is comprised of approximately 25% resident and 75% investment/vacation properties. In 2022, the City adopted a Disaster Ordinance amending Chapter 18, Sections 18-2 through 18-13 of the City's Code of Ordinances; establishing a recovery organization, authorizing preparation of a recovery plan, and granting emergency powers for staff actions to ensure timely and expeditious post-disaster recovery for the City. In 2023, the City adopted changes to the Flood Plain Ordinance by amending the Florida Building Code residential section R-322 to make more stringent the elevation requirements of new construction to Base Flood Elevation + 3' and addressed breakaway walls as ground floor construction standard. In 2024, the City adopted an Emergency Operations Plan to incorporate and coordinate the facilities and workers of the City and its contractors into an efficient organization capable of responding effectively to an emergency.

Town of Longboat Key

The Town has a permanent population of approximately 7,043 residents, but it is also a popular seasonal destination for visitors and part-time residents from both the United States and abroad. During the winter months, when the climate in Florida is mild, the population on the island can increase to approximately 18,000 to 24,000. However, most of the seasonal residents are only on the island for a few weeks to a few months, at most. The island's permanent population increased steadily in the latter part of the 20th century but slowed beginning in 2000. The Town has also adopted planning constraints on density that, in many locations, encourages a reduction in the number of dwelling units as properties redevelop over time. An ongoing trend toward seasonal residency has also increased, as more properties are utilized as vacation or seasonal residences.

Redevelopment. The Town is currently experiencing a renewed interest in redevelopment in the residential, tourism, and commercial sectors. Projects planned, underway, or recently completed include the following:

The Shore Restaurant: Redevelopment of an existing Bayfront restaurant building on north end of the island (currently under construction);

Whitney's Restaurant: Redevelopment of a former gas station site at the corner of Gulf of Mexico Dr. & Broadway Street into a restaurant and convenience store;

Library, Arts, Cultural, and Education Center: Multi-use library, arts, culture, and education center in the Bay Isles shopping area near Town Hall (agreements are underway with Sarasota County and local doners to facilitate the completion of the design)

Longboat Key Club: 300-room resort with conference space on the south end of the island (currently in the early planning phase);

St Regis: 168-room resort with meeting space and 26 condominium units at the former Colony Beach and Tennis Resort was approved by the Town Commission in early 2018, and is now open; and

Numerous individual single-family homes under construction on scattered lots island-wide, including tear-down of older homes to facilitate construction of new and larger homes.

The Town has numerous on-going activities related to improving resiliency and enforces additional clearance above FEMA flood elevations

City of Palmetto

The City of Palmetto has experienced development growth within the last 5 years. The April 2024 Census estimated the population at 13,948. Development projects that have occurred within the last 5 years have been the Sanctuary Cove Residential Development, Marriott Hotel, Emergency Room facility, Culver's and Arby's Restaurants, and renovations of existing buildings within the City. Public safety and roadway renovations have occurred in the last 5 years as well, such as the new Police Department building, 7th Street extension and roundabout, Connor Park, 23rd Street and Business 41 roundabout, as well as updates to existing parks. The City plans to further develop and enhance the existing parks and the core areas of the City, this includes:

- Multi-Modal Corridor - planned to redevelop an old north-south corridor though the City's urban core and will allow for all types of non-standard transportation such as walking, jogging and biking.
- The Ward 1 Phase III construction project includes roadway, storm drainage, sanitary sewer, water distribution and the reclaim water system.
- Wastewater Treatment Facility expansion study is proposed to increase plant processing & disposal capacity.
- The 10th Avenue Complete Street
- The 10th Street West turn lane

As you can see numerous development and renovation projects have taken place throughout the City in recent years. Such development has occurred in part due to natural disasters such as hurricanes that have affected our area. All developments are required to be built to the current codes and FEMA standards.

Future growth of both residential and commercial development is anticipated within the next 5 years.

B. PROGRESS IN MITIGATION EFFORTS

Reference Appendix G.

C. CHANGES IN PRIORITIES

The initial preparation of the goals and objectives was undertaken by the entire LMS Working Group, comprised of staff from both the County and participating local governments. As a result, a wide range of technical expertise was available to provide input into the development of the LMS goals and objectives. In preparing the LMS goals and objectives, the Working Group drew upon information contained in each jurisdiction's Local Government Comprehensive Plan (adopted pursuant to Chapter 163,

Part II, Florida Statutes), Community Rating System, Flood Plain Management Plans, Repetitive Loss Initiatives, and other relevant documents. By drawing upon the adopted local government comprehensive plans, the LMS effort ensures that the goals and objectives are reflective of the County's and its jurisdictions' long-term vision. In accomplishing its work, the Working Group strove to ensure that the LMS goals and objectives were consistent with, not in conflict with, and/or furthered existing statutory and regulatory requirements. Furthermore, the goals and objectives were structured in a more generalized manner, since to one degree or another, all the jurisdictions in Manatee County are susceptible to the hazardous events described in this LMS. This approach allows for flexibility in the way the participating local governments implement the goals and objectives.

During the last 5-year update cycle, it was decided that a sub-committee would evaluate the goals and objective, bringing recommended revisions back to the Working Group to discuss and ultimately vote upon as a whole. This process, the sub-committee review, recommendations, and discussion process, went through three rounds prior to a final set of goals and objectives finally being voted upon. Those priorities and goals have not changed for this 5-year update.

The Plan's historical evolution, found in the Preface of the Plan, provides a complete account of a summary of changes to the Plan. The summary tables allow users of the Manatee County Local Mitigation Strategy Plan to quickly and accurately determine where changes have been made. Some appendices change frequently since they are a repository of information based on action of the LMS Working Group at property noticed public meetings and therefore, the reader shall reference the appendices to see the most recent information.

D. MONITORING

The Manatee County Emergency Management Division, Planning Coordinator, of the Public Safety Department has the primary responsibility of monitoring and supporting the Plan. This effort shall include technical and clerical support for the benefit of the LMS Working Group. The department will monitor the status of the LMS supported projects throughout the year, and will assess the Plan against the Florida Division of Emergency Management established evaluation criteria to determine if any changes to the Plan are necessary. Should it be determined by the Chair or any member of the LMS Working Group that the Plan requires further evaluation/update, an event has significantly changed or negated parts of the LMS, or a LMS-supported project may be eligible for grant funding, the item(s) will be discussed at either one of the

regularly scheduled quarterly meetings or at a Special Meeting called by the Chair.

E. EVALUATION

The Working Group shall continue to hold quarterly meetings to review the effectiveness of the LMS and update the local government LMS initiatives as necessary. In the event no potential changes have been identified in the aforementioned monitoring period, or there is a lack of business to be discussed, the Working Group will hold at, at minimum, one annual meeting to review and evaluate the Plan against FDEM and Plan established evaluation criteria. The Manatee County Public Safety Department Emergency Management Division, Planning Coordinator, shall be responsible for scheduling and noticing all meeting, and such notices shall be issued a minimum of 15 days in advance of the meeting date.

The participating local governments/agencies shall present new initiative projects they have identified at the quarterly meetings. These initiatives shall be evaluated, prioritized, and incorporated into the LMS at these meetings. Those mitigation initiatives which have been completed will be identified and moved to the COMPLETED list of the Project Initiatives List. Initiatives which have not been completed shall be re-evaluated for further consideration. The Mitigation Initiatives Evaluation Scoring Sheet shall be used to evaluate each new initiative. In addition, following a disaster event, the lessons learned or applicable comments from any post-event interagency hazard mitigation reports shall be incorporated into the LMS.

An annual review will take place during the third quarter of each calendar year and no later than the start of the fourth quarter of each calendar year to complete the review process prior to the conclusion of the fourth quarter of each year. The evaluation criteria shall include, but is not limited to:

1. Are there any new changing laws, regulations, or policies that require changes to the LMS?
2. Have there been any mandates from Federal, State, or Local agencies that require changes to the LMS?
3. Do the goals and objectives of the LMS address current and expected conditions for Manatee County?
4. Has the nature, magnitude, or type of risks changed for the County?
5. Are current resources appropriate for implementing the Plan?
6. Are there implementation challenges, such as technical, political, legal, financial, or coordination issues with other agencies?
7. Have the outcomes occurred as expected?
8. Are the jurisdictions and other partners participating as originally planned?

9. Are there recommendations or lessons-learned from any incident or event during the review period?

F. UPDATING THE PLAN

Commencing in January 2005 and every January thereafter, the Manatee County Public Safety Department Emergency Management Division, Planning Coordinator, shall publish a report which evaluates the effectiveness of the LMS to date in meeting the hazard/disaster mitigation needs of the County. The report will also include the distribution of revised/updated mitigation initiatives and other sections of the LMS as needed to include a review of its membership.

Every five years, the Plan shall undergo a 5-year cycle update. The review of the LMS shall commence eighteen (18) months prior to the expiration date of the Plan adopted by the Manatee County Board of County Commissioners. The Working Group shall appoint a sub-committee(s) to conduct a review of the overall Manatee County LMS, assessing its effectiveness of the current LMS and identifying those revisions necessary to meet the disaster/hazard mitigation needs of the County. The sub-committee(s) shall report to the full Working Group at its next scheduled quarterly meeting. The report shall also be provided to the elected officials of all participating local governments for review and comment.

During the following two quarters, the sub-committee(s) and any Working Group Members shall meet to review, endorse, and/or revise the report. During this process, the Working Group shall also take into consideration the comments of participating local governments and other interested agencies/parties.

The LMS Working Group shall vote prior to transmitting the draft report to the State of Florida Division of Emergency Management, State Hazard Mitigation Officer. Upon receipt of comments for the State and subsequent revisions, the document shall be submitted to the Manatee County Board of County Commissioners. The Board shall vote to accept the Report and after review and discussion, vote to adopt those revisions recommended by the Working Group for inclusion in the Manatee County LMS.

In addition to the 5-Year Update, the LMS may be submitted to the Manatee County Board of County Commissioners and participating City/Town Councils/Commissions for amendment following a major disaster/hazard event which results in a substantial revision to the Manatee County LMS.

The responsibility of identifying the appropriate methods or actions of incorporating the mitigation strategy into existing planning mechanisms

rest with each jurisdiction's LMS Work Group representative. The process of incorporating the Local Mitigation Strategy into existing planning mechanisms begins with an audit by each jurisdiction of their plans to determine which mechanism is due for a required review or which mechanism was determined by their respective Administration for review in the upcoming year. State of Florida Statutes and Administrative Law require specific procedures in order to enact change in many of these planning mechanisms, but each jurisdiction has their own unique way of implementing these requirements. Ultimately, it is the responsibility of each jurisdiction to implement the respective changes to their planning mechanisms, and it is the responsibility of the LMS Work Group to support and assist when possible, other members of the LMS Work Group in implementing these changes.

One of the key advantages of the Manatee County LMS Working Group is that it is made up of a diverse group of job specialties ranging from professional planners, engineers, public works professionals, emergency management professionals and educators that operate on a daily basis in a diverse group of business environments. Membership also includes the County's Floodplain Managers who is responsible for the Community Rating System. The LMS Work Group has demonstrated the incorporation of the mitigation strategy into other planning mechanisms by combining the Local Mitigation Strategy Plan with each jurisdiction's Floodplain Management Plan in this document. In previous years, these planning tools were separate documents with each requiring their own jurisdictional board resolution. While this is an initial step, it has avoided the duplication of effort, duplication within the documents, and the requirement of two distinct board resolutions. The LMS Work Group and the Regional Floodplain Management Planning and Coordination Committee will continue to identify areas of common interest and requirements that can be documented in the LMS Plan to avoid further duplication and present a more refined document in the future.

Another keen aspect of the diversity within the LMS Work Group membership is all the County and municipality representatives are involved in the updating and maintenance of each jurisdiction's Comprehensive Plan. Florida Statute requires each jurisdiction to submit an Evaluation and Appraisal Report (EAR) that has been approved by their respective Board to the Florida Department of Community Affairs for approval. Reference Section I for a for a list of the respective EAR due dates.

G. COMMUNITY INVOLVEMENT

The Manatee County Local Mitigation Strategy Work Group is dedicated to public involvement in the hazard mitigation planning and review process

and continues to seek opportunities to increase the public's participation. As part of the goals and objectives of the LMS, the Work Group has established standards that will continue, including advertising all quarterly and special meetings, updating and maintaining a comprehensive mitigation video, and forming partnerships with other related entities to keep the public informed and, hopefully, create greater involvement. At a minimum, public outreach plans and opportunities will be discussed at one of the quarterly meetings. In addition, the Manatee County web site will be available with the most up-to-date documentation and points of contact for the public. The partnership forged by the LMS Work Group and the Regional Floodplain Management Planning and Coordination Committee will offer an increased opportunity for success in generating public involvement during activities such as the adoption process of the new Flood Insurance Rate Maps. This partnership has also created a joint public outreach committee whose mission is to integrate the mitigation and Community Rating System outreach activities into one, to reduce expenditures and reach a greater number of community residents.

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SECTION VI

FORMAL ADOPTION

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Section VI

Formal Adoption

The final step in the planning process will be the adoption of the plan by legislative bodies of Manatee County and its municipalities. This section includes draft proposal acceptance of the LMS plan by the LMS Working Group, which includes representatives from each jurisdiction, and the Manatee County Board of Commissioners for submittal of the draft plan to the State of Florida Division of Emergency Management (FDEM) on or before May 1, 2025. All jurisdictions within will have the LMS adopted by December 1, 2025.

A. ADOPTION RESOLUTION

Manatee County:

The Resolution, by which the Manatee County Board of County Commissioners formally adopts the updated Manatee County Local Mitigation Strategy will be incorporated into this section following approval of the revised document by the Florida Division of Emergency Management and Federal Emergency Management Agency. In fulfillment of the requirements of 44 CFR 201.6(b)(1), Pursuant to Florida Statutes, the Resolution will be duly advertised and adopted during an advertised public meeting.

Participating Jurisdictions:

Resolutions from the six participating Manatee County governments formally adopting the updated Manatee County Local Mitigation Strategy will be incorporated into this section following approval of the revised document by the Florida Division of Emergency Management and Federal Emergency Management Agency. In fulfillment of the requirements of 44 CFR 201.6(b)(1), each participating jurisdiction provided a description of the procedures to be followed in the adoption of their respective LMS resolutions. Pursuant to Florida Statutes the resolutions will be duly advertised and adopted during an advertised public meeting.

B. CERTIFIED MEETING MINUTES

Certified meeting minutes from Manatee County, as well as the six participating local governments, formally adopting the updated Manatee County Local Mitigation Strategy will be incorporated into this section following approval of the revised document by the Florida Division of Emergency Management and Federal Emergency Management Agency.

NOTE

The Town of Longboat Key is located within both Manatee County and Sarasota County. As a result, the Town has participated in the development of both the Manatee County and Sarasota County LMS. This spilt participation is reflected in the fact that the repetitive loss properties and critical facilities listed within this LMS are located within the Manatee County portion of the Town. The listed initiatives are located either within the Manatee County portion of the community or have Town-wide application.

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APPENDIX A

2025 LMS WORKING GROUP MEMBERSHIP

The following pages contain the list of names of the members of the Manatee County Local Mitigation Strategy Working Group. The list contains their names, jurisdiction or organization, title, and contact information. This list is current as of January 14, 2025.

LOCAL MITIGATION STRATEGY
2025 WORKGROUP MEMBERS

NAME	AGENCY	Title	Position	EMAIL	PHONE	ADDRESS
Center, Eric	**Cedar Hammock Fire Rescue**	Fire Marshal	Prime	ecenter@chfr.org	941-727-2076	5200 26th St. W. Bradenton, FL 34207
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****Red indicates Lead Representative**

APPENDIX B

HISTORICAL HAZARD EVENTS

To prepare an update to the mitigation strategy, it is still important to look at the history of hazards which have affected a community. The primary cause for concern in Manatee County continues to be weather events, wildfire, hazardous materials incidents, and coastal oil spills. Of these, tropical storms, hurricanes, tornados, drought, wind lightning and repetitive flooding have been the major concern.

Manatee County has experienced substantial flooding not only as a result of tropical storms and hurricanes, but as a result of "normal" summer and winter storms. Evacuation of some coastal areas has been necessary as a result of such storms. The table below captures the hazard events for the most recent 5 years.

HAZARD EVENTS 2020 THROUGH 2024

51 events were reported between 01/01/2020 and 12/31/2024 (1827 days)

Summary Info:

Number of County/Zone areas affected:	3
Number of Days with Event:	33
Number of Days with Event and Death:	2
Number of Days with Event and Death or Injury:	3
Number of Days with Event and Property Damage:	18
Number of Days with Event and Crop Damage:	1
Number of Event Types reported:	10

Column Definitions:

'Mag': Magnitude, 'Dth': Deaths, 'Inj': Injuries, 'PrD': Property Damage, 'CrD': Crop Damage

Location	County/Zone	St.	Date	Time	T.Z.	Type	Mag	Dth	Inj	PrD	CrD
Totals:								5	1	1.012B	8.00K
ANNA MARIA	MANATEE CO.	FL	02/06/2020	23:04	EST-5	Thunderstorm Wind	54 kts. EG	0	0	0.00K	0.00K
OAK KNOLL	MANATEE CO.	FL	06/06/2020	11:40	EST-5	Flood		0	0	0.00K	0.00K
CORTEZ	MANATEE CO.	FL	07/16/2020	17:05	EST-5	Tornado	EF0	0	0	0.00K	8.00K
CORTEZ	MANATEE CO.	FL	08/09/2020	17:15	EST-5	Tornado	EF0	0	0	20.00K	0.00K
CORTEZ	MANATEE CO.	FL	08/09/2020	17:15	EST-5	Thunderstorm Wind	58 kts. EG	0	0	0.00K	0.00K
LAKEWOOD RANCH	MANATEE CO.	FL	08/11/2020	13:25	EST-5	Thunderstorm Wind	43 kts. EG	0	0	3.00K	0.00K
BRADENTON	MANATEE CO.	FL	09/10/2020	15:34	EST-5	Flood		0	0	0.00K	0.00K
WEST SAMOSET	MANATEE CO.	FL	09/10/2020	15:37	EST-5	Flood		0	0	0.00K	0.00K
MATOAKA	MANATEE CO.	FL	09/10/2020	17:48	EST-5	Flood		0	0	0.00K	0.00K
VERNA	MANATEE CO.	FL	11/11/2020	12:18	EST-5	Tornado	EF0	0	0	0.00K	0.00K
INLAND MANATEE (ZONE)	INLAND MANATEE (ZONE)	FL	11/11/2020	16:39	EST-5	Tropical Storm		0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	11/11/2020	16:39	EST-5	Tropical Storm		0	0	10.300M	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	11/11/2020	18:00	EST-5	Storm Surge/tide		0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	11/11/2020	21:00	EST-5	Storm Surge/tide		0	0	500.00K	0.00K
BAYSHORE GARDENS	MANATEE CO.	FL	04/10/2021	16:45	EST-5	Tornado	EF1	0	1	1.000M	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	07/06/2021	21:46	EST-5	Tropical Storm		0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	07/06/2021	22:00	EST-5	Tropical Storm		0	0	5.00K	0.00K
MYAKKA CITY	MANATEE CO.	FL	07/07/2021	05:55	EST-5	Flood		0	0	5.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	07/07/2021	08:30	EST-5	Storm Surge/tide		0	0	0.00K	0.00K
GILLETT	MANATEE CO.	FL	07/11/2021	15:37	EST-5	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
GILLETT	MANATEE CO.	FL	08/12/2021	16:59	EST-5	Thunderstorm Wind	52 kts. EG	0	0	20.00K	0.00K
ELLENTON	MANATEE CO.	FL	08/12/2021	17:01	EST-5	Thunderstorm Wind	43 kts. EG	0	0	10.00K	0.00K
LAKEWOOD RANCH	MANATEE CO.	FL	09/07/2021	13:44	EST-5	Lightning		1	0	0.00K	0.00K
PARMALEE	MANATEE CO.	FL	10/28/2021	13:16	EST-5	Tornado	EFU	0	0	0.00K	0.00K
BAYSHORE GARDENS	MANATEE CO.	FL	12/21/2021	08:12	EST-5	Thunderstorm Wind	43 kts. EG	0	0	5.00K	0.00K
MATOAKA	MANATEE CO.	FL	05/31/2022	17:55	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
ROSEDALE	MANATEE CO.	FL	05/31/2022	17:59	EST-5	Funnel Cloud		0	0	0.00K	0.00K

BRADENTON SOUTH	MANATEE CO.	FL	05/31/2022	18:51	EST-5	Thunderstorm Wind	52 kts. EG	0	0	50.00K	0.00K
PARRISH	MANATEE CO.	FL	06/15/2022	17:30	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
BRADENTON SOUTH	MANATEE CO.	FL	06/26/2022	16:28	EST-5	Flood		0	0	0.00K	0.00K
BRADENTON SOUTH	MANATEE CO.	FL	06/26/2022	18:00	EST-5	Flood		0	0	0.00K	0.00K
GILLETT	MANATEE CO.	FL	08/21/2022	16:35	EST-5	Thunderstorm Wind	48 kts. EG	0	0	100.00K	0.00K
PARRISH	MANATEE CO.	FL	08/29/2022	17:15	EST-5	Lightning		0	0	25.00K	0.00K
EL RANCHO VLG	MANATEE CO.	FL	09/02/2022	13:17	EST-5	Thunderstorm Wind	52 kts. EG	0	0	200.00K	0.00K
BALENTINE MANOR	MANATEE CO.	FL	09/17/2022	20:00	EST-5	Flood		0	0	50.00K	0.00K
INLAND MANATEE (ZONE)	INLAND MANATEE (ZONE)	FL	09/28/2022	15:35	EST-5	Tropical Storm		0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	09/28/2022	15:35	EST-5	Hurricane		4	0	1.000B	0.00K
LAKEWOOD RANCH	MANATEE CO.	FL	10/15/2022	17:36	EST-5	Hail	1.00 in.	0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	11/10/2022	08:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
INLAND MANATEE (ZONE)	INLAND MANATEE (ZONE)	FL	11/10/2022	08:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
INLAND MANATEE (ZONE)	INLAND MANATEE (ZONE)	FL	08/30/2023	01:30	EST-5	Tropical Storm		0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	08/30/2023	01:30	EST-5	Tropical Storm		0	0	0.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	12/17/2023	00:30	EST-5	Coastal Flood		0	0	0.00K	0.00K
PARRISH	MANATEE CO.	FL	06/23/2024	14:19	EST-5	Funnel Cloud		0	0	0.00K	0.00K
GILLETT	MANATEE CO.	FL	07/25/2024	16:30	EST-5	Lightning		0	0	35.00K	0.00K
BAYSHORE GARDENS	MANATEE CO.	FL	07/30/2024	15:55	EST-5	Thunderstorm Wind	43 kts. EG	0	0	25.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	08/04/2024	07:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
INLAND MANATEE (ZONE)	INLAND MANATEE (ZONE)	FL	08/04/2024	07:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
HOLMES BEACH	MANATEE CO.	FL	08/22/2024	08:19	EST-5	Lightning		0	0	100.00K	0.00K
COASTAL MANATEE (ZONE)	COASTAL MANATEE (ZONE)	FL	09/26/2024	09:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
INLAND MANATEE (ZONE)	INLAND MANATEE (ZONE)	FL	09/26/2024	09:00	EST-5	Tropical Storm		0	0	0.00K	0.00K
Totals:								5	1	1.012B	8.00K

Additionally, the table below provides a list of known historical hazard events that occurred in Manatee County since 1921. This list will be updated as needed on an annual basis.

HISTORICALLY - MAJOR EVENTS IN MANATEE COUNTY

Year	Month	Day	Hazard	Damage
2024	October	9	Hurricane	Hurricane Milton made direct landfall on Siesta Key at 8:30pm as a major hurricane. The effects to the county's infrastructure are still undetermined.
2024	September	27	Hurricane	Hurricane Helene made its way up the west coast of Florida, 100 miles off shore, and brought historical flooding and sand displacement to coastline & river properties. The beaches will be under construction for the years to come to recover from Helene.
2024	August		Hurricane	Hurricane Debby made landfall near Steinhatchee, Florida, bringing unprecedented rainfall to Manatee County. Over a 24-hour period, the storm dumped record-breaking amounts of rain, over 18inches, leading to widespread flooding and dangerous conditions across the county. The heavy rainfall resulted in river and flash flooding, prompting the closure of numerous roadways and requiring water rescues from stranded vehicles and homes in area neighborhoods. The county experienced significant damage, with early estimates indicating costs surpassing $13 million.
2024	May-June	30-11	Drought	Manatee County experienced significant drought conditions, with rainfall in May totaling less than an inch—well below the normal range of 2.21 to 5.16 inches. This prolonged dry spell led to increased wildfire risks, prompting the county to implement a burn ban starting June 3, which was subsequently extended through June 17. The ban prohibited all outdoor burning, including the use of fireworks and sparklers, to mitigate fire hazards. Despite the onset of Florida's rainy season on June 1, initial rainfall was insufficient to alleviate the drought,

				necessitating continued fire safety measures.
2024	January	9	Winter Storm	A potent winter storm system impacted Manatee County, Florida, bringing severe weather conditions. The county experienced strong winds, with gusts reaching up to 50 miles per hour, and heavy rainfall, leading to concerns over coastal flooding. In response to the rapidly intensifying storm and an active tornado watch, Manatee County officials declared a local state of emergency and closed all county services and programming for the day. Residents were advised to exercise caution due to the hazardous conditions.
2023	December	17	Flood Event	Manatee County, Florida, experienced significant flooding due to a potent storm system that brought heavy rainfall and elevated tides. The National Weather Service reported that storm surge levels at Port Manatee exceeded three feet, leading to road closures and the temporary shutdown of several county parks. Anna Maria Island was particularly affected, with numerous roads and some homes inundated by floodwaters.
2023	August	30	Hurricane	Hurricane Idalia made landfall in Florida's Big Bend region as a Category 3 storm with sustained winds of 125 mph. Although the eye of Idalia was approximately 100 miles west of Manatee County, the area still experienced significant effects. The Manatee River overflowed along the Riverwalk in Bradenton, leading to localized flooding. The Sunshine Skyway Bridge was closed due to sustained winds between 50 to 60 mph. Rainfall in the county ranged from 3 to 4.5 inches, with wind gusts reaching up to 67 mph. Evacuation orders were

				lifted, and access to barrier islands was restored by the afternoon of August 30
2023	February	28	Train De-rail	On February 28, 2023, a train derailed in an industrial area east of the Sarasota-Bradenton International Airport in Manatee County, Florida. The incident involved two propane tankers and five rail cars; one propane tanker overturned, while the other remained upright. Fortunately, no leaks or injuries were reported. Emergency crews, including fire and hazmat teams, responded promptly to monitor the situation and ensure safety. The cleanup process required careful handling, as the propane had to be safely removed from the overturned tanker before the cars could be righted and the tracks cleared.
2022	November – Dec		Red Tide	Elevated concentrations of *Karenia brevis* were detected in local waters, leading to health alerts for areas such as Bayfront Park and Coquina Beach South. Residents and visitors reported respiratory irritations, and there were notable fish kills in the region. The Florida Department of Health in Manatee County issued advisories, urging the public to avoid affected areas, refrain from consuming distressed or dead fish, and exercise caution due to potential respiratory issues.
2022	November	8	Hurricane	As Hurricane Nicole approached Florida, Manatee County declared a state of emergency in anticipation of potential impacts. The county opened Freedom Elementary School as a "Safe Haven" shelter for residents concerned about their homes' structural integrity, especially those in mobile or manufactured homes. Although Nicole made landfall on Florida's east coast as a Category 1 hurricane, by the time it

				reached the Sarasota-Manatee area, it had weakened to tropical storm strength, resulting in minimal impacts locally. Residents experienced some gusty winds and rainfall, but no significant damage was reported in Manatee County.
2022	October	3	Hurricane	Hurricane Ian made landfall in Florida as a powerful Category 4 storm, bringing significant impacts to Manatee County. The county experienced heavy rainfall and hurricane-force winds, leading to widespread damage. Numerous trees were uprooted, and structural damage was reported across the region. In the aftermath, residents began the process of cleaning up and assessing the damage caused by the storm.
2022	April	10	Fire	On April 10, 2022, a significant fire broke out at Port Manatee in Manatee County, Florida, causing substantial damage to the port's facilities and infrastructure. The blaze led to the temporary closure of certain port operations, affecting cargo handling and shipping schedules. Emergency response teams were deployed to contain the fire and assess the extent of the damage. Following the incident, port authorities initiated investigations to determine the cause and implemented measures to prevent future occurrences, ensuring the safety and security of port activities.
2021	June	5	Hurricane	Hurricane Elsa approached Florida's west coast, impacting Manatee County on July 6–7. The storm brought heavy rainfall, with some areas receiving up to 10 inches, leading to localized flooding. Wind gusts reached up to 54 mph at Sarasota-Bradenton International Airport, causing minor damage and power outages. Despite the challenges, the county's preparedness efforts helped mitigate more severe impacts.

2021	July-August		Red Tide	Elevated concentrations of *Karenia brevis* were detected in local waters, leading to health alerts for areas such as Bayfront Park and Coquina Beach South. Residents and visitors reported respiratory irritations, and there were notable fish kills in the region. The Florida Department of Health in Manatee County issued advisories, urging the public to avoid affected areas, refrain from consuming distressed or dead fish, and exercise caution due to potential respiratory issues.
2021	March - April	1	HAZMAT	In March 2021, a leak was discovered in a containment wall of a wastewater reservoir at the former Piney Point phosphate plant in Manatee County, Florida. To prevent a catastrophic collapse, officials authorized the controlled release of over 200 million gallons of nutrient-rich wastewater into Tampa Bay. This discharge raised environmental concerns due to elevated levels of nitrogen and phosphorus, which can exacerbate harmful algal blooms and negatively impact marine ecosystems. In response, Governor Ron DeSantis declared a state of emergency, and local authorities issued evacuation orders for nearby residents as a precautionary measure. Efforts to manage and remediate the site have been ongoing, with plans to permanently close the facility and address the environmental impacts.
2020	September	16	Hurricane	Hurricane Sally formed in the Gulf of Mexico and made landfall near Gulf Shores, Alabama, on September 16 as a Category 2 hurricane. While the most severe impacts were concentrated in Alabama and the Florida Panhandle, Manatee County, experienced rainfall and gusty winds, leading to minor flooding in low-lying areas and temporary power outages. The county's

				emergency management services monitored the situation closely, but no significant damage or long-term disruptions were reported in Manatee County due to Hurricane Sally.
2020	March – March 21		Pandemic	In March 2020, Manatee County, Florida, reported its first confirmed COVID-19 cases, marking the local onset of the pandemic. In response, the Board of County Commissioners declared a state of local emergency on March 16, enabling the county to implement protective measures swiftly. By the end of March, the county had enacted a temporary curfew to limit non-essential travel during nighttime hours, aiming to curb the virus's spread. These early actions were part of broader efforts to manage the emerging public health crisis within the community.
2019	August/September	27-1	Hurricane	Hurricane Dorian threated possible hurricane/tropical storm force winds in Manatee County. Dorian stalled and changed path. No direct impact other than hourly pay.
2019	August	12-19	Flood	Days of heavy rain brought upwards of 10 inches in 7 days to portions of the county. Storm drains filled. One home flooded.
2018	May	25-27	Tropical Storm	Sub-Tropical Storm Alberto weakened before skirting west Florida. Wind gusts reported 35-40 mph with high surf and rip tide warnings.
2018	August-September	1/10	Red Tide	Red Tide along shores of Manatee County. 267.70 tons of debris from beaches into dumpsters transferred to the county landfill. Unknown total loss to economy
2018	October	7-11	Hurricane	Hurricane Michael skirted West Florida bringing wind gusts below 40 mph with high surf and rip tide warnings.
2017	January	23	Severe Weather	Weather gave minor damage to 3 mobile homes from wind.

2017	April-May		Drought	County Commission declared a State of Local Emergency and implemented a "Burn Ban" in fear of wildfires due to drought conditions. Water restrictions in place.
2017	May	18	Fire	Callighan Tire Fire.
2017	July	31	Tropical Storm	Tropical Storm Emily. "pop-up" storm formed and made landfall with 45 mph winds on Anna Maria Island. Local heavy rain causing flooding and a weak tornado did minor damage.
2017	August	26-27	Severe Weather/Flood	Severe weather caused flooding after 23.28 inches fell in the county within 24 hours. 130 building impacted. Small tornado struck Public Works compound on 26th Ave E on Aug. 26. About $1,000,000 in damage to canals and stormwater pipes.
2017	September	1-2	Flood	Flooding in and around 4th St E and Burgundy Condo Area
2017	September	10-11	Hurricane	Hurricane Irma. Cat 4 @ Florida landfall which dissipated into a 2 or 1 by the time the eye wall was near Myakka City. Largest shelter population and sandbags filled. First time in history Manatee Memorial Hospital was evacuated. First time all shelters were open. 337 structures damaged or destroyed. Debris cleanup cost $13.2 million. Residents without power at 85% and longest time at 10 days past storm. 1 direct casualty from storm in the county.
2016	January	17	Tornado	Tornado touchdown Albritton Rd and 66th St NW in Myakka/Duette. 7 Patients total with one DOA. Damage estimated $173,876.00.
2016	June	5	Tropical Storm	Tropical Storm Colin. 1-3" of rain and winds up to 50+ MPH. Private Property damage at $303,344. County property damage at about $300,000. City of Bradenton damage at about $200,000.
2016	July		Public Health Crisis	Zika Virus first case found in Manatee County. Case was identified as travel-related.

2016	September	1	Hurricane	Hurricane Hermine. Gusts up to 57 MPH and average 8 inches of rain with flooding to many roads due to already wet conditions. 140 homes affected with public assistance at $3.2 million.
2016	October	6-7	Hurricane	Hurricane Matthew. Hurricane skirted the east coast. No direct damage. Cost of manpower to county.
2015	February	5	Wind	During heavy rain storm, a straight- line downburst was recorded at 55 to 65 mph caused damage at Mixon Fruit Farms in Bradenton, estimated at $50,000.
2014	March	25	Severe Weather	Winds reaching 52 mph caused roof damage to a business in Palmetto, which allowed rain to enter the building. Damage estimated at $40,000.
2014	May	25	Hail	Nickel sized hail in Elwood Park.
2014	June	27	Severe Weather	Storm produced winds up to 46 mph in Ellenton which caused minor damage estimated at $10,000 when tree fell on a home.
2014	August	31	Severe Weather	Winds recorded at 62 mph at Sarasota/Bradenton Airport.
2013	June	6	Tropical Storm	Tropical Storm Andrea. Loss of sea turtle nest, shorebird nests, some beach erosion. No damage reported to property in the island communities. Minimal damage due to tornado (EF0) spawned by storm in Myakka. Damage estimates at $36,000.
2013	July	9	Tornado	An outflow boundary collision produced a thin line of thunderstorms with a weak circulation. The storm generated an EF0 tornado which damage 7 mobile home, three of which were moderate to heavy damage in a mobile home park in Palmetto. Damage estimated at $20,000.
2013	July	17	Severe Weather	Storm producing winds at 52 mph caused $10,000 in damages at El Rancho Village mobile home park.
2012	June	8	Hail	Hail 1.25 inch in size reported in West Samoset. No damage reported.

2012	June	24	Tropical Storm	Tropical Storm Debby. Water reached retention walls of several condos on Anna Maria Island with significant damage to the south side of the island where half the sand dunes were lost. Gusts 39 to 50 mph at airport, with up to 5" of rain across the county. 278 homes and businesses damaged due to wind and flooding, estimated at $130,000. Damage to public beaches totaled $5.9 million with $300,000 damage to public buildings. Bradenton Beach had damage to the floating dock, a seawall, dinghy dock and to the City Pier. Estimate to repair came to $1,050,000. Five vessels in the mooring area were sunk, with removal costs at $18,000.
2011	January	17	Severe Weather	Storms producing winds up to 67 mph, causing $5,000 in damage in Palma Sola with lightning causing $10,000 damage on Anna Maria Sound. Parrish experienced 1" hail.
2011	January	25	Tornado	EF0 seen in rural area near SR 64 and Windgate Road. No damage reported.
2011	March	2	Wildfire	A wildfire ignited from an unattended campfire burned 19 acres in a wooded area surrounded by 8 homes in the Verna Bethany area.
2011	March	31	Severe Weather	Winds produced by storm up to 60 mph. $5,000 in damage in Palma Sola.
2011	June	12	Severe Weather	Winds estimated at 45 mph caused $5,000 in damage to stable in Myakka City.
2010	January		Freeze	Estimated $1 million in damages to palm trees at Turner Tree & Landscape included in the total damage to agriculture of $6.9 million after record 14 night below 40 degrees.
2010	February	12	Severe Weather	Winds up to 45 mph caused roof damage in East Bradenton. Tree limbs downed power lines. Estimated damage $10,000.
2010	February	26	Freeze	Temperatures as low as 27 degrees caused $900,000 in crop damage in East Manatee county.

2010	April	26	Severe Weather	Winds up to 60 mph. Caused $5,000 in damages to 15 mobile homes in Trailer Estates. Minor roof damage to house in Bayshore Gardens.
2010	December		Freeze	Sub-freezing temperatures for 2 to 5 hours, the lowest 23 degrees in Duette causing $4.32 million in crop damage.
2009	April	14	Lightning	Lightning struck the roof of a house causing $200,000 damage due to fire in Palma Sola.
2009	May	20	Hail	Quarter size hail reported in downtown Bradenton and penny size hail reported in West Bradenton. No damage estimates reported.
2009	May	24	Lightning	4 people injured standing under a tree when it was struck by lightning. Two people were transported to the hospital.
2009	May	25	Lightning	Farm worker injured when struck in back by lighting. First and second degree burns.
2009	July	1	Lightning	Caused $750,000 in damage to house in Lakewood Ranch due to fire consuming most of the house and contents.
2009	August	21	Lightning	Caused $20,000 in damage to a house in Ballentine Manor.
2009	September	11	Rainfall Event	4.45 inches of rain measured over 24 hours east of Ellenton. Minor road flooding.
2009	September	12	Rainfall Event	6.20 inches of rain measured at Lake Manatee and 5.0 inches in Palma Sola. Widespread rain of 4 to 8 inches across county resulted in road closures on SR 70, 62, 39 and CR 675. In Duette there was $100,000 in damages.
2009	September		Flood	Damage to homes north end of Anna Maria Island.
2008	July	23	Severe Weather	Thunderstorm with wind gusts up to 60 mph caused significant damage to a roof in Myakka City, causing 7.5 inches of rain in the home, rendering it uninhabitable. Golf ball sized hail was seen in the area. Damage was estimated at $165,000.

2008	September		Hurricane	Hurricane Ike. Minor flooding of Holmes Beach roads, beach erosion.
2008	December	2	Severe Weather	A cold front moved through area with a weak squall line just ahead of the front, producing wind gusts from 40 to 50 mph. Damage to sheds, lanais, and aluminums on carports in a mobile home park in Bradenton Beach. Damage estimated at $15,000.
2007	June	2	Tropical Storm	Tropical Storm Barry. Minor beach erosion.
2007	June	8	Hail	Gusty winds and golf ball size hail hit a male in the head and left a cut above his right eye in Holmes Beach.
2007	July	16	Lightning	Lightning struck the ground near a boy injuring him
2007	July	21	Lightning	Lightning struck a tropical furniture factory in Bradenton causing a fire with $1.5 million in damages to the building and contents
2006	June		Tropical Storm	Tropical Storm Alberto. Minor flooding and trees damaged
2006	July	13	Lightning	Lightning also struck a 16 year old male as he was doing yard work for his family lawn care business. The bolt struck a nearby tree and the boy at the same time and a branch from the tree fell and struck the boy who was transported to a nearby hospital
2006	July	27	Lightning	Lightning sparked a house fire in Panther Ridge subdivision causing $300,000 in damage.
2006	July	29	Lightning	Lightning caused a fire in the attic of a home in Northwest Bradenton causing $250,000 in damage.
2006	August	15	Lightning	Lightning sparked a fire that destroyed a 12 unit apartment complex on Manatee Avenue West. Estimated damage at $1.2 million.
2005	March	23	Wind	A low formed behind a line of thunderstorms produced winds with gust of 50 mph. A condominium in Anna Maria City had the tar roof blown off and damaged two stalls of a parking garage. Estimated damage at $40,000.

2005	July	10	Hurricane	Hurricane Dennis. Beach erosion, $1.75 million estimated to replace 250,000 cubic yards on Anna Maria Island to Manatee County Beach. It was reported that Mobile home roofs blown off in Fairlane Acres. An F1 tornado damage to several homes in Greyhawk Landings and Hidden Oaks subdivisions in east of I-75 in Manatee County.
2005	October	23	Hurricane	Hurricane Wilma. Peak winds at 48 mph. 143 insurance claims totaling $175,000.
2004	June	13	Severe Weather	Wind with gusts up to 58 mph destroyed a lanai and shingles were blow off a roof in Bradenton. Damage estimated at $12,000.
2004	July	3	Lightning	Lightning struck near a gate house at entrance of Lakewood Ranch Golf and Country Club. The lightning burned down the tree and gathered in a flaming globe around the electrical boxes at the base of the tree. The television and computer inside the gate house were destroyed. Nearby trees and sod died within days. Property damage estimated at $3,000 and crop damage at $40,000. Lightning also struck a house on Westminster Court in University Park starting a fire near the chimney causing $50,000 in damage.
2004	July	7	Lightning	A man was struck and killed by lightning in Ellenton.
2004	July	11	Lightning	Lightning ignited a propane tank that burned down a home. Damage estimated at $130,000.
2004	August	13	Hurricane	Hurricane Charley. One (1) home destroyed with minor damage to six (6) others. Maximum gust of 100 mph in the southeast tip of Manatee County. Downed trees and power lines. No documentation to cost.

2004	September	5	Hurricane	Hurricane Frances. 4-6 inches rain, winds reported at 40 mph, tide 2 to 3 feet above normal. Minor beach erosion in Anna Maria. Flooded streets in the City of Bradenton, the barrier islands and low lying areas of Manatee County. Damage to 16 single family home, 20 mobile homes, one multifamily and one commercial building. Damage estimated at $1.1 million. The roof of the Bradenton Beach Fishing Pier Restaurant was torn off and four mobile homes lost their roofs as well.
2004	September	15	Hurricane	Hurricane Ivan. Road flooding on Anna Maria Island, waves 3 to 5 feet above tide 2 feet higher than normal. Minor erosion. No damage estimate.
2004	September	26	Hurricane	Hurricane Jeanne. Estimated $13.7 million of damage to single family homes. Eight (8) single family homes were destroyed. Sixty-three single family homes had major damage and two hundred seventeen had minor damage. Businesses sustained and estimated $4.03 million of damage with seven (7) businesses had major damage and twenty-three had minor damage.
2004	December	26	Wind	A rapidly deepening low pressure center produced sustained winds of 25 to 35 mph, with a maximum gust of 65 mph near the coast around Bradenton. A roof was blown of a shed, minor roof damage on two mobile homes and numerous power lines downed leaving 1,200 customers without power. A luxury yacht broke free, damaging the yacht as well as the dock and pilings. Minor beach erosion from high surf. Estimated damage at $50,000.
2003	March	17	Severe Weather	Winds with gusts up to 60 mph caused roof damage with debris landing on SR 70. Damage estimated at $5,000.

2003	June	18	Tornado	Thunderstorms caused a brief tornado (F0) in Palmetto causing mostly carport damage to a mobile home park and roof damage to a canning factory. Damage estimated at $20,000.
2003	June	29	Severe Weather	Winds gusting up to 69 mph in Bradenton Beach produced damage to trees and vegetation. About $15,000 in damage when a roof was blown off at a two story motel allowing rain in three units on the top floor. Damage was also caused to the roof of a pump house and two concrete walls collapsed at a construction site. Damage estimated at $10,000. In Myakka, gusts up to 40 kts blew down a wood frame home under construction. Damage estimated at $20,000.
2003	August		Dam Failure	Following several days of intense rainfall events, a flood gate at the Manatee River Dam jammed opened. This resulted in the evacuation of several residences downstream as a precautionary action.
2003	June/August		Rainfall Event	Estimated $1.2 million with 43 structures receiving major damage and 33 structures receiving minor damage.
2002	July	7	Lightning	Lightning caused a hole in a house and started a fire in Bradenton. Damage estimated at $5,000.
2002	August	14	Lightning	Lightning struck a home at University Park Country Club. The resulting resulted in the home being a total loss. A nearby house was scored by the blaze. A few miles away at Lakewood Ranch a second home was struck causing a hole in the roof and blowing out several windows. Damage estimated at $500,000.
2002	November		Sinkhole	Sinkhole near downtown Bradenton less than 10 feet. Caused by drought or low water table. Not threatening to a building.
2002	December	31	Flood	$63,500 residential damage with 50 apartments impacted.

2001	July	1	Tornado	An F1 tornado formed as result of sea breeze and interaction from nearby thunderstorm activity. The tornado damaged a bill board on US 41 N, tossed and demolished a weathered travel trailer in a mini storage. Two additional travel trailers were flipped on their sides while a storage trailer was severely damaged. Damage estimated at $100,000.
2000	March	11	Wildfire	A wildfire ignited near intersection of Canal Road and 33rd Street, consuming up to 40 acres of brush and timber in Palmetto. The wildfire also consumed a storage building. Damage estimated at $20,000.
2000	June	16	Lightning	Lightning struck a tree which fell and damaged a home and vehicle in Bradenton. Damage estimate $20,000.
2000	June	20	Tornado	A tornado (F0) damaged a barn, two large storage sheds and snapped large branches north of SR 70 in Myakka City. Damage estimated at $25,000.
2000	July	15	Flood	7-11 inches in 12 hours on Anna Maria Island flooded homes, businesses and roads. Water estimated to be 3-4 feet in areas in Anna Maria and Homes Beach. Nearly 50 homes had estimated damages of $1 million.
2000	July	24	Flood	6-8 inches of rain in 4 hours damaged 15 homes on Anna Maria Island and Northwest Bradenton with damage estimated at $100,000. Roads were flooded with water up to 2 feet.
2000	July	28	Power Failure	Manatee County Emergency Communications Center out for eight hours.
2000	July	30	Lightning	Three girls were struck and injured by lightning in Myakka City.

2000	August	12	Lightning	Lightning struck and cause $95,000 worth of damage to the roof and attic of a home on 52nd Ave W in Bradenton. Lightning also struck and damaged a home on Longboat Key, the surge traveling down a water pipe which jumped to the home's gas line under the kitchen floor crawl space. The surge ignited the gas line which caused approximately $25,000 damage to the home's kitchen.
2000	September	16	Hurricane	Hurricane Gordon. 100 feet of beach eroded in Bradenton Beach, estimated damage $500,000. Flooding of 25 homes, businesses in Bradenton Beach, estimated damage $500,000. Max wind gust recorded at Coquino Beach at 60 mph.
1999	January	2	Flood	Storm surge caused by a heavy squall line, 3-4 feet above astronomical tide cause flood damage to less than 50 coastal homes and pushed a few dry-docked boats into coastal streets. Street flooding coastal roads. Damage estimated $200,000.
1999	March	14	Lightning	Lightning ignited a fire that caused $3.5 million in damage to the three story Playa Encantada Apartment building on Gulf Drive in Holmes Beach.
1999	May	19	Lightning	Seven migrant farm workers were struck and injured by lighting while taking refuge under a steel flatbed fruit truck during a thunderstorm along Verna Bethany Road, 11 miles northwest of Myakka City. The victims suffered mainly minor leg and arm injuries.
1999	May	20	Lightning	Lightning struck, igniting a wildfire and burned 77 acres of brush and scrub trees near 229th St. E, north of SR 70 and eleven miles northwest of Myakka City.

1999	July	9	Tornado	A tornado (F0) damaged the roof of one mobile home, destroyed a carport and removed three porch enclosures at Tideview Estates Mobile Home Park in Ellenton. Then it proceeded to strike Blackburn Elementary School and caused minor siding and awning damage to the building. Damage estimated at $50,000.
1998	January	23	Severe Weather	Up to 5 inches of rain in less than 12 hours. Estimated $1.2 damages due to flooding in City of Bradenton and unincorporated Manatee County. Five home with major damage and 131 with minor damage from flood waters as high as 2 feet. Manatee River at Myakka Head crested 8-1/2 feet above flood stage damaging tomatoes estimated at $400,000.
1998	February	17	Tornado	A tornado (F1) tore off the roof of a milking facility, two barns and shed, damaged feed silos and downed power lines along SR 70 in Myakka City. Damage estimated at $200,000.
1998	February	19	Severe Weather	Heavy rain of 2 to 4 inches caused localized flooding. Several cars incurred water damage at flooded roadways and intersections. Estimated damages of $20,000. A tornado (F0) caused minor damage to a mobile home park at Moccasin Wallow Road and Imperial Circle in Palmetto. Damage estimated at $50,000.
1998	March	19-20	Flood	Heavy rains flooding roads, some homes in east county. Estimated damages at $445,000. On March 19, a short-lived tornado (F1) destroyed a mobile home and six barns at a horse ranch on SR 70 near Myakka City. A man was injured when the tornado destroyed the home and pickup truck. Damage estimated at $350,000.

1998	July	9	Lightning	Lightning struck and damaged the roof of a home in Braden River Lakes subdivision along SR 64. Lightning burned two large holes in the roof and pierced the ceiling in three locations causing $20,000 in damage.
1998	July	30	Lightning	Lightning struck, ignited a wildfire and burned 50 acres of brush near the Saddlehorn Estates in the 22000 block area of SR 64 and CR 675.
1998	September	2	Hurricane	Hurricane Earl. Street flooding on Anna Maria Island.
1998	September	23	Hurricane	Hurricane Georges. City of Bradenton $50,812.25, City of Bradenton Beach $75,000, City of Palmetto $34,933.
1997	January	1	Tornado	A brief, short-lived tornado (F0) removed the roof of a mobile home and snapped a telephone pole in Paradise Bay Mobile Home Park in Bradenton. Damage estimated at $3,000
1997	April	16	Flood	Heavy rain caused localized flood 2-3 feet deep damaging numerous automobiles at the DeSoto Square Mal. A few homes in low-lying areas of Bradenton received rug damage. Oakridge and Roger Garden Park apartments on 13th St. in Palmetto had over 6 inches of floodwaters in 180 first floor units. Estimated damages to be $2.9 million.
1997	April	23	Tornado	A short-lived tornado (F0) caused severe damage to the roofs of two homes, caused moderate damage to the roof of a motel and damaged two vehicles in Bradenton Beach. Damage estimated at $60,000.
1997	June	23	Lightning	Lightning struck and knocked out the main radio system of the communications center of the Florida Highway Patrol along SR 70. Damages estimate $10,000. Lightning struck a tree with a sideflash that entered the home through the roof of a Bradenton resident. The resident was shocked by lightning inside his home. Damage estimate $2,000.

1997	July	15	Lightning	A seven year old male was slightly injured by a sideflash of lightning that struck the tree he was climbing in Bradenton.
1997	September	26	Flood	$300,000 in damage mostly to rugs and cars stalled in water in Bradenton.
1997	October	31	Severe Weather	Up 6 inches of rain in less than 12 hours causing power outages, flooded streets in Bradenton. Urban flooding caused damage to 222 apartment units at the Oakridge and Rogers Garden apartments, 63 single family homes, three mobile homes and 25 stalled vehicles. Damage estimated at $2 million. Lightning struck and damaged the roof of a home on 29th Street East in Bradenton causing $15,000 in damage. An adult female was struck and slightly injured by lightning while standing in the parking lot of a pre-school on 26th Street West and Bayshore Gardens. A tornado (F0) severely damaged a pool cage, barn roof and down several oak trees near SR 64 and Upper Manatee River Road in Bradenton. Damage estimated at $60,000. Another tornado (F0) toppled trees and power lines near 59th Street and Cortez Road in Bradenton. Damage estimated at $5,000. In Whitfield a tornado (F0) toppled trees and power lines. Damage estimated at $10,000.
1997	November	13-14	Flood	3-1/2 inches rain in less than 12 hours in west county, up to 8 inches in areas in east county. Damage to 15 single family residences and 7 mobile homes due to rising waters of Braden and Manatee Rivers. Damage estimate at $400,000.
1997	December	13	Flood	Several mobile homes flooded in Frog Creek Mobile Home Park in Rubonia. Damage estimated $50,000.
1997	December	30	Flood	Manatee River at Myakka Head along SR 64 over 6-1/2 feet above flood stage. Significant crop damage, mainly tomatoes, estimated at $500,000.

1996	February	16	Wind	Gradient winds of 40 o 50 mph tore off the roof of a mobile home in Bradenton and downed a few power lines on the barrier islands. A grocery store in Bradenton suffered metal siding damage to its roof on Manatee Avenue West. Damage was estimated at $20,000.
1996	May	4	Hail	Ping-pong sized hail caused significant crop damage from Parrish southeast to Lake Manatee and north to the Hillsborough county line. Most of the cucumber, bell pepper, green bean and tomato crop was destroyed. Damage estimated at $3 million.
1996	June	17-21	Flood	Street flooding up to 2 feet in the City of Palmetto caused $51,400 in damage to several stalled cars. Some homes and apartments received water damage estimated at $40,000. Localized street flooding in southeast Bradenton. No damage estimate.
1996	July	6	Flood	Heavy rain caused localized street flooding in Palmetto, along 10th Street. A few autos stalled and received minor damage estimated at $3,000.
1996	August	6	Tornado	A tornado caused moderate roof damage to three mobile homes and minor damage to twelve mobile homes at Fairlane Acres Mobile Home Park in Bradenton. Damage estimated at $50,000.
1996	August	23	Severe Weather	Heavy rain caused localized flooding of streets and low-lying areas in Bradenton. A Bradenton business and several vehicles suffered water damage estimated at $50,000. A tornado (F0) removed a roof off a duplex, shatters a few windows and damaged a lanai of a home in Palmetto. Damage estimated at $25,000.
1996	September	10	Lightning	Lightning struck and downed a power line in Bradenton which left 2,500 residents without power for nearly 5 hours. Damage estimate at $5,000.

1996	October	9	Tropical Storm	Tropical Storm Josephine $4 million in damages estimated. Heaviest flooding on Anna Maria Island. Road damage Longboat Key and Bradenton Beach
1996	November	16	Wind	Non-thunderstorm winds of 40 mph blew down a sign and several small to medium sized trees and limbs on US 41 in Palmetto. Damage estimated at $2,000.
1995	January	7	Severe Weather	Severe winds tore off part of a storage facility roof and damaged 60 units inside in Palmetto. Damage estimated at $40,000.
1995	July	18	Flood	Approximately 9 inches of rain fell within a 15-hour period and caused minor flood damage on Longboat Key.
1995	August	15	Severe Weather	Winds blew the roof off a restaurant in Anna Maria City. Damage estimated at $10,000. In Myakka City, winds overturned and damaged a mobile home on SR 70 which caused a propane leak. Damage estimated at $20,000. In West Bradenton, winds caused minor roof damage to an apartment building. Damage estimated at $2,000.
1995	November	2	Flood	Washing out of roads
1994	June	6	Tornado	Two barns, two feed structures, and a mobile home were damaged off SR 70 in Myakka City by an F0 tornado. Damage estimated at $5,000.
1994	September	28	Flood	
1993	March		Winter Storm	Manatee County Public Property $573,737, Private Property $100,000, City of Bradenton $128,027.80, City of Palmetto $49,792, City of Bradenton Beach $900,000.
1992	June	24-25	Tornado	A tornado (F0) knocked down utility poles and tree limbs in Palmetto. Damage estimated at $2,500.
1992	September	3	Tornado	A tornado (F0) tore shingles off three roofs, knocked a hole in one roof and downed trees and power lines. Damage estimated at $25,000.

1992	October	3	Tornado	A waterspout moved over Longboat Key knocking down trees and power lines. Damage estimated at $2,500.
1991	May		Tornado	A tornado (F0) moved cars about and blew down trees and power lines. The roof and side walls of a chemical storage shed were damaged. Damage estimated at $250,000.
1991	May		Flood	
1991	July	13	Tornado	A tornado (F1) moved northeast to southwest across Port Manatee. It touched down ripping off part of the roofs of three buildings, flipping a construction trailer. A 23-foot barge was thrown into the air, blown over several cars before bouncing off of several trucks. It ripped off the doors of a maintenance warehouse. Damage estimated at $250,000.
1990	July	14	Tornado	A tornado (F0) in Bradenton downed power lines and a large tree. In Terra Ceia and Anna Maria, a tornado (F0) snapped telephone poles and caused damage to a house and roof in Anna Maria. Damage estimated at $2,500.
1990	October		Tropical Storm	Tropcial Storm Marco. Up to 6.14 inches of rain fell in Bradenton. Several homes were flooded. Damage estimated at Manatee County Public Property $1,411,747, City of Bradenton damaged at $186,358, and Private Property damaged at $294,250.
1988	May		Sinkhole	Sinkhole less than 10 feet caused by drought or low water table. Location newar Sarasota Bay and Bowless Creek. Home subsided, walls and floor cracked. Damage estimated at $6,000.
1988	June		Sinkhole	Sinkhole 31-80 feet outside Myakka City, caused while drillling, a cavity was hit at 415 feet and the surface collapsed. Damage unknown.
1988	September		Flood	City of Bradenton damaged at $357.507.48, City of Palmetto damaged at $35,400.

1988	November		Tropical Storm	Tropical Storm Keith. Winds up to 65 mph, beach erosion. City of Bradenton Beach damaged at $100,000. Tidal surges 4 feet above normal, rain and winds resulted in flood damage on Longboat Key.
1987	July	7	Tornado	An F0 tornado did minor damage to a home in Bradenton. Damage estimated at $250.
1986	February	8	Tornado	An F0 tornado dirupted a flea market in Bradenton, Severely injuring a man and slightly injuring 3 others. Damage estimated at $25,000.
1986	May	20	Tornado	A cold front produced a squall line. A tornado (F0) developed and blew a porch off a home in Ellenton. Damage estimated at $2,500.
1986	August	1	Tornado	An F0 tornado blew apart a farm shed in Samoset and a waterspout (F0) damaged several sailboats in Bradenton Beach. Damage estimated at $2,500.
1985	October	28	Hurricane	Hurricane Juan. 25 to 35 foot swells in the Gulf of Mexico caused coastal flooding on Longboat Key.
1985	August/September	30-1	Hurricane	Hurricane Elena. The storm hovered over the west coast of Florida for 6 days and brough over 11 inches of rain. Manatee County Public Property damaged $708,538. Private Property damaged $7,836,141. City of Bradenton Beach damaged $2.5 Million. City of Bradenton damaged $61,000.
1984	August	23	Tornado	In central Manatee County a mobile home was destroyed by and F1 tornado. Damage estimated at $25,000.
1982	February	17	Tornado	An F1 tornado struck Ellenton and Palmetto. In Palmetto, a lumber yard was damaged and roofs ripped of a number of mobile homes at Tropical Isle Mobile Home Park. Damage in Ellenton was confined to roof damage and downed trees and power lines. Damage was estimated at $100,000, with half of that at the lumber yard.

1982	June	17-18	No Name Storm	Winds up tp 63 mph with rainfall of 4 to 6 inches. Came ashore during a high tide which resulted in tides of 5.5 feet. Manatee County Public Property damaged $68,354; Private Property - No Record.
1982	July	17	Tornado	An F1 tornado caused damage to 4 mobile homes in Gulf Lake Mobile Estates and roof damage at Oneco Plaza Shopping Center. Damage estimated at $10,000.
1981	June		Sinkhole	Sinkhole less than 10 feet caused by drought or low water table. Located in West Bradenton. Damage unknown.
1981	August	24	Tornado	An F1 tornado associated with widespread severe thunderstorm activity touched down in mobile home park located in SW Bradenton in the Whitfield area. 29 homes were damaged in a 4 block area, several heavily damaged including 5 roofs blown off, with much of the damage to carports, awnings, and porches. Damage was estimated at $250,000.
1979	September	22-23	Flood	Flood event, heavy rain
1972	June	19	Hurricane	Hurricane Agnes. Tides 3 to 6 feet above normal . Coastal areas experienced erosion from wave action and tidal damage to homes, seawalls, and roads. Damage estimated at $2 million.
1968	October	18	Tropical Storm	Tides of up to 5 feet above normal produced considerable beach erosion on Longboat Key.
1960	September		Hurricane	Hurricane Donna. Precipitation averaged 5 to 7 inches, with a pre-storm rainfall of 10 inches in previous 3 weeks saturated the group; considerable flooding resulted. Storm tides caused damage to coastal Manatee County areas with tides 1 to 23 feet above normal.

1950	September		Hurricane	Hurricane came on shore on the west coast of Florida with tides of 6 to 8 inches, flooding much of Anna Maria Island, with beach erosion taking 15 to 20 feet. The beach road was washed out in several places
1926	September		Tropical Storm	Wave action caused erosion along the Manatee County Coast and severe flooding in the Bradenton area, with more than 8 inches of rain in 24 hours.
1921	October		Tropical Storm	Originating in west Caribbean, the slow-moving storm caused flooding up to 5 feet on the north end of Anna Maria Island and in Cortez. High tides of approximately 7 feet resulted in damage on Longboat Key.

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Appendix C

REPETITIVE LOSS PROPERTIES

Jurisdiction	RLP	Single Fam.	2-4 Fam.	Multi-Fam.	Comm-ercial	# of Claims
Anna Maria	32	22	9	1	0	243
Bradenton	66	55	5	4	2	215
Bradenton Beach	29	15	6	4	4	237
Holmes Beach	57	26	19	11	1	311
Longboat Key	101	87	8	2	4	485
Palmetto	8	8	0	0	0	196
Manatee County	130	90	18	17	5	417

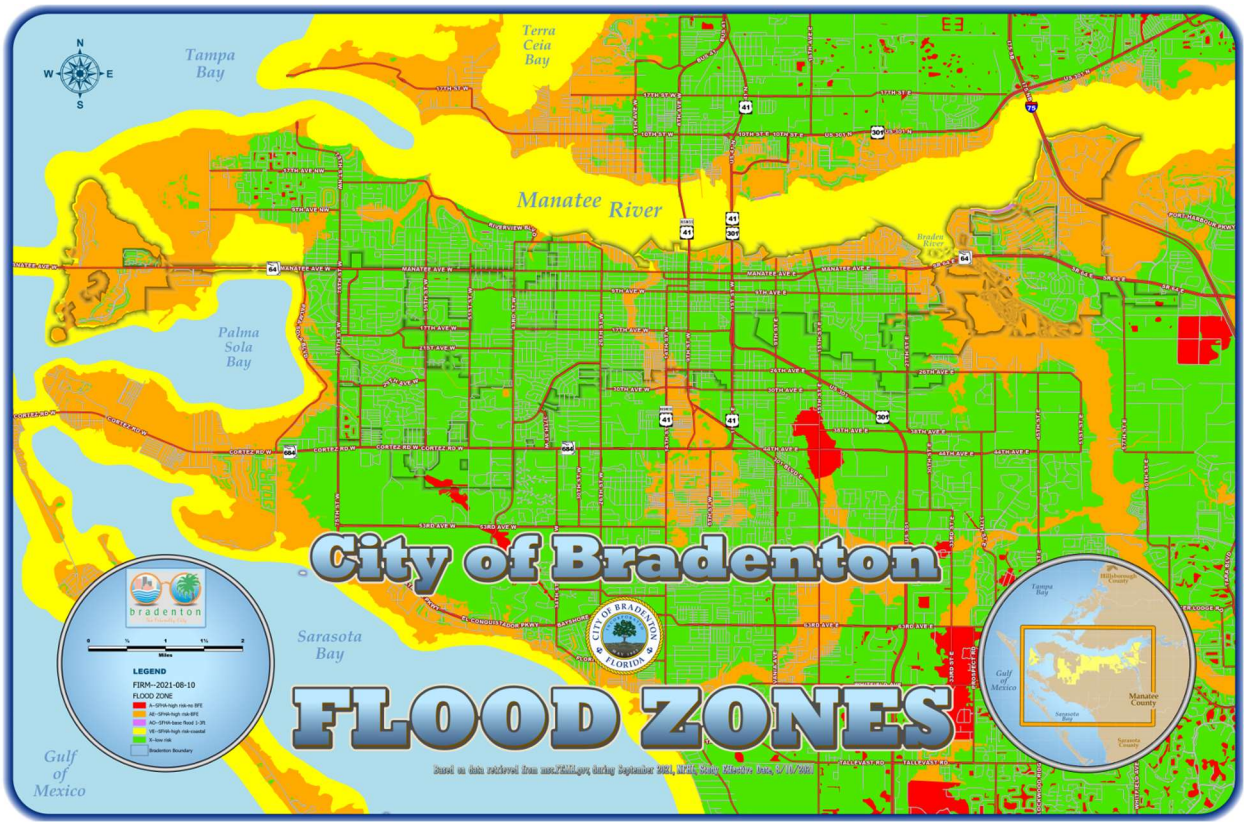
Source: *NFIP Flood Insurance (Sept 2024)*

City of Anna Maria

City of Anna Maria links FEMA's National Flood Hazard Layer on their website for their citizens to utilize.

As of September 2024, the incorporated City of Anna Maria had 22 single family residences, 1 multifamily, and nine 2-4 family repetitive loss properties. These properties account for 243 flood insurance claims.

City of Bradenton



City of Bradenton links FEMA's National Flood Hazard Layer on their website for their citizens to utilize as well as has created a pdf of City flood zones.

As of September 2024, the incorporated City of Bradenton had 55 single family residences, 4 multifamily, five 2-4 family, and 2 commercial repetitive loss properties. These properties account for 215 flood insurance claims.

City of Bradenton Beach

City of Bradenton Beach links both Manatee County Flood Zone maps and FEMA's National Flood Hazard Layer on their website for their citizens to utilize.

As of September 2024, the incorporated City of Bradenton Beach had 15 single family residences, 4 multifamily, six 2-4 family, and 4 commercial repetitive loss properties. These properties account for 237 flood insurance claims.

City of Holmes Beach

City of Holmes Beach links FEMA's National Flood Hazard Layer on their website for their citizens to utilize as well as very clearly indicates on their website that "All property in Holmes Beach falls within a special flood hazard area".

As of September 2024, the incorporated City of Holmes Beach had 29 single family residences, 19 multifamily, eleven 2-4 family, and 1 commercial repetitive loss properties. These properties account for 311 flood insurance claims.

Town of Longboat Key

Being a part of both Manatee County and Sarasota County, Town of Longboat Key reference both Manatee and Sarasota Flood Zone maps on their website and encourage residents to utilize their associated county maps.

As of September 2024, the incorporated Town of Longboat Key had 87 single family residences, 8 multifamily, two 2-4 family, and 4 commercial repetitive loss properties within Manatee County. These properties account for 485 flood insurance claims.

City of Palmetto

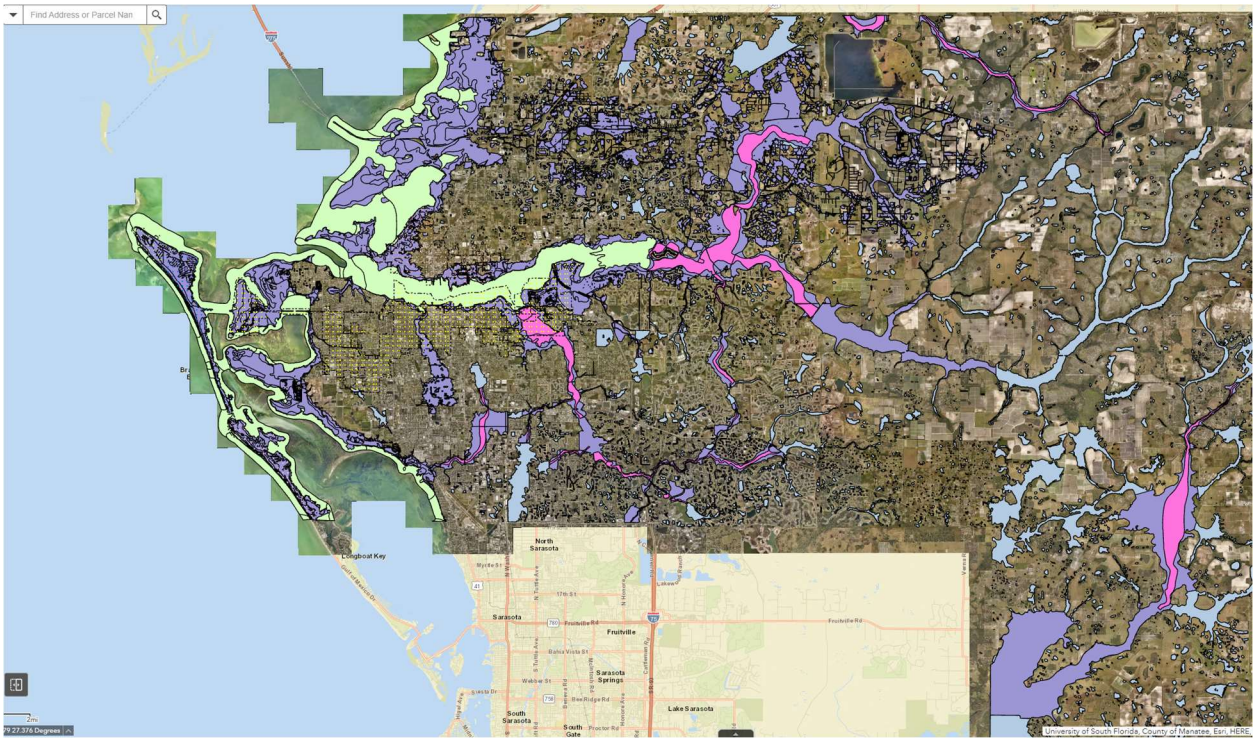
City of Palmetto links FEMA's National Flood Hazard Layer on their website for their citizens to utilize.

As of September 2024, the incorporated City of Palmetto had 8 single family residence repetitive loss properties. These properties account for 196 flood insurance claims.

Unincorporated Manatee County

Unincorporated Manatee has encouraged jurisdictions to utilize and reference Manatee County Flood Zone maps, should they not have their own. Manatee County has interactive Flood Zone maps which are address specific and user friendly for all residents within Manatee County and its jurisdictions.

As of September 2024, the incorporated Town of Longboat Key had 90 single family residences, 18 multifamily, seventeen 2-4 family, and 5 commercial repetitive loss properties within Manatee County. These properties account for 417 flood insurance claims.



Legend

FEMA Flood Zones

2021 DFIRM Floodway

2021 DFIRM Flood Zones

FLOOD ZONE

- A
- AE
- VE

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APPENDIX D

PARTICIPATION

A. DURING THE 5-YEAR UPDATE CYCLE

An open public involvement process is essential to the development of an effective plan. To develop a more comprehensive approach to reducing the effects of natural disasters, the 5-year update cycle included stakeholder, committee and public participation. The LMS Working Group provided multi opportunities for review and comment while going through the 5-year update to the LMS.

The 2024 five-year update commenced in March 2023 when members of the LMS Working Group were informed by Emergency Management of the need to conduct a major revision update to the plan. A contractor was not used for this process, so the plan is as realistic as possible using the limited resources that are available to the County.

It was decided that three sub-committee (Data & Information, Governance, and Goals & Objective - each consisting of a minimum of three technical employees), were to be formed so that small groups could make recommendations of suggested updates. Simultaneously, one of the Public Safety Department Emergency Management Coordinators was tasked with updating the Hazard Risk and Vulnerability Assessment (Section IV). This was done with stakeholder participation and feedback with those included in the Manatee Emergency Operations Workgroup. A total of 6 sub-committee meetings and one Hazard Risk meetings were held.

Each of the sub-committees held multiple meetings to review the information and how to best proceed with the update of each section. The revised sections were sent to the LMS Working Group for comment, suggested revisions, deletions or additions. Each jurisdiction was encouraged to e-mail their changes to the Chairperson of the LMS Working Group. Each jurisdiction was represented and participated in the planning process. All suggestions, revisions and corrections were considered in the final document.

To broaden the general public and Non-Governmental Organization's access to LMS information and involvement in the process, Manatee County has a webpage dedicated to Hazard Mitigation information on the Manatee County website. Notice of meetings, agendas, and funding opportunities are posted on this webpage, in addition to posting meetings on the County calendar. The public is welcome to attend and make comments at any of these

meetings or utilize the e-mail address on the LMS webpage. During the planning process specific to the 5-year update cycle, additional opportunities were provided to the general public to provide comments, suggested revisions, additions and deletions to the updated plan. These additional opportunities were in the form of in-person community comment times held in the afternoon/evening at the public library, as well as on-line review periods. Notice of these additional opportunities were provided on the County's website, newspaper, and posted at the County Administration Building.

The 2024 hurricane season put a pause on the LMS update from August – December while Emergency Management focused on recovery from Debby, Helene, and Milton for Manatee County. At the final LMS Workgroup meeting of 2024, December 18th, Emergency Management brought the LMS update back to the forefront of all jurisdiction's priorities.

After all jurisdictions reviewed each section and appendices of the LMS for the 2024 5-year update, the "First Draft" was posted as an agenda item on the first quarter meeting held on March 19th, 2025, and subsequently and unanimously approved by the LMS Working Group. This meeting was also advertised as public and there was public present, but no comments were made. The "First Draft" was then posted on the county website the next day, March 20th, 2025 for a 20-day period to receive public comment.

The "Final Draft" of the Manatee County 2024 LMS Update was presented to the Manatee County Board of County Commissioners as a Report on April 15th, 2025, and an opportunity for public comment was given during that meeting. While there were words of encouragement from a few Commissioners, there were no additional public comments heard.

Upon completion of the tasks, Emergency Management conducted a final review of the LMS using the new criteria and verified the components against the required Mitigation Plan Review Checklist. Emergency Management believes that the Manatee County LMS was compliant with the new Federal criteria and submitted the plan to the Florida Division of Emergency Management for review.

Copies of agendas, minutes and sign-in sheets from LMS Workgroup meetings, Sub-Committee meetings, and public participation opportunities are included in this appendix.

B. ROUTINE STAKEHOLDER AND PUBLIC PARTICIPATION

The LMS Working Group conducts regularly scheduled meetings. Unless otherwise indicated, LMS meetings are held quarterly on the 2nd or 3rd Wed of March, June, September and December (each year) at 3:00 p.m. at the Manatee County EOC. The LMS Working Group meetings were previously

held at the Manatee County Central Library, but with further thought, Emergency Management decided it was a good idea to open the EOC to the public for these meetings.

To broaden the general public and Non-Governmental Organization's access to LMS information and involvement in the process, Manatee County has a webpage dedicated to Hazard Mitigation information on the Manatee County website. Notice of meetings, agendas, and funding opportunities are posted on this webpage, in addition to posting meetings on the county calendar. The public is welcome to attend and make comments at any of these meetings or utilize the e-mail address on the LMS webpage.

Copies of agendas, invitations, minutes, sign-in sheets, and feedback forms from LMS Workgroup meetings, and public participation opportunities are included as addendums in this appendix.

AGENDA

Manatee County Local Mitigation Strategy

Thursday, June 17, 2021

3:30 PM – 5:00 PM

WebEX Call

1 (415) 655-0001

Meeting Number:
173 841 3801

Password:
1234

Chairperson: Jake Bibler Vice-Chair: Matthew Myers

1. Welcome and Introductions
2. Changes to the Agenda
3. Citizen Comments (*each person shall be limited to 3 minutes per item)
4. HMGP Update
    a. Deadline August 13
5. BRIC 2021 Update
6. NFIP Update
7. New Business/Old Business
8. Open Discussion
9. Adjournment

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 6/17/21	**Time: 3:30pm -**	**Location: WebEx**	**Facilitator: Jake Bibler**

Jake Bibler	Matthew Myers	Lisa Boutote	Rob Brown
Dr. William Colgate	James Linklogle	Marshall McCrary	Bill O'Shea
Myra Prater	Anthony Russo	Jamie Schindewolf	Sandy Tudor
Eran Wasserman	Steve Litschauer	Joel Richmond	

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chairperson, Jake Bibler at 3:30pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	None			
Minutes	Motion Steve Litschauer, second Sandy Tudor, to approve meetings minutes of June 30, 2020. AYES = 14 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			
Meeting agenda item **HMGP Update**	Notice of funding for HMGP for Hurricane Dorian. Deadline is August 13. We are a Tier 3 county.			

Meeting agenda item **BRIC 2021 Update**	• White House has announced $1 Billion will be available • Notice of Funding Opportunity has not been announced • General information and NOFO expected soon			

Meeting agenda item
 	
NFIP Update
	• "Equity and Action" – Risk Rating 2.0
	  ○ Includes 3 catastrophe models and emphasizes mitigation
	  ○ New pricing plan
	  ○ New policy effective October 1, 2021
	• What is changing
	  ○ Elevation certificate no longer necessary, it's optional
	  ○ Expanding mitigation credits
	  ○ Expanded policy discounts for homes in the X-Zone
	  ○ Cost of Compliance will be a percentage not a fixed amount
	• What is not changing
	  ○ Limits on annual premium increases
	  ○ Availability for premium discounts
	  ○ Transfer of policy discounts to new owners
	  ○ Use of FIRMs for mandatory purchase requirements
	  ○ Availability of discounts through CRS			

New/Old Business	None			
Open Discussion	None			
Next ¼ 'ly Meeting	September 16, 2021 3:30pm			
Adjourn	Motion Stephen Gilbert, Second Steve Litschauer, to adjourn meeting at 3:45pm Motion Passed			

AGENDA

Manatee County Local Mitigation Strategy

Thursday, September 16, 2021

3:30 PM – 5:00 PM

WebEX Call

1 (415) 655-0001

Meeting Number:
179 527 0061

Chairperson: Jake Bibler Vice-Chair: Matthew Myers

1. Welcome and Introductions
2. Changes to the Agenda
3. Citizen Comments (*each person shall be limited to 3 minutes per item)
4. Brief of What Local Mitigation Strategy (LMS) is
5. Notice of Funding
    a. BRIC, FMA
        i. Open September 30 closing November 12 5pm
6. New Business/Old Business
7. Open Discussion
8. Adjournment

JAMES SATCHER *District 1*
REGGIE BELLAMY *District 2*
KEVIN VAN OSTENBRIDGE *District 3*
MISTY SERVIA *District 4*
VANESSA BAUGH *District 5*
CAROL WHITMORE *At Large*
GEORGE W. KRUSE *At Large*

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 9/16/2021	**Time: 3:30pm – 3:47pm**	**Location: WebEx**	**Facilitator: Matthew Myers**
Matthew Myers	Patrick Mahoney	Steve Litschauer	Rob Brown
Thomas Kitchen	Tristan Morath	Sandy Tudor	Hunter Foxwell
Amy Pilson	Bill Colgate	Mary Camp	Steve Gilbert
LeAnne Addy			

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Vice-Chair, Matthew Myers at 3:30pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	Deadline Date for BRIC/FMA is November 12, by 5pm			
Minutes	Motion Steve Litschauer, second Bill Colgate, to approve meetings minutes of June 17, 2021. AYES = 12 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			

Meeting agenda item
 	
Overview of LMS
	• The Local Mitigation Strategy (LMS) is a multi-jurisdictional plan to reduce the identified hazards within a County.
	• LMS Process
	  o Identify Hazards
	  o Risk and Vulnerability			

	○ Actions to Reduce Loss ○ Coordinated Process • The Plan ○ Updated Every 5 Years (Last Updated 2019) ○ Short and Long-term Mitigation Goals and Objectives ○ Identified Hazards and Vulnerabilities ○ Collaborative Effort (1/4 'ly Meetings) ▪ All Municipalities ▪ Private and Public Entities ○ Initiatives (Mitigation Projects) ▪ Prioritized by Scoring • The Workgroup ○ Collaboration ▪ The Plan ▪ Initiatives ▪ Information Sharing ▪ Specialists ○ Funding Opportunities ▪ HMGP ▪ BRIC ▪ FMA			
Meeting agenda item **BRIC/FMA NOFO**	Notice of Funding Opportunity opens for BRIC and FMA on September 30th and closes November 12th at 5pm. This is so the State has time to review before submission to FEMA before the January 28th FEMA deadline. **If you are planning on applying, you MUST submit your project for scoring ASAP. The process for entering the grant information is extensive.**			
New/Old Business	None			
Open Discussion	None			

Next ¼ 'ly Meeting	December 16, 2021 3:30pm			
Adjourn	Motion Steve Litschauer, second Rob Brown, to adjourn meeting at 3:47pm AYES = 12 NAYS = 0 ABSTAIN = 0 Motion Passed			

AGENDA

Manatee County Local Mitigation Strategy

Thursday, December 15, 2022, 2022

3:30 PM – 5:00 PM

WebEx Call

415-655-0001 (External Users)

Participant Access Code:
2348 984 6642

Chairperson: Matthew Myers Vice-Chair: Jake Bibler

1. Welcome and Introductions
2. Changes to the Agenda
3. Citizen Comments (*each person shall be limited to 3 minutes per item)
4. LMS Overview
5. Vice-Chair Election (if needed)
6. Shadybrook Discussion
7. New Business/Old Business
8. Open Discussion
9. Adjournment

JAMES SATCHER *District 1*
AMANDA BALLARD *District 2*
KEVIN VAN OSTENBRIDGE *District 3*
MIKE RAHN *District 4*
VANESSA BAUGH *District 5*
JASON BEARDEN *At Large*
GEORGE W. KRUSE *At Large*

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 12/15/2022	**Time: 3:31pm**	**Location: WebEx**	**Facilitator: Matthew Myers**
Matthew Myers	Brian Hall	Cheryl Magnusson	Jake Bibler
Cara Serra	Jessica Remkiewicz	Charlie Mopps	Phaedra Dolan
Hunter Foxwell	Myra Prater	Jeremy Giddens	Jeff Bowman
Sage Kamiya			

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Matthew Myers at 3:31pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	None			
Minutes	Motion Charlie Mopps, second Cheryl Magnusson, to approve meetings minutes of September 15, 2022. AYES = 13 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments				
Meeting agenda item **LMS Overview**				

Shadybrook Discussion	• Repeat flooding happening in Shadybrook • Possibility for FMA funding for buyout and land acquisition turning the land into open space. • All properties in question are "Repetitive Loss" meaning the Federal share would be 90% with local share being 10%. • Looking into the increase to Community Rating System (CRS) to use as the benefit cost analysis where more points leading to savings on flood insurance for residents.			
New/Old Business	None			
Open Discussion	• Annual update going to Board 1/10/23			
Next ¼ 'ly Meeting	March 16, 2023 3:30pm			
Adjourn	Motion Jeff Bowman, second Cheryl Magnusson, to adjourn meeting at 3:47pm AYES = 13 NAYS = 0 ABSTAIN = 0 Motion Passed			

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 3/17/2022	**Time: 3:30pm – 3:52pm**	**Location: WebEx**	**Facilitator: Matthew Myers**
Matthew Myers	Myra Schwarz	Hunter Foxwell	Shannon McIntyre
Jessica Remkiewicz	Cheryl Magnusson	Amy Pilson	Sandy Tudor
Rebecca Desch	Kyra Hill	Sebastian Smith	Bill Colgate
Mary Camp	Steve Gilbert	Sage Kamiya	James Linkogle
David Bjelke	John Osborne		

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Vice-Chair, Matthew Myers at 3:30pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	None			
Minutes	Motion Sandy Tudor, second Bill Colgate, to approve meetings minutes of September 16, 2021. AYES = 18 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			

Meeting agenda item
 	
Overview of LMS
	• The Local Mitigation Strategy (LMS) is a multi-jurisdictional plan to reduce the identified hazards within a County.
	• LMS Process
	  o Identify Hazards
	  o Risk and Vulnerability			

	○ Actions to Reduce Loss ○ Coordinated Process • The Plan ○ Updated Every 5 Years (Last Updated 2019) ○ Short and Long-term Mitigation Goals and Objectives ○ Identified Hazards and Vulnerabilities ○ Collaborative Effort (1/4 'ly Meetings) ▪ All Municipalities ▪ Private and Public Entities ○ Initiatives (Mitigation Projects) ▪ Prioritized by Scoring • The Workgroup ○ Collaboration ▪ The Plan ▪ Initiatives ▪ Information Sharing ▪ Specialists ○ Funding Opportunities ▪ HMGP ▪ BRIC ▪ FMA			
New/Old Business	None			
Open Discussion	None			
Next ¼ 'ly Meeting	June 16, 2022 3:30pm			
Adjourn	Motion Steve Gilbert, second Sandy Tudor, to adjourn meeting at 3:52pm AYES = 18 NAYS = 0 ABSTAIN = 0 Motion Passed			

AGENDA

Manatee County Local Mitigation Strategy

Thursday, September 15, 2022

3:30 PM – 5:00 PM

Teams Call

863-583-5969 (External Users)

Participant Access Code:
355 523 349#

Chairperson: Jake Bibler Vice-Chair: Matthew Myers

1. Welcome and Introductions
2. Changes to the Agenda
3. Citizen Comments (*each person shall be limited to 3 minutes per item)
4. HMGP Notice of Funding
    a. BRIC
    b. FMA
5. Shadybrook Discussion
6. New Business/Old Business
7. Open Discussion
8. Adjournment

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 9/15/2022	**Time: 3:31pm – 3:58pm**	**Location: WebEx**	**Facilitator: Jake Bibler**
Jake Bibler	Matthew Myers	Steve Litschauer	Joel Richmond
Jessica Remkiewicz	Marc Purvis	Tom Gerstenberger	Jeff Bowman
Charlie Mopps	Amy Pilson	Dan Fitz-Patrick	Steve gilbert
Melissa Kenedy	Matt McDonough	Phaedra Dolan	Myra Prater

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Jake Bibler at 3:31pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	None			
Minutes	Motion Dan Fitz-Patrick, second Charlie Mopps, to approve meetings minutes of March 17, 2022. AYES = 16 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			
Meeting agenda item **Notice of Funding Opportunity**	• Notice of Funding Opportunity for: o Building Resiliency in Communities (BRIC) o Flood Mitigation Assistance (FMA)			

Shadybrook Discussion	• Repeat flooding happening in Shadybrook • Possibility for FMA funding for buyout and land acquisition turning the land into open space. • All properties in question are "Repetitive Loss" meaning the Federal share would be 90% with local share being 10%. • Looking into the increase to Community Rating System (CRS) to use as the benefit cost analysis where more points leading to savings on flood insurance for residents.			
New/Old Business	None			
Open Discussion	Question on how to submit projects for grant opportunities. • Projects are self-scored by using the evaluation sheets. The project score is then looked at by the workgroup for agreement or discussion. The final score is put into our list of projects. (a lower rank does not mean you will not get grants. If your project has funding you can go towards the grant. The grading is a requirement by statute.) Projects are required to have a letter from the chair or vice-chair of the LMS to be considered for grants.			
Next ¼ 'ly Meeting	December 15, 2022 3:30pm			
Adjourn	Motion Steve Litschauer, second Dan Fitz-Patrick, to adjourn meeting at 3:58pm AYES = 16 NAYS = 0 ABSTAIN = 0 Motion Passed			

AGENDA

Manatee County Local Mitigation Strategy

Thursday, December 7, 2023

3:30 PM – 5:00 PM

Microsoft Teams Meeting

Meeting ID:242 4155 679 680

Passcode: Ewg4Wi

+1 863-583-5969,,335494698# (External Users)

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Welcome and Introductions
2. Changes of Agenda/ New Chairperson
3. Approval of Minutes
4. Review of LMS Update Timeline
5. Citizen Comments (*each person shall be limited to 3 minutes per item)
6. New Business/Old Business
7. Open Discussion
8. Adjournment

JAMES SATCHER *District 1*
AMANDA BALLARD *District 2*
KEVIN VAN OSTENBRIDGE *District 3*
MIKE RAHN *District 4*
VANESSA BAUGH *District 5*
JASON BEARDEN *At Large*
GEORGE W. KRUSE *At Large*

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 12/7/2023	**Time:**	**Location: WebEx**	**Facilitator: Joel Richmond**
Joel Richmond, Manatee County EM	Tom Gerstenberger, Manatee County PW	Jeremy Giddens, Manatee County EM	Jeff Bowman, City of Palmetto Code Enforcement
Hjalmar Pachas, Manatee County	Ray Moss, Manatee County Sheriff's Department	William Tokajer, City of Holmes Beach	Stacey Bailey, Parrish Fire District
Eric Center	Paul Roberts	Cara Serra	Corey Fortin
Sage Kamiya	Dan FitzPatrick	Rebcca Desch	Lance Williams
Ed Vuolu			

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Joel Richmond at 3:30pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	Joel Richmond, Manatee County EM, named new Chairperson. Copies of minutes and agenda sent to group			
Minutes	Motion **Tom Gerstenberger.,** second **Charlie Mopps,** to approve meetings minutes of December 15, 2022. AYES = 16 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			
Meeting agenda item				

New Chairperson LMS Update Timeline	Discussed implementation of timeline for 2024/2025 update for the plan including THIRA updates, workgroups and citizen feedback			
New/Old Business	Tom Gerstenberger. discussed the Shady brook initiative to buy out the affected flooded properties, meeting with condo management and Commissioner Rahn next week to judge interest. Hjalmar Pachas asked about the need for updated Critical Facilities list being included in the THIRA update, advised would get back with him on answer.			
Open Discussion	None			
Next ¼ 'ly Meeting	January TBD			
Adjourn	Motion Brandon M., second Tom G., to adjourn meeting at 1545 hrs AYES = 16 NAYS = 0 ABSTAIN = 0 Motion Passed			

December 7, 2023

12/7/23 3:14 PM Meeting started

Rebecca Desch and Lt. Ray Moss - Manatee Sheriff Office (Guest) were invited to the meeting.

Dan Fitz-Patrick was invited to the meeting.

Charlie Mopps was invited to the meeting.

Vuolo Jr, Ed was invited to the meeting.

Dean Jones was invited to the meeting.

Cara W Serra was invited to the meeting.

Corey Fortin was invited to the meeting.

Sage (Guest) was invited to the meeting.

Dan Fitz-Patrick 12/7/23 3:31 PM

DF

Dan Fitz-Patrick
Director of Planning & Project Development
Manatee County Port Authority
300 Tampa Bay Way, Suite 1
Palmetto, FL 34221
Direct: (941) 720-4714
dfitzpatrick@seaportmanatee.com
www.seaportmanatee.com

Paul Roberts was invited to the meeting.

Lance M. Williams was invited to the meeting.

Type a message

Paul Roberts was invited to the meeting.

Lance M. Williams was invited to the meeting.

Deputy Chief Eric Center was invited to the meeting.

Lt. Ray Moss - Manatee Sheriff Office (Guest) left the chat.

Deputy Chief Eric Center left the chat.

Paul Roberts left the chat.

Dean Jones left the chat.

Charlie Mopps left the chat.

Cara W Serra left the chat.

Sage (Guest) left the chat.

Corey Fortin left the chat.

Dan Fitz-Patrick left the chat.

Rebecca Desch left the chat.

Lance M. Williams left the chat.

Vuolo Jr, Ed left the chat.

12/7/23 3:45 PM Meeting ended: **30m 53s**

Type a message

AGENDA

Manatee County Local Mitigation Strategy

Thursday, March 16, 2023

3:30 PM – 5:00 PM

WebEx Call

415-655-0001 (External Users)

Participant Access Code:
2340 431 8075

Chairperson: Matthew Myers Vice-Chair:

1. Welcome and Introductions
2. Changes to the Agenda
3. Citizen Comments (*each person shall be limited to 3 minutes per item)
4. Vice-Chair Election
5. HMGP NOFO
6. New Business/Old Business
7. Open Discussion
8. Adjournment

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 5/16/2023	**Time: 3:30 PM**	**Location: WebEx**	**Facilitator: Matthew Myers**
Matthew Myers	Amanda Rawley	Amy Cook	Hjalmar Pachas
Jessica Remiewicz	Joel Richmond	Tom Gerstenberger	Ray Moss
Charlie Mopps			

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Matthew Myers at 3:30pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	None			
Minutes	Motion Tom Gerstenberger, second Jessica Remiewicz, to approve meetings minutes of December 15, 2022. AYES = 9 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			
Meeting agenda item **Vice-Chair Election**	Tom Gerstenberger nominated for Vice-Chair, voting: Ayes-9, Nays-0 Tom elected Vice-Chair			

HMGP NOFO	HMGP Notice of Funding Opportunity discussed with working group			
New/Old Business	None			
Open Discussion	• CRS Verification starting 2024 • Comp Plan heading to board • Board executing watershed masterplan through FDEM • Shadybrook ○ Having discussion with acting administrator • Discussing possibilities of buying out properties outside Samoset			
Next ¼ 'ly Meeting	June 15, 2023 3:30pm			
Adjourn	Motion Jessica Remiewicz, second Charlie Mopps, to adjourn meeting at 3:56 pm AYES = 9 NAYS = 0 ABSTAIN = 0 Motion Passed			

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 9/21/2023	**Time: 3:30 PM**	**Location: WebEx**	**Facilitator: Matthew Myers**
Matthew Myers	Hjalmar Pachas	Amy Cook	Charlie Mopps
Angie Speir	Kristen Lentz	Joel Richmond	Myra Prater
Carolyn Robinson-Tucer	Eric Center	Jessica Remiewicz	Cara Serra
Bradon Von	Tom Gerstenberger		

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Matthew Myers at 3:30pm			
Introductions	Attendees introduced themselves and their affiliation with the LMS group.			
Changes to agenda	None			
Minutes	Motion Tom Gerstenberger, second Charlie Mopps, to approve meetings minutes of March 16, 2023. AYES = 14 NAYS = 0 ABSTAIN = 0 Motion Passed			
Citizen Comments	None			
Meeting agenda item **Review of LMS Scoring**	Reviewed the scoring criteria to submit projects for prioritization			

New/Old Business	None			
Open Discussion	• Discussion on Special Needs Generator • Wastewater Treatment Plan Generator discussion			
Next ¼ 'ly Meeting	December 7, 2023 3:30pm (moved due to holiday)			
Adjourn	Motion Jessica Remiewicz, second Charlie Mopps, to adjourn meeting at 3:49 pm AYES = 14 NAYS = 0 ABSTAIN = 0 Motion Passed			

AGENDA

Manatee County Local Mitigation Strategy MEETING

Wednesday, December 18th, 2024

2:30 PM – 3:30 PM

Manatee County Emergency Operations Center

2101 47th Terrace East, Bradenton

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Welcome and Introductions
2. Changes of Agenda
3. September Meeting was cancelled due to multiple storms
4. Approval of Minutes – June 26th, 2024
5. Discussion
    a. Re-elect Vice Chair
    b. Introduce Ashley Plumstead – will be appointed chair at next meeting in 2025
    c. LMS Update Review – Ashley to take over/questions, concerns
    d. Municipality updates for 5-year plan
    e. Mitigation projects
6. New Business/Old Business
7. Citizen Comments
8. Open Discussion
9. Adjournment

AGENDA

Manatee County Local Mitigation Strategy

SPECIAL MEETING

Wednesday, February 21st, 2024

3:00 PM – 4:00 PM

Microsoft Teams Meeting

Meeting ID: 223 467 907 463
Passcode: C3iLVA

Download Teams | Join on the web

Or call in (audio only)

+1 863-583-5969,,404844079# United States, Lakeland

Phone Conference ID: 404 844 079#

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Welcome and Introductions
2. Changes of Agenda
3. Approval of Minutes
4. Review of HMGP Funding
5. Review of Submitted Projects
6. Citizen Comments (*each person shall be limited to 3 minutes per item)
7. Open Discussion
8. Vote on Projects
9. Adjournment

JAMES SATCHER *District 1*
AMANDA BALLARD *District 2*
KEVIN VAN OSTENBRIDGE *District 3*
MIKE RAHN *District 4*
RAY TURNER *District 5*
JASON BEARDEN *At Large*
GEORGE W. KRUSE *At Large*

AGENDA

Manatee County Local Mitigation Strategy MEETING

Wednesday, June 26th, 2024

2:30 PM – 3:30 PM

Manatee County Emergency Operations Center

2101 47th Terrace East, Bradenton

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Welcome and Introductions
2. Changes of Agenda
3. Approval of Minutes – March 27th, 2024
4. LMS 5 Year update – Sub-Committee reports
    a. Governance & Bylaws
    b. Goals & Objectives
    c. Data & Information
        i. THIRA
        ii. Census
5. New Business/Old Business
6. Citizen Comments (*each person shall be limited to 3 minutes per item)
7. Open Discussion
8. Adjournment

VACANT	AMANDA BALLARD	KEVIN VAN OSTENBRIDGE	MIKE RAHN	RAY TURNER	JASON BEARDEN	GEORGE W. KRUSE
District 1	*District 2*	*District 3*	*District 4*	*District 5*	*At Large*	*At Large*

AGENDA

Manatee County Local Mitigation Strategy MEETING

Wednesday, March 27th, 2024

3:00 PM – 4:00 PM

Microsoft Teams Meeting

Join on your computer, mobile app or room device

Click here to join the meeting

Meeting ID: 279 777 738 861
Passcode: 7LWakG

Download Teams | Join on the web

Or call in (audio only)

+1 863-583-5969,,598859765# United States, Lakeland

Phone Conference ID: 598 859 765#

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Welcome and Introductions
2. Changes of Agenda
3. Approval of Minutes
4. Local Mitigation Strategy Plan 5-year Update
5. Working Groups
6. Citizen Comments (*each person shall be limited to 2 minutes per item)
7. Open Discussion
8. Adjournment

JAMES SATCHER *District 1*
AMANDA BALLARD *District 2*
KEVIN VAN OSTENBRIDGE *District 3*
MIKE RAHN *District 4*
RAY TURNER *District 5*
JASON BEARDEN *At Large*
GEORGE W. KRUSE *At Large*

Sign in Sheet

LMS Quarterly Meeting

December 18, 2024 – 2:30PM

Name	Organization
DAWN JANI	City of Bradenton
Steve Spangler	City of Palmetto
Vera Hill	City of Palmetto
Brandon Martinez	City of Palmetto
JESSICA REMKIEWICZ	MANATEE COUNTY
Ray Moss	Manatee Sheriff's Office
JAMES CZUKLEWICZ	Public Safety
Ashley Rumstead	EM
Sarah Brown	CVS
IRVIN LEE	City of Bradenton
David Meiers	City of Bradenton
Robin Singer	COB
Michele Davis	Manatee County
Corey Fozio	COB
Hjalmar Peches	MC

Sign in Sheet

LMS Quarterly Meeting

June 26, 2024 – 2:30PM

Name	Organization
Jeremy Gridley	City of Bradenton
Sarah Brown	MCG - CVS
Ray Moss	MSO
Edward Vuolo	Florida Forest Service
Roger Ness	" "
Phillip E Waller	City of Bradenton (PD)
Eddie Kriso	MCG - Utilities
Matthew Myers	MCEM
Chris Rivett	MCG - Utilities
Scott MacDonell	BPD - City of Bradi
David Meiers	PIO - City of Bradenton
Amy Cook	MCG - BLDG DEPT - FLOOD
JESSICA REMKIEWICZ	MCG - BLDG DEPT - FLOOD
J. Nicholson	MCG - Public Safety
Jake Bibler	City of Palmetto
Lindsey Sherwood	City of Holmes Beach
Brian Norman	City of Bradenton - Public Works
Thomas Gerstenberger	PWESE-(
Greg DeLong	Bradenton
Hjalmar Baches	MC - PMD
Kimberly Mendez	MC - PMD

Sign in Sheet

LMS Quarterly Meeting

June 26, 2024 – 2:30PM

Name	Organization
ALEXANDER CRUZ	PROPERTY MGMT
Corey Fortin	City Administration
Chet Brown	M.C. Beach Patrol
Jodie Fiske	Public Safety

Sign in Sheet

LMS Quarterly Meeting

CITIZEN SIGN-IN

June 26, 2024 – 2:30PM

Name	Organization
Margaret Jackson	BayCare HomeCare
Tina Jackson	Starting Pointe Recovery
GLEN GIBELLINA	GADFLY EVT
Heather Fisher	Peace River Elec Coop
~~Hanna~~	
Laura Ford	City of Bradenton
Robin Singer	COB PCD
Carol Felts	CANDIDATE D1 Co. Commissioner

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 12/18/2024	**Time: 2:30pm**	**Location: Manatee County EOC**	**Facilitator: Joel Richmond**
Dawn Janj	Steve Spangler	Kera Hill	Brandon Martingen
Jessica Remkiewiez	Ray Moss	James Crutchfield	Ashley Plumstead
Sarah Brown	Irvin Lee	David Miers	Robin Singer
Michele Davis	Corey Fortin	Hjalmar Pachos	

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	Welcomed workgroup, introduced Ashley Plumstead to the group and her LMS update tasks			
Introductions	Group introductions			
Changes to agenda	No Changes			
Minutes	Motion was provided and seconded for approval of meetings minutes of AYES = 15 NAYS = 0 ABSTAIN = 0 Motion Passed			
Discussion	Re-elected Tom Gerstenberger as Vice Chair Discussed future mitigation funding processes and future project submissions			

	Discussed LMS update and requested info from group (Ashley Plumstead) Discussed on-going mitigation projects Discussed future projects and combining efforts will multiple agencies and municipalities Discussed Flood Plain Manager and Substantial Damage Estimates on going Discussed By-laws and voting regulations			
Citizen Comments	N/A			
Open Discussion	N/A			
Next Quarterly Meeting	March 2025 – Exact date TBD			
Adjourn	Motion and second to adjourn the meeting at 3:20PM AYES = 15 NAYS = 0 ABSTAIN = 0 Motion Passed			

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 2/21/2024	**Time: 3pm**	**Location: Teams Virtual**	**Facilitator: Joel Richmond**
Joel Richmond, Manatee County EM	Tom Gerstenberger, Manatee County PW	Matt Meyers, MCEM	Ray Moss, MSO
Cheryl Magnusson, MC Clerks	Hjalmar Pachas, MCPM	Jeremy Giddens, MCEM	Phill Reed, MCIT
Kim Sharkey, MCEM	Torry Kaufman, MCIT	Gintautas Zavadzkas, MCPM	Kalee Shaberts, LBK
Charlie Mopps, LBK	Paul Roberts, PRECO	Jamie Billingsly, LWR Medical	Meghan Blancher, TBRPC
Jake Bibler, COP	Myra Prater MCPW	Phaedra Dolan, MC Clerk	Corey Fortin, COB
Cara Serra, TBRPC	Sage Kamiya, COHB	Jessica REmkiewicz, MCDS	

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Joel Richmond at 3PM.			
Introductions	Introductions were virtual and attendees were asked to sign in on chat page for tracking purposes. 23 attendees to meeting were present.			
Changes to agenda	No Changes			
Minutes	Motion was provided and seconded for approval of meetings minutes of December 7th, 2023. AYES = 13 NAYS = 0 ABSTAIN = 0 Motion Passed			
Review of HMGP Funding	Reviewed the HMGP funding notice of 3.8 million available for those selected project(s). Reviewed how the voting process would proceed with motion to pull projects and then voting.			
Review of Submitted Projects	Motion was provided and seconded to approve the current rankings of the most recently submitted projects.			

Citizen Comments	None			
Vote on Projects	Motion and second to pull City of Bradenton project for Lift Station # 8 Relocation, ranked 44. Voted 13-0 in favor of pulling. Motion and second to pull Longboat Key projects for the Manatee Bayview-Penfield (rank 34) and Manatee Village Design (rank 35). Voted 13-0 in favor of pulling. Motion and second to pull City of Bradenton Southwest Ward 5 Stormwater Improvement project, rank 41. Voted 13-0 in favor of pulling.			
Open Discussion	Tom Gerstenburger discussed the importance of proper documentation on all the relevant information on submitted projects.			
Next Quarterly Meeting	March 27th, 3pm			
Adjourn	Motion and second to adjourn the meeting at 1530 hrs. AYES = 13 NAYS = 0 ABSTAIN = 0 Motion Passed			

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 6/26/2024	**Time: 2:30pm**	**Location: Manatee County EOC**	**Facilitator: Joel Richmond**
Joel Richmond, Manatee County EM	Tom Gerstenberger, Manatee County PW	Jake Bibler	Ray Moss, MSO
Sarah Brown	Hjalmar Pachas, MCPM	Jeremy Giddens	Ed Vuolo
Kim Sharkey, MCEM	Roger Ness	Phillip Waller	Eddie Kriso
Matt Myers	Chris Rivett	Scott MacDonald	David Miers
Amy Cook	Jessica Remkiewicz	James Nicholson	Lindsey Sherwood
Brian Norman	Tom Gerstenberger	Greg Delong	Kim Mendez
Alexander Cruz	Corey Fortin	Chet Brown	Jodie Fiske
Margeret Jackson	Tina Jackson	Glen Gibellina	Heather Fisher
Robert Singer	Carol Felts		

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Joel Richmond at 2:30PM.			
Introductions	Introductions of LMS chair, vice chair and Public Safety Leadership.			
Changes to agenda	No Changes			
Minutes	Motion was provided and seconded for approval of meetings minutes of March 27th, 2024. AYES = 33 NAYS = 0 ABSTAIN = 0 Motion Passed			
LMS 5 Year Update and Sub-Committee Reports	Discussed LMS Plan 5-year update status and did brief report outs on sub committee's in reference to: Goals & Objectives			

	Data & Info Governance Governance- SC reviewed bylaws and any pertinent changes to legal language, as no changes were detected the bylaws will remain unchanged at this time. Goals & Objectives – Tom G. reported that the cities have been communicating their updates and new language will need to be added for flood regulations. Jessica R. reported that they were updating language related to floodplain ordinances and any comp plan updates. Also, flood zones and evacuation zones have been updated since the last 5-year plan. Data & Info – The THIRA has been completed and Matt M. discussed the rankings of the risk analysis. Census info is being updated as well as the critical facilities list (Hjalmar and Shannon)			
Citizen Comments	Carol Phelps spoke about east county preparations and Ian assistance. Glen G. spoke about evacuation communication, county buildings and shelter options other than schools			
Open Discussion	Discussed the need for future SC workgroup meetings, determined it was not necessary – future correspondence and data required could be emailed. COB and LBK HMPG grant funded projects are progressing thru state coordination. No cites or other organizations had any new business to discuss.			
Next Quarterly Meeting	September 2024 – Exact date TBD			
Adjourn	Motion and second to adjourn the meeting at 3PM. AYES = 33 NAYS = 0			

	ABSTAIN = 0 Motion Passed			

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Quarterly LMS Meeting		
Date: 3/27/2024	**Time: 3pm**	**Location: Teams Virtual**	**Facilitator: Joel Richmond**
Joel Richmond, Manatee County EM	Tom Gerstenberger, Manatee County PW	Jeff Bowman	Ray Moss, MSO
Jake Bibler	Hjalmar Pachas, MCPM	Jeremy Giddens, MCEM	Kim Clayback
Kim Sharkey, MCEM	Roger Ness	Ed Vuolo	James McDevitt
Charlie Mopps, LBK	Myra Prater MCPW	Jamie Billingsly, LWR Medical	Meghan Blancher, TBRPC

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
Welcome	The meeting was called to order by Manatee County LMS Chair, Joel Richmond at 3PM.			
Introductions	Introductions were virtual and attendees were asked to sign in on chat page for tracking purposes.			
Changes to agenda	No Changes			
Minutes	Motion was provided and seconded for approval of meetings minutes of February 21st, 2024. AYES = 14 NAYS = 0 ABSTAIN = 0 Motion Passed			
LMS 5 Year Update	Discussed 5 year update deadlines and goals. The plan draft is due to turn into the state in March 2025, and due for final approval in September 2025. The Working Group will follow the same process as the last update and has formed 3 sub committess to focus on being: Goals and Objectives Data and Information			

	Governance			
Working Groups/Sub Committess	Three subcommittees were formed and the following members were assigned/joined with the option for more members to join at a later date if interested: **Goals & Objectives –** This group will review the current Goals and Objectives in the plan and also review with the partnering municipalities to identify and changes and/or edits that may be required or requested. • Joel Richmond, EM • Kim Sharkey, EM • Jeremy Giddens, EM • Tom Gerstenberger, PW **Data & Information –** This group will review the plan and update any pertinent information, data, and/or information as required. EM will update the THIRA and an update to the Critical Facilities List will be conducted as well. • Joel Richmond. EM • Hjalmar Pachas, PM • Kim Sharkey, EM • Jeremy Giddens, EM • Kim Clayback, City of Bradenton Governance – This group will review any legal legislation and/or bylaws associated with the LMS and provide input on any updates or changes requires. • Joel Richmond, EM • Ray Moss, MSO • Kim Sharkey, EM • Jeremy Giddens, EM Sub-committee meetings will be scheduled TBD as needed in between the regularly scheduled quarterly meetings to discuss and plan update processes. Notices will be sent out in the next several weeks.			

Citizen Comments	None			
Open Discussion	Discussed group member contact information updates and submittal of future projects, no projects were on the agenda for this meeting but will keep an open format for any future projects and rankings that are requested.			
Next Quarterly Meeting	June 19th, 3pm			
Adjourn	Motion and second to adjourn the meeting at 1530 hrs. AYES = 14 NAYS = 0 ABSTAIN = 0 Motion Passed			

Manatee County Public Safety Department

Dec 11, 2024 ·

GET INVOLVED:
Join us at the public meeting of the Manatee County Local Mitigation Strategy Working Group!... See more



1

Like Comment Send Share

RE: LMS Special Meeting: FDEM Hazard Mitigation Grant Program Notice of Funding Availability DR-4734 - Upda...



Joel Richmond

To WebCalendar; Tom Gerstenberger; ladent@smfr.com; amclerk@cityofannamaria.com; admin@parrishfd.org; amy@tbrpc.org; Jamie.Billingsley@lwrmc.com; lisa.boutote@lwrtownhall.com; jbowman@palmettofl.org; ibrownman@longboatkey.org; **+59 others**

Cc Sarah Brown; Kim Sharkey; Candy Kelly; Mark Stuckey; Phil Reed; Lance M. Williams; Rebecca Desch; Mark Patrick; Meghan Maraia Blancher; Torry Kauffman; Kevin Leonard; Darin Cushing; Susan Kulbersh; Kalee Shaberts; Kim Clayback; **+3 others**

Agenda 2-21-2024.pdf 174 KB	2024.02.14.LMS_Lift Station Portable Emergency Power.pdf 200 KB	2024.02.14.LMS_LS08 Reloc 782 KB
2024.02.14.LMS_LS21 Sanitary Pipe Lining.pdf 689 KB	2024.02.14.LMS_SW Ward 5 Stormwater Imp.pdf 3 MB	2024.02.14.LMS_25th Ave W 277 KB
2024.02.14.LMS_Bradenton East Storm Imp.pdf	LMS Group Initiative Worksheet Manatee Bayview-Penfield Idalia.pdf	LMS Group Initiative Worksh

Good morning LMS working group:

Attached are the most recent submissions and the current deferred projects list.
Please review and be prepared to agree or disagree with the submitted rankings for tomorrow's special meeting.
Furthermore, please be prepared to motion any projects your agency wants to be pulled for voting for the most recent HMGP Grant award of 3.8 million.
The top 3-5 projects will be forwarded for processing once voted upon.
Each agency/municipality will only have one vote each so please decide in advance who your representative will be.
Please let me know if you have any questions.

Thank you.

Joel Richmond, FPEM
Emergency Management Coordinator
Manatee County Emergency Management
Office 941-749-3500 ext. 1672
Cell 941-718-9010
Joel.Richmond@mymanatee.org

Manatee County Emergency Management
P.O. Box 1000
Bradenton, Florida 34206

Attachment 4 Page 47 of 48

Hazard Mitigation

LOCAL MITIGATION STRATEGY (LMS)

The Local Mitigation Strategy (LMS) is a multi-jurisdictional plan to reduce the identified hazards within a County.

The LMS planning process, which is updated every five years, is used to set short and long-term mitigation goals and objectives for the County. Hazards affecting the community are identified, vulnerability to the hazards are assessed, and through a collaborative effort, consensus is reached on how to minimize the effects of the hazards.

In order to be eligible for Hazard Mitigation Grant Program (HMGP) project grants, the County and Cities must have a federally approved mitigation plan. The Manatee County Local Mitigation Strategy is federally compliant, and was originally adopted in 1999 with updates in 2004, 2009, 2014, and 2019.

The LMS includes an Initiatives List that is regularly updated with identified and prioritized projects both funded and unfunded, that ultimately will improve the capabilities of personnel and equipment, as well as reduce the vulnerability of the residents of the Cities and the County. After a disaster, this list is also used to help prioritize HMGP projects. Some examples of proposed projects might include shuttering critical facilities, installation of back-up generators to critical facilities, stormwater mitigation projects to reduce flooding to roadways, public information campaigns, etc.

- Local Mitigation Strategy Plan 2019
- R-20-086
- FEMA Approval

The LMS Working Group includes members from the County, six municipalities of Manatee County, fire districts and sheriff's office. Unless otherwise indicated, quarterly LMS meetings are held at 3:30 p.m. on the 3rd Thursday of March, June, September and December with the location varying. An agenda is prepared in advance with consideration for additional agenda items upon request.

The next quarterly meeting will take place on Thursday, September 21, 2023, at 3:30 p.m. VIA Teams Meeting: 1-863-583-5969 Conference ID: 598 899 400#

VIEW AGENDA ONLINE

← Back to Calendar

LMS Special Meeting: FDEM Hazard Mitigation Grant Program Notice of Funding Availability DR-4734 - Update Agenda

Date And Time

21 February, 2024 3:00PM - 4:00PM

Location

Microsoft Teams Meeting

Description

Good morning LMS Workgroup members and interested citizens of Manatee County. We have scheduled a special meeting to discuss the FDEM Hazard Mitigation Grant Program Notice of Funding Availability DR-4734. The meeting will be a virtual Teams meeting (link below) and has been posted to the Public County calendar for those citizens that wish to participate outside of the working group. During this meeting, the workgroup will vote on which projects will be submitted for funding under this HMGP. Manatee is eligible for $3.8 million. Please forward this notice to anyone in your agency that may be interested in participating. ALL PROJECTS MUST BE SUBMITTED TO THE GROUP FOR SCORING NO LATER THAN 7 DAYS PRIOR TO THE MEETING DATE. [Mitigation Grants Notice Banner] MITIGATION NOTICE OF FUNDING AVAILABILITY HAZARD MITIGATION GRANT PROGRAM NOTICE OF FUNDING AVAILABILITY DR-4734 Hurricane Idalia The Florida Division of Emergency Management (FDEM) is pleased to announce that the Notice of Funding Availability (NOFA) for the Hazard Mitigation Grant Program (HMGP) for Hurricane Idalia DR-4734 has been published to the Florida Administrative Register and is available on our state HMGP page under the Hurricane Idalia tab. Grant: Hazard Mitigation Grant Program Disaster: DR-4734 Hurricane Idalia Deadline: April 30, 2024 at 11:59 PM (EDT) Submittal: DEMES Portal (digital submission) Contact: dem_hazardmitigationgrantprogram@em.myflorida.com The application deadline date for this disaster is April 30, 2024. If you are submitting via DEMES, application submissions are due by 11:59 p.m. (EDT) on the deadline date. Do note that FDEM must receive your DEMES access request by 5:00 p.m. (EDT) on the deadline date in order to meet the application deadline. If you choose to submit by mail or other carrier, applications are due to FDEM by 5:00 p.m. (EDT) on April 30, 2024. We look forward to working with you all. _____ Update your subscriptions, modify your password or email address, or stop subscriptions at any time on your Subscriber Preferences Page. You will need to use your email address to log in. If you have questions or problems with the subscription service, please visit subscriberhelp.govdelivery.com. This service is provided to you at no charge by the Florida Division of Emergency Management. _____ This email was sent to matthew.myers@mymanatee.org using GovDelivery Communications Cloud on behalf of: Florida Division of Emergency Management · 2555 Shumard Oak Boulevard · Tallahassee, FL 32399-2100 [GovDelivery logo] _____ Microsoft Teams meeting Join on your computer, mobile app or room device Click here to join the meeting Meeting ID: 223 467 907 463 Passcode: C3iLVA Download Teams | Join on the web Or call in (audio only) +1 863-583-5969,,404844079# United States, Lakeland Phone Conference ID: 404 844 079# Find a local number | Reset PIN Learn More | Meeting options _____

Manatee County Public Safety Department

Jun 25, 2024 ·

GET INVOLVED:
Join us tomorrow at the public meeting of the Manatee County Local Mitigation Strategy... See more



Manatee County, Florida Government

Jun 11, 2024 ·

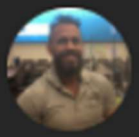
Manatee County Public Safety Department and Division of Emergency Management is seeking community participation in upcoming Loc... See more



17 6 shares

Like Send Share

FW: LMS Planning Meeting - 5 Year Update



Joel Richmond

Required EOC; WebCalendar; ecenter@chfr.org; Nancy.mccarty@centerstoneflorida.org; amclerk@cityofannamaria.com; ambo@cityofannama
lance.williams@bradentonFL.gov; wchabot@cityofbradentonbeach.com; jcosby@cityofbradentonbeach.com; DCushing@cityofbrade

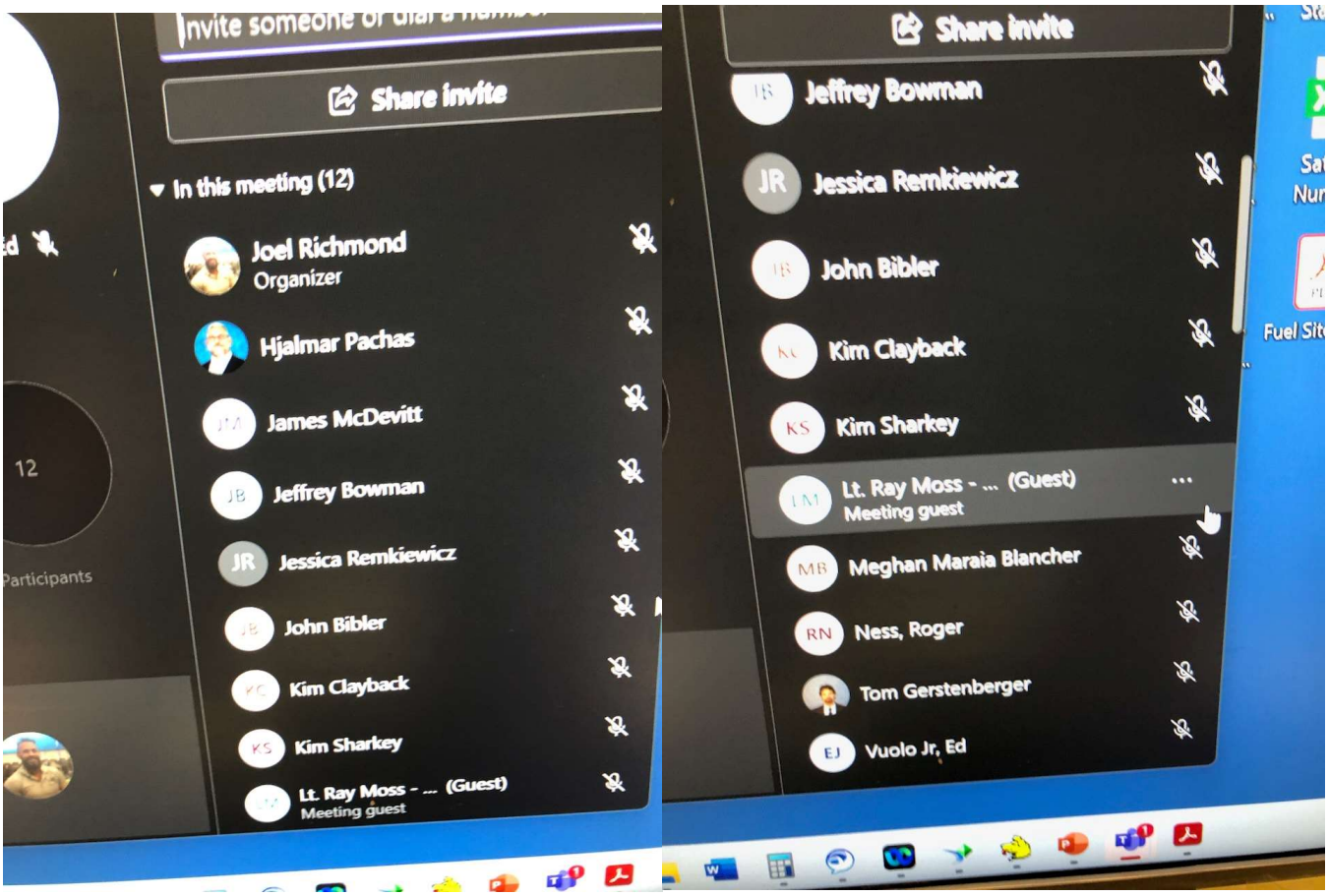
Optional Candy Kelly

As the meeting organizer, you do not need to respond to the meeting.

Wednesday, June 26, 2024 2:30 PM-4:00 PM EOC

-----Original Appointment-----
From: Joel Richmond
Sent: Tuesday, May 28, 2024 10:09 AM
To: Joel Richmond; ecenter@chfr.org; Nancy.mccarty@centerstoneflorida.org; amclerk@cityofannamaria.com; ambo@cityofannamaria.com; generalmanager@cityofannamaria.c
wchabot@cityofbradentonbeach.com; jcosby@cityofbradentonbeach.com; DCushing@cityofbradentonbeach.com; corsis@holmesbeachfl.org; skamiya@holmesbeachfl.org; chie
rimpson@palmettofl.org; stspangler@safebuilt.com; aonishenko@emfr.org; Ian.Ohlin@em.myflorida.com; Laura.Waterman@em.myflorida.com; edward.vuolojr@fdacs.gov; Jan
jamie.schindewolf@mymanatee.org; James McDevitt; William OShea; Jessica Remkiewicz; Kim Sharkey; dfitzpatrick@seaportmanatee.com; Hjalmar Pachas; Jodie Fiske; Jeremy G
Willie.calhoun@ManateeHousing.com; Brenda.lovett@ManateeHousing.com; wcolgate@mcr.health; khayes@mcr.health; thomas.porter@manateesheriff.com; Brian.Schnering@
Shay.Kumm@srq-airport.com; jeff.sasada@flysrq.com; Mark.Stuckey@srq-airport.com; damicop@manateeschools.net; pendleym@manateeschools.net; ladent@smfr.com; amy(
Cc: Candy Kelly
Subject: LMS Planning Meeting - 5 Year Update
When: Wednesday, June 26, 2024 2:30 PM-4:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: EOC

Good morning:
This LMS meeting will be in person at the Emergency Operations Center at the Public Safety Center.
2101 47th Terrace East Bradenton, 34203.
We will be discussing the 5-year update, sub committee feedback and public cooperation.



EMERGENCY MANAGEMENT

- **Hazard Mitigation**

HAZARD MITIGATION

LOCAL MITIGATION STRATEGY (LMS)

The Local Mitigation Strategy (LMS) is a multi-jurisdictional plan to reduce the identified hazards within a County.

The LMS planning process, which is updated every five years, is used to set short and long-term mitigation goals and objectives for the County. Hazards affecting the community are identified, vulnerability to the hazards are assessed, and through a collaborative effort, consensus is reached on how to minimize the effects of the hazards.

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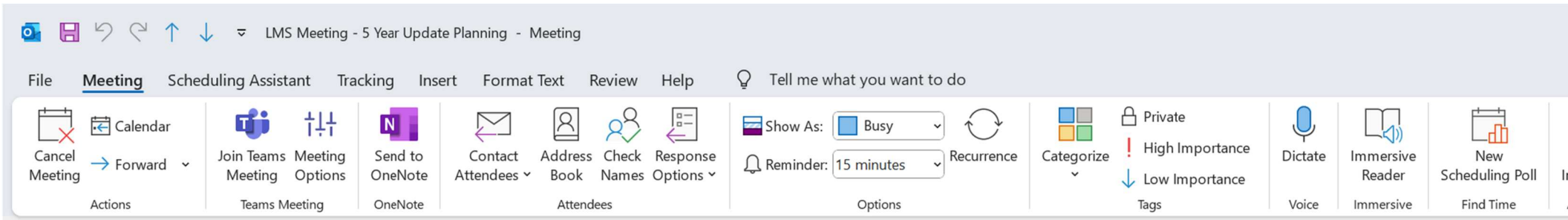
The LMS includes an Initiatives List that is regularly updated with identified and prioritized projects both funded and unfunded, that ultimately will improve the capabilities of personnel and equipment, as well as reduce the vulnerability of the residents of the Cities and the County. After a disaster, this list is also used to help prioritize HMGP projects. Some examples of proposed projects might include shuttering critical facilities, installation of back-up generators to critical facilities, stormwater mitigation projects to reduce flooding to roadways, public information campaigns, etc.

- Local Mitigation Strategy Plan 2019
- R-20-086
- FEMA Approval

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The next meeting will be a special meeting on Wednesday, March 27, 2024, at 3:00 p.m. via Teams Meeting: 1-863-583-5969 Conference ID: 598 859 765#

VIEW AGENDA ONLINE



This email message will be sent to about 91 recipients.

William OShea : Automatic reply: " I am out of the office on extended leave. Please do not leave an email in this inbox, as no one will be monitoring it during my absence. For immediate attention, please email Charles Andrews at charles.andrews@mymanatee.org."

No responses have been received for this meeting.
This appointment conflicts with another one on your calendar.

Send Update

Title: LMS Meeting - 5 Year Update Planning

Required: Joel Richmond; Tom Gerstenberger; ladent@smfr.com; amclerk@cityofannamaria.com; admin@parrishfd.org; jbibler@palmettofl.org; amy@tbrpc.org; Jamie.Billingsley@lwrmc.com; lisa.bo
Sarah Brown; ibrownman@longboatkey.org; Willie.calhoun@ManateeHousing.com; jcallihan@palmettofl.org; **Email Migration Project Team**; mary.camp@mymanatee.org; ecenter@chfr.org;

Optional:

Start time: Wed 3/27/2024 3:00 PM — All day — Time zones

End time: Wed 3/27/2024 4:00 PM — Make Recurring

Location: Microsoft Teams Meeting

LMS Meeting Minutes 2.21.24.pdf 141 KB

Agenda 3.27.2024.pdf 183 KB

2023 LMS Update Manual.pdf 33 MB

Man 178

CRS Manatee County Documentation Review 12.13.2023.docx 692 KB

Good afternoon LMS Workgroup Members. The March LMS meeting will be discussing the 5-year update planning process.

I have attached copies of the current plan, the Document Review Tool, the Florida Division of Emergency Management (FDEM) Update Manual, the current bylaws, and a notes summary of the Update Manual. I've also attached a copy of the agenda and the February Special Meeting minutes for review.

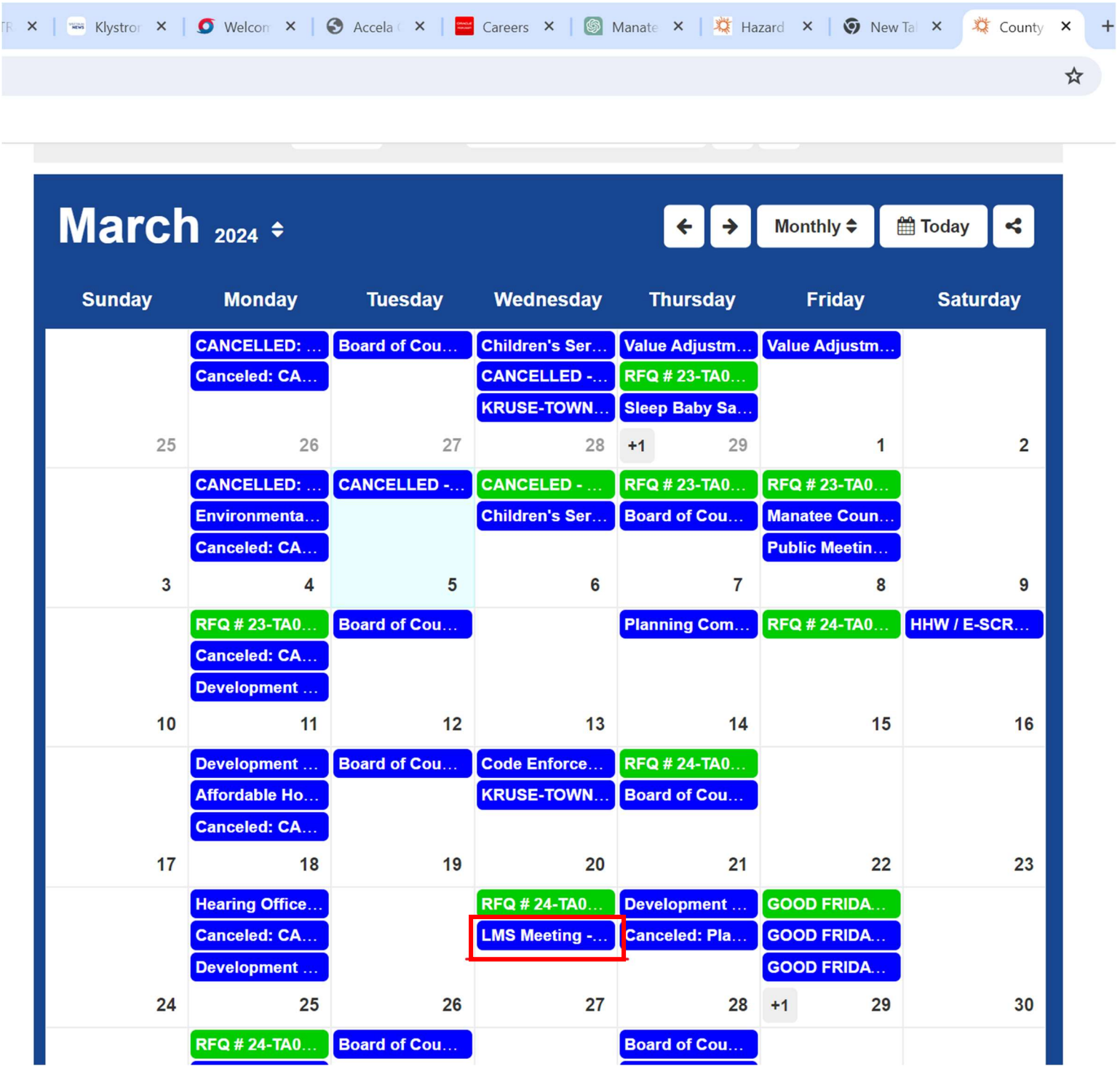
This meeting will mark the one-year process of seeking data and input from the workgroup members and the public to provide insight and expertise as needed and apply those changes to the update.

For this meeting and the process going forward this next year, we will be forming 3 sub-committees to focus on:

1. Goals and Objectives
2. Data and information updates
3. Governance Updates

The sub-committees should have 3-4 members, with each having a specialized area of expertise. The sub-groups may need to meet more frequently then the scheduled LMS meetings and will forward their findings to

In Shared Folder Calendar - joel.richmond@mymanatee.org


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AGENDA

Manatee County Local Mitigation Strategy

SPECIAL MEETING

Wednesday, March 5th, 2025

2:30 PM – 3:00 PM

Teams Meeting

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Discussion
    a. Funding Update HMGP
    b. Elevate Florida Allocation
2. Citizen Comments
3. Adjournment

Local Mitigation Strategy (LMS) Meeting

Meeting Goal	Special LMS Meeting – Elevate Florida		
Date: 02/25/2025	**Time: 02:30pm**	**Location: Teams**	**Facilitator: Joel Richmond**
(Sign-In from Teams screenshot of meeting participants)			

Topic	Discussion	Actions and Tasks	Staff Responsible	Due
HMGP	Estimated allocated funds from 2024 Helen and Milton			
Elevate Florida	What it is, allocating HMGP % for residential and business mitigation Motion and second to allocate 20% of Helene and 20% of Milton funding to Elevate Florida AYES = 14 NAYS = 0 ABSTAIN = 0 Motion Passed			
Changes to agenda	No Changes			
Citizen Comments	N/A			

Next Quarterly Meeting	March 19, 2025			
Adjourn	Motion and second to adjourn the meeting at 2:55PM AYES = 17 NAYS = 0 ABSTAIN = 0 Motion Passed			

AGENDA

Manatee County Local Mitigation Strategy MEETING

Wednesday, March 19th, 2025

2:30 PM – 3:30 PM

Manatee County Emergency Operations Center

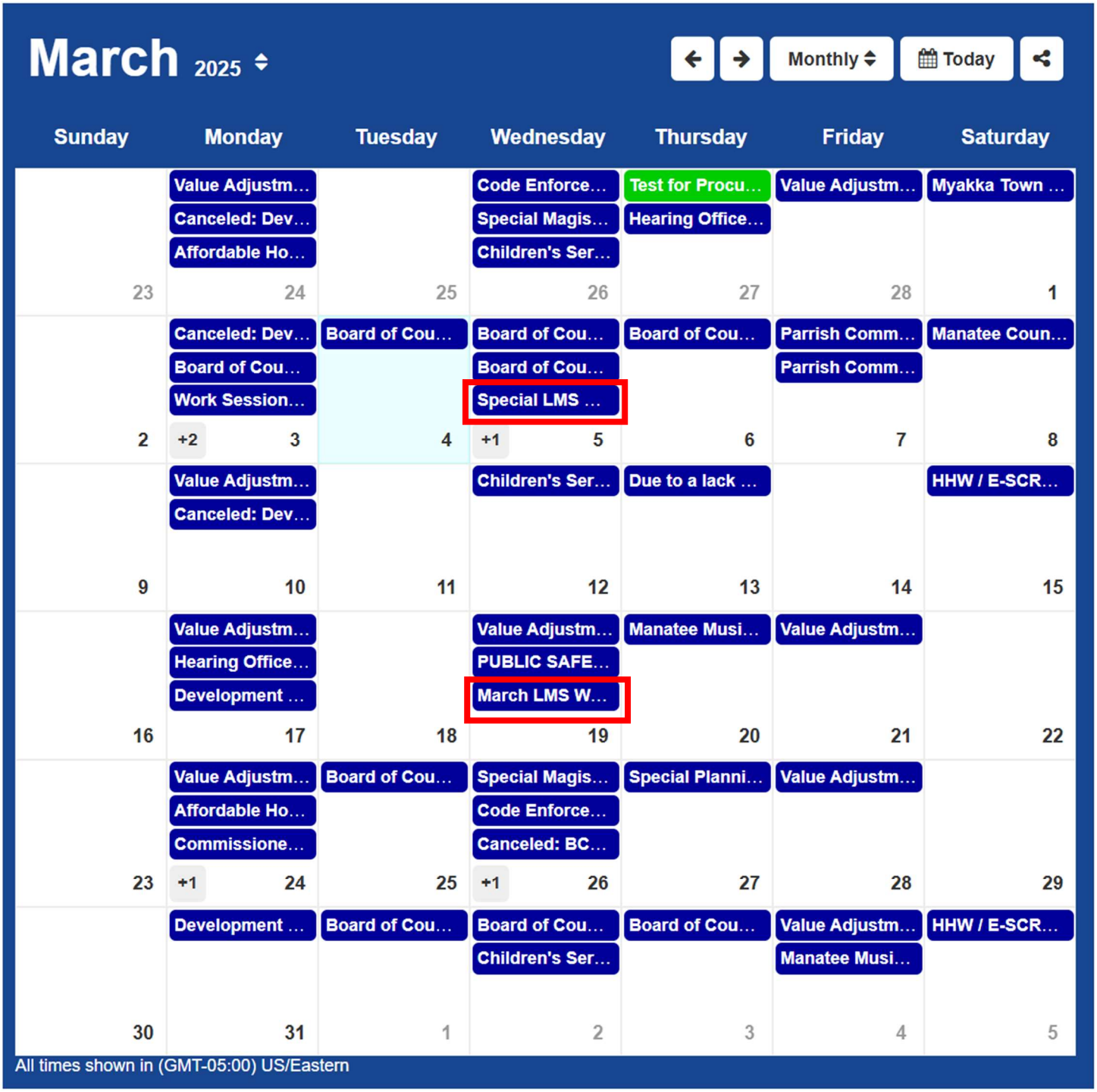
2101 47th Terrace East, Bradenton

Chairperson: Joel Richmond **Vice-Chair:** Tom Gerstenberger

1. Welcome and Introductions
2. Changes of Agenda
3. December Meetings to be held 2nd Wed to account for holidays going forward
4. Approval of Minutes – December 18, 2024
5. Approval of Minutes – March 05, 2025 Special Meeting
6. Discussion
    a. Funding Update
    b. LMS Update Review – Ashley to take over/questions, concerns
    c. Mitigation projects – New Submissions
7. New Business/Old Business
8. Citizen Comments
9. Open Discussion
10. Adjournment

Local Mitigation Strategy (LMS) Meeting			
Meeting Goal	Quarterly LMS Meeting		
Date: 03/19/2025	**Time: 2:30pm**	**Location: Manatee County EOC**	**Facilitator: Joel Richmond**
View Sign-In Sheet for Attendees			

Topic	Discussion
Welcome & Introductions	Welcome workgroup & introductions
Changes to agenda	None
Change to Dec Quarterly Meeting	No Objection to having December LMS Quarterly on 2nd Wed instead of 3rd Wed.
Minutes	No Objection to Dec Quarterly 12.18.24 and Special Meeting 3.5.25 minutes.
Discussion	• Discussed mitigation project process, funding, and deadlines of 3 current DR's. • Discussed LMS update (Ashley Plumstead) and provided copies of LMS sections to Workgroup to review. • Discussed on-going mitigation projects. • Discussed future projects and combining efforts will multiple agencies and municipalities. • Discussed By-laws and voting regulations, transitions from Motions to No Objection. • No Objections to 21 City of Holmes Beach projects to be added to LMS initiatives. • No Objections to 1 Manatee County Stormwater project to be added to LMS initiatives. • No Objections to 5 Town of Longboat Key projects to be added to LMS initiatives. • No Objections to 1 City of Bradenton project to be added to LMS initiatives.
Citizen Comments	N/A
Open Discussion	N/A
Next Quarterly Meeting	June 2025 – Exact date TBD
Adjourn	No Objection to Adjourn meeting at 3:35pm


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All times shown in (GMT-05:00) US/Eastern

Special LMS Meeting

Date And Time

05 March, 2025 2:30PM - 3:00PM

Location

Microsoft Teams Meeting

Description

-----Original Appointment----- From: Ashley Plumstead Sent: Thursday, February 20, 2025 9:58 AM To: Ashley Plumstead; WebCalendar; ecenter@chfr.org; Nancy.mccarty@centerstoneflorida.org; amclerk@cityofannamaria.com; ambo@cityofannamaria.com; generalmanager@cityofannamaria.com; kim.clayback@bradentonFL.gov; corey.fortin@bradentonFL.gov; lance.williams@bradentonFL.gov; Rebecca.Desch@bradentonfl.gov; Jeremy.Giddens@bradentonpd.com; Robin.Singer@bradentonfl.gov; Greg.DeLong@bradentonfl.gov; Irvin.Lee@bradentonfl.gov; David.Meiers@bradentonfl.gov; brian.norman@bradentonfl.gov; wchabot@cityofbradentonbeach.com; jcosby@cityofbradentonbeach.com; whudson@cityofbradentonbeach.com; corsis@holmesbeachfl.org; skamiya@holmesbeachfl.org; chief@holmesbeach.org; jbibler@palmettofl.org; jbowman@palmettofl.org; khill@palmettofl.org; gjohnson@palmettofl.org; bmartingano@palmettofl.org; ksexton@palmettofl.org; rsimpson@palmettofl.org; sspangler@palmettofl.org; Ian.Ohlin@em.myflorida.com; Laura.Waterman@em.myflorida.com; edward.vuolojr@fdacs.gov; Jamie.Billingsley@lwrmc.com; lisa.boutote@lwrtownhall.com; Cheryl Magnusson; phaedra.dolan@manateeclerk.com; Sarah Brown; mary.camp@mymanatee.org; jamie.schindewolf@mymanatee.org; Valerie Kennedy; James McDevitt; Bill.oshea@mymanatee.org; Jessica Remkiewicz; Michele Davis; dfitzpatrick@seaportmanatee.com; Drew Richardson; Hjalmar Pachas; James Crutchfield; Jodie Fiske; Matthew Myers; Joel Richmond; Heather Sonntag; Brad Szink; Tom Gerstenberger; Myra Prater; Anthony Russo; rabun.moss@manateesheriff.com; thomas.porter@manateesheriff.com; Brian.Schnering@manateesheriff.com; Amanda ShawverKarnitz; Willie.calhoun@ManateeHousing.com; Brenda.lovett@ManateeHousing.com; wcolgate@mcr.health; khayes@mcr.health; Mariel@taxcollector.com; millera@nrfd.org; admin@nrfd.org; admin@parrishfd.org; paul.roberts@preco.coop; Diane.drakulich@srq-airport.com; Shay.Kumm@srq-airport.com; jeff.sasada@flysrq.com; Mark.Stuckey@srq-airport.com; damicop@manateeschools.net; pendleym@manateeschools.net; ladent@smfr.com; amy@tbrpc.org; cara@tbrpc.org; ibrownman@longboatkey.org; cmopps@longboatkey.org; aparsons@longboatkey.org; pfige@longboatkey.org; Ben Rigney; cliatttt@gmail.com; Meghan Maraia Blancher Cc: Alyssa Grove; Elizabeth Shulman; Mark Stuckey; Cheryl Bagby; Kalee Shaberts; Rachel Layton Subject: Special LMS Meeting When: Wednesday, March 5, 2025 2:30 PM-3:00 PM (UTC-05:00) Eastern Time (US & Canada). Where: Microsoft Teams Meeting This meeting is to discuss the State's request to allocate any or no HMGP funding from 2024 season to the Elevate Florida program – which will help our residents raise their elevation on individual properties. Please see attached Elevate Florida information & estimated HMGP funding allocations for all 3 storms. Below is from FDEM about Elevate Florida allocation: Good afternoon LMS Work Groups, The HMGP 30-day Estimate County Allocations have been finalized for Helene and Milton (see attached). As discussed previously, the Elevate Florida statewide residential mitigation program will allow you to reallocate from your county's HMGP regular project allocation(s) to dedicate specifically for your residents in Elevate Florida. If you do reallocate funds to Elevate Florida, we are guaranteeing those funds will be used on your county's applicants and will be drafting an MOU for review and execution. As this is the 30-day estimate, we expect that the allocations may increase or decrease at the 6-month estimate and 12-month lock-in. We are asking you determine a percentage you are willing to reallocate that will also increase or decrease accordingly. Action Required: Please respond to this email no later than March 7, 2025, and indicate the percent of funds (per disaster) you would like to reallocate. If your Work Group does not want to reallocate funds, please state so. We are requiring a response from all counties that have an allocation for either disaster. If you need more time to convene an LMS meeting, please let us know. To help with decision making, please see the tables below for the current applications submitted for your counties. Note, the application portal has only been open for a little over one week and the numbers are steadily growing each day. If you do decide to reallocate funds, our team will look at appropriate targeted outreach in your county to be able to utilize the amount reallocated. If you have any questions, please respond to all copied on this email. Unique Applications Received by County as of 1900 on 2/18/2025 County Total Count by County Wind Mitigation Acquisition and Demoliton Structure Elevation Mitigation Reconstruction Alachua County 3 0 0 2 1 Brevard County 3 2 0 1 0 Broward County 71 51 0 16 4 Charlotte County 157 27 1 106 23 Citrus County 139 5 1 89 44 Collier County 37 2 0 28 7 Columbia County 3 2 0 1 0 DeSoto County 8 1 0 6 1 Dixie County 77 0 1 31 45 Duval County 9 7 0 2 0 Escambia County 3 1 0 1 1 Flagler County 11 0 0 8 3 Franklin County 1 0 0 1 0 Hernando County 56 5 2 32 17 Hillsborough County 148 8 0 77 63 Indian River County 3 1 0 1 1 Lake County 1 1 0 0 0 Lee County 507 32 4 416 55 Leon County 3 3 0 0 0 Levy County 21 0 1 14 6 Manatee County 74 2 0 52 20 Martin County 1 1 0 0 0 Miami-Dade County 5 2 0 2 1 Monroe County 17 1 0 10 6 Nassau County 1 0 0 1 0 Okaloosa County 2 1 0 1 0 Orange County 11 4 0 5 2 Osceola County 3 2 0 1 0 Palm Beach County 6 4 0 2 0 Pasco County 156 4 3 103 46 Pinellas County 1,343 44 9 814 476 Polk County 6 2 1 2 1 Santa Rosa County 8 5 1 2 0 Sarasota County 85 8 0 51 26 Seminole County 10 4 0 4 2 St. Johns County 2 0 0 2 0 St. Lucie County 6 3 0 2 1 Suwannee County 1 0 0 1 0 Taylor County 19 1 0 9 9 Volusia County 123 17 9 73 24 Wakulla County 1 0 0 1 0 Statewide Total 3,141 253 33 1,970 885 Thank you, [Logo Description automatically generated] Kristin Lentz | Deputy Bureau Chief Bureau of Mitigation Florida Division of Emergency Management Cell: (850) 273-2950 Kristin.Lentz@em.myflorida.com

_____ Microsoft Teams Need help? Join the meeting now Meeting ID: 255 231 815 242 Passcode: rH7qj6Gm _____ Dial in by phone +1 863-583-5969,,4685719# United States, Lakeland Find a local number Phone conference ID: 468 571 9# For organizers: Meeting options | Reset dial-in PIN

_____

Recap

Chapters & Topics

- Funding Reallocation Discussion for Elevate Florida Program
  - Allocation of funds for Hurricane Helene and Hurricane Milton.
  - Discussion on the Elevate Florida program and its funding.
  - Methodology for reallocating funds and ensuring no duplication of benefits.

See all 6 chapters →

Action Items

- Matthew Myers will make a motion to allocate 20% of HMGP funding for Elevate Florida.
- Joel Richmond will set an internal deadline for application submissions before the July 25th deadline.

See all 3 action items →

Key Questions

- What is the total allocation that Manatee County is receiving for the two storms?
- What is the maximum dollar amount that applicants can receive through Elevate Florida?


Myra Prater

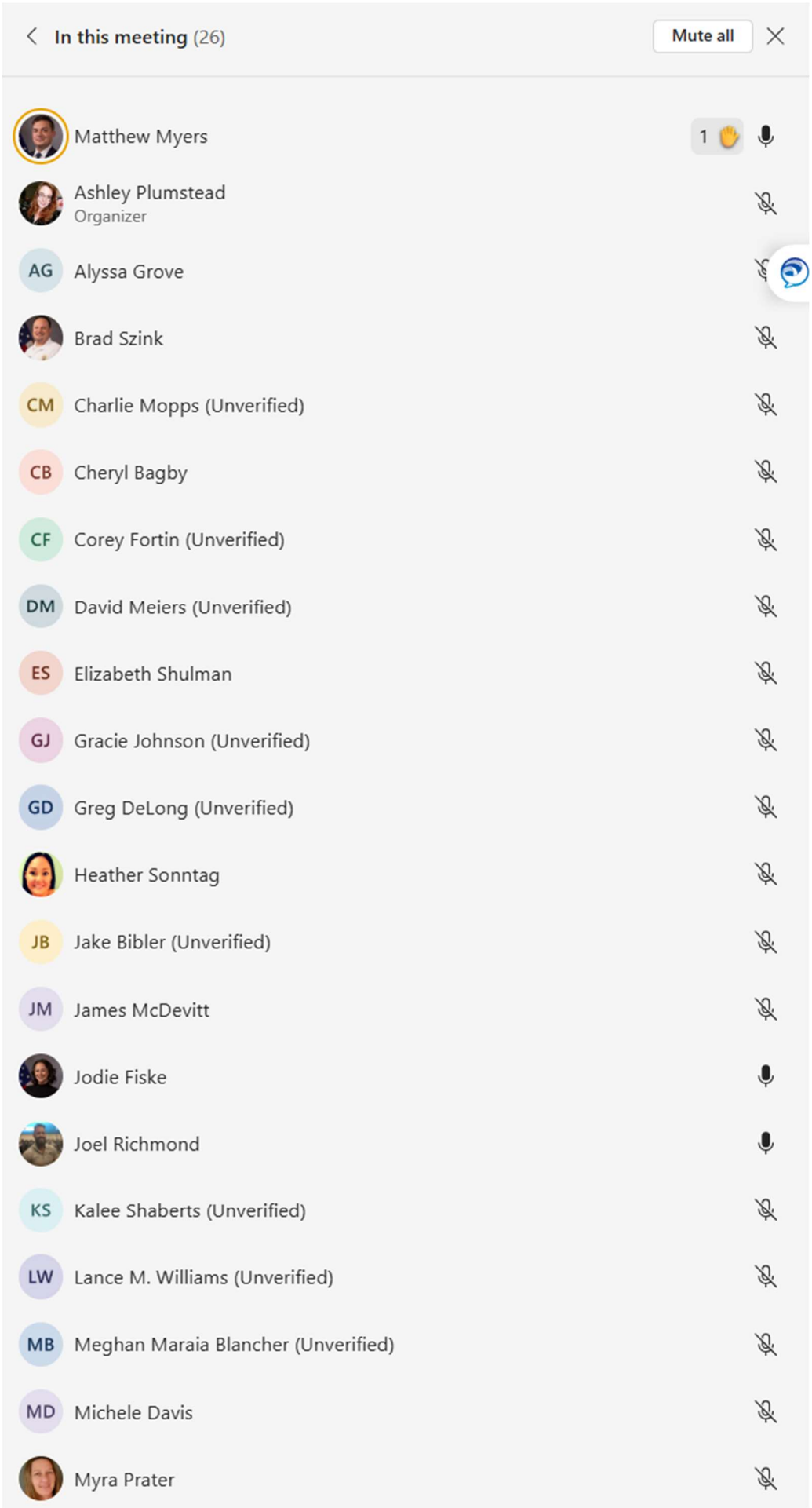
RN read.ai meeting notes (Unverified)

RS Robin D. Singer (Unverified)

SK Sage Kamiya (Unverified)


Sarah Brown


Valerie Kennedy


In this meeting (26)
Mute all
Matthew Myers
1
Ashley Plumstead
Organizer
AG
Alyssa Grove
Brad Szink
CM
Charlie Mopps (Unverified)
CB
Cheryl Bagby
CF
Corey Fortin (Unverified)
DM
David Meiers (Unverified)
ES
Elizabeth Shulman
GJ
Gracie Johnson (Unverified)
GD
Greg DeLong (Unverified)
Heather Sonntag
JB
Jake Bibler (Unverified)
JM
James McDevitt
Jodie Fiske
Joel Richmond
KS
Kalee Shaberts (Unverified)
LW
Lance M. Williams (Unverified)
MB
Meghan Maraia Blancher (Unverified)
MD
Michele Davis
Myra Prater

March LMS Workgroup Meeting

Date And Time

19 March, 2025 2:30PM - 3:30PM

Location

EOC

Description

-----Original Appointment----- From: Ashley Plumstead > Sent: Thursday, March 6, 2025 8:34 AM To: Ashley Plumstead; ecenter@chfr.org; Nancy.mccarty@centerstoneflorida.org; amclerk@cityofannamaria.com; ambo@cityofannamaria.com; generalmanager@cityofannamaria.com; kim.clayback@bradentonFL.gov; corey.fortin@bradentonFL.gov; lance.williams@bradentonFL.gov; Rebecca.Desch@bradentonfl.gov; Jeremy.Giddens@bradentonpd.com; Robin.Singer@bradentonfl.gov; Greg.DeLong@bradentonfl.gov; Irvin.Lee@bradentonfl.gov; David.Meiers@bradentonfl.gov; brian.norman@bradentonfl.gov; wchabot@cityofbradentonbeach.com; jcosby@cityofbradentonbeach.com; whudson@cityofbradentonbeach.com; corsis@holmesbeachfl.org; skamiya@holmesbeachfl.org; chief@holmesbeach.org; jbibler@palmettofl.org; jbowman@palmettofl.org; khill@palmettofl.org; gjohnson@palmettofl.org; bmartingano@palmettofl.org; ksexton@palmettofl.org; rsimpson@palmettofl.org; sspangler@palmettofl.org; Ian.Ohlin@em.myflorida.com; Laura.Waterman@em.myflorida.com; edward.vuolojr@fdacs.gov; Jamie.Billingsley@lwrmc.com; lisa.boutote@lwrtownhall.com; Cheryl Magnusson; phaedra.dolan@manateeclerk.com; Sarah Brown; Mary Camp; Jamie Schindewolf; Valerie Kennedy; James McDevitt; William OShea; Michele Davis; dfitzpatrick@seaportmanatee.com; Drew Richardson; Hjalmar Pachas; James Crutchfield; Jodie Fiske; Matthew Myers; Joel Richmond; Ashley Plumstead; Heather Sonntag; Brad Szink; Tom Gerstenberger; Myra Prater; Anthony Russo; rabun.moss@manateesheriff.com; thomas.porter@manateesheriff.com; Brian.Schnering@manateesheriff.com; Amanda ShawverKarnitz; Willie.calhoun@ManateeHousing.com; Brenda.lovett@ManateeHousing.com; wcolgate@mcr.health; khayes@mcr.health; Mariel@taxcollector.com; millera@nrfd.org; admin@nrfd.org; admin@parrishfd.org; paul.roberts@preco.coop; Shay.Kumm@srq-airport.com; jeff.sasada@flysrq.com; Mark.Stuckey@srq-airport.com; damicop@manateeschools.net; pendleym@manateeschools.net; ladent@smfr.com; meghan@tbrpc.org; amy@tbrpc.org; cara@tbrpc.org; ibrownman@longboatkey.org; cmopps@longboatkey.org; aparsons@longboatkey.org; kshaberts@longboatkey.org; pfige@longboatkey.org; Ben Rigney; cliatttt@gmail.com Subject: March LMS Workgroup Meeting When: Wednesday, March 19, 2025 2:30 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada). Where: EOC Manatee County Emergency Operations Center 2101 47th Terrace East, Bradenton Please join us for the March Local Mitigation Strategy Workgroup Meeting. See attached Agenda and past meeting minutes. The 2024 LMS Draft is live for Public Comment on March 3rd – please reference www.mymanatee.org/hazard to review it ahead of time. HMGP Funding for last season will soon be available – please submit scored projects to joel.richmond@mymanatee.org & bring them to the Meeting. (see attached worksheet & instructions)

Manatee County Public Safety Department
Published by Drew Winchester
· March 10 at 9:30 AM ·

🚨 Help Shape Manatee County's Future: Join the LMS Working Group Meeting on March 19th! 🚨

Join us at the public meeting of the Manatee County Local Mitigation Strategy Working Group!

The LMS workgroup plays a vital role in proposing projects and identifying funding sources for mitigation activities. By completing these projects, we can minimize environmental impacts, save lives, and reduce the economic costs of disasters.

🗓️ Date: Wednesday, March 19, 2025
🕰️ Time: 2:30 - 3:30 PM
📍 Location: Manatee County Emergency Operations Center, 2101 47th Terrace East, Bradenton, FL 34203

We invite the public to attend and provide input during the meeting. Mark your calendars and join us in shaping a safer, more resilient future for Manatee County. We look forward to your participation!
For more information, visit mymanatee.org/hazard



See insights and ads Boost post

2 5 shares

Like Comment Send Share

Manatee County Public Safety Department
Published by Drew Winchester
· 3h ·

🚨 REMINDER: Help Shape Manatee County's Future: Join the LMS Working Group Meeting on March 19th! 🚨

Join us at the public meeting of the Manatee County Local Mitigation Strategy Working Group!

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🗓️ Date: Wednesday, March 19, 2025
🕰️ Time: 2:30 - 3:30 PM
📍 Location: Manatee County Emergency Operations Center, 2101 47th Terrace East, Bradenton, FL 34203

We invite the public to attend and provide input during the meeting. Mark your calendars and join us in shaping a safer, more resilient future for Manatee County. We look forward to your participation!
For more information, visit mymanatee.org/hazard



See insights and ads Boost post

1 share

Like Comment Send Share

Member Sign-in Sheet

Local Mitigation Strategy Working Group

March 19, 2025

Name	Agency	E-Mail / Phone Number
Scott MacDonald	CoB – Bradenton P.D.	Scott.MacDonald@Bradentonpd.com 941-877-4510
SAGE KAMIYA	Holmes Beach	skamiya@holmesbeachfl.org 941-201-5924
Kalee Shaberts	Longboat Key	kshaberts@longboatkey.org
Jennifer Fehrs	Longboat Key	jfehrs@longboatkey.org
Valerie Kennedy	Manatee County Flood Dept	valerie.kennedy@mymanatee.org
IRVIN LEE	CoB - PWY	irvin.lee@bradentonfl.gov
KIM CLAYBACK		kim.clayback@bradentonFL.gov
BRIAN Norman		
Anne Ross	LWR SD	anne.ross@lwrsd.org
Mike Blackrick	LWR Dev.	Mike.Blackrick@Lakewoodranch.com
Jake Bibler	City of Palmetto	jbibler@palmettofl.org
Alyssa Grove	Manatee County	alyssa.grove@mymanatee.org
Charles Mapps	Longboat Key	cmapps@longboatkey.org
Robin Singer	COB PCD	robin.singer@bradentonfl.gov
Corey Fortin	CoB	Corey.fortin@bradentonfl.gov
Lance Williams	CB	lance.williams@Bradentonfl.gov
Sarah Brown	MCG - CVS	sarah.brown@mymanatee.org
Michele Davis	MCG - Grants	michele.davis@mymanatee.org
David Meiers	CoB - Comms	David.Meiers@bradentonfl.gov

Member Sign-in Sheet
Local Mitigation Strategy Working Group
March 19, 2025

Name	Agency	E-Mail / Phone Number
Myra Prater	M.C. Public Works	myra.prater@mymanatee.org
Tony Smithson	Peace River electric cooperative	Tony.Smitnson@Preco.coop

Citizens Sign-in Sheet

Local Mitigation Strategy Workgroup Meeting

March 19, 2025 / 2:30 p.m.

*Please be sure to clearly print information below.

NAME	EMAIL	PHONE	SIGNATURE
Meghan Blancher	meghanb@tbrpc.org	571-205-4026	MBlancher

Manatee County Public Safety Department
Published by Drew Winchester
· March 4 at 8:50 AM ·

🚨 WE NEED YOUR HELP! 🚨

We know how important it is to keep our community safe, and we can't do it without you! Your feedback is crucial in shaping the Local Mitigation Strategy (LMS) — a plan designed to reduce or eliminate risks from manmade and natural hazards. 🌪️⚠️

The LMS needs to be updated every 5 years to stay compliant with Federal Emergency Management Agency (FEMA) standards. Without an approved LMS, Manatee County and its municipalities won't be able to apply for FEMA grants to fund critical mitigation projects that protect us all. 💡🏘️

This is your chance to make a difference! Your voice matters in ensuring our community is prepared and resilient. Public comment is open through March 21.
📝 Take a moment to provide your input and help us secure the funding we need to protect Manatee County. Together, we can build a more resilient Manatee County! 💪

✅ How to get involved:
- Share your thoughts by attending the upcoming meeting or submitting feedback online.
- Help us create a safer future for everyone in our community.

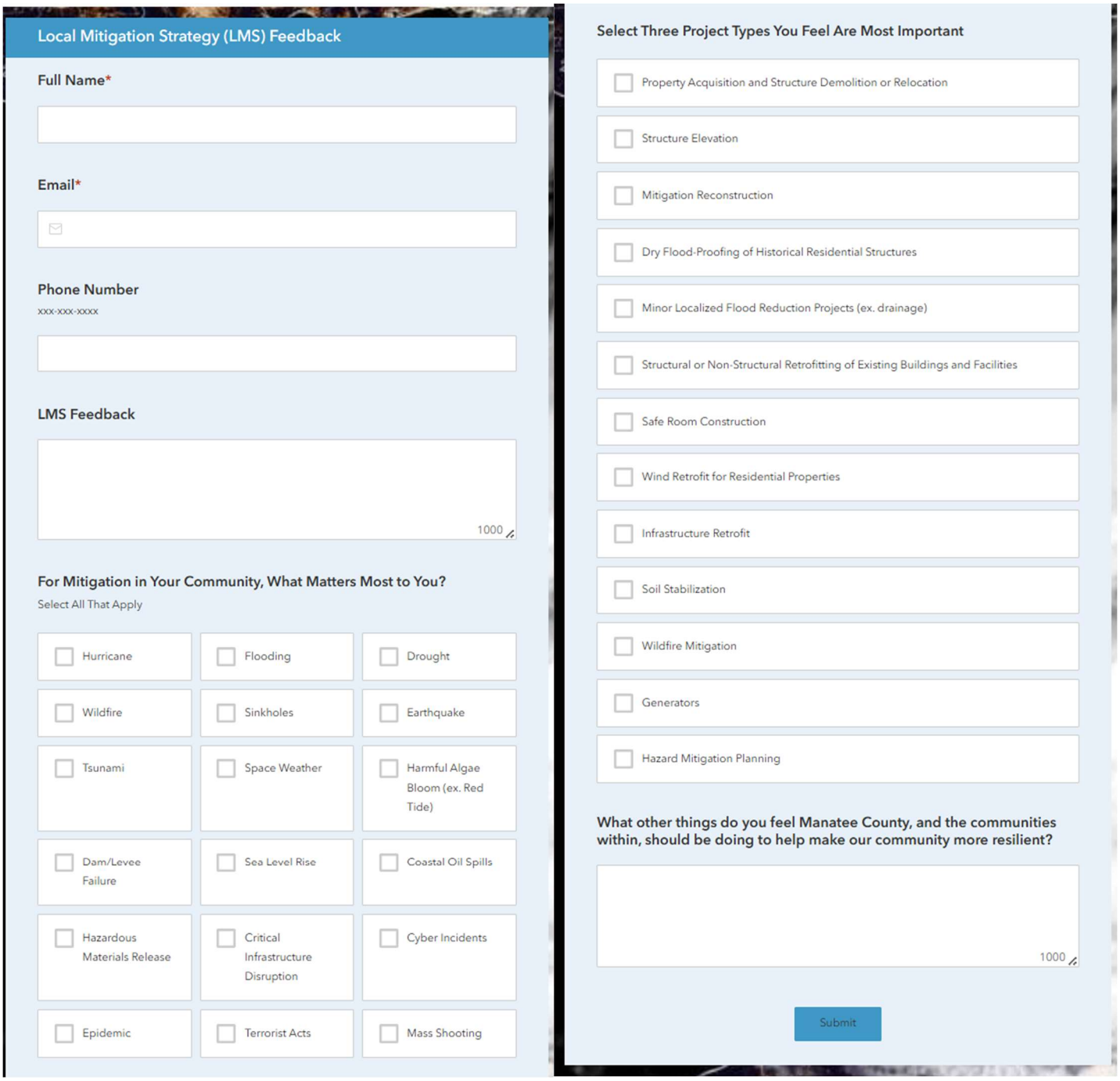
To provide feedback visit mymanatee.org/hazard



See insights and ads Boost post

4 shares

Like Comment Send Share



Local Mitigation Strategy (LMS) Feedback

Full Name*

Email*

Phone Number
xxx-xxx-xxxx

LMS Feedback
1000

For Mitigation in Your Community, What Matters Most to You?
Select All That Apply

- Hurricane
- Flooding
- Drought
- Wildfire
- Sinkholes
- Earthquake
- Tsunami
- Space Weather
- Harmful Algae Bloom (ex. Red Tide)
- Dam/Levee Failure
- Sea Level Rise
- Coastal Oil Spills
- Hazardous Materials Release
- Critical Infrastructure Disruption
- Cyber Incidents
- Epidemic
- Terrorist Acts
- Mass Shooting

Select Three Project Types You Feel Are Most Important

- Property Acquisition and Structure Demolition or Relocation
- Structure Elevation
- Mitigation Reconstruction
- Dry Flood-Proofing of Historical Residential Structures
- Minor Localized Flood Reduction Projects (ex. drainage)
- Structural or Non-Structural Retrofitting of Existing Buildings and Facilities
- Safe Room Construction
- Wind Retrofit for Residential Properties
- Infrastructure Retrofit
- Soil Stabilization
- Wildfire Mitigation
- Generators
- Hazard Mitigation Planning

What other things do you feel Manatee County, and the communities within, should be doing to help make our community more resilient?
1000

Submit

EMERGENCY MANAGEMENT

Hazard Mitigation

HAZARD MITIGATION

LOCAL MITIGATION STRATEGY UPDATE

Manatee County is seeking public comment on its updated Local Mitigation Strategy (LMS), a plan for how to proactively prepare for and handle disasters and emergencies in the Community.

VIEW LMS UPDATE DRAFT

WE WANT TO HEAR FROM YOU

We are seeking public involvement with the LMS 5-year update in the form of online public comment, through March 21.

Public comment, suggested revisions, deletions, or corrections can be submitted online via our feedback form, or sent to Ashley.plumstead@mymanatee.org or mailed to:

Emergency Management
P.O. Box 1000
Bradenton, FL 34206

SUBMIT FEEDBACK

LOCAL MITIGATION STRATEGY (LMS)

The Local Mitigation Strategy (LMS) is a multi-jurisdictional plan to reduce the identified hazards within a County.

The LMS planning process, which is updated every five years, is used to set short and long-term mitigation goals and objectives for the County. Hazards affecting the community are identified, vulnerability to the hazards are assessed, and through a collaborative effort, consensus is reached on how to minimize the effects of the hazards.

In order to be eligible for Hazard Mitigation Grant Program (HMGP) project grants, the County and Cities must have a federally approved mitigation plan. The Manatee County Local Mitigation Strategy is federally compliant, and was originally adopted in 1999 with updates in 2004, 2009, 2014, and 2019.

The LMS includes an Initiatives List that is regularly updated with identified and prioritized projects both funded and unfunded, that ultimately will improve the capabilities of personnel and equipment, as well as reduce the vulnerability of the residents of the Cities and the County. After a disaster, this list is also used to help prioritize HMGP projects. Some examples of proposed projects might include shuttering critical facilities, installation of back-up generators to critical facilities, stormwater mitigation projects to reduce flooding to roadways, public information campaigns, etc.

- Local Mitigation Strategy Plan 2019
- R-20-086
- FEMA Approval

The LMS Working Group includes members from the County, six municipalities of Manatee County, fire districts and sheriff's office. Unless otherwise indicated, quarterly LMS meetings are held in March, June, September and December with the location varying. An agenda is prepared in advance with consideration for additional agenda items upon request.

The next meeting will be on Wednesday, March 19, 2025, at 2:30 p.m. in the Emergency Operations Center at the Manatee County Public Safety Center, 2101 47th Terrace East, Bradenton, Florida 34203

VIEW AGENDA ONLINE

Local Mitigation Strategy (LMS) Feedback

Submitted By: Anonymous user

Submitted Time: March 11, 2025 3:38 PM

Full Name

[redacted]

Email

[redacted]

Phone Number

LMS Feedback

For Mitigation in Your Community, What Matters Most to You?

Hurricane, Flooding, Space Weather, Harmful Algae Bloom (ex. Red Tide), Hazardous Materials Release

Select Three Project Types You Feel Are Most Important

Minor Localized Flood Reduction Projects (ex. drainage), Wind Retrofit for Residential Properties, Infrastructure Retrofit

What other things do you feel Manatee County, and the communities within, should be doing to help make our community more resilient?

Constant inspections on existing drainage systems to ensure there is no flooding in residential areas. Be PRO-active not RE-active.

Local Mitigation Strategy (LMS) Feedback

Submitted By: Anonymous user

Submitted Time: March 6, 2025 9:24 AM

Full Name

[redacted]

Email

[redacted]

Phone Number

[redacted]

LMS Feedback

Reduce the number of homes being built. Quit destroying barriers like the coastal mangroves. Don't cater to the BUILDERS, cater to the HOMEOWNERS. Reduce traffic by denying absurd projects like the whole thing at 75th and Cortez. Enforce the septic system inspections.

For Mitigation in Your Community, What Matters Most to You?

Harmful Algae Bloom (ex. Red Tide), Critical Infrastructure Disruption

Select Three Project Types You Feel Are Most Important

Minor Localized Flood Reduction Projects (ex. drainage), Hazard Mitigation Planning

What other things do you feel Manatee County, and the communities within, should be doing to help make our community more resilient?

quit trying to be Naples or Clearwater or St. Pete. We ARE Manatee. We are Anna Maria Island. We are Bradenton. Small town atmosphere. Don't ruin what made you great.

Local Mitigation Strategy (LMS) Feedback

Submitted By: Anonymous user

Submitted Time: March 5, 2025 9:56 PM

Full Name

[redacted]

Email

[redacted]

Phone Number

[redacted]

LMS Feedback

Please dig out or dredge rivers and streams to help with flooding. Rivers and streams also need to be cleaned and obstructions cleared.

For Mitigation in Your Community, What Matters Most to You?

Hurricane, Flooding, Wildfire, Dam/Levee Failure

Select Three Project Types You Feel Are Most Important

Mitigation Reconstruction, Minor Localized Flood Reduction Projects (ex. drainage)

What other things do you feel Manatee County, and the communities within, should be doing to help make our community more resilient?

Local Mitigation Strategy (LMS) Feedback

Submitted By: Anonymous user

Submitted Time: March 5, 2025 6:08 PM

Full Name

[redacted]

Email

[redacted]

Phone Number

[redacted]

LMS Feedback

Please increase your staffing and equipment in preparation for the storm season to clear existing streams, canals and waterways.

Request a program for self help resources like rip rap, dirt or other materials residents may use to harden their homes for storm prep.

Explore tax breaks for self help work residents can do. Including equipment rental tax relief etc.

Advertise stormwater mitigation and ditch clearing projects for public bid. Or an open contract by mile or cubic yards of dirt moved. Companies can work similar to tree cleanup but preemptively clearing. Free dumping with approval by county officials.

For Mitigation in Your Community, What Matters Most to You?

Flooding, Dam/Levee Failure, Hazardous Materials Release

Select Three Project Types You Feel Are Most Important

Structure Elevation, Minor Localized Flood Reduction Projects (ex. drainage), Infrastructure Retrofit

What other things do you feel Manatee County, and the communities within, should be doing to help make our community more resilient?

Publicly advertise reservoir levels weekly during hurricane season.

Update flood maps to show as built conditions currently following years of impervious surfaces replacing wetland

APPENDIX E

CRITICAL FACILITIES

The Critical Facilities Inventory (CFI) Database for the county was updated and is available through the county emergency management and regional planning council.

This listing contains information that relates to the physical security of facilities used by the jurisdictions and to the security systems of these facilities.

This list is impressed within the exemption of Section 119.071(1), Florida Statutes, and is a confidential component of this document.

As such, it is not subject to the general disclosure requirements of Section 119.071(1, F. S. or to any other requirements of disclosure.

The database itself is protected under Homeland Security laws and not distributed as part of the LMS to the general public.

CRITICAL FACILITIES

VULNERABILITY SCORING METHODOLOGY

SCORING VULNERAILITY

In developing the methodology for identifying an initial listing of critical facilities in Manatee County in 1998/99, the matrix entitled "Scoring the Facilities for Vulnerability", provided by the Division of Emergency Management, Florida Department of Community Affairs, was used. Facilities were scored based on four factors ranging from 0 (least important condition) to 3 (most important condition). The subject areas included within the matrix were as follows:

- Facility category
- Subject to high winds
- Vulnerability to flooding
- Vulnerability to storm surge
- History of damage
- Subject to earth movement or loss
- Vulnerable to power outage
- Vulnerable to lightning
- Vulnerable to roadway blockage by debris or flooding of access roads
- Dependent upon water supply
- Vulnerable to sewer system outage
- Dependent upon communications
- Disruption causes health and safety hazard
- Disruption would cause psychological hardship
- Disruption would have economic impact
- Disruption impacts community services
- Environmental problems could occur
- Facility has historic value
- Facility impacts agriculture
- Hazardous materials
- Subject to major fire

Each participating governmental agency identified those facilities located within their area of responsibility deemed to be critical. Since each jurisdiction has its own unique characteristics and hazards profile/potential, no attempt was made to develop a single county-wide methodology. Instead, each governmental agency assigned scores based on their knowledge of the local situation and vulnerabilities. It is acknowledged that using this approach does not guarantee a uniformed approach in scoring. Still, by using a common matrix of scoring factors, it does ensure that the critical facilities identified by each local government/agency are reflective of its local needs and desires when compiled into a single countywide listing.

Once identified by the participating local government/agency, the individual lists of critical facilities were combined into a single countywide listing, ranked from highest to lowest based on each facility's respective total score.

In the 2014/15 update of the Manatee County LMS, many of same critical facilities identified originally remained, augmented by new additions. Majority of these critical facilities are of local importance. As a consequence, the mapping of each individual identified critical facility would be an arduous if not impossible task. Consequently, it was decided to limit the mapping of critical facilities to those identified by the Division of Emergency Management as most important from a countywide application of the LMS. The critical facilities fall under the following general headings:

- Operations centers and staging areas
- Government buildings
- Fire and EMS stations
- Law enforcement offices
- Medical services
- Potable water supply/treatment facilities
- Florida Power & Light substations
- Peace River substations
- Sewer/treatment facilities
- Schools and universities
- Convalescent and assisted living facilities
- Evacuation shelters
- Airports
- Flood control devices
- Radio/cellular/TV towers
- Manatee County landfill
- Hazardous material storage sites

No effort was made to draw a direct relationship between the countywide listing of critical facilities and the list of countywide mitigation initiatives. Depending on the local situation, there may be a direct correlation between a certain critical facility(ies) and initiatives. In others, a more generalized initiative may have been identified which covers a hazard to which several critical facilities were affected. However, the Manatee County LMS recognizes that all critical facilities may be vulnerable to all known hazards.

Such maps will only be incorporated into those documents to be used by county and local emergency responders.

DEFINITIONS

To prioritize facilities the following definitions were obtained from the website www.FloridaDisaster.org.

Critical facilities are defined as those structures from which essential services and functions for victim survival, continuation of public safety actions, and disaster recovery are performed or provided. Shelters, emergency operation centers, public health, public drinking water, sewer and wastewater facilities are examples of critical facilities. Though not explicitly included in the definition, supporting life-line infrastructure essential to the mission of critical facilities must also be included in the inventory when appropriate.

Critical infrastructure is defined as those systems and assets, whether physical or virtual, so vital that the incapacity or destruction of such systems and assets would have a debilitating impact on security, economy, public health or safety, or any combination of these elements. (Source: FloridaDisaster.org)

APPENDIX F

COMMUNITY GUIDING PRINCIPLES AND IMPLEMENTATION

A. BACKGROUND

The identification of Community Guiding Principles serves as the foundation upon which the Manatee County LMS should be implemented. As such, the documentation upon which these principles are drawn should be legally sound and represent extensive public involvement and comment. With this in mind, it was determined that the goals, objective, and policies of the adopted local governments' comprehensive plans and land development regulations from the participating governments of Manatee County represented the ideal source from which to identify the community guiding principles.

The following statements serve to reinforce this decision.

First, the intent that the adoption of a local government comprehensive plan. As outlined in Section 163.3161(4), Florida Statutes, "it is the purpose of this act that local governments have the ability to preserve and enhance present advantages; encourage the most appropriate use of land, water, and resources, consistent with the public interest; overcome present handicaps; and deal effectively with future problems that may result from the use and development of land within their jurisdictions. Through the process of comprehensive planning, it is intended that units of local government can preserve, promote, protect, and improve public health, safety, comfort, good order, appearance, convenience, law enforcement and fire prevention, and general welfare; facilitate the adequate and efficient provision of transportation, water, sewerage, schools, parks, recreational facilities, housing, and other requirements and services; and conserve, develop, utilize, and protect natural resources within their jurisdictions."

Second, in terms of hazard mitigation, specific requirements for development in the coastal zone, flood protection, handling of hazardous material, post-disaster redevelopment, and other related mitigation issues are outlined in Section 163.3177, Florida Statutes, and 62-816 FDEP, Florida Administrative Code. These requirements included both the need for data and analysis and the preparation of implementing goals, objective, and policies.

Third, Section 163.3194(1)(a), Florida Statutes, states that "after a comprehensive plan, or element or portion thereof, has been adopted in

conformity with this act, all development undertaken by, and all actions taken in regard to development orders by, governmental agencies in regard to land covered by such plan or element shall be consist with such plan or element as adopted."

Fourth, under Section 163.3177(3), Florida Statutes, each local government comprehensive plan is to contain a capital improvements element. The purpose of the element is "to consider the need for and the location of public facilities in order to encourage the efficient utilization of such facilities." In addition, all public facilities shall be consistent with the capital improvements element."

In terms of the relationship of the adopted local government comprehensive plan to the land development regulations/code, Section 163.3194(1)(b), Florida Statutes, states that "all land development regulations enacted or amended shall be consistent with the adopted comprehensive plan, or element or portion thereof, and any land development regulations existing at the time of adoption which are not consistent with the adopted comprehensive plan, or element or portion thereof, shall be amended so as to be consistent."

With regards to public participation, Section 163.3184(11), Florida Statutes outlines the requirements for public involvement including advertising and public hearings.

It is acknowledged that other sources of information were available in the identification of the Community Guiding Principles. Included were documents such as the revised Manatee County Floodplain Management Ordinance 13-39, the Island-wide Post-Disaster Redevelopment Plan for Anna Maria Island (1999), Manatee County Post-Disaster Redevelopment Plan (2009) and Community Rating System plans. Many of the issues, strategies, and mitigation efforts mentioned in these documents require implementation through some action identified in the adopted local government comprehensive plan or land development regulation/code.

Accepting the fact that the Community Guiding Principles are exactly those principles on which to build a hazard mitigation effort, the local government comprehensive plan and land development regulations/code serve as the logical sources to use in this effort.

B. GUIDING PRINCIPLES

Manatee County

Activity: Occupancy Quattlebaum Guest House (Res.-89-143)

Evaluation: Effective; enables Manatee County EMS to properly house an ambulance and its crew for emergency response coverage of Eastern Manatee County.

Activity: Football game stand-bys (Res.-93-142)

Evaluation: Effective; provides an on the spot response where a greater potential for injury exist due to the nature of the activity and large crowd gatherings, participants involved.

Activity: Certificate of public convenience and necessity West Coast Medical Transfer (Res.-91-73/Res.-93-253)

Evaluation: Effective; reduces the demand placed up resource should demand exceed supply.

Activity: Participation of Helping Hugs Program (Res.-94-112)

Evaluation: Effective; helps to alleviate the inherent difficulties associated with the emergency care of sick/injured pediatric patients.

Activity: Certificate of public convenience and necessity (Res.-94-239)

Evaluation: Effective; decreases the demand placed on Manatee County EMS and provides additional resources through mutual aid request.

Activity: Bayflight Bayfront Medical Mutual Agreement

Evaluation: Effective; successful in getting severely injured persons to a trauma center.

Activity: Tampa General Hospital and AEROMED – Serves as a backup should Bayflight not be available.

Evaluation: Effective through implementation.

Activity: Removal of Australian Pines from Coquina Beach to stabilize the beach head and provides better visibility for police.

Evaluation: Effective through implementation.

Activity: Swift water rescue training – Enables emergency personnel to respond to flood related situations where swift water situations exist.

Evaluation: Effective through implementation.

Activity: SCUBA Program – Enables emergency personnel to effectively respond to submerged victims, emergencies or body recovery.

Evaluation: Effective through implementation.

Activity: Phosphate mining – Allows for local regulation of phosphate mining operations (Ord. 04-39)

Evaluation: Effective; particularly with regards to conducting routine inspections of all phosphate mining activities to assure compliance and detect potential problems.

Activity: EMT training of marine rescue personnel

Evaluation: Effective; improved the level of patient care and enabled better integration into the 9-1-1 system as well as asset in disaster response.

Activity: Emergency procurement (Ord. 84-02, subsection 3-106) and design-build contracts (Ord. 90-31, subsection 5-401-6B.vi).

Evaluation: Effective in assuring that the County Purchasing Department is able to make or authorize the emergency procurement of necessary items when there is a threat to public health, safety, or welfare.

Activity: Hazardous Material Discharges – Governs the discharge of hazardous materials (Land Development Code 542.7.G).

Evaluation: Partially effective; needs better coordination between the Planning Department, Emergency Management Division, and Public Safety Department.

Activity: Hazardous Material Emergencies – Governs response to hazardous material emergencies (Land Development Code 542.7.H).

Evaluation: Partially effective; needs better coordination between the Planning Department, Emergency Management Division, and Public Safety Department.

Activity: Toxic airborne materials – Governs maximum allowable concentration toxic airborne materials (Land Development Code 542.7.I).

Evaluation: Partially effective; needs better coordination between the Planning Department, Emergency Management Division, and Public Safety Department.

Activity: Emergency storm shelter and evacuation program and standards for mobile home parks/subdivisions, RV parks, and campgrounds (Land Development Code 511.4).

Evaluation: Effective; no new mobile home parks/subdivisions and campgrounds have been approved since adoption. New mobile home parks are prohibited in the CHHA overlay (Land Development Code 403.8.C.1), Velocity Zone (Land Development Code 802.6.B.2.b.ix, 403.8.C.1), and floodways (Land Development Code 802.B.3.b). This prohibition is also in the Manatee County Floodplain Ordinance 13-39 Section 2-10-24(d)(1)A.

Activity: Evacuation assistance for the elderly and others in need of assistance.

Evaluation: Effective through implementation.

Activity: Storage of hazardous materials (Land Development Code 802.6.A.11) – Not permitted in the coastal high hazard area, watershed protection overlay or floodways.

Evaluation: Effective through enforcement.

Activity: Flood damage protection (Floodplain Ordinance 13-39 2-10-21, and Land Development Code 802.1) – Protect human life.

Evaluation: Effective in ensuring that building construction limits flood and storm damage.

Activity: Limit amount of hazardous materials that can be generated, stored, or disposed of from establishments located in the coastal high hazard area (Land Development Code 403.8.C.3)

Evaluation: Effective through enforcement.

Activity: Marinas must prepare hurricane evacuation plans; requested as part of issuance of development orders. (Land Development Code 402.14.D.1)

Evaluation: Marginally effective; no standards/guidelines have been established.

Activity: Development applications reviewed to determine effect on hurricane shelter capacity and evacuation times and establish standards for approval of development in the coastal high hazard area (Land Development Code 403.8.F & G)

Evaluation: Effective; conforms to the hurricane shelter standards and evacuation clearance times set by the County.

Activity: Increase rate of evacuee mobilization (Comprehensive Plan, Coastal Element, Policy 4.4.1.1).

Evaluation: Effective as policy guideline.

Activity: Maintain capacity on all evacuation routes (Comprehensive Plan, Coastal Element, Policy 4.4.1.2),

Evaluation: Partially effective; not all evacuation routes are at maximum level of service.

Activity: Prohibit disposal/storage/use of hazardous substances/waste within watershed overlay districts (Comprehensive Plan, Conservation Element, Policy 3.4.1.1).

Evaluation: Effectiveness unknown due to lack of monitoring.

Activity: Limit industrial development in the coastal high hazard area (Comprehensive Plan, Coastal Element, Policy 4.3.1.4).

Evaluation: Effective; no new industrial development has occurred in this area.

Activity: Comprehensive Plan. Coastal Element, Policy 4.3.1.1 – Direct population away from the coastal evacuation area.

Evaluation: Effective; has successfully in keeping density increases out of coastal areas.

Activity: Require all development to utilize soil stabilization procedures (Comprehensive Plan, Future Land Use Element, Policy 2.3.2.1).

Evaluation: Effective as policy guideline.

Activity: Prohibit development in areas which has a likelihood of sinkhole activity (Comprehensive Plan, Future Land Use Element, Policy 2.3.2.2).

Evaluation: Effective; no sinkholes have occurred in new development.

Activity: Establishment of Discharge Standards prohibiting discharge of stormwater into sewer system (Ord. 98-28, Section 2.1)

Evaluation: Effective as policy guideline.

Activity: No increase in the rate of runoff which adversely impacts adjacent property owners (Land Development Code 802.6.A.6).

Evaluation: Effective as policy guideline.

Activity: Fill within 100-year and 25-year floodplains to be compensated by stormwater storage of equal or greater volume within the same drainage basin (Land Development Code 801.3.L).

Evaluation: Effective as policy guideline.

Activity: Continued participation in the Tampa Bay Estuary Program aimed at decreasing stormwater runoff (Floodplain Management Plan, 8.3.1).

Evaluation: Effective as policy guideline.

Activity: Completion of Basin Prioritization Study (Stormwater Master Plan, 8.5.2).

Evaluation: Completed.

Activity: Planned Development – Waterfront must be consistent with the natural character of the coastal area (Land Development Code 402.14).

Evaluation: Effective; compiled with through the Planned Development review process.

Activity: Comprehensive Plan, Future Land Use Element, Policy 2.3.2.3 – Minimize alteration of natural slopes.

Evaluation: Effective in reducing alterations within the 25-year floodplain.

Activity: Prevent flood hazards, loss of life, property damage, and capital expenditures (Land Development Code 801.1.G).

Evaluation: Effective as policy guideline.

Activity: No alteration of sand dunes or mangrove stands (Land Development Code 802.6.B.2.b.v).

Evaluation: Effective through enforcement.

Activity: Regulation of development in the coastal high hazard areas and floodways (Land Development 802.6.B.2 & 3).

Evaluation: Effective as policy guidelines.

Activity: All development in the coastal high hazard areas must be consistent with floodplain management requirements and undergo planned development review process (Land Development Code 403.8).

Evaluation: Effective; complied with through the Planned Development review process.

Activity: All water dependent development must meet floodplain regulations (Land Development Code 402.14.F.9).

Evaluation: Effective through enforcement.

Activity: Prohibit alternation of watercourses and floodways (Land Development Code 801.3.A).

Evaluation: Partially effective; needs further study as to effectiveness.

Activity: New habitable structures must be located outside the 25-year floodplain, if possible. If not, structures must be elevated (Land Development Code 801.3.P)

Evaluation: Effective as policy guideline.

Activity: Al new construction within the identified 100-year floodplain must comply with County's Floodplain Management Ord. 13-39.

Evaluation: Effective through Building Department enforcement.

Activity: Minimize alteration/relocation of perennial lake/stream by transfer of density/intensity away from the water body and out of the floodplain (Comprehensive Plan, Future Land Use Element, Policy 2.3.1.2).

Evaluation: Effective as policy guideline.

Activity: Reduce density/intensity within watershed overlay districts (Comprehensive Plan, Future Land Use Element, Policy 2.3.1.4).

Evaluation: Marginally effective as policy guideline.

Activity: Minimize alteration of hydric soils supporting wetlands (Comprehensive Plan, Future Land Use Element, Policy 2.3.2.4).

Evaluation: Effective as policy guideline.

Activity: Prohibit new development within floodway (Comprehensive Plan, Future Land Use Element, Policy 2.3.3.1).

Evaluation: Effective as policy guideline.

Activity: Prohibit structures and major public/private investment within the 25-year floodplain (Comprehensive Plan, Future Land Use Element, Policy 2.3.3.4).

Evaluation: Marginally effective; further refinement and identification of 25-year floodplain needed.

Activity: Require developments within the coastal planning area to preserve native uplands (Comprehensive Plan, Coastal Element, Policy 4.1.2.1).

Evaluation: Effectiveness unknown at the present time.

Activity: Restore natural coastlines (Comprehensive Plan, Coastal Element, Policy 4.1.2.7).

Evaluation: Effectiveness unknown at the present time.

Activity: No new habitable structures or other major public/private investments shall be allowed within the 25-year floodplain (Land Development Code 802.6.A.10).

Evaluation: Marginally effective; further refinement and identification of 25-year floodplain needed.

Activity: Regulations pertaining to structures in the 100-year floodplain where no base flood data is available (Land Development Code 802.6.B.1).

Evaluation: Effective; enforcement through the Development Review Committee).

Activity: Continued implementation of the shoreline protection project implemented through the 1992 Local Cooperation Agreement between the County and the Army Corps of Engineers.

Evaluation: Effective through implementation.

Activity: Establish standards for project approval in the coastal high hazard area and minimize disturbance of natural shoreline resources.

Evaluation: Effective as policy guideline.

Activity: Minimize shoreline disturbances (Comprehensive Plan, Coastal Element, Policy 4.4.2.5).

Evaluation: Unknown effectiveness.

Activity: Protect and enhance coastal vegetation (Comprehensive Plan, Coastal Element, Policy 4.1.2.6).

Evaluation: Effective; no natural beach or dunes have been impacted.

Activity: Avoid impacts on coastal resources (Comprehensive Plan, Coastal Element, Policy 4.2.1.6).

Evaluation: Effective, natural resources are improving.

Activity: Prohibit seawalls (Comprehensive Plan, Coastal Element, Policy 4.4.2.6).

Evaluation: Effective as policy guideline.

Activity: Prohibit the alteration of coastal wetlands (Land Development Code 511.17.C.7).

Evaluation: Effective as policy guideline.

Activity: Allow no alteration of coastal dunes unless proven that no increased risk of flooding will result (Land Development Code 802.6.B.2.b.v).

Evaluation: Effective as policy guideline.

Activity: Wetlands are protected from development (Land Development Code 706).

Evaluation: Effective as policy guideline.

Activity: Prohibit new manufactured home developments in the coastal high hazard area (Land Development Code 403.8.C.1).

Evaluation: Effective through enforcement.

Activity: Prohibit acute care facilities in the coastal high hazard area (Land Development Code 403.8.C.2).

Evaluation: Effective through enforcement.

Activity: Protection of the evacuation population (Comprehensive Plan, Coastal Element, Policies 4.3.1.2, 4.3.1.3, and 4.3.1.5 – 4.3.1.7).

Evaluation: Mixed effectiveness; overall intent effective.

Activity: Prohibit encroachments, fill, new construction, lateral additions unless a "No-rise Certification" is issued (Land Development Code 802.6.B.3.a).

Evaluation: Effective through enforcement.

Activity: Prohibit manufactured homes and park trailers except in pre-firm and existing manufactured home or RV Park or subdivision (Land Development Code 802.6.B.3.b).

Evaluation: Effective through enforcement.

Activity: All mobile home sites must conform to stormwater and floodplain management requirements and new parks prohibited in the Hurricane Vulnerable Area (Land Development Code 402.8.D.4).

Evaluation: Effective through enforcement.

Activity: Projects adjacent to perennial lake/stream shall obtain special approvals (Comprehensive Plan, Conservation Element, Policy 3.2.2.1).

Evaluation: Partially effective; no standards for administrative approval type projects.

Activity: Require special infrastructure design in the coastal high hazard area to minimize risk of damage (Land Development Code 403.8.F.2).

Evaluation: Partially effective; no specific design standards established.

Activity: Establish lower priority for funding of public infrastructure within the coastal evacuation area (Comprehensive Plan, Coastal Element, Policy 4.3.2.5).

Evaluation: Partially effective, needs better coordination between departments.

Activity: Limit County funded infrastructure within the coastal planning area that exceeds demands generated by approved development (Comprehensive Plan, Coastal Element, Policy 4.3.2.1).

Evaluation: Partially effective; needs better coordination between departments.

Activity: Structures located a minimum of 25' landward of the reach of the shoreline (Land Development Code 802.6.B.2.a).

Evaluation: Effective through enforcement.

Activity: No fill shall be used as structural support (Land Development Code 802.6.B.2.b).

Evaluation: Effective through enforcement.

Activity: Flood damage protection – resistant to flood damage; minimize flood damage, collapse, or infiltration; electrical, heating, ventilation, plumbing, air conditioning, and other equipment located to prevent damage from flooding; and elevation record keeping (Floodplain Management Ord. 13-39 2-10-24) and Land Development Code 802.6.A).

Evaluation: Effective through application.

Activity: Standards for fire resistance, fire protection, egress, structural loads, dead loads, live loads, wind loads, flood loads, glass and glazing, and manufactured homes/wind (Building Department regulations – Chapters 7, 9, 10, 16, Section 1606, 1607, 1609, and 1612, Chapter 24; 15C-1 Florida Administrative Code).

Evaluation: Effective through implementation.

Activity: Comprehensive Plan, Future Land Use Element, Policy 2.3.3.3 – Require all buildings within 100-year floodplain to be constructed with finished floor elevations above 100-year flood elevation.

Evaluation: Effective although variance have been issued.

Activity: Standards for stormwater management associated with new construction (Land Development Code 802.6.A, 6.A.2, 6.A.3, 6.A.7, 6.A.7.a, and 6.A.11).

Evaluation: Effective; compliance through Building Department enforcement.

Activity: Minimize prolonged business interruptions (Floodplain Management Ord. 13-39 2-10-21 and Land Development Code 802.1).

Evaluation: Effective.

Activity: Regulations for rebuilding of areas damaged by coastal storms; relocation of habitable structures out of the coastal high hazard area after substantial damage occurs; and notification to use special assessment to recoup expenditures for storm damage in the coastal high hazard area (Land Development Code 403.8.G.5 and 403.8.H).

Evaluation: Unknown effectiveness; no information available.

Activity: Post-disaster redevelopment plan needed to component LMS.

Evaluation: Manatee County is the recipient of a grant and has developed and adopted a Post Disaster Redevelopment Plan on August 6, 2009.

Activity: Post-disaster recovery (Comprehensive Plan, Coastal Element, Policies 4.4.3.1 – 4.4.3.3).

Evaluation: Manatee County is the recipient of a grant and has developed and adopted a Post Disaster Redevelopment Plan on August 6, 2009.

Activity: Management of hazardous waste/small quantity generator program (Section 62.730, FAC).

Evaluation: Effective through enforcement.

Activity: Management of Pollutant Storage Tank Program (Section 62.761, FAC).

Evaluation: Effective through enforcement.

Activity: Marine Rescue Weather Station and NWS “Weather Spotter” Program.

Evaluation: Effective.

Activity: Insure potential home buyers are notified when their properties are in flood areas (Floodplain Ordinance 13-39 2-10-21(3) and Land Development Code 802.1).

Evaluation: Effective as policy guideline.

Activity: Continuation of floodplain education programs and dissemination of information to residents in special flood hazard areas.

Evaluation: Effective as policy guideline.

Activity: Notification to residents of the hazards in the coastal high hazard area (Land Development Code 403.8.G).

Evaluation: Effective as policy guideline.

Activity: Prohibit construction of county funded public facilities and accepting responsibility for maintaining new roadways within the coastal surge vulnerability area (Comprehensive Plan, Coastal Element, Policies 4.3.2.2 and 4.3.2.3).

Evaluation: Effective as policy guideline.

Activity: Minimize expenditure of public money or costly flood control projects (Floodplain Ordinance 13-39 2-10-21 and Land Development Code 802.1).

Evaluation: Effective as policy guideline.

Activity: Minimize need for rescue and relief through floodplain management (Floodplain Ordinance 13-39 2-10-21 and Land Development Code 802.1).

Evaluation: Effective as policy guideline.

Activity: Emergency coordination through Disaster Preparedness Planning Committee.

Evaluation: Effective through implementation.

Activity: Hurricane evacuation plans must be prepared (Land Development Code, 604.3.7).

Evaluation: Marginally effective; need better coordination between Planning and Public Safety Departments.

Activity: Establishment of community planning program to study specific drainage needs (Comprehensive Plan, Future Land Use Element, Policy 2.9.3.1).

Evaluation: Effective; implemented.

Activity: Continue educational programs to inform citizens about hazardous substances/waste (Comprehensive Plan, Conservation Element, Policy 3.4.1.7).

Evaluation: Effective, on-going program.

Activity: Participate in hurricane preparedness planning (Comprehensive Plan, Coastal Element, Policy 4.4.1.3).

Evaluation: Effective through on-going participation.

Activity: Improve shelter capacity in the county (Comprehensive Plan, Coastal Element, Policy 4.4.2.7).

Evaluation: Not being met; requires greater coordination/cooperation between local and state agencies.

Activity: Projects within the Coastal Evacuation Area and Coastal Planning Area must meet performance standards and minimize development in areas having recurring hurricane related damage (Comprehensive Plan, Coastal Element, Policies 4.4.2.1 and 4.4.2.2).

Evaluation: Marginally effective; performance standards were never fully developed or adopted.

Activity: Explore possibilities of establishing a pollution prevention program for storage/disposal of hazardous substances/waste.

Evaluation: Effective; implemented.

Activity: Waterfront development must provide documentation of their ability to contain any spills of petroleum or other hazardous material.

Evaluation: Effective through enforcement.

Activity: Flammable liquids products storage in excess of 500 gallons shall be located underground except for LPG storage which may be above ground (Land Development Code 531.51.E).

Evaluation: Effective through enforcement.

Activity: No storage of hazardous or acutely hazardous waste material and no other hazardous substance, including fuel storage tanks, may be located in the floodway (Land Development Code 802.6.A.11).

Evaluation: Effective; needs to be reviewed to also include the 25- and 100-year floodplain.

Activity: All sites for use, storage, and production of extremely hazardous substances in quantities listed shall be located and contained in suitable rooms located, properly labeled, and alarmed for safekeeping (Land Development Code 540.7.E).

Evaluation: Marginally effective; need better coordination between the Planning and Public Safety Departments and Fire Districts.

Activity: Prior to the termination of a business, abandonments, safe or change of use, or temporary closure more than 30 days, any business which has used, generated, or stored hazardous materials and toxic substances in listed quantities shall submit to EMD and the appropriate fire district evidence that all contaminated portions of the site have been remediated in compliance with federal and state standards and that all hazardous materials have been properly processed and disposed of (Land Development Code, 542.7.J).

Evaluation: Not effective; needs better coordination between the Planning and Public Safety Departments.

Activity: Avoiding adverse impacts associated with the storage, utilization, manufacture, or disposal of hazardous materials (Land Development Code, 542.2, 542.3, 542.7.J.1, 803.3 and Code of Ordinances 2-16.

Evaluation: Effective through enforcement.

Anna Maria

Activity: Evacuation routes – coordinating maintenance of evacuation routes with local, county, and state agencies (Comprehensive Plan, Coastal Management / Conservation Element, Goal 3).

Evaluation: Effective through implementation.

Activity: Post and maintain emergency evacuation routes (Comprehensive Plan, Conservation Element, Policy 3.1.3, Traffic Element 1.4.4).

Evaluation: Effective through implementation.

Activity: Limit development within the 100-year floodplain (Comprehensive Plan, Coastal/Conservation Element, Objective 3.1 and implementing policies).

Evaluation: Effective as policy guideline.

Activity: Use and preservation of native marine vegetation in association with seawalls (Comprehensive Plan, Coastal/Conservation Element, Policies 1.7.2 & 1.7.3).

Evaluation: Effective as policy guideline.

Activity: Adopt land development regulations which recognize the limitations of development on a barrier islands (Comprehensive Plan, Future Land Use Element, Policy 1.1.1).

Evaluation: Effective through application.

Activity: Maintain or reduce allowable density in the coastal high hazard area and implement growth management directive which limit densities in the coastal high hazard area (Comprehensive Plan, Coastal/Conservation Element, Policies 2.2.1 and 2.2.2).

Evaluation: Effective as policy guideline.

Activity: Participate, where appropriate, with the state and county programs in acquiring lands for environmental protection purposes and recreational use (Comprehensive Plan, Coastal/Conservation Element, Policy 1.3.3).

Evaluation: Marginally effective.

Activity: Identification of provisions for incorporation into the City's Land Development Code related to coastal management (Comprehensive Plan, Coastal/Conservation Element, Policy 2.1.1).

Evaluation: Effective through application.

Activity: Identification of provisions for incorporation into the City's Land Development Code related to general development practices (Comprehensive Plan, Future Land Use Element, Policy 1.1.2).

Evaluation: Effective as policy guideline.

Activity: The land development regulations shall require the preservation of coastal vegetative communities, coastal wildlife habitats, and dune systems from the adverse effects of development (Comprehensive Plan, Coastal/Conservation Element, Policy 1.5.7).

Evaluation: Effective as policy guideline.

Activity: The City shall ensure that development within the 100-year floodplain is strictly regulated through NFIP requirements (Comprehensive Plan, Future Land Use element, Policy 1.6.3).

Evaluation: Effective through enforcement.

Activity: Institute an educational program using mailings and public meetings to inform the city's residents of effective procedures to safely store and dispose of household and commercial hazardous material and of procedures to follow in emergencies (Comprehensive Plan, Coastal/Conservation element, Policy 1.4.1).

Evaluation: Effective through guideline.

Activity: Pilings, not fill, shall be used to elevate structure in native vegetation areas (Comprehensive Plan, Coastal/Conservation Element, Policy 1.4.5).

Evaluation: Effective through enforcement.

Bradenton

Activity: Discourage location of high density residential, public housing, elderly housing, mobile homes, and group homes in the high priority hurricane evacuation zone (Comprehensive Plan, Coastal Management/Conservation Element, Foal 5, Policies 1 – 5).

Evaluation: Effective; reduces potential for population growth in areas subject to coastal flooding.

Activity: Prohibit density in the high priority hurricane evacuation zone (Comprehensive Plan, Future Land Use Element, Objective 4, Policies 1 – 4).

Evaluation: Effective; reduces potential for population growth in areas subject to coastal flooding.

Activity: Participate in and cooperate fully in hurricane preparedness and evacuation planning and ensure evacuation routes are given priority to minimize their vulnerability to storm damage (Comprehensive Plan, Coastal Management/Conservation Element, Goal 6, Objective 1, Policies 1 – 5).

Evaluation: Effective; reduces potential loss of life.

Activity: Maintain and strictly enforce Flood Prevention ordinance (Comprehensive Plan, Coastal Management/Conservation Element, Goal 5, Objective 6, Policies 1 & 2).

Evaluation: Effective; minimizes exposure of human life and property to the effects of natural hazards.

Activity: All new development shall provide stormwater retention and drainage facilities (Comprehensive Plan, Infrastructure Element, Goal 4, Objective 4, Policy 1).

Evaluation: Effective; enforcement through Land Development Code.

Activity: Erosion control – Ensure the continued protective soil erosion control capabilities of naturally vegetated shorelines (Comprehensive Plan, Coastal Management/Conservation Element, Objective 1, Policies 1 – 5).

Evaluation: Effective as policy guidelines.

Activity: Development proposed for islands in the Braden River shall be as a planned development project and shall be restricted to upland

potions and wetland vegetation shall not be removed except for limited access points (Comprehensive Plan, Coastal Management/Conservation Element, Goal 4, Objective 1, Policies 2 & 3).

Evaluation: Effective as policy guidelines.

Activity: Require stipulations to ensure that upland development does not affect wetlands nor remove wetland vegetation except for limited access points (Comprehensive Plan, Coastal Management/Conservation Element, Goal 4, Objective 2, Policies 1, 2, & 6).

Evaluation: Effective as policy guideline.

Activity: Establish a coastal high hazard area in the Land Use and Development Regulations to include all coastal lands along the Braden and Manatee Rivers and Palma Sola Bay below two feet in elevation (Comprehensive Plan, Coastal Management/Conservation Element, Goal 5, Objective 1, Policies 1 – 4).

Evaluation: Effective as policy guideline.

Activity: Prohibit the alternation of natural shorelines, with the exceptions for certain public purposes, and require the restoration of natural shorelines with native plant species in lieu of replacement or repair of artificial shorelines (Comprehensive Plan, Coastal Management/Conservation, Goal 2, Objective 1, Policies 1 – 5).

Evaluation: Effective as policy guideline.

Activity: Mangroves are protected and land alteration affecting mangroves requires a permit (Land Development Code 202.C.1, 301.B1 & 2).

Evaluation: Effective through enforcement.

Activity: New construction and substantial improvements are prohibited in floodways unless certified by an engineer that they will not result in any increase in flood levels (Land Development Code 404.C).

Evaluation: Effective through enforcement.

Activity: Designate undeveloped coastal acreage with areas below the 8-foot elevation contour line for planned development and limit development below the 8-foot contour to low density residential or water dependent uses, and locate all public facilities outside the

coastal high hazard area (Comprehensive Plan, Coastal Management/Conservation, Goal 5, Objective 5, Policies 1 – 4).

Evaluation: Effective as policy guideline.

Activity: Planned development projects with more than 200 linear feet within the coastal high hazard area shall be designed so that parts of the project lying in the Conservation District shall be common area maintained by the homeowner's association (Land Development Code 404.A.2.f & g).

Evaluation: Effective through enforcement.

Activity: Identify special zoning districts for flood hazard areas and low lying and environmentally sensitive conservation areas (Land Development Code 401.A.2).

Evaluation: Effective through enforcement.

Activity: The City shall not spend public funds or approve private construction of facilities in the coastal high hazard area (Comprehensive Plan, Capital Improvements Elements, Goal 1, Policies 1 & 2).

Evaluation: Effective as policy guideline.

Activity: No structures are allowed in the Conservation District except docks, boardwalks, boat ramps and roadways; all buildings shall be located landward of the mean high tide and elevated, manufactured homes are prohibited (Land Development Code 404 C & D).

Evaluation: Effective through enforcement.

Activity: Discharge rates from new development shall not exceed that prior to development. Additional design standards are found in the Land Development Code 301.A.5 & D (Comprehensive Plan, Infrastructure Element, Goal, Objective 1, Policy 1).

Evaluation: Effective as policy guideline and through enforcement.

Activity: Minimum floor elevation for principal structures shall be 8 feet above MSL or 18" above the crown of the road, whichever is greater (Land Development Code 301.A.6).

Evaluation: Effective through enforcement.

Activity: Building construction and remodeling code sections designed to limit flood storm damage to structures (Land Development Code 404.C).

Evaluation: Effective through enforcement.

Activity: Standards for site improvements where drainage may be necessary (Land Development Code 301.A.4 & D).

Evaluation: Effective through enforcement.

Activity: The Land Development Code to include provisions for the rebuilding of areas damaged by coastal storms (Comprehensive Plan, Future Land Use Element, Objective 4, Policy 1).

Evaluation: Effective through incorporation.

Activity: Prepare a post-disaster redevelopment plan to allow for redevelopment in a manner which minimizes the potential for flood and wind damage (Comprehensive Plan, Coastal Management/ Conservation Element, Goal 5, Objective 6, Policies 1 & 2).

Evaluation: Effective as a policy guideline.

Activity: Variances are allowed for historic structures in the coastal high hazard areas (Land Development Code 404.C).

Evaluation: Effective through application.

Activity: Coordinate with County relative to land use and development policies in hurricane evacuation zones and for stormwater management in the coastal zone (Comprehensive Plan, Intergovernmental Coordination Element, Goal 1, Objective 2, Policies 2 & 3 and Objective 3, Policy 3).

Evaluation: Effective through coordination.

Activity: Continue to participate in the NFIP and maintain a flood prevention ordinance and adhere to FEMA and NFIP regulations related to development in the flood zone (Comprehensive Plan, Future Land Use Element, Objective 4, Policies 1 – 4 and Intergovernmental Coordination Element, Objective 6, Policy 1).

Evaluation: Effective as policy guideline and enforcement tool.

Bradenton Beach

Activity: Hurricane vulnerability – post and maintain emergency evacuation routes.

Evaluation: Effective in fostering public awareness.

Activity: Residential areas to be located to protect residents and property from flooding (Comprehensive Plan, Future Land Use Element, Policy 1.1.6).

Evaluation: Effective as policy guideline.

Activity: Maintain or reduce clearance times and maintain evacuation routes (Comprehensive Plan, Coastal and Conservation Element, Objective 2.3 and implementing policies).

Evaluation: Effective; FDOT pre-positions equipment prior to an event.

Activity: Foster public awareness of evacuation routes (Comprehensive Plan, Traffic Circulation Element, Policy 1.4.4).

Evaluation: Effective; reduces potential loss of life.

Activity: Performance standard for activities and storage of flammable and explosive materials (Land Development Code 6.6.2.1).

Evaluation: Effective through enforcement.

Activity: Preparation and implementation of master drainage plan (Comprehensive Plan, Infrastructure Element, Objective 2.1 and following policies). Also, Land Development Code Section 605 and following subsections.

Evaluation: Effective through enforcement

Evaluation: Effective; plan has been fully completed and all improvements have been made.

Activity: Establishment of drainage design standards (Code Land Development Code Section 605 (Stormwater Management).

Evaluation: Effective; limits potential flooding.

Activity: Post-development runoff rates not to exceed pre-development levels (Comprehensive Plan, Future Land Use Element, Policy 1.6.1, and Coastal and Conservation Element, Policy1.2.).

Evaluation: Effective; limits potential for flooding associated with new development and redevelopment activities.

Activity: Stormwater management plan required of all developments (Land Development Code Section 605 Stormwater Management).

Evaluation: Effective; limits potential flooding.

Activity: Minimize impervious surfaces (Land Development Code Section 511).

Evaluation: Effective through enforcement).

Evaluation: Effective; implemented through Land Development Code.

Activity: Regulate development in the 100-year floodplain (Comprehensive Plan, Future Land Use Element, Policy 1.6.2).

Evaluation: Effective as a policy guideline and through Chapter 9, Land Development Code.

Activity: Preserve natural floodplain features and flood carrying capacity and enforce coastal codes and setback regulations (Comprehensive Plan, Coastal and Conservation Element, Policies 1.2.2 – 1.2.4).

Evaluation: Effective as policy guideline and through incorporation into the City's Land Development Code

Activity: Seawall construction along Anna Maria Sound (Land Development Code Section 808.2 and 808.3).

Evaluation: Effective; enforced by requirement of letter of compliance from permitting agency and local enforcement.

Activity: Encroachments are not allowed in floodways unless certified by an engineer that they shall not result in any increase in flood levels during occurrence of the base flood discharge (Land Development Code Sections 910.3.1 and 910.3.2).

Evaluation: Effective through enforcement.

Activity: Protection and restoration of dune system and beach stabilization minimizing development in the Velocity zone (Comprehensive Plan, Future Land Use Element, Policies 2.1.2 – 2.1.6).

Evaluation: Effective as policy guideline.

Activity: Encourage planting of native shoreline vegetation (Comprehensive Plan, Coastal and Conservation Element, Policies 1.4.3 – 1.4.5).

Evaluation: Effective a policy guideline.

Activity: Dune systems are to be protected from the effects of development and dredge and fill is only to allowed when necessary and in a manner least harmful to the environments (Comprehensive Plan, Future Land Use Element, Policies 1.5.6 and 1.5.9).

Evaluation: Effective as a policy guideline.

Activity: Handling, storage, or disposal of fuel, hazardous or toxic substances and wastes are prohibited in environmentally sensitive areas (Land Development Code Section 508).

Evaluation: Effective; limits potential damage to valuable environmental areas.

Activity: Mangroves are to be protected (Land Development Code Section 602.7).

Evaluation: Effective; ensures continuation of the protective value of coastal mangroves.

Activity: Procedures for resource protection along the shoreline of Anna Maria Sound and the Gulf of Mexico (Land Development Code Section 505 and 506).

Evaluation: Effective; ensures the continued protection of valuable native vegetation, natural shoreline, and coastal dunes.

Activity: Preservation of coastal vegetative communities, coastal wildlife habitats, and dune systems from the adverse impact of development (Comprehensive Plan, Future Land Use Element, Policy 1.5.7).

Evaluation: Effective through incorporation into Land Development Code.

Activity: Limit density in the coastal high hazard area, implement land acquisition program, and require coastal hazard disclosure statement on real estate transfers (Comprehensive Plan, Coastal and Conservation Element, Objective 2.2 and implementing policies).

Evaluation: Partially effective with 2020 Future Land Use Map.

Activity: Major development plans required to identify floodplains, wetlands coastal construction control line, and vegetative or environmentally sensitive areas (land Development Code 409.2.3(2) and (3).

Evaluation: Effective; the checking of development permitting plans makes very effective.

Activity: Building construction and remodeling code designed to limit flood and storm damage to structures (Land Development Code Section 903).

Evaluation: Effective, through building plan review.

Activity: New and replacement waste supply, sanitary sewer systems to be designed to minimize or eliminate infiltration and/or discharges of/into floodwaters. On-site waste disposal systems to be located and constructed to avoid impairment or contamination from flooding (Land Development Code Sections 916.1.2, 916.2, and 91603).

Evaluation: Effective; building construction and remodeling design standards limit flood and storm damage to structures.

Activity: Any alteration, repair, reconstruction, or improvements to a building which is in compliance with the provisions of this section, shall meet the requirements of new construction (Land Development Code Section 902).

Evaluation: Effective; building construction and remodeling design standards limit flood and storm damage to structures.

Activity: Construction standards for residential and non-residential construction intended to minimize flood damage (Land Development Code34-722).

Evaluation: Effective; building construction and remodeling design standards limit flood and storm damage to structures.

Activity: All subdivisions and associated public facilities and utilities shall be consistent with the need to minimize flood damage (Land Development Code Section 915 and 916).

Evaluation: Effective; building construction and remodeling design standards limit flood and storm damage to structures.

Activity: Protect life and health; minimize public expenditures for flood control projects; minimize need for rescue and relief efforts; minimize prolonged business operations; and minimize damage to public facilities (Land Development Code Section 903).

Evaluation: Effective; building construction and remodeling design standards limit flood storm damage to structures.

Activity: Establish standards for construction and remodeling of structures, including mobile homes, intended to ensure protection from flood damage (Land Development Code Section 903.2).

Evaluation: Effective; building construction and remodeling design standards limit flood and storm damage to structures.

Activity: Variances may be granted if flood damage prevention criteria cited in this section are met (Land Development Code Sections 912.1 and 916.3).

Evaluation: Effective; difficult to show the necessary hardship necessitating the need for a variance.

Activity: Involuntarily damaged/destroyed nonconforming structures may be reconstructed but repairs must meet flood damage protection provisions (Land Development Code Section 214.3).

Evaluation: Effective; ensures that the threat of future wind and flood damage is mitigated.

Activity: Designate a Recovery Task Force and following a major hurricane, adopt post-disaster building moratorium and post-disaster procedures (Comprehensive Plan, Coastal and Conservation Element Objective 3.1 and 3.2 and implementing policies).

Evaluation: Effective as a policy guideline.

Activity: Institute program informing residents of methods to store and dispose of hazardous materials and develop program to regulate small generators of hazardous waste (Comprehensive Plan, Infrastructure Element, Policy 1.4.1 and Coastal and Conservation Element, Policies 1.8.1, 1.8.2 & 1.8.5).

Evaluation: Effective as a policy guideline.

Activity: Sponsor preparedness seminars and coordinate with other agencies relative to hurricane evacuation (Comprehensive Plan, Coastal and Conservation element, Objective 2.3 and implementing policies).

Evaluation: Effective; seminars are conducted at least three times per year.

Activity: Limit public expenditures in the coastal high hazard area (Comprehensive Plan, Coastal and Conservation Element, Policies 2.1.2 – 2.1.3).

Evaluation: Effective as a policy guideline.

Activity: Incorporate into land development code provisions related to limiting impervious surfaces, drainage and erosion controls, construction seaward of the coastal construction line, replacement of damaged seawalls, and use of natural shoreline stabilization for non-hardened areas (Comprehensive Plan, Infrastructure Element, Objective 2.1, and Coastal and Conservation Element, Policies 1.7.1 – 1.7.5).

Evaluation: Effective through incorporation into and enforcement of Land Development Code.

Activity: Establish guidelines which address hurricane vulnerability, including preparedness and mitigation (Comprehensive Plan, Future Land Use Element Policies 3.1.1 – 3.1.4, and Coastal and Conservation Element, Objective 2.4 and implementing policies).

Evaluation: Effective as a policy guideline.

Activity: Acquire or designate as preservation or conservation properties suffering recurring damage and consider various strategies to reduce future damages to same (Comprehensive Plan, Coastal and Conservation Element, Objective 3.3 and implementing policies).

Evaluation: Effective as a policy guide.

Holmes Beach

Activity: Residential areas to be located to protect residents and property from manmade and natural hazards (Comprehensive Plan, Future Land Use Element, Policy 1.2.6).

Evaluation: Effective as policy guideline for new development.

Activity: Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards or which result in damaging increases in erosion or in flood height or velocities (Land Development Code, Article VI).

Evaluation: Effective through enforcement.

Activity: Ensure public safety through redefining evacuation routes (Comprehensive Plan, Future Land Use Policy 3.1.3 and Coastal/Conservation Element Policy 2.3.4).

Evaluation: Ineffective; additional coordination required.

Activity: Take proactive approach to emergency planning and preparedness (Comprehensive Plan, Coastal/Conservation Element, Policies 2.4.2 – 2.4.4).

Evaluation: Effective; initial efforts completed with further development and refinement needed.

Activity: Reduce potential for flooding and loss of life and property (Comprehensive Plan, Future Land Use Element, Policy 1.1.1).

Evaluation: Effective as a policy guideline.

Activity: Establish procedures for dealing with legal non-conforming structures (Comprehensive Plan, Future Land Use Element, Objective 1.4 and implementing policies).

Evaluation: Effective as a policy guideline.

Activity: Add development activities shall ensure the protection of natural resources (Comprehensive Plan, Future Land Use element, Objective 1.5 and implementing policies).

Evaluation: Effective as a policy guideline.

Activity: Promote sound coastal management to ensure the maximum long-term benefits are attained in the use of the coastal zone (Comprehensive Plan, Future Land Use Element, Goal 2).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: Maintenance and continued development of a comprehensive municipal hurricane plan (Comprehensive Plan, Future Land Use Element, Goal 3).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: Provide an efficient stormwater drainage system which protects human life, minimized property damage, improves stormwater quality (Comprehensive Plan, Infrastructure Element, Goal 2).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: Continued City cooperation and coordination with the Manatee County Local Mitigation Strategy program (Comprehensive Plan, Infrastructure Element, Objective 4).

Evaluation: Effective by cross-referencing LMS into the adopted Comprehensive Plan.

Activity: Ongoing recognition that the successful implementation of any mitigation efforts associated with stormwater, drainage, and floodplain management will have a reciprocal affect on the implementation of the Islandwide Post-Disaster Redevelopment Plan for Anna Maria Island (Comprehensive Plan, Infrastructure Element, Objective 5).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: Regulations for development within the 100-year floodplain shall continue to be strictly enforced and protect and restore beaches, dune, and natural systems, and establish construction standards which minimize the impacts of man-made structures on these systems (Comprehensive Plan, Coastal and Conservation element, Objectives 1.2 and 1.7).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: The City shall not increase densities or intensities of use within the designated coastal high hazard area (Comprehensive Plan, Coastal and Conservation Element, Objective 2.2).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: Continue to maintain or reduce hurricane clearance times (Comprehensive Plan, Coastal and Conservation Element, Objective 2.3)

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: The City shall reduce the risk of expose of human life and public and private property to natural or man-made disasters through preparedness planning and implementation of hazard mitigation measures (Comprehensive Plan, Coastal and Conservation Element, Objective 2.4).

Evaluation: Effective as a policy guideline and direction setting statement.

Activity: Implementation and refinement of the Islandwide Post-Disaster Redevelopment Plan for Anna Maria Island and reconstruction and redevelopment strategies will be considered to promote hazard mitigation during the annual re-evaluation of the Manatee County LMS (Comprehensive Plan, Coastal and Conservation Element, Objective 3.1 and 3.2).

Evaluation: Effective by cross-referencing implementation of the LMS into the adopted Comprehensive Plan.

Activity: Continue to cooperate and coordinate with the Manatee County Division of Emergency Management in the development, implementation, and refinement of the County's LMS (Comprehensive Plan, Intergovernmental Coordination Element, Policy 1.1.12).

Evaluation: Effective by cross-referencing LMS into the adopted Comprehensive Plan.

Activity: Continued efforts to implement those mitigation initiatives contained in the Manatee County LMS which are applicable to the community (Comprehensive Plan, Capital Improvements Element, Objective 1.6).

Evaluation: Effective by cross-referencing LMS into the adopted Comprehensive Plan.

Activity: Preparation of updated Floodplain Management Plan (2000).

Evaluation: Effective with adoption of recommended revisions to the City's Comprehensive Plan and Code of Ordinances.

Activity: Incorporation of applicable provisions of updated Floodplain Management Plan into the Future Land use, Infrastructure, Coastal/Conservation, and Capital Improvements Elements of the Comprehensive Plan (revised Floodplain Management Plan (July 2000)).

Evaluation: Effective with adoption of appropriate amendments to the Comprehensive Plan.

Activity: Standards for hurricane resistant construction (Code of Ordinances, Part II, Chapter 14, Buildings and Building Regulations, Sections XII (Hurricane Standard for Residential Construction) and XIII (Hurricane Standard for Roof Tile)).

Evaluation: Effective through enforcement and inspection programs.

Activity: Activities aimed at providing direction during times of civil emergencies (Code of Ordinances, Part II, Chapter 18, Civil Emergencies, Sections 18-33 (Hurricanes), 18-35 (Natural Disasters), (18-38 (Declaration of Local Disaster), 18-39 (Evaluation and Assessment of Loss), and 18-40 (Post-disaster Recovery).

Evaluation: Unknown since there has been no recent need for implementation.

Activity: Provisions for addressing nonconformities and floodplain management (Part III, Land Development Code, Articles V (Nonconformities) and VI (Floodplain Management)).

Evaluation: Effective through application and enforcement during permitting process. Article VI updated in response to adoption of revised Floodplain Management Plan.

Longboat Key

Activity: Create strong disincentive for amending Comprehensive Plan/rezonings that increase existing residential density (Town Charter, Article II, Section 23).

Evaluation: Effective; there have been no amendments/rezonings since enactment.

Activity: Identification and implementation of Town-wide hazard mitigation activities that reduce loss of property or life from a hazard event (FEMA - Community Rating System (CRS) report).

Evaluation: Effective; implemented through annual recertification.

Activity: Prevention of loss of life or property caused by spills/non-containment of hazardous waste (Comprehensive Plan, Solid Waste Sub-element, Objective 1.3 and Conservation and Coastal Management Element, Objective 1.6).

Evaluation: Effective; coordinated with Manatee County in identifying post-disaster hazardous material burn sites.

Activity: Acquisition of open space land which reduces the amount of private property that may be damaged by hazards (Comprehensive Plan, Recreation and Open Space Element, Objective 1.2 and implementing policies and strategies).

Evaluation: Effective; implemented through past and programmed acquisitions.

Activity: Reduction of loss of property caused by fallen trees and maintenance of an open evacuation route (Comprehensive Plan, Conservation and Coastal Management Element, Objective 1.3).

Evaluation: Effective; implemented through the Australian pine tree removal program and site plan condition requiring removal of Australian pine trees.

Activity: Reduction of loss of life caused by ineffective evacuation (Comprehensive Plan, Conservation and Coastal Management Element, Goal 3, and implementing objectives, policies and strategies).

Evaluation: Effective; implemented through enforcement of Town Charter provisions and land development regulations.

Activity: Implementation of life safety standards (Town Code, Title IV, Chapter 94, Fire Prevention Code).

Evaluation: Effective; implemented by Fire Department.

Activity: Establishes basis for drainage and stormwater management regulations (Comprehensive Plan, Future Land Use Element, Policy 1.1.1 and Stormwater Sub-element, Goals 1 – 3).

Evaluation: Effective as policy guideline.

Activity: Reduction of loss of property caused by tidal and rainstorm flooding (Comprehensive Plan, Infrastructure: Stormwater Sub-element, Goal 1 and implementing objectives, policies and strategies).

Evaluation: Effective; implemented through enforcement by Town departments or regulatory agencies.

Activity: Require surface water management plans for site plans to reduce loss of property caused by rainstorm or tidal flooding (Town Code of Ordinances, Chapter 158, Article III).

Evaluation: Effective; implemented through enforcement of Zoning Code.

Activity: Beach re-nourishment program (Town Capital Improvements Program and Comprehensive Plan, Conservation and Coastal Management Element, Objective 1.4 and implementing policy and strategies).

Activity: Establishing erosion control structures and maintaining existing structures to mitigate erosional hot spots. (Town Capital Improvements Program and Comprehensive Plan, Conservation and Coastal Management Element, Objective 1.4 and implementing policy and strategies).

Evaluation: Effective: Program designed to provide protection coastal private property and infrastructure from damage caused by storm surge or tidal flooding

Activity: Update the Comprehensive Beach Management Plan (Town Conservation and Coastal Management Element, Objective 1.4 and updating policy and strategies)

Evaluation: Effective; Program is the basis for establishing funding and program goals that support storm surge and tidal flooding.

Activity: Update the Town of Longboat Key Floodplain Management Plan as a requirement of participation in the Community Rating System program under the NFIP. Floodplain Management Plan revisions scheduled for 2020 on a five year cyclical basis.

Evaluation: Effective with adoption of appropriate amendments to the Floodplain Management Plan.

Activity: Establish funding sources for beach restoration/re-nourishment program (Comprehensive Plan, Capital Improvements Element, Strategy 1.1.3.2).

Evaluation: Effective; implemented through budgeting process.

Activity: Establish basis for local regulations and policies which protect wetlands, coastal dunes, and other conservation lands (Comprehensive Plan, Future Land Use Element, Policy 1.1.3).

Evaluation: Effective through implementation.

Activity: Reduce loss of property caused by hazards (Comprehensive Plan, Recreation and Open Space Element, Goal 3).

Evaluation: Effective through enforcement.

Activity: Continue through Town of Longboat Key Phase 2 Vulnerability Assessment Sea Level Rise and Recurrent Flooding Study (Supports number 2 of the prioritized list of actions)

Evaluation: Effective; providing the necessary data to educate the citizens and develop plans of action to mitigate impacts.

Activity: Filling, dredging, clearing of land and changing character of land regulated to prevent loss of property caused by rainstorm or tidal flooding (Land Development Code 157.57).

Evaluation: Effective through enforcement of subdivision regulations.

Activity: Require maximum density for planned unit developments to reduce loss of property caused by hazard events (Comprehensive Plan, Future Land Use Element, Table 1 and, Land Development Code 158.039).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Prohibition of industrial uses and other uses that are incompatible with barrier island to reduce loss of life or property caused by hazard event (Land Development Code Article V).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Discourage new mobile home parks to reduce loss of life and property caused by hazard event (Land Development Code Article IV).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Permit removal of trees that could materially impair the utility or structural integrity of existing or proposed structure of public utility lines or planting of certain nuisance species (Town Code 98.05 and 98.08).

Evaluation: Effective through enforcement of Tree Code.

Activity: Comprehensive Plan, Potable Water Sub-element, Objective 2.4 and implementing policies – Prevent of loss or interruption of critical potable water facility.

Evaluation: Effective through capital improvement projects to provide subaqueous water main crossings to provide water services to the island at both the primary northern supply from Manatee County and southern emergency back-up supply from Sarasota County.

Activity: Maintenance of existing infrastructure to prevent loss of critical facilities caused by hazard events and limit extent of critical infrastructure that is vulnerable to loss from hazard event (Comprehensive plan, Conservation and Coastal Management Element, Goal 2 and Objective 2.1 and implementing policies and strategies).

Evaluation: Effective through implementation of infrastructure maintenance program and general enforcement.

Activity: Prevent infiltration of flood water into sewer line (Town Code 52.18).

Evaluation: Effective through construction of new sewer facility.

Activity: Prevent infiltration of flood or tide water into the stormwater system through the installation backflow prevention systems in low lying portions of the Town.

Evaluation: Effective through the placement of backflow prevention systems

Activity: Limitation on the design of beach shelters to reduce damage caused by airborne debris during a storm event (Land Development Code 158.144).

Evaluation: Effective through renovations of existing sewer facilities and implementing program to reline and renovate systems to eliminate infiltration.

Activity: Require 50% minimum open space for residential uses and 20% minimum open space for non-residential use to reduce loss of property caused by hazard event (Land Development Code Article IV).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Prohibit accessory uses or structures on vacant property to reduce loss of property and require anchorage standards for antennas to prevent airborne debris (Land Development Code Division 2).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Restrictions on and expansion of non-conforming structures or buildings (Land Development Code 158.131 and 158.132).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Require 150 ft. from setbacks from Gulf and Longboat Pass, and New Pass (Land Development Code 158.094 and 158.095).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Prohibit lowering of gulf front elevations (Land Development Code 158.118).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Require a wind load rating as required by the Florida Building Code, as amended, for antennas and towers (Land Development Code 158.113).

Evaluation: Effective through enforcement of Zoning Code.

Activity: Establish criteria for coastal construction and require that all construction be prepared by and certified by an architect or

professional engineer registered in Florida (Land Development Code 151.03).

Evaluation: Effective; Town standards exceed Florida statutory requirements.

Activity: Establish Town flood control program with minimum criteria for new construction and substantial improvements for non-elevated buildings and enforcement of 50% substantial improvement rule (Land Development Code, Chapter 154).

Evaluation: Effective; one of the most restrictive in Florida.

Activity: Regulations for the construction and placement of signs (Land Development Code 156.07).

Evaluation: Effective through enforcement of Sign Code.

Activity: Establish basic property rights in the event of involuntary damage or destruction of structures (Comprehensive Plan, Future Land Use Element, Policy 1.1.5).

Evaluation: Unknown effectiveness due to limited application.

Activity: Identify alternatives for potable water service in emergency or post-disaster circumstances (Comprehensive Plan, Potable Water Sub-element, Objective 1.2).

Evaluation: Effective through capital improvement projects to provide subaqueous water main crossings to provide water supply to the island at both the primary northern supply from Manatee County and southern emergency back-up supply from Sarasota County.

Activity: Establish mitigation standards and guidelines for implementation as part of the post-disaster recovery process (Comprehensive Plan, Conservation and Coastal Management Element, Objective 3.3 and implementing policies and strategies).

Evaluation: Effective through enforcement of Land Development Code.

Activity: Promote public education regulations regarding wetlands and the importance of wetlands in maintaining water quality (Comprehensive Plan, Stormwater Sub-element, Policy 1.3.3).

Evaluation: Effective as policy guideline.

Activity: Prevention of loss of life through safe, coordinated evacuation routes (Comprehensive Plan, Transportation Element Policy 1.14 and implementing strategies).

Evaluation: Effective through on-going coordination with Manatee and Sarasota Counties and adjacent municipalities.

Activity: Participation in an area wide program for management of hazardous materials in commercial, service, or institutional land uses (Comprehensive Plan, Solid Waste Sub-element, Objective 1.5 and implementing policies and strategies).

Evaluation: Effective through coordination with Manatee County.

Activity: Continue to support mitigation and construction standard programs promoted by NFIP, Florida Building Code, and FDEP (Comprehensive Plan, Conservation and Coastal Management Element, Objective 3.1 and implementing policy and strategies).

Evaluation: Effective implementation by enforcement of Town's Flood Control Standard.

Activity: Continued identification of shelter space, declaration of "standing" for all development which may impact evacuation routes, and participation in beach renourishment or other erosion control efforts (Comprehensive Plan, Conservation and Coastal Management element, Objective 3.2 and implementing policies and strategies).

Evaluation: Effective through appropriate implementation/coordination efforts.

Activity: Enforce coastal construction control line requirements (Comprehensive Plan, Conservation and Coastal Management Element, Policy 3.1.2 and implementing strategies).

Evaluation: Effective through enforcement of Flood Control regulations and permitting requirements.

Activity: Provide for multi-jurisdictional hazard mitigation efforts (Comprehensive Plan, Governance Element, Objective 2.1 and Objective 2.2 and implementing policies and strategies).

Evaluation: Effective through existing interlocal agreements on hurricane preparedness and post-disaster recovery.

Activity: Continued formalization of mutual aid agreements (Comprehensive Plan, Intergovernmental Coordination Element, Objective 1.2 and 1.3 and implementing policies and strategies).

Evaluation: Effective; mutual aid agreements are in place and reviewed annually.

Activity: Continue to fund land acquisition and capital improvements (Comprehensive Plan, Recreation and Open Space Element, Objectives 1.2 and 1.3 and implementing policies and strategies).

Evaluation: Effective through enforcement of open space and land acquisition regulations and fees.

Activity: Program funding to mitigate loss of critical infrastructure caused by hazard event and related subjects (Comprehensive Plan, Capital Improvements Element, Table 1, Policy 1.1.3 and Strategy 1.1.3.2).

Evaluation: Effective through implementation of capital improvements program.

Activity: Establish hurricane standard operating procedures.

Evaluation: Effective; implemented through adoption of General Operating Procedures and annually updated Hurricane Plans.

Activity: Comprehensive Plan, Conservation and Coastal Management Element, Strategies 3.2.2.1 and 3.2.1.2 – Participate in all transportation planning efforts to ensure the 18 hour maximum total hurricane evacuation time can be maintained and consider a hurricane shelter policy of vertical refuge as a policy of last resort.

Evaluation: Effective through ongoing coordination efforts.

Activity: Fire Department Life Safety review of all building permit application for mitigating potential loss of life and property caused by fire and other hazard.

Evaluation: Effective through joint Planning, Zoning, Building, and Fire Department review.

Activity: Encourage owners of structures threatened by destruction to relocate their buildings (Comprehensive Plan, Conservation and Coastal Management Element, Policy 1.4.1.2).

Evaluation: Partially effective; implemented through land development approval process.

Activity: Support owners taking advantage of “buy out” programs for structures in the V-zone (Comprehensive Plan, Conservation and Coastal Management Element, Strategy 3.1.2.3).

Evaluation: Effective through implementation.

Palmetto

Activity: Heavy commercial and industrial land uses subject to certain performance standards (Comprehensive Plan, Future Land Use Element, Policy 1.3.4).

Evaluation: Effective as policy guideline.

Activity: Coastal areas shall be conserved and protected by restricting development, encouraging use of planned development techniques, and acquisition of property for public open space (Comprehensive Plan, Future Land Use Element, Policy 1.5.1).

Evaluation: Effective as policy guideline.

Activity: Coastal densities to be consistent with local or regional coastal evacuation plans (Comprehensive Plan, Future Land Use Element, Policy 1.5.2).

Evaluation: Effective as policy guideline.

Activity: Improve hurricane evacuation clearance times (Comprehensive Plan, Coastal Management Element, Policies 8.5.1.and 8.5.2).

Evaluation: Partially effective; reevaluate after the Tampa Bay RPC produces its latest evacuation maps.

Activity: Avoid high density development in areas projected to receive major hurricane damage (Comprehensive Plan, Coastal Management Element, Policy 8.6.1).

Evaluation: Effective as policy guideline.

Activity: Prohibit the planting of Australian Plan, Melaleuca, Brazilian pepper, Mimosa pigra and other nuisance species (Comprehensive Plan, Coastal Management Element, Policy 8.1.8).

Evaluation: Effective as policy guideline.

Activity: Implementation of stormwater management guidelines and standards (Comprehensive Plan, Stormwater Management Element, Policies 6.1.1.1, 6.1.5 & 6.1.7).

Evaluation: Effective through implementation of land development code.

Activity: Establishment of schedule of drainage improvements (Comprehensive Plan, Stormwater Management Element, Policies 6.4.1 & 6.4.2).

Evaluation: Effective as policy guideline.

Activity: Land development regulations shall be consistent with the comprehensive plan with regards to drainage and stormwater management (Comprehensive Plan, Future Land Use Element, Policy 1.8.2).

Evaluation: Effective through implementation of land development regulations.

Activity: Use the local planning process to protect identified wetlands from physical and hydrologic alteration (Comprehensive Plan, Conservation Element, Objective 9.2).

Evaluation: Effective as policy guideline.

Activity: Development of environmentally sensitive areas such as wetlands to be avoided (Comprehensive Plan, Future Land Use Element, Policy 1.1.1).

Evaluation: Effective as policy guideline.

Activity: To ensure the preservation and compatibility of development on properties containing environmentally sensitive lands, allow the transfer of a portion of the density/intensity of the environmentally sensitive land to the upland acreage (Comprehensive Plan, Future Land Use Element, Policy 1.1.1).

Evaluation: Effective as policy guideline.

Activity: Establish land use criteria which give priority to the siting and development of water-dependent uses in the coastal area (Comprehensive Plan, Coastal Management Element, Policies 8.3.1 & 8.3.2).

Evaluation: Effective as policy guideline.

Activity: Residential development within low-lying areas subject to flooding shall meet flood insurance standards of elevation and be limited to densities that permit safe evacuation (Comprehensive Plan, Future Land Use Element, Policy 1.1.2).

Evaluation: Effective as policy guideline.

Activity: New development shall be permitted only where adequate drainage and stormwater management….are provided (Comprehensive Plan, Future Land Use Element, Policy 1.1.4).

Evaluation: Effective as policy guideline.

Activity: Continue to designate land within the coastal high hazard area as either RES-4 or Planned Development (Comprehensive Plan, Future Land Use Element, Policy 1.5.3).

Evaluation: Effective as policy guideline.

Activity: Encourage in-fill development in areas closer to the commercial core through allowing higher intensity in the commercial core zoning district. If the property is located within the coastal high hazard area, then appropriate density and intensity limitations shall apply (Comprehensive Plan, Future Land Use Element, Policy 1.2.3).

Evaluation: Effective as policy guideline.

Activity: Maximize the existing wastewater treatment facilities by limiting opportunities for inflow and infiltration and modify lift stations to ensure the effective collection of wastewater (Comprehensive Plan, Sanitary Sewer Element, Objective 4.2 and implementing policies).

Evaluation: Effective as policy guideline.

Activity: Cooperate with Manatee County to advise residents of the appropriate methods for disposal of hazardous materials (Comprehensive Plan, Solid Waste Element, Policy 5.1.5).

Evaluation: Effective through ongoing cooperation.

Activity: Continue to cooperate with the County in the development of the Local Comprehensive Emergency Management Plan which will include a mitigation strategy for Palmetto (Comprehensive Plan, Coastal Management Element, Policy 8.6.3).

Evaluation: Effective through ongoing cooperation.

Activity: Allow no storage of hazardous materials of over 220 lbs or acutely hazardous over 2.2 lbs per month. Allow no storage of hazardous materials in the 100-year floodplain or within 200 feet of any watercourse, whichever is greater. All hazardous materials must be stored in non-discharge storage facilities (Land Development Code 604.2.2.5(1) & (2), 604.1.2.6(2), & 604.1.2.6(4)).

Evaluation: Effective through enforcement.

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APPENDIX G

MITIGATION INITIATIVES

AND

PROJECT PRIORITIZATION

The Local Mitigation Strategy Working Group considers all projects that focus on mitigating losses created by natural or man-made disasters. Priorities will be given to projects that demonstrate the use of mitigating techniques in developing or retrofitting areas or structures in order to minimize effects from a catastrophic occurrence. A list illustrating hazard-mitigation projects will be maintained as a part of the Local Mitigation Strategy. The list will be scheduled for review at a minimum on an annual basis.

A detailed hazard identification and vulnerability analysis is designed to be included with the following review criteria. This analysis will provide the LMS Working Group with the ability to quantify a particular project based upon: the type of hazard being mitigated (e.g.: flooding, wind, chemical spill, etc.), the potential (or current) frequency of the hazard, the cost benefit associated with mitigating for the hazard (etc.). Although the criteria has the same weight as other listed criteria, it provides the Working Group with the ability to perform an internal review of similar projects associated with their respective jurisdiction and possible inclusion into respective Comprehensive and Capital Improvement Plans.

Additionally, there is population and location differences from one area of the county to the next, and hazard mitigation needs are expected to vary between the four jurisdictions. Priorities within one community may not necessarily reflect the priorities of another community. The process illustrated provides a working framework in which the Local Mitigation working Group will prioritize mitigation projects.

The following table represents the scoring matrix used for the submission of initiatives for consideration for inclusion in the Manatee County LMS.

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Mitigation Initiatives Evaluation Score Sheet

Category & Explanation	Maximum Points Available	Scoring Instructions	Points Awarded
1. Identified Problem Decide how important a mitigation initiative this is.	5	Major concern to Manatee County & all its jurisdictions Major concern to more than one jurisdiction Considered an important concern Considered moderately important Considered necessary but not an immediate need	(5) (4) (3) (2) (1)
2. Location of Project based on FEMA FIRM Maps Take into consideration whether the project is identified in one of the FIRM maps zones.	5	V-zone location A-zone location *Outside Flood Plain*	(5) (4) (0)
3. Percentage of Total County Population Benefited Take into consideration the percentage of the County wide population who would directly or indirectly benefit from implementation of this proposal.	5	76% to 100% 51% to 75% 26% to 50% 11% to 25% 10% or less	(5) (4) (3) (2) (1)
4. Percentage of Affected Jurisdiction(s) / Organizations (s) Population Benefit (i.e. population served by agency / department) Take into consideration the percentage of the population in the total number of jurisdictions which would benefit from the proposed mitigation initiative.	5	76% to 100% 51% to 75% 26% to 50% 11% to 25% 10% or less	(5) (4) (3) (2) (1)
5. Health & Safety Benefit Take into consideration the benefit to those served directly by proposed mitigation initiative.	5	76% to 100% 51% to 75% 26% to 50% 11% to 25% 10% or less	(5) (4) (3) (2) (1)

Mitigation Initiatives Evaluation Score Sheet

Category & Explanation	Maximum Points Available	Scoring Instructions	Points Awarded
6. Identified by Multiple Jurisdictions Take into consideration the number of jurisdictions which have identified the same mitigation initiative.	5	Five jurisdictions or more Four jurisdictions Three jurisdictions Two jurisdictions One jurisdiction	(5) (4) (3) (2) (1)
7. Jurisdictions Benefited Take into consideration the number of jurisdictions which would benefit from the proposed mitigation initiative.	5	Five jurisdictions or more Four jurisdictions Three jurisdictions Two jurisdictions One jurisdiction	(5) (4) (3) (2) (1)
8. Threat of Loss Take into consideration the frequency of loss or damage due to hazard(s). Take into consideration the severity of the loss, including casualties, property damage, economic loss, loss of services, size of area impacted and population impacted. Based on the Vulnerability Analysis, Historical Data, and Local Knowledge, assign a maximum score to projects which mitigate frequent loss areas, reducing the score assigned to projects as frequency of events decline. This will be a judgment call, based on the Hazard Vulnerability Analysis, Historical Data, Local Knowledge, and your experience.	5	High probability of recurrence High probability of occurrence Moderate probability of occurrence Low probability of occurrence Minimal probability of occurrence	(5) (4) (3) (2) (1)
9. Effective Life Expectancy of Initiative Take into consideration the expected useful life of the mitigation initiative.	2	More than 25 years Less than 25 years	(2) (1)
10. Cost Effectiveness (benefit to cost ratio) Take into consideration the benefit/cost ratio of the mitigation initiative.	1	Cost Effective Not cost Effective	(1) (0)

Mitigation Initiatives Evaluation Score Sheet

Category & Explanation	Maximum Points Available	Scoring Instructions	Points Awarded
11. Probability of Funding Take into consideration the availability of funds and the potential for future funding. If funding is currently available, mitigation initiatives may be enacted more quickly. A low score here does not lessen the importance of the initiative; it simply indicates that the project may not be as immediately do-able.	3	Funding sources now available for this type of project Funding sources availability expected within 2 - 5 years Funding sources availability expected within 3 – 5 years Funding sources availability expected to be over 5 years	(3) (2) (1) (0)
12. Community Rating System Credit Take into consideration whether the proposed initiative would provide points toward improving CRS Classification and reducing flood credit insurance rates.	1	Conveys credit points Conveys no credit points	(1) (0)
13. Identified in Existing Comprehensive Growth Management Plan Take into consideration that mitigation initiatives must comply with the Comprehensive Growth Plan of the jurisdiction; consider whether it is also an initiative which has been identified within the Plan.	2	*Identified in Comp Plan* Consistent with Comp Plan Inconsistent with Comp Plan	(2) (1) (0)
14. Identified in Existing CEMP or other Functional Plan Take into consideration any functional plan developed by any government entity, e.g., NFIP, NPDS, EPDS, etc.	1	Identified in any functional plan Not identified in any government plan	(1) (0)
15. Public Acceptance Take into consideration public support for and acceptance of this initiative.	1	Public support No public support	(1) (0)
16. Environmental Considerations Take into consideration whether there are any environmental drawbacks.	1	Positive environmental impact No environmental impact Negative environmental impact	(1) (0) (-1)

Mitigation Initiatives Evaluation Score Sheet

Category & Explanation	Maximum Points Available	Scoring Instructions	Points Awarded
17. Matching Funds Take into consideration whether matching funds will be required and the availability of matching funds.	3	No matching funds required Matching funds required and are readily available Matching funds are required and will delay initiative Cannot raise or obtain required matching funds	(3) (2) (1) (0)
18. Timeframe Take into consideration the time it will take from inception *of funding commitment* for the mitigation initiative to accomplish its stated goal(s).	5	Within one year of inception of initiative Within two years Within three years Within four years Within five years Over five years	(5) (4) (3) (2) (1) (0)
19. Partnership Take into consideration whether project will be cooperative effort between public and private interests.	1	Yes No	(1) (0)

PROJECT PRIORITY INITIATIVES LIST

Priority Rank	Score	Name & Description of Project	Jurisdiction	Agency Responsible	Hazards Mitigated	Project Category	New or Existing bldg/infrast.	Mitigation Goals Achieved	Potential Funding Source(s)	Match (if applicable)	Estimated Costs	Status	If Deleted or Deferred, Why	Timeframe for Completion
2	57	Post Disaster Redevelopment Plan Update	ALL	County Administrator's Office	ALL	1,3,4,5	N/A		Jurisdiction Funds		$100,000	New		2019 / 2020
3	56	Full replacement of windows and doors with impact resistant windows and doors	City of Anna Maria	Public Works Department	Hurricanes, Tornados, Severe Storm	2,6	Existing	No	CIP		$50,000	In progress		2016/2017
4	56	Shuttering – installation of storm shutters on all city buildings	City of Bradenton Beach	Public Works Department	Hurricanes, Tornados, Severe Storm	2,6	Existing	No	Jurisdiction Funds		$35,000	In progress	Additional funding required	2020-2023
5	55	Evacuation Routes & Drainage – Drainage system SR 789, to combat flooding	City of Bradenton Beach	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Flood damage reduction & evacuation route safety improvements	FDOT		$15,000,000	In progress	Requires FDOT design & Pending Funding	2020-2025
6	55	Evacuation Routes & Drainage - Marina Dr. Drainage Improvements with Basins 12 and 13 bounded by Northern City Limits and 79th Street to the South – Street & Structure Flooding, Repetitive Loss Areas	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$325,000	In progress	Pending Funding	2-3 years
7	55	Evacuation Routes & Drainage – Marina Dr. Drainage Improvements within Basins 7 and 9 bounded by 54th Street to the South and 64th Street to the North – Street & Structure Flooding, Repetitive Loss Area	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$650,000	In progress	Pending Funding	2-3 years
8	55	MCUD have remote drinking water facilities which have large trees and other destructive vegetation that are encroaching on security access control and critical equipment. Damage from Hurricane Irma (trees falling on fences and equipment) has prompted this mitigation action.	ALL	Utilities Department Contact: Kate Quilty	Hurricane, Tornadoes, Severe Storm, Terrorist Attacks, Sabotage	1,4,5,6	Existing	1	Jurisdiction Funds		$141,000	New		1 year
9	54	Community Emergency Response Team - To provide a coordinated community response in time of emergency or catastrophic disaster situation. CERT is designed to prepare individuals to help themselves, their families, and their neighbors when professional emergency services are overwhelmed by a large-scale emergency. Then, as a team, they can assist within their own community until more qualified help arrives.	ALL	Public Safety, Emergency Management Division	ALL	1	N/A	No	Not identified		$5,000	Deferred	Pending funding	6 months
10	54	Relocation of Station 3 – flood area, inability to operate when flooded; location impedes adequate coverage	ALL	North River Fire District	Hurricane, Flood, Sea Level Rise, Severe Storm	1,4,5,6	New	No	Not identified		$1,800,000	Deferred	Pending funding	3 years
11	54	Replace / upgrade remote telemetry unity to telemetry control units on lift stations in flood plains within Manatee County.	ALL	Utilities Department Contact: Ralph Braun	Hurricane, Flood, Sea Level Rise, Severe Storm,	2,4,6	Existing	1	CIP		$4,098,687	New		2 years
12	53	Shuttering – This project will shutter three fire stations and the administration building.	ALL	Cedar Hammock Fire Control District	Hurricanes, Tornados, Severe Storm	1,2,4,5	Existing	No	Not identified		$67,362	Deferred	Pending funding	6 months
13	53	Evacuation Routes & Drainage – Raise road, install proper drainage system – Highland Avenue - to combat flooding of homes, roadways and evacuation routes	City of Bradenton Beach	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Flood damage reduction & evacuation route safety improvements	SWFMD Match & FEMA HMGP Grant		$450,000	In progress		2020-2023
14	53	Drainage – Raise road, install proper drainage system – Church Avenue – to reduce incidence of flooding	City of Bradenton Beach	Public Works	Hurricane, Flood, Severe Storm	1,4,5,6	New	Flood damage reduction & evacuation route safety improvements	SWFMD Match & FEMA HMGP Grant	SWFWMD Match	$50,000	In progress		2020-2023

15	53	Education – Publish and distribute education material to HazMat facilities to combat risk of hazardous releases.	ALL	Parks & Natural Resources Dept. / Environmental Protection Division	Hazardous Materials Release	1	N/A	Yes	Jurisdiction Funds		$40,000	In progress		Completed Annually
16	53	Generator for the main jail facility. This will enable the jail to be fully operational during a power outage.	ALL	Sheriff's Office	ALL	2	Existing	1	Not identified		$2,500,000	New		1 year
17	51	Evacuation Routes & Drainage Basin 6 Gulf Dr. and Marina Dr. Drainage Improvements bounded by 46th St. to the South and 56th St. to the North, Street & Structure Flooding, Area of Repetitive Loss	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$100,000	In progress	Pending funding	2-3 years
18	51	Generators – upgrade to a permanent generator powered by natural gas – current generator is advanced in age and only supplements power to ME refrigerators, two outlets that support vaccine refrigerators on one outlet in technology servicer room. Recent power failures accentuated the need to upgrade to permanent generator to support public services to county population which includes services from W.I.C., Environmental Health and Public Health Services. A critical facility.	ALL	Florida Department of Health in Manatee County	Hurricanes, Tornados, Severe Storm, Power Failure	2	Existing	No	Not Identified		Unknown	Deferred	Pending funding	1 year
19	50	Evacuation Routes & Drainage – Basins 10 and 11 Drainage Improvements – Intersection of Palm Dr, Marina Dr, Key Royale Dr, and 66th St (Basins bounded by 64th St to south and 79th St to North) – Street & Structure flooding, Repetitive Loss Areas	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$675,000	In progress	Pending Funding	2-3 years
20	50	Communications – AM Broadcast Station for the Water Treatment Plan. Purchase and install an AM Broadcast Station and install signage to provide emergency information to residents near the Manatee County Water Treatment Plan and Dam to warn and update on and for flooding events, evacuations, as well as other pertinent information regarding emergency events.	ALL	Utilities Department	Hurricanes, Flood	1,4	New	No	Not identified		$80,000	Deferred	Pending Funding	6 months
21	50	Communications – Mutual Aid and Interoperable Communications – Purchase additional mobile and portable VHF radio equipment to all MCUOD Strike First Teams to communicate with emergency responders during disaster operations inside and outside of Manatee County	ALL	Utilities Department	ALL	4	New	In progress	Jurisdiction Funds		$50,000	In progress		1 year
22	50	Communications – Satellite WAN Data and Internet System – purchase and install Satellite WAN System for DATA and Internet/Intranet at critical MCUOD facilities: Utilities Administration, Utilities Administration Annex, Utilities Compound (Distribution, Utilities Maintenance and Sewage Collection), Water Treatment Plan, Southwest and Southeast Regional Treatment Plants, North County Regional Treatment Plant, Bayshore Lift Stations and Solidwaste Landfill Operations. This system will link our critical systems such as SCADA, Radar, EENET, and will allow secure data transmission and access at all MCUOD sites to provide services during daily and emergency operations.	ALL	Utilities Department	ALL	4	New	No	Not identified		$130,000	Deferred	Pending Funding	1 year
23	49	Water Treatment Plant Potable water ground and elevated storage booster pump generators – Elwood Park I, Elwood Park II, North County groundwater storage, Port of Manatee and Cortez locations. Replace for end of service life and one initial generator procurement – power losses are mitigated by generator presence in order to maintain potable water and fire main pressures during and after an incident until power is restored.	ALL	Utilities Department Contact: Candie Schwartz	Hurricanes, Flood, Severe Storm, Power Failure, Terrorist Acts, Sabotage	1,2,4,5,6	New		Jurisdiction Funds		$700,000	Deferred	Pending Funding	As funding allows
24	49	Utilities Master Life Station: 400 KW Portable Generator	ALL	Utilities Department Contact: Candie Schwartz	Hurricane, Flood, Severe Storm, Power Failure	2	Existing		Jurisdiction Funds		$275,000	Deferred	Pending Funding	As funding allows
25	49	Generators – Purchase 6 back-up generators for traffic signals on evacuation routes through City of Palmetto. Power outages negatively impact evacuation. Back-up power generators for traffic signals will mitigate problem of unnecessary congestion on evacuation routes.	City of Palmetto	Public Works	ALL	2	Existing	No	Not identified	CIP	$33,000	Deferred	Pending Funding	1 year
26	49	Education – Education Program Emergency Plan for Pets. Public fails to plan for pets' safety in the event of evacuations	ALL	ESF 17	ALL	1	N/A	Yes	Jurisdiction Funds		$2,500	In progress		Completed Annually
27	49	Public Health – Gravity Sewer System Control. Raw sewage escape; side of road discharge	ALL	Utilities Department	Hurricanes, Flood, Severe Storm	4,5,6	Existing	No	Not identified		$200,000	Deferred	Pending Funding	2 years

28	49	Security/Safety/Emergency Response – Security Camera System for Manatee County Operations Department. Upgrade and install security camera systems, monitors, and records at MCUOD Administration Building and Utility Operations Complex, Water Treatment Plant, Southwest and Southeast Regional Sewage Treatment Plants, North County Regional Sewage Treatment Plant and the Landfill.	ALL	Utilities Department	Terrorist Acts, Sabotage	4	New		Jurisdiction Funds		$1,000,000	In progress		5 years
29	48	Communications – Radio Equipment and Accessories. Outdated communications equipment for Public Safety. In 2006 all radio consoles updated to the latest Maestro software and new hardware platforms and added a 4th radio; purchased 14 new portables with ProScan and ProVoice – latest from MA/Com; much replacement equipment still required.	ALL	Public Safety	ALL	4	New	CIP	Not identified		$500,000	In progress	Additional funding required	1 year
30	48	Evacuation Routes & Drainage – Removable Controllers for Satellite Lift Stations. Flooding	ALL	Utilities Department	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	No	Not identified		$120,000	Deferred	No funds available	2 years
31	48	Evacuation Routes & Drainage – Australian Pines removal. Problem with trees being easily uprooted and causing blockage of evacuation routes	Town of Longboat Key	Public Works Department	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	No	Streets Capital Funds		$150,000	Deferred	Funding and contingent upon Rights of Ways and access to private property	6 months
32	48	Evacuation Routes & Drainage – Streets and drainage improvement. Flooding	Town of Longboat Key	Public Works Department	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	No	Streets Capital Funds		$1,600,000	Deferred	Funding and contingent on Engineering Study	4 years
33	48	Heli-Stop – To place a heli-stop of 100x100 sq. ft. concrete pad relative to the front entrance parking lot of the Public Safety Building to include FAA approved lighting and markings. This will allow many types of emergency response personnel and Senior Leadership quick and timely access to the Emergency Operations Center, Manatee County Emergency Management, and allow interoperability with different government agencies inside and outside of the county. During a disaster, timeliness and immediate response of disaster relief and Emergency Support Function personnel is critical to allow for the protection of our citizens.	ALL	Public Safety, Division of Emergency Management	ALL	4,5,6	New	No	Not identified		Unknown	Deferred	Pending Funding	6 months
34	48	Evacuation Routes & Drainage – North Shore Drive Evacuation Route – North Shore Drive, north of Pine Ave. which runes one block east of the Gulf of Mexico and lies in a Velocity Zone per the FEMA FIRM. The location of this evacuation route for the city serves as a connection route to Gulf Dr. for half of the City's population	City of Anna Maria	Public Works Department	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	No	Not identified		Unknown	Deferred	Pending Funding	2-5 years
35	48	Evacuation Routes & Drainage – Northern Neighborhood Drainage Study and Engineering. Problem with street and structure in area of multiple repetitive loss	City of Anna Maria	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Partially	ECU funds		$450,000	In progress		4 years
36	48	Generator replacement for their critical facility that houses their fire department.	ALL	Sarasota Manatee Airport Authority Contact Jeffrey Sasada	Hurricanes, Flood, Tornado, Severe Storm, Power Failure	2	Existing	1, 3	Sarasota Manatee Airport Authority Budget		$375,000	New		2 years
37	47	Evacuation Routes & Drainage – Basins 2 and Basin 4 drainage improvements - South/Central Neighborhood bounded by 31st St to south and 43rd St to North. Street and structure flooding. Repetitive Loss Areas	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$100,000	In progress	Pending Funding	2-3 years
38	47	Shuttering – Firehouse Update. Placement of shutters on all windows and main doors. Replacement of 7 apparatus bay doors as they are not rated doors. This is to make the station a safer place to bring people caught on the airport when cover must be taken. This will also secure the equipment so it can be pressed into service when needed. This project is to protect lives and property and keep the airport ready to serve the needs of this area.	Manatee County / Sarasota County	Sarasota Bradenton International Airport	Hurricanes, Tornado, Severe Storm	2	Existing		Not identified		$87,000	Deferred	Pending Funding	1 year

39	47	Evacuation Routes & Drainage – South Bay Neighborhood Drainage Study and Engineering. Problem with street and structure flooding	City of Anna Maria	Public Works Department	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Partially	ECU funds		$165,000	In progress		2-3 years
40	47	Central Jail Administration Building Hurricane Shuttering	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% HMGP funding	$39,581	$158,327	New		1 year
41	47	Medical Examiner Hurricane Shuttering	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% HMGP funding	$27,481	$109,924	New		1 year
42	47	Utilities Operations Building Hurricane Shuttering	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% HMGP funding	$14,408	$57,632	New		1 year
43	47	Supervisor of Elections Hurricane Shuttering	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% HMGP funding	$24,278	$97,112	New		1 year
44	47	Braden River Library Hurricane Shuttering	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% HMGP funding	$31,605	$126,512	New		1 year
45	46	Evacuation Routes & Drainage – Basin 1 drainage improvements – Southern neighborhood bounded by 27th St to the south and 31st St to the North. Street & structure flooding. Repetitive Loss Areas	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$150,000	In progress	Pending Funding	2-3 years
46	46	Evacuation Routes & Drainage – Drainage System for Manatee Avenue from 26th through 59th Streets West. Problem with evacuation route flooding. Manatee Avenue is a main evacuation route.	City of Bradenton	FDOT	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Yes	FDOT		$500,000	In progress		3 years
47	46	Evacuation Routes & Drainage – Drainage System for Cortez Road from 26th through 71st streets West. Problem with the evacuation route flooding. Cortez Road is a main route of evacuation.	Manatee County / City of Bradenton	FDOT	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	No	FDOT		$500,000	Deferred	Pending Funding	3 years
48	46	Generators – Special Needs Generator	ALL	Public Safety Department Division of Emergency Management	ALL	2	Existing	No	Not identified		$12,000,000	Deferred	Pending Funding	1 year
49	46	Generators – Generators for Satellite Lift Stations. Need fifteen 65 KW generators at $25,000 each and ten 35 KW generators at $18,000 each to combat loss of power from flooding	ALL	Utilities Department	ALL	2	Existing		Jurisdiction Funds		$705,000	In progress		5 years
50	46	Emergency Lighting – Manatee Glens Hospital Shelter Upgrade. Manatee Glens Hospital serves as the psychiatric receiving center and the emergency housing shelter for inpatient psychiatric hospital clients for Manatee County. Our request is for additional emergency lighting to increase the square footage of shelter. Our goal is to keep psychiatric clients in an appropriate setting during times of evacuation	ALL	Centerstone Hospital	ALL	2	Existing	No	Not identified		$9,000	Deferred	Pending Funding	1 year
51	46	Generators – Manatee Glens Hospital Shelter Upgrade -. Manatee Glens Hospital serves as the psychiatric receiving center and the emergency housing shelter for inpatient psychiatric hospital clients for Manatee County. Our request is for additional fuel tank to increase the square footage of shelter. Our goal is to keep psychiatric clients in an appropriate setting during times of evacuation	ALL	Centerstone Hospital	ALL	2	Existing	No	Not identified		$7,200	Deferred	Pending Funding	1 year

52	46	Shuttering – Station 6. Station 6 will be the backup EOC if Station 2 EOC goes down.	ALL	North River Fire District	Hurricanes, Tornado, Severe Storm	2	Existing	No	Not identified		$2,000	Deferred	Pending Funding	6 months
53	45	SWWRF Collection System Area Infiltration Mitigation SWWRF and Rubonia Inflow Mitigation	ALL	Utilities Department Contact: Candie Schwartz	Hurricanes, Flood, Severe Weather	4,5,6	N/A		Jurisdiction Funds		$3,998,000	Deferred	Pending Funding	5 years
54	45	Shuttering – Shutters and doors for City Garage, Public Works Purchasing and Sanitation Office.	City of Bradenton	Public Works & Utilities	Hurricanes, Tornado, Severe Storm	2	Existing	No	Not identified		$250,000	Deferred	Pending Funding	2 years
55	45	Evacuation Routes & Drainage – Key Royal Drive Drainage improvements. Street & structure flooding	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$125,000	In progress	Pending Funding	2-3 years
56	45	Facility Hardening – Citywide residential floodproofing. Problem with repeated structure flooding	City of Anna Maria	Public Works and Planning and Development	Flood	2,6	Existing	Partially	ECU funds		$106,000	In progress		2 years
57	45	Evacuation Routes & Drainage – Lake La Vista Neighborhood Drainage Study and Engineering. Problem with street and structure flooding	City of Anna Maria	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Partially	ECU funds		$75,000	In progress		2 years
58	44	Evacuation Routes & Drainage – North/Central Neighborhood Drainage Study and Engineering. Problem with street and structure flooding.	City of Anna Maria	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Partially	ECU funds		$90,000	In progress		2 years
59	44	Evacuation Routes & Drainage – Basin 5 & 8 Central Neighborhood improvements bounded by 43rd St to the south and Flotilla St to the north	City of Holmes Beach	Superintendent of Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	3	Jurisdiction Funds		$325,000	In progress	Pending funding	2-3 years
60	44	Evacuation Routes & Drainage – Traffic Signal Support Upgrade. Upgrading the traffic signal support to mast arm at 53rd Ave W/26th St W intersection will provide for better structural integrity to withstand tropical storm and hurricane level wind force. In addition, this will allow for a quicker recovery after a storm/hurricane event	ALL	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	No	Not identified		$400,000	Deferred	Pending Funding	1 year
61	44	Generators – 35KW Generator for Manatee County Landfill. Problem with power loss due to flooding	ALL	Utilities Department	ALL	2	Existing		Jurisdiction Funds		$18,000	In progress		6 months
62	44	Repetitive Loss – Buyout of Repetitive Loss Properties. Buyout 4-6 repetitive loss residences downstream of Lake Manatee	ALL	Utilities Department	Hurricane, Flood, Severe Storm	3,4,5,6	N/A		Jurisdiction Funds		$2,000,000	In progress		5 years
63	44	Education – Public Information Booklet. Educate public as to the value of storm and wind proofing.	City of Anna Maria	Planning and Development Department	ALL	1	N/A	Yes	Jurisdiction Funds		$2,000	In progress		On going
64	44	Shuttering – Shutter City Centre Building. Harden entire building with Miami-Dade approved shutters over all vulnerable openings, to protect building contents from adverse effects of severe weather.	City of Bradenton	City of Bradenton Fire Department	Hurricanes, Tornado, Severe Storm	2	Existing	No	Unknown	Unknown	$500,000	Deferred	Pending availability of funding (grant and match)	1 year
65	44	South Village NOSO Repair/Replacement of Affordable Housing. Facility hardening for 20 affordable rental units.	ALL	Manatee County Housing Authority Contact: Brenda Lovett	Hurricanes, Tornado, Severe Storm	2	Existing	1, 3	Insurance		$406,860	New		2 years
66	43	Generators – MSO District II and III UPS. These are two primary substations for patrol operations. If power is interrupted countywide these districts should be operational by generator to support law enforcement services to their assigned area of the county	ALL	Manatee County Sheriff's Office	ALL	2	Existing	No	Not identified		$200,000	Deferred	Pending funding	1 year
67	43	Shuttering – Manatee Glens Hospital Shelter Upgrade. Manatee Glens Hospital serves as the psychiatric receiving center and the emergency housing shelter for inpatient psychiatric hospital clients for Manatee County. Our request is for shutters to increase the square footage of shelter. Our goal is to keep psychiatric clients in an appropriate setting during times of evacuation.	ALL	Centerstone Hospital	ALL	2	Existing	No	Not identified		$429,792	Deferred	Pending funding	2 years
68	43	Facility Hardening – Elevate City Hall	City of Bradenton Beach	Building Official/ Public Works Director	Hurricanes, Flood, Severe Storm	2	Existing	Reduction of potential Flood Damage	Jurisdiction Funds		$520,000	In progress	Additional funding required	2019-2020
69	43	Facility Hardening – Elevate Public Works Building	City of Bradenton Beach	Building Official/ Public Works Director	Hurricanes, Flood, Severe Storm	2	Existing	Reduction of potential Flood Damage	Jurisdiction Funds		$520,000	In progress	Additional funding required	2019-2020
70	42	Homeland Security - Purchase and installation of equipment, and private, underground fiber optic link between multiple facilities. Equipment and underground private fiber optic link with high bandwidth and availability will enable the Legislative, ECC, and Police Department branches to be moved to the Fire Department, and the Accounting Department to be located to the City Parking Garage. This will allow for a quick turnaround time to relocate and resume normal operation	City of Bradenton	City of Bradenton Fire Department	Terrorist Acts, Sabotage	4	New	No	Unknown	Unknown	$200,000	Deferred	Pending cooperative agreement with Manatee County Information Technology	1 year
71	41	Wind Retrofit - City Hall replacement windows and install permanent backup generators	City of Holmes Beach	City Engineer	Hurricanes, Tornado, Flood, Severe Storm	2	Existing		Jurisdiction Funds	25% Property owners, 75% HMGP funding	$151,123.12	New		2 years

72	41	Utilities Master Lift Stations Lightning Protection surge and Grounding Installation Project at three master lift stations: RTU 677, 583, and 838	ALL	Utilities Department Contact: Candie Schwartz	ALL	2	Existing		Jurisdiction Funds		$51,000	Deferred	Pending Funding	As funding allows
73	41	Communications – Computer/video system. To reconfigure the computer/ video system to allow the display of multiple computer/ video images during EOC activations.	ALL	Public Safety Department Division of Emergency Management	ALL	4	Existing	No	Not identified		$40,000	Deferred	Pending Funding	6 months
74	41	Harden Facility Addition – 20' x 100' hardened building extension/addition to house critical electronics: electrical traffic signals and fabrication (sign) equipment during emergency response/ recovery, staging and crew assembly.	ALL	Public Works Department Transportation	ALL	2	Existing	No	Not identified		$60,000	Deferred	Deferred for budgeting reasons	1 year
75	41	Shuttering – Hardening roof structure & roll down window shutters. Hardening roof structure to recommended FEMA storm wind – strata level and roll down window shutters for the new G.T. Bray Park Administration Building. Note: The Gymnasium is designated as a Federal Disaster Recovery Center 9DRC) for Manatee County. Hardening of the new center is even more important in managing recourses and manpower during and after such weather, or other related crisis event (s).	ALL	Parks and Natural Resources Department	Hurricanes, Tornado, Severe Storm	2	Existing	No	Not identified		$40,000	Deferred	Pending Funding	2 years
76	41	Evacuation Routes & Drainage – Bay Drive South from Roundabout to 5th St. South - Hardening and Elevation of Corridor to protect against sea level ride and king tides	City of Bradenton Beach	Public Works	Hurricanes, Flood, Wildfire, Dam/Levee Failure	1,4,5,6	New	Flood Damage Reduction and Water Quality Treatment	Jurisdiction Funds		$175,000	In progress	Additional funding required	2020-2023
77	41	To remove residential properties by means of a combination of demolition rebuild and / or elevation of structures. Number of structures included in Mitigation initiative depends on combined Benefit Cost Analysis and willingness of number of individual residents to participate in the parameters of the grant program.	Town of Longboat Key	Town of Longboat Key Public Works Contact: James Linkogle	Hurricanes, Flood	3,4,5,6	N/A	1, 3	25% Property owners, 75% HMGP funding		$1,000,000	New		1 year
78	41	Building & Development Services - Hurricane Shutters Retrofit	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% HMGP funding		$9,800	New		1 year
79	41	Braden River Flood Mitigation - Repair erosion occurring along Braden River in two districts: Greenbrook CDD-4 behind Vistas neighborhood, walking trail has washed out serveral times, and Summerfield erosion occurring from runoff behind homes located along river, causing loss of property and possible damage to structures.	Lakewood Ranch	Property Management	Hurricanes, Flood, Severe Storm	4,5,6	New		25% Property owners, 75% FEMA		$417,564	In progress		1 year
80	40	Other – Extend the existing PSC sidewalk north to the perimeter road to provide a stable, dry area to stand on while plugging the main power codes from mutual aid command vehicles into the power stanchions that will be on the west side of the sidewalk against the parking lot fence. This present stabilized parking lot area is susceptible to standing water during major storms and tropical cyclones. The probability of electrical shock to personnel plugging equipment into electrical boxes, while standing in water along the fence line, is very high. Placing a sidewalk along the fence line would reduce that possibility. This sidewalk would also provide a dry path to use for personnel working in the stabilized parking area.	ALL	Public Safety Department	ALL	4,5,6	Existing	No	Not identified		$15,400	Deferred	Pending Funding	1 year
81	40	Facility Hardening – Re-enforce roof structure to meet current code. The trusses are not fastened property to the ring beam and do not meet current code. The aluminum soffit is 40" deep and has no structural support. Losing it could mean losing the roof system. The roof system need to be modified or replaced to withstand storm force winds.	ALL	Cedar Hammock Fire Control District	Hurricanes, Tornado, Severe Storm	2	Existing	No	Not identified		$200,000	Deferred	Pending Funding	2 years
82	40	Facility Hardening – Re-enforce roof structure to meet current code. The roof system (roof tiles, sheathing, and trusses) are not fastened to meet current code and need to be modified or replaced to withstand storm force winds.	ALL	Cedar Hammock Fire Control District	Hurricanes, Tornado, Severe Storm	2	Existing	No	Not identified		$250,000	Deferred	Pending Funding	2 years
83	37	Water Treatment Plant potable water processing basins festoon cords to be replaced with system has wind rating to ensure no loss of power for basins during any wind event, associated with high winds. Current festoon cables have no wind rating and are at end of service life.	ALL	Utilities Department Contact: Candie Schwartz	ALL	2	Existing		Jurisdiction Funds		$170,000	Deferred	Pending Funding	As funding allows
84	35	Facility Hardening (public housing 41 buildings; 33 affordable rental buildings). Install impact resistant windows, wind resistant cords, harden roof structure utilizing retrofit building procedures of existing trusses, sheathing, application of water barrier and secured shingles to all public housing and affordable rental housing units.	ALL	Manatee County Housing Authority	Hurricanes, Tornado, Severe Storm	2	Existing	No	Not identified		$1,332,000	Deferred	Pending Funding	5 years
85	35	Carnegie Library - Hurricane Shutters Retrofit	ALL	Property Management	Hurricanes, Tornado, Severe Storm	2	Existing		25% Property owners, 75% FEMA		$165,400	New		1 year
86	33	Generators – Generator for City hall. To serve as a mid-point for residents and Sheriff deputies for a pick-up point.	City of Anna Maria	Public Works	Hurricanes, Tornado, Severe Storm, Power Failure	2	Existing	No	Unknown		$50,000	Deferred	Pending Funding	2 years

APPENDIX H

POTENTIAL FUNDING SOURCES

A. PRE-DISASTER

Beach Funding Program

Overview	The program provides and manages grants for the planning and implementation of beach and inlet management projects to protect upland structures and infrastructure, to provide critical habitat for threatened and endangered species, to provide opportunities and to support local economies through tourism.
Eligibility	Local governments, including county and municipal governments, community development districts and special taxing districts.
Assistance Provided	Assistance in an amount up to 50 percent of project costs
Contact	Division of Water Resource Management Beaches and Mines Funding Assistance 2600 Blair Stone Road, MS 3601 Tallahassee, FL 32399-3000 Main Phone: 850-245-8336 beaches_funding@dep.state.fl.us

Building Resilient Infrastructure and Communities (BRIC)

Overview	The BRIC program aims to shift the federal focus away from reactive disaster spending toward research-supported, proactive investment in community research. BRIC projects demonstrate innovative approaches to partnerships, such as shared funding mechanisms, and/or project design.
Eligibility	Eligible states, territories and federally recognized tribal governments can submit applications on behalf of sub applicants for BRIC funding.
Assistance Provided	Generally, the cost share for this program is 75% federal cost share funding/25% non-federal cost share funding.
Contact	State of Florida Division of Emergency Management Building Resilient Infrastructure and Communities Program 2555 Shumard Oak Boulevard Tallahassee, Florida 32399-2100 non-disasterprograms@em.myflorida.com

Community Disaster Loan Program

Overview	The CDL Program provide operational funding to help local governments that have incurred a significant loss in revenue, due to a major disaster, that has or will adversely affect their ability to provide essential municipal services.
Eligibility	• Be located in the presidentially declared disaster area, and the disaster must have adversely affected the level of essential municipal services previously provided.44 CFR §206.363(b)(2) • Be able to show a substantial loss (greater than 5%) of tax and other revenues for the current or succeeding year as are a result of a major disaster. 44 CFR §206.363(b)(2) • Not be in arrears with respect to any payments due on previous loans. • Ensure State law doesn't prohibit local governments from incurring indebtedness resulting from a federal loan.44 CFR §206.363(a)(1)
Assistance Provided	Loan amounts cannot exceed: • the cumulative est. revenue loss for the FY of the disaster and the subsequent three FYs; or • 25% of the approved operating budget of the local government for the FY in which the disaster occurred or the subsequent FY; or • the $5,000,000 loan cap. If the estimated revenue loss for the FY of the disaster is at least 75% of the local government's operating budget for that FY, the loan may be 50%of the local government's operating budget for the FY of the disaster but shall not exceed $5 million. The term of the loan is five years, and can be extended to ten years, with an Applicant selected payment schedule. 44 CFR §206.361(e) The interest rate for the five-year maturities are determined by the Secretary of the Treasury on the date the promissory note is executed by FEMA, adjusted to the nearest 1/8th percent. 44 §CFR 206.361(c)
Contact	FEMA, DHS CDL Program 500 C Street SW. Washington, DC 20472

Community Facilities Loan Program

Overview	To construct, enlarge, extend, or otherwise improve community facilities providing essential services to rural residents.
Contact	Rural Development 4440 NW 25th Place PO Box 147010 Gainesville, FL 32614-7010 (352) 338-3402

Conservation and Recreation Lands (CARL)

Overview	This grant program is intended to conserve environmentally endangered lands and provide resource conservation measures for other types of lands.
Contact	Florida Department of Environmental Protection Division of State Lands Marjory Stoneman Douglas Bldg. 3900 Commonwealth Blvd., MS 100 Tallahassee, FL 32399-3000 (850) 245-2118 www.dep.state.fl.us/lands/

Community Development Block Grant (CDBG)

Overview	The Community Development Block Grants (CDBG) provide for long-term needs, such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and redevelopment of disaster-affected areas. Funds may also be used for emergency response activities, such as debris clearance and demolition, extraordinary increases in the level of necessary public services.
Eligibility	Eligible activities include, but are not limited to: • Voluntary acquisition or if appropriate, elevation of storm damaged structures (can be used as match for FMA projects in low income areas); • Relocation payments for displaced people and businesses; • Rehabilitation or reconstruction of residential and commercial buildings; • Assistance to help people buy homes, including down payment assistance and interest rate subsidies; and • Improvement to public sewer and water facilities
Assistance Provided	Cost share is required. Federal funding is available for up to 75 percent of the eligible activity costs. Grants are to be awarded based on request.

Contact	Department of Housing and Urban Development Community Planning and Development 451 7th Street, SW Washington, DC 20410 (202) 708-3587 www.hud.gov

Community Assistance Program State (CAP-SSSE)

Overview	To ensure that communities participating in the National Flood Insurance Program (NFIP) are achieving flood loss reduction measures consistent with program direction. The CAP-SSSEE is intended to identify, prevent and resolve floodplain management issues in participating communities before they develop into problems requiring enforcement action.
Eligibility	State, Local and tribal governments. Eligible activities include, but are not limited to: • Entering Floodplain Management Data into the Community Information System (CIS) (Required); • Strategic Planning; • Ordinance Assistance (Required); • CAP GAP Analysis; • Community Assistance Visits and Community Assistance Contacts (Required); • Outreach, Workshops and Other Training; • General Technical Assistance; • Mapping Coordination Assistance; • Coordination with Other State Programs and Agencies; and • Assistance to Communities in Responding to Disasters
Assistance Provided	Cost share is required. Federal funding is available for up to 75 percent of the eligible activity costs. Grants are to be awarded based on request.
Contact	Federal Emergency Management Agency Mitigation Directorate 500 “C” Street, SW Washington, DC 20472 (202)646-4621 http://www.fema.gov/fima/

Emergency Advance Measures for Flood Prevention

Overview	To perform activities prior of flooding or flood fight that would assist in protecting against loss of life and damages to property due to flooding.
Contact	US Army Corps of Engineers Attn: CECW – OE Washington, DC 20314 (202) 272-0251

Expanded Local Management Hazardous Waste Program

Overview	The primary purpose of this fund is to cover costs incurred to establish the expanded local hazardous waste management program as stated in FS403.7238 including training for county personnel, materials & equipment for educational activities.
Contact	Florida Dept. of Environmental Protection 2600 Blair Stone Rd. Tallahassee, FL 32399-2400 (850) 488-0300

Flood Control Projects

Overview	To reduce flood damages through projects not specifically authorized by Congress.
Contact	US Army Corps of Engineers Attn: CECW – OE Washington, DC 20314 (202) 272-1975

Flood Communities Trust (FCT)

Overview	This grant program facilitates the purchase of lands for conservation and/or recreation purposes by local governments. This land acquisition program helps to implement conservation, recreation, open space, and coastal elements of local comprehensive plans. The Board of Florida Communities Trust has latitude to consider innovative financing arrangements, loans, and land swaps. However, most of the Trust's funding is for land acquisition. Land acquisition projects in which matching funds are available will receive more favorable consideration, although a portion of available funds may be awarded on outright grants.
Eligibility	Sate and Indian Tribes
Assistance Provided	Individual grants are awarded based on requests
Contact	Florida Department of Community Affairs Florida Communities Trust 2555 Shumard Oaks Blvd. Tallahassee, FL 32399 (850) 922-2207 http://www.dca.state.fl.us/ffct/florida_forever.htm

Florida Department of Environmental Protection
319(h) Grant Program

Overview	The Nonpoint Source management Section administers grant money it receives from EPA through Section 319(h) of the Federal Clean Water Act. These grant funds can be used to implement projects or programs that will help to reduce nonpoint sources of pollution (NPS). Projects or programs must be conducted within the state's NPS priority watersheds and National Estuary Program waters.
Eligibility	State and local governments, certain private non-profit organizations or institutions, and Indian tribes
Assistance Provided	Project grants (match of funds or in-kind services required). FDEP funds up to 60% of total eligible costs. All projects must include at least a 40% nonfederal match.
Contact	Florida Department of Environmental Protection Nonpoint Source Management Program 2600 Blair Stone Road, M.S. 3570 Tallahassee, Florida 32399-2400 (850) 245-7508 http://www.dep.state.fl.us

Flood Insurance

Overview	To enable persons to purchase insurance against physical damage to or loss of buildings and/or contents therein caused by floods, mudslide (i.e., mudflow), or flood-related erosion, thereby reducing Federal disaster assistance payments, and to promote wise floodplain management practices in the Nation's flood-prone and mudflow-prone areas.
Contact	FEMA 3003 Chamblee Tucker Road Atlanta, GA 30341 (770) 220-5200

Flood Mitigation Assistance (FMA)

Overview	The Flood Mitigation Assistance (FMA) assists communities in implementing measures to reduce or eliminate the risk of long-term risk of repetitive flood damage to buildings and structures insured under the National Flood Insurance Program (NFIP). The FMA program strengthens national preparedness and resilience and supports the mitigation mission area through Strategic Goal #1 Building a Culture of Preparedness, Objectives 1.1, 1.2, 1.3, and 1.4 of the 2018 – 2022 FEMA Strategic Plan.

Eligibility	State, Local and tribal governments. Eligible activities include, but are not limited to: • Property acquisition, relocation or demolition; • Structural elevation; • Mitigation reconstruction; • Dry floodproofing of historical residential structures, and non-residential structures; • Localized flood risk reduction; • Soil stabilization; and • Infrastructure retrofit
Assistance Provided	Cost share is required. Federal funding is available for up to 75 percent of the eligible activity costs. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds
Contact	Florida Division of Emergency Management 2555 Shumard Oak Blvd. Tallahassee, FL 32399-2100 (850) 413-9966

Flood Plain Management Services

Overview	To promote appropriate recognition of flood hazards in land and water use planning and development through the provision of flood and flood plain related data, technical services, and guidance.
Contact	US Army Corps of Engineers Attn: CECW – PF Washington, DC 20314-1000 (202) 272-0169

Florida Communities Trust (FCT)

Overview	This grant program facilitates the purchase of lands for conservation and/or recreation purposes by local governments. This land acquisition program helps to implement conservation, recreation, open space, and coastal elements of local comprehensive plans. The Board of Florida Communities Trust has latitude to consider innovative financing arrangement, loans, and land swaps. However, most of the Trust's funding is for land acquisition. Land acquisition projects in which matching funds are available will receive more favorable consideration, although a portion of available funds may be awarded on outright grants.

Contact	Florida Department of Environmental Protection Florida Communities Trust 3900 Commonwealth Blvd, M.S. 100 Tallahassee, FL 32399 (850) 245-2555

Grants for Public Works & Economic Development Facilities

Overview	To promote long-term economic development in areas experiencing substantial economic distress. EDA provides Public Works investments to support the construction of rehabilitation of essential public infrastructure and development facilities necessary to generate higher-skill, higher-wage jobs and private investment.
Contact	Economic Development Administration The Federal Building (Room 423) 80 N. Hughey Ave. Orlando, FL 32801 (407) 648-6572

Hazardous Materials Training Program for Implementation of the Superfund Amendment and Reauthorization Act (SARA) of 1986

Overview	The goal of the SARA Title III Training Program is to make funding available to support programs of State, local, and Tribal governments, and university sponsored programs designed to improve emergency planning, preparedness, mitigation, response, and recovery capabilities. These programs must provide special emphasis on emergencies associated with hazardous chemicals.
Contact	Federal Emergency Management Agency Support Systems Branch, Training Division 16825 S. Seton Ave. Emmitsburg, MD 21727 (301) 447-1142

Hurricane Program

Overview	This program provides state and local assistance; property protection; hazard identification and evacuation studies; post storm analysis; training and exercises; and public awareness and education campaigns, and materials to support State and local activities. The intent is to significantly reduce the loss of life, property, economic disruption, and disaster assistance costs resulting form hurricanes.
Eligibility	Several states including Florida

Assistance Provided	Individual grants are awarded based on requests. States are required to provide 25 percent match.
Contact	FEMA – Mitigation directorate 500 C Street SW Washington, DC 20472 (202) 646-4621 http://www.fema.gov/mit/

Protection of Essential Highways, Highway Bridge Approaches, and Public Works

Overview	To provide bank protection of highways, highway bridges, essential public works, churches, hospitals, schools, and other nonprofit public services endangered by flood-caused erosion.
Contact	US Army Corps of Engineers Attn: CECW-PM Washington, DC 20314-1000 (202) 272-1975

Pre-Disaster Mitigation (PDM) Grant Program

Overview	The PDM program was authorized by Section §203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by Section §102 of the Disaster Mitigation Act of 2000, to assist communities to plan for and implement and sustain cost-effective measures designed to reduce the risk to individuals and property from natural hazards, while also reducing reliance on Federal funding from future disasters. The PDM program strengthens national preparedness and resilience and supports the mitigation mission area through Strategic Goal #1 Building a Culture of Preparedness, Objectives 1.1, 1.2, 1.3, and 1.4 of the 2018 – 2022 FEMA Strategic Plan. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations.
Eligibility	State, Local and tribal governments. Eligible activities include, but are not limited to: • Property acquisition, relocation or demolition; • Structural and non-structural retrofitting (e.g. elevation, storm shutters, and hurricane clips); • Mitigation reconstruction; • Generators; • Minor structural hazard control on protection (e.g. culverts, floodgates, retention basins); • Soil stabilization; • Wind retrofit for one and two-family residence;

	• Safe room construction; and • Localized flood control projects that are designed to protect critical facilities and are not part of a larger flood control system.
Assistance Provided	Cost share is required. Federal funding is available for up to 75 percent of the eligible activity costs. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds
Contact	Florida Division of Emergency Management 2555 Shumard Oak Blvd. Tallahassee, FL 32399-2100 (850) 413-9966

Resource Conservation and Development

Overview	To encourage and improve the capability of State and local units of government and local nonprofit organizations in rural areas to plan, develop and carry out programs for resource conservation and development.
Contact	Deputy Chief for Programs Resource Conservation and Community Development Division Natural Resources Conservation Service Department of Agriculture P.O. Box 2890 Washington, DC 20013 (202) 720-2847

Snagging and Clearing for Flood Control

Overview	To reduce flood damage.
Contact	US Army Corps of Engineers Attn: CECW-PM Washington, DC 20314-1000 (202) 272-1975

Soil and Water Conservation

Overview	To help people conserve, improve, and sustain our natural resources and environment.
Contact	Natural Resources Conservation Service Department of Agriculture P.O. Box 2890 Washington, DC (202) 720-4527

Watershed Protection and Flood Prevention

Overview	To provide technical and financial assistance in carrying out works of improvement to protect, develop, and utilize the land and water resources in small watersheds.
Contact	Watersheds and Wetlands Division Natural Resources Conservation Service Department of Agriculture P.O. Box 28890 Washington, DC 20013 (202) 720-3534

B. POST-DISASTER

Community Development Block Grants (CDBG)/Entitlement Grants

Overview	To develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low to moderate income individuals.
Contact	Entitlement Communities Division Office of Block Grant Assistance CPD, HUD 451 7th Street SW Washington, DC 20410-7000 (202) 708-3587

Community Development Block Grants (CDBG)/State's Program

Overview	To develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low to moderate income individuals.
Contact	State and Small Cities Division Office of Block Grant Assistance CPD, HUD 451 7th Street SW Washington, DC 20410-7000 (202) 708-3587

Emergency Conservation Program

Overview	To enable farmers to perform emergency conservation measures to control wind erosion on farmlands, or to rehabilitate farmlands damaged by wind erosion, floods, hurricanes, or other natural disasters and to carry out emergency water conservation or water enhancing measures during period of severe drought.
Contact	Department of Agriculture - Farm Service Agency 1400 Independence Dr. Washington, DC 20250-0513 (202) 720-6221

Emergency Operations Flood Response and Post Flood Response

Overview	To provide emergency flood response and post flood response assistance as required to supplement State and local efforts and capabilities in time of flood coastal storm.
Contact	Commander US Army Corps of Engineers Attn: CECW- OE Washington, DC 20314-1000 (202) 272-0251

Emergency Shelter Grants Program (ESG)

Overview	To provide financial assistance to renovate or convert buildings for use as emergency shelters for the homeless. Grant funds may also be used to operate the shelter (excluding staff) and pay for certain support services.
Contact	Community Planning & Development Dept. of Housing and Urban Development 325 West Adams Street Jacksonville, FL 32202-4303 (904) 232-2626

Federal Emergency Shelter Grants Program for the Homeless

Overview	Grants for the provision of emergency shelter and essential support services to the homeless. Funds may be used for structural improvements to shelters, shelter operating expenses, furnishings and equipment, and other services.
Contact	Benefit Recovery & Special Program Economic Services Program 1317 Winewood Blvd. Tallahassee, FL 32399-0700 (850) 487-2966

Hazard Mitigation Grant Program (HMGP)

Overview	HMGP is authorized by Section §203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by Section §102 of the Disaster Mitigation Act of 2000. This helps communities implement measures to reduce or eliminate long-term risk to people and property from natural hazards and their effects. To prevent future losses of lives and property due to disaster; to implement State or local hazard mitigation plans; to enable mitigation measures to be implemented during immediate recovery from a disaster; and to provide funding for previously identified mitigation measures to benefit the disaster area.
Eligibility	Eligible Applicants: • State and local governments who have an approved Local Mitigation Strategy (LMS) Plan in accordance with 44 CFR 201.6, prior to receipt of HMGP subgrant funding for projects, • Private non-profit organizations or institutions that own or operate a private non-profit facility as defined in §26.221©; and • Indian tribes or authorized tribal organizations Eligible activities include, but are not limited to: • Property acquisition or relocation of hazard-prone structures; • Retrofitting of existing buildings and facilities that will result in increased protection from hazards; • Elevation of flood-prone structures; • Infrastructure protection measures; • Stormwater management improvements; • Minor structure flood control; • Aquifer storage and recovery; • Floodplain and stream restoration; • Residential and safe room construction; and • Generators for a critical facility, provided cost-effective, contribute to a long-term solution to the problem that they intend to address and meet other project eligibility criterial as required.
Assistance Provided	The amount of HMGP funding available to the state is based on the total federal disaster assistance for the Presidential Disaster Declaration.
Contact	Florida Division of Emergency Management 2555 Shumard Oak Blvd. Tallahassee, FL 32399-2100 (850) 413-9966

Public Assistance Program

Overview	To provide supplemental assistance to States, local governments, and certain private nonprofit organizations to alleviate suffering and hardship resulting from major disasters or emergencies declared by the President.
Contact	Infrastructure Support Division Response and Recovery Directorate FEMA 500 C Street SW Washington, DC 20472 (202) 646-3026

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APPENDIX I

HAZARD MITIGATION ROLES

Participating jurisdictions have provided a list of departments and a description of their role/function in terms of hazard mitigation.

A. MANATEE COUNTY

1. Public Safety Department

   The Public Safety Department consists of five divisions: Emergency Management, Emergency Medical Services (EMS), 9-1-1, Code Enforcement, and Animal Services. Each division has defined responsibilities in providing community services. Emergency Management is tasked with disaster planning and response/recovery coordination efforts for an all-hazards approach. It provides training and educational programs to citizens and organizations in preparing for all five Phases of emergency management: Preparedness, response, recovery, mitigation, and prevention. EMS provides critical lifesaving services to citizens of the county that require immediate medical attention. 9-1-1 is responsible for servicing emergency calls for EMS, law, hazmat, and fire services and ensuring the calls are processed in a timely manner by the appropriate response agency. Marine Rescue provides medical rescue to county residents and visitors on public beaches and waterways. HazMat provides the management and coordination of public service First Responders and special equipment for those who respond to hazardous material emergency releases. Animal Services enforces animal code regulations and provides medical assistance and adoption processes for small animals. The Code Enforcement Division is tasked with ensuring compliance with the codes and ordinances established by the Board of Commissioners, as well as the Manatee County Land Development Code, on both residential and commercial properties.

2. Public Works Department

   Responsible for ongoing maintenance and development of roadways and associated drainage systems in the unincorporated county and where the County has responsibility for such systems in incorporated areas.

3. Parks and Natural Resources Department (PNRD)

   The Environmental Protection Division (EPD) within the PNRD is responsible for coordinating the County's National Pollutant Discharge Elimination System – Municipal Separate Storm Sewer System (NPDES-MS4) stormwater permit with Florida Department of Environmental Protection and local co-applicants. Additional EPD programs include inspection, tracking and discharge responses from pollutant storage systems (PSTs) and small quantity of generators of hazardous wastes (SQGs). EPD also permits the construction, abandonment and maintenance of groundwater wells in coordination with Southwest Florida Water Management District (SWFWMD).

4. Utilities Department

   The Manatee County Utility Department provides potable water (drinking), wastewater (sewer), reclaimed water (processed wastewater suitable for irrigation), and solid waste (landfill) services to the unincorporated portions of Manatee County. Additionally, the department provides support and critical services to county and municipal Law Enforcement, Fire and EMS agencies during man-made and natural emergencies within Manatee County and provides mutual aid services outside the county, as part of the Statewide Mutual Aid Agreement. The Manatee County Utility Department also serves as the lead agency for Emergency Support Function (ESF) 3 at the County's Emergency Operations Center (EOC).

5. Building & Development Services Department

   The Permitting and Plans Review Division reviews permits for new structures as well as renovations to existing structures to make sure that they are compliant with the FEMA and Floodplain Management requirements. The Division also attends the Pre-application meetings in the Planning/Zoning Department and reviews Final Site Plans and Final Plats to make sure all proposed developments are compliant with the Federal Emergency Management Association (FEMA) and Floodplain Management requirements. The Department is also the repository for CRS data for Manatee County and provides Flood data and FEMA publications to the public.

   The Planning Division is responsible for ensuring that the County's Comprehensive Plan fulfills all the requirements of Chapter 163, Part II, FS, including those associated with the hazard mitigation.

6. Neighborhood Services Department

The Community Development Division has vital information needed to guide citizens to valuable resources offered before, during, or after a disaster with services and potential funding sources to assist in case of a catastrophic event. They provide training in mitigation and preparedness to citizens of Manatee County.

7. Manatee County Housing Authority

   Manatee County Housing Authority owns Public Housing Units, and affordable market rental units. We have participated with the LMS planning and are available to assist with relocation of citizens in need of housing. We provide administration of HUD funding for federally declared disaster areas. We participated in the past events providing the relocation Housing Choice Voucher administration from Housing and Urban Development (HUD) of surrounding counties and municipalities including Hardee, Desoto, Port Charlotte, Punta Gorda and Wauchula for low and very low-income citizens with catastrophic damage to their homes. Our staff provided education and information to the community requesting service in regard to housing assistance available and placement to relocate to safe, decent, affordable housing during the post event crisis.

8. Manatee County Sheriff's Office

   Provides law enforcement services in throughout the County and municipal law enforcement on a contractual basis.

B. CITY OF ANNA MARIA

1. Building Department

   The Plan and Development Department reviews permits for new structures as well as renovations to existing structures to ensure that the projects are compliant with FEMA and Local Floodplain Management requirements. The Department also conducts pre-applications meetings for Planning/Zoning compliance and reviews Final Site Plans and Final Plats to make sure all proposed developments are compliant with FEMA and Local Floodplain Management requirements. The Department is also the repository for the City of Anna Maria and provides flood data and FEMA publications to the public. The Department is also responsible for ensuring that the City's Comprehensive Plan fulfills all the requirements of Chapter 163, Part II, FS, including those associated with hazard mitigation. The City of Anna Maria has contracted professional Planning and Building Code Administration staff.

2. Public Works Department

The City of Anna Maria Public Works Department conducts routine maintenance of flood control infrastructure and formulates plans and budgets for stormwater projects to satisfy Regional and National clean water regulations (SWFMD and NPDES). This Department is also responsible for ongoing maintenance of roadways for emergency evacuation.

3. City Clerk's Office

This office provides liaison with the Manatee County Emergency Management Division for preparation for severe weather events. The office has responsibility for developing and implementing the Continuity of Operations Plan.

C. CITY OF BRADENTON

1. Planning and Community Development Department

The Building Division reviews permits for new structures as well as renovations to existing structures to make sure that they are compliant with the FEMA and Floodplain Management requirements. The Building Division also attends the Pre-application meetings in the Planning/Zoning Division and reviews Final Site Improvement Plans and Final Plats to make sure all proposed developments are compliant with the FEMA and Floodplain Management requirements. Floodplain Management activities related to the review of permits occurs throughout the year. Following a storm event, the Building Division oversees the damage assessment process and reports findings to FEMA and other local agencies. The Building Division may coordinate with other agencies, such as the Florida Department of Emergency Management, on more detailed reports of damage assessment.

2. Fire Department

Out of a calling to serve, the Bradenton Fire Department (BFD) exists to provide the highest level of public safety and education to protect all. The department provides all those in the City of Bradenton with services including fire suppression, emergency medical response, fire prevention and education (including plans review, inspections, and investigation), and specialized services such as technical and marine rescue. The BFD is comprised of three stations and 74 filled positions, which include 63 suppression personnel responding to nearly 9,000 annual calls for service, along with 11 administration and support personnel. The current Insurance Services Office (ISO) rating is a two.

3. Police Department

The mission of the Bradenton Police Department is to achieve excellence in policing through professionalism, courage and transparency. In emergency situations that impact our community, the Department will focus its resources and efforts on reducing and minimizing loss of life, injuries and property damage caused by natural disasters, technological failures, catastrophes, or hostile actions.

The Department is committed to responding efficiently and effectively to these dangers and recovering from catastrophic events. The Bradenton Police Department will train and utilize all necessary systems, plans, and resources to ensure the health, safety, and well-being of those affected by any emergency or disaster within our community.

4. Public Works Department

The mission of the Department of Public Works and Utilities (DPWU) is to develop, maintain and operate an efficient infrastructure system serving the City of Bradenton, to effectively provide water, sewer and sanitation services to residents and to maintain City parks, rights-of-way, vehicles and City-owned The DPWU facilitates street, drainage, infrastructure, and utility system repairs to reduce, mitigate and recover from disasters impacting the Bradenton community.

D. CITY OF BRADENTON BEACH

1. Planning and Building Department

The Planning & Development Department reviews all applications for new development, as well as additions and renovations to existing developments and structures. The department, which includes Planning, Zoning, Building, and Floodplain Management, conducts pre-application meetings for all new development and alterations to current development. All applications are reviewed for compliance with Floodplain Management regulations as well as typical local development regulations. The Department also reviews all preliminary and final Site Plans to ensure compliance with National Flood Insurance Program requirements and the City's Floodplain Regulations. This department serves as the repository for Flood Maps, Elevation Certificates, and other flood-related documentation, and is responsible for dissemination of flood data and other NFIP and FEMA publications. The Community Rating System (CRS) Coordinator's position staffed in this department, as well as the Floodplain Manager.

2. Police Department

The Police Department is responsible for public safety, including walking patrols of the City's streets, and regular patrols of the beach areas. The City Commission has also vested emergency operations authority in the Police Department, with specific responsibilities for notification of the public in times of emergencies, coordination of evacuations in the event of disaster, and recovery supervision during post-storm evaluations and re-entry. Evaluation and updating of the City's Post-Disaster Recovery Plan is also vested in this department. Staff is also charged with working closely with Manatee County's Emergency Operations personnel during their monthly tests, their annual hurricane drills, and with any potential emergency conditions.

3. Public Works Department

The Public Works Department is responsible for all City-owned infrastructure. This department conducts maintenance and reporting of all stormwater conveyance and flood control structures. In addition, this department is responsible for planning & implementing projects to reduce potential flood damage, and including projects to satisfy NPDES and SWFWMD regulations to reduce pollutant loads. In addition, the Public Works Department provides critical staffing and support services to the Police Department during emergency operations, including identification of potential ponding areas which might affect evacuation routes. Public Works personnel are also tasked with post-storm recovery operations under the direction of the Emergency Operations liaison in the Police Department.

liaison in the Police Department.

A. CITY OF HOLMES BEACH

1. Police Department

The Police Department is responsible for public safety including regular patrols of the beach areas including the Manatee County public beach. It also has operational responsibilities in times of emergencies, evacuation coordination in the event of a disaster, and response supervision during post event and re-entry. All departments are involved in Manatee County's Emergency Operations Center (EOC) along with its personnel. The Chief of Police or designee staffs the City's representative at the County EOC.

Police Chief

- Activate emergency plans, City EOC liaison, or portions thereof, whenever a situation warrants.

- In coordination with Manatee County Emergency Management, develop, update, and coordinate emergency plans and Standard Operating Procedures for response and recovery activities.
- Notify the City Mayor, the Board of City Commissioners, and appropriate Department Heads of disaster situation.
- Maintain communications with Manatee County Emergency Management and adjacent municipalities. Provide information for the City Mayor and Department Heads prior to, and during any emergency/disaster.
- Provide updated information to maintain current and workable plan for emergency operations of the City of Holmes Beach.
- Develop and present the annual Hurricane Awareness Program.

Police Department

- Responsible for all Police Department operations.
- Provide law enforcement, traffic, and crowd control, restrict access and provide security to designated disaster area(s).
- Assist in public notification of evacuation order and establish traffic control points to aid in orderly evacuation and return of evacuees.
- Assist Fire Department in search and rescue operations, as necessary.
- Coordinate re-entry operations with Manatee County Sheriff's office and Bradenton Police Department following hurricane evacuations.

2. Development Services

Development Services consists of three (3) departments, Planning & Zoning, Code Compliance and Building. The Building Department is responsible for the review and issuance of building permits. The department acts as the coordinator for all related applications into the online CitizenServe permitting system that require departmental review. Building Department staff are positioned at the Building counter and help coordinate related questions to Building and other department staff. The department is housed at City Hall.

Building Department

- This department serves as the repository for Flood Maps, Elevation Certificates, and other flood-related documentation, and is responsible for dissemination of flood data and other NFIP and FEMA publications.
- Coordinate Damage Assessment Team following disaster.
- The Community Rating System (CRS) Coordinator's position is staffed in this department, as well as the Floodplain Manager.

- Building Official duties, inspections, floodplain management and permitting assistance for all residential and commercial building permitting, review and inspections. Specifically, review and inspection for Florida Building Code, and FEMA code compliance.
- Building Department provides support for a number of residential hazard mitigation services. It also coordinates the publication of news articles and advertisements and dissemination of other storm preparedness and recovery information. The Department is represented at the Manatee County EOC and is involved in its functions.
- Identify substantially damaged properties to determine whether the structures must be brought up to current floodplain requirements or if they can be mitigated and remain constructed below base flood elevation.

Code Compliance Department

- In conjunction with the City's Building Department, the Code Compliance Department workers (and contractual agents) assists with damage assessment duties and coordination.
- Responsible for monitoring non-permitted storm recovery work and addressing code violations.

Planning Department

- Attends pre-application meetings, reviews site plans and permits for compliance with the provisions of the Land Development Code and Comprehensive Plan.
- Responsible for determinations of non-conforming uses and structures for re-development.
- Administers interpretations of the Land Development Code.
- Ensures the Development Services Department maintains continuity of operations.

3. Public Works

The Mayor, Building Official, Public Works Director and Police Chief confer with the County and utility personnel in formulating the post disaster recovery plan. In accordance with the EOP and the Recovery Management Organization (RMO), the Public Works Director is the recovery emergency management deputy director and acts as the RMO director in the absence of the Mayor. The Department provides stormwater conveyance maintenance and adherence to NPDES standards.

- The Mayor, Public Works Director, Building Official, Chief of Police, City Clerk and other knowledgeable persons determine assessment of loss.
- Take necessary steps to ensure that city facilities are prepared for disasters.
- Provide workers, vehicles, and equipment for debris clearance, barricading impassable streets and secured areas and for mechanical repairs to Public Works vehicles and heavy equipment.
- In coordination with the Police Department, plan for movement and security of designated workers and equipment to Alternate City EOC (AEOC) for protection prior to arrival of hurricane force winds (see COOP Plan)
- Arrange for acquisition and staging of necessary rental equipment such as front-end loaders and transport/storage vans.
- Provide refueling capability.
- Assist Police Department and West Manatee Fire District in search and rescue operations, as necessary.
- Restore normal operations as soon as possible following disaster.
- Chief of Police and Public Works Director confer with the Mayor to determine a program for orderly return to the City.
- Establish procedures and provide workers in support of debris clearance and removal operations and temporary debris storage sites.
- The Public Works Director establishes designated areas for debris accumulation.
- Coordinates the City's co-application with the County's National Pollutant Discharge Elimination System – Municipal Separate Storm Sewer System (NPDES-MS4) stormwater permit with Florida Department of Environmental Protection.

B. TOWN OF LONGBOAT KEY

1. Fire Department

The Town of Longboat Key Fire Department (TLBKFD) provides the citizens and businesses of the Town with services including fire prevention and educations, suppression, investigation, plans review, pre-fire planning, and inspections. The TLBKFD is comprised of two Fire Stations that house Administration and Support personnel.

The Mission of the Town of Longboat Key Fire Department is "to prevent the loss of life and property due to fire, life threatening emergencies, and disasters for the citizens of the Town of Longboat Key by providing rapid emergency response along with fire

prevention and safety education. Highly trained professional firefighters and emergency response personnel accomplish this. Every effort is made to mitigate all emergencies in the most professional, safe, and cost effective means possible.

Any changes in description of hazard mitigation roles to be provided in subsequent LMS documents.

2. Planning, Zoning & Building Department

Responsible for ensuring that the Town of Longboat Key Comprehensive Plan fulfills all the requirements of Chapter 163, Part II, FS, including those associated with the hazard mitigation. The Planning/Zoning Department also conducts the Pre-

application meetings in the and reviews Final Site Plans and Final Plats to make sure all proposed developments are compliant with the FEMA and Floodplain Management requirements.

The Building Department reviews permits for new structures as well as renovations to existing structures to make sure that they are compliant with all applicable codes and the FEMA Floodplain Management requirements.

3. Police Department

The mission of the Longboat Key Police Department is to eliminate crime and the fear of crime, to enhance the quality of life for the Citizens of the Town of Longboat Key, and to hold themselves to the highest professional standards of performance and ethics. The department is a professional driven organization that partners with the community to make the Town of Longboat Key a better place to live, work, visit, and conduct business.

In Town or Countywide emergency situations, the department's purpose is to reduce the vulnerability of our citizens to loss of life, injury, or damage and loss of property resulting from natural, technological, and man-made emergencies, disasters, catastrophes. Staff prepares for prompt and efficient response and recovery activities to emergencies, disasters, or catastrophes using all systems plans, and resources necessary to preserve and protect the health, safety, and well-being of citizens affected by the event.

4. Public Works Department

The Town of Longboat Key Public Works Department provides potable water (drinking), wastewater (sewer), and solid waste collection services to the Longboat Key portions of Manatee County, and those of Sarasota

County. Additionally, the department provides support and critical services to Longboat Key Police, Fire and EMS agencies during man-made and natural emergencies within the Town. The Department also serves as the lead agency for Emergency Support Function (ESF) 3 at the EOC.

The Department is also the resident of CRS Coordinator position for the Town of Longboat Key and provides Flood data and FEMA publications to the public. The Department is also the repository for data used for compliance with CRS for the Town of Longboat Key.

C. CITY OF PALMETTO

1. Development Services Department

The City of Palmetto Development Services Department is responsible for the coordination and direction of all services associated with development and construction, through the implementation of the City of Palmetto Comprehensive Plan and enforcement of the City of Palmetto Code of Ordinances. The following departments provide planning and enforcement services necessary to provide appropriate infrastructure for current and future developments and to regulate City Ordinances:

A. The Building Department protects the quality of life in the City of Palmetto by enforcing building and City Ordinances, floodplain regulations, issuing building permits, inspecting structures under construction, and reviewing proposals for future development.
B. The Planning and Zoning Department guides the City's current and future physical growth through the establishment of a long-term vision through the Comprehensive Plan, and through the implementation and on-going enforcement of its existing City Ordinance regulations.
C. Code Enforcement Department enforces the City codes; to promote, protect and improve the health, safety, and welfare of the citizens and visitors of the City of Palmetto.

The Development Services Department is also the resident of the CRS Coordinator position for the City of Palmetto and provides Flood data and FEMA publications to the public. The Department is also the repository for data used for compliance with CRS for the City of Palmetto.

2. Police Department

The mission of the City of Palmetto Police Department is to eliminate crime and the fear of crime, to enhance the quality of life for the Citizens of the City of Palmetto, and to hold themselves to the highest professional standards of performance and ethics. The department is fully accredited through the Commission for Florida Accreditation, and it partners with the

community to make the City of Palmetto a better place to live, work, visit, and conduct business.

During local or Countywide emergency situations, the department's purpose is to reduce the vulnerability of our citizens due to loss of life, injury, damage and loss of property resulting from natural, technological, and man-made emergencies, disasters. Staff prepares for prompt and efficient response and recovery activities to emergencies, disasters, or catastrophes using all systems plans, and resources necessary to preserve and protect the health, safety, and well-being of citizens affected by the event.

3. Public Works Department

The City of Palmetto Public Works Department provides potable water (drinking), wastewater (sewer), and solid waste collection services to its residents. Manages the road and street network including signage and traffic signals. Parks, Fleet Maintenance, and Reclaim water are also functions of the Public Works Department Additionally, the department provides support and critical services to City of Palmetto Police Department, North River Fire and EMS agencies during man-made and natural emergencies within the City. The Department also serves as the lead agency for ESF 3 at the EOC.

Storm water is a combined effort throughout the Public Works team that involves all aspects related to any type of storm/disaster event. The team uses the information from a variety of sources to assist the City in its preparation, recovery, and mitigation efforts. The City regularly cleans ditches and maintains areas that are prone to flooding.

4. Risk Management

Risk Management is involved in all aspects related to any type of storm/disaster event. Risk Management uses the information from a variety of sources to assist the City in its preparation, recovery, and mitigation efforts. Risk management participates in most of the Manatee County Emergency Management activities and responds to Emergency Management in a liaison capacity for the City.

5. FIRE DISTRICTS

1. Braden River Fire Department

   Provides fire services to unincorporated Manatee County in the area of the Braden River. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

2. Cedar Hammock Fire Control District

   Provides fire services to unincorporated Manatee County. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

3. Myakka City Fire Department

   Provides fire services to unincorporated Manatee County. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

4. Southern Manatee Fire Control

   Provides fire services to unincorporated Manatee County. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

5. North River Fire District

   Provides fire services to The City of Palmetto and portions of central unincorporated Manatee County. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

6. Parrish Fire District

   Provides fire services to unincorporated Manatee County. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

7. Trailer Estates Fire District

   Provides fire services to unincorporated Manatee County. Detailed description of hazard mitigation role to be provided in subsequent LMS document.

8. West Manatee Fire and Rescue District

   This district provides fire and rescue services to a portion of unincorporated Manatee County in the area of west and northwest Bradenton including the areas of Palma Sola, Cortez, and the cities of Anna Maria, Bradenton Beach, and Holmes Beach.

9. Airport Fire District

   Provides fire services to portions of unincorporated Manatee County near the Sarasota/Bradenton International Airport. Detail description of hazard mitigation role to be provided in subsequent LMS document.

6. OTHER

- Manatee Glens Hospital

  Manatee Glens Hospital serves as the psychiatric receiving center and emergency housing shelter for inpatient psychiatric hospital clients for Manatee County. Its goal is to keep psychiatric clients in an appropriate setting during times of evacuation.

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APPENDIX J

MANATEE COUNTY

COMMUNITY WILDFIRE PROTECTION PLAN 2015

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Manatee County

Community Wildfire Protection Plan

December 2015



1. Background

The Community Wildfire Protection Plan (CWPP) is a voluntary program that provides a unique opportunity to address the challenges of fire protection in the wildland urban interface through locally supported solutions. CWPPs are authorized by the Healthy Forests Restoration Act of 2003 and provide communities with a tremendous opportunity to influence how federal funds are distributed for fuel reduction projects on nonfederal lands. Having a CWPP gives the county priority status when applying for federal funding for wildfire mitigation projects.

This CWPP includes an assessment of the community's wildfire vulnerability, local organizations and resources available to assist with wildfire mitigation and response, and an action plan for reducing the county's wildfire vulnerability. Details for implementing the actions, such as responsible agencies and funding considerations, are included in the Plan. Recommended actions to reduce wildfire vulnerability have been collaboratively developed for the following mitigation categories:

(1) Wildland fuel management;

(2) Community outreach and education;

(3) Firewise building maintenance and landscaping;

(4) Policy and regulation recommendations; and

(5) Wildland fire response improvements.

This Plan was developed in a collaborative process with input from state and local partners and other relevant stakeholders. It identifies and prioritizes areas for wildland fuel management, and includes actions to inform residents of measures to reduce the ignitability of their homes and community. The CWPP also advances the goals and mitigation strategies of the Local Mitigation Strategy (LMS) and is consistent with recommendations of the LMS Working Group.

2. Authorization

There are several provisions in the State of Florida Comprehensive Plan and the Manatee County Comprehensive Plan that provide guidance for wildfire mitigation.

Florida Statute Chapter 187 State Comprehensive Plan provides for the protection of lives and property from natural and manmade disasters (F.S. § 187.201(6)). Manatee County Comprehensive Plan, Goal 4.4 states, "Protection of Manatee County Residents from Natural Disasters Through Disaster Mitigation, Provision of Adequate Warning and Post Disaster Planning".

In Florida Statute § 187.201(9); Natural Systems and Recreational Lands, the statute provides for acquisition, protection and conservation of natural habitats, the protection of endangered species, and the restoration of degraded natural systems to a functional condition. Manatee County Comprehensive Plan Objective 3.3.2 states, "Wildlife and Upland Habitat Protection: Protect and preserve native wildlife, endangered, threatened and species of special concern, and native upland habitat through acquisition, restoration, and development controls…"

The Comprehensive Emergency Management Plan (CEMP) and the LMS have included wildfires as a hazard in the Threat Hazard Identification Risk Assessment (THIRA) for Manatee County. Wildfires are ranked a high probability.

The THIRA is a hazard analysis that rates the probability of potential all hazards in Manatee County. THIRA rates wildland fires as high with a potential impact of complete loss of structures and crops. The

CEMP and the LMS utilize THIRA as part of their analysis. Wildfires have an average occurrence of several each year and distribution is indicated to be localized on the urban fringe.

3. Community Description

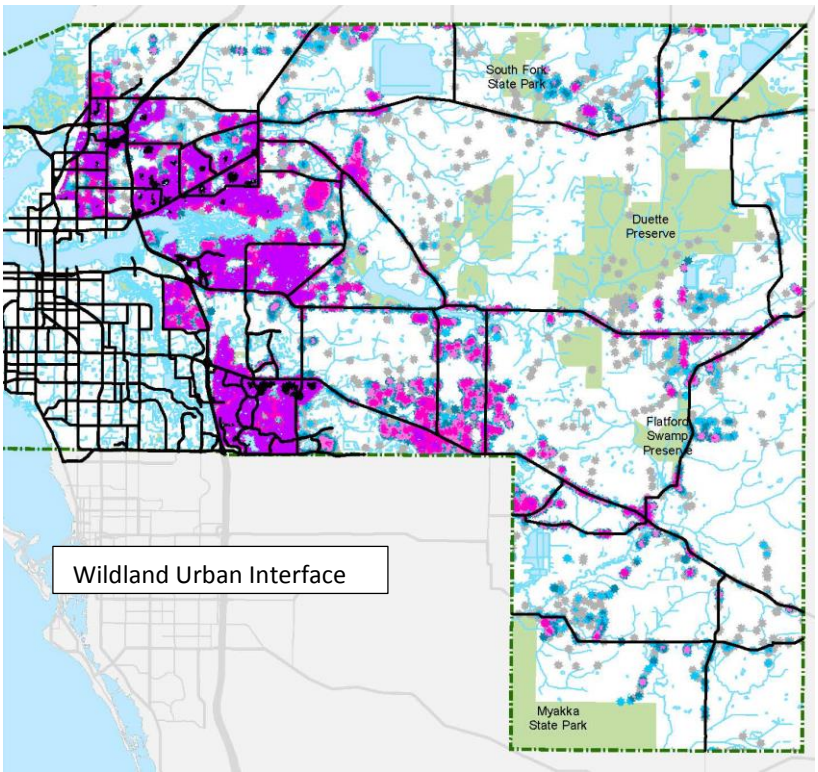
Manatee County is located along the central portion of Florida's western coastline of the Gulf of Mexico, which forms the western boundary of the county. The Gulf of Mexico and the beaches provide an attraction for residents and tourists while being a sensitive environmental resource. The county is approximately 25 miles in length from north to south and 45 miles wide east to west with an average elevation of 12 feet. Neighboring counties include Pinellas, Hillsborough, Hardee, DeSoto and Sarasota.

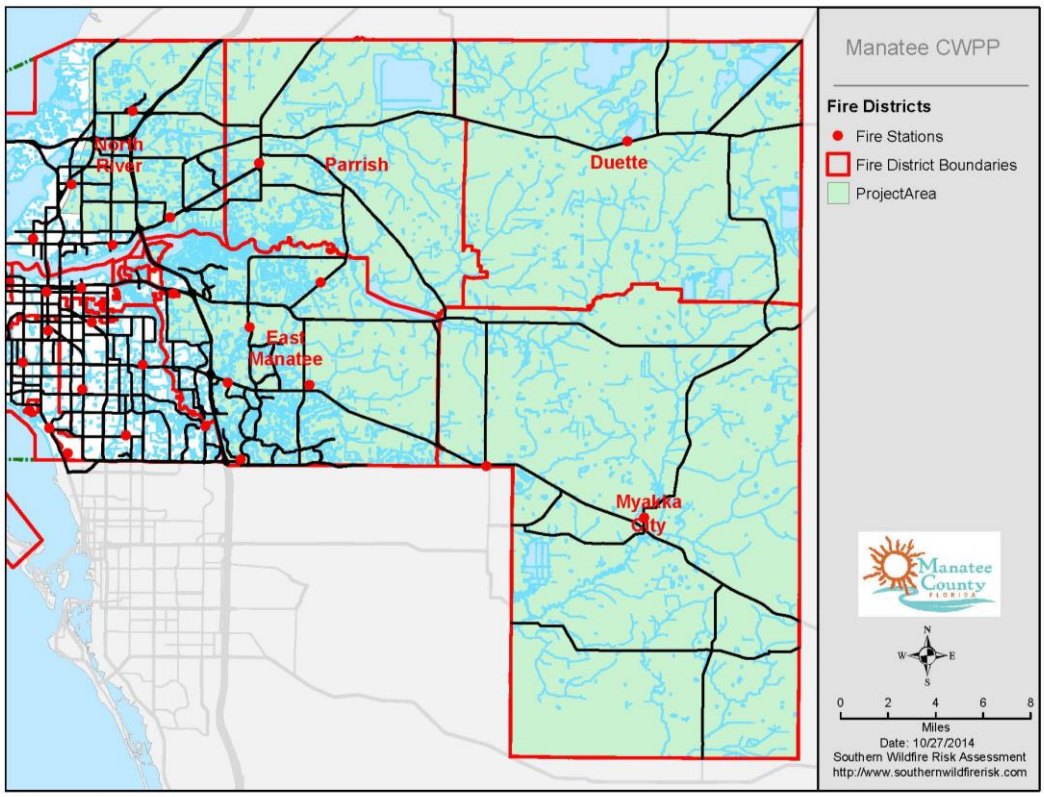
Total Land Area

Manatee County has 892.8 square miles of land. Of this 741.2 square miles are land while 151.6 square miles are comprised of water. The waterway portion of the county includes 55.2 square miles of inland, 46.7 square miles of coastal and 49.8 square miles of territorial. The unincorporated area encompasses 719.47 square miles, or more than 97 percent of the total county area. Municipalities account for 163 square miles or 3 percent of the total county area.

CWPP Boundary

The boundary of the CWPP, depicted below, is generally from I-75 east to CR 675 and from University Parkway to Moccasin Wallow Road. This area includes approximately 88,215 acres with an estimated population of 76,727.





The CWPP covers several fire districts as demonstrated in the map above.

Wildfire Problem Statement

Florida's natural environment has adapted to fire and many forest ecosystems need regular cycles of fire to be healthy systems. Efforts to eliminate wildfires from the natural environment have served to make future events much more severe when they do occur due to accumulated vegetative fuels. This severity impacts the health of the ecosystem and puts neighboring developments in danger. Today, development is interspersed in wildland areas, referred to as the Wildland Urban Interface (WUI). This interface presents challenges to managing the wildland fuel loads through prescribed burning. This is particularly the case when the wildland fuels exist on vacant parcels with multiple ownerships. Residents in Florida vary in their understanding and acceptance of the use of prescribed fire and mechanical fuel management methods. The role of wildfires in the natural environment needs to be integrated into public education programs and planning for development within the wildland/urban interface.

Manatee County developed the CWPP because of its wildfire vulnerability. The CEMP and LMS rates the County's probability and impact of wildfire as high (Manatee County, 2009). The County has suffered from prolonged droughts in recent years which increase the risk of wildfire in the WUI. A majority of the areas with the highest level of concern for wildfire are in unincorporated communities, generally Myakka City, Duette, and Parrish.

Per the National Climatic Data Center, the annual precipitation in the Myakka State Park area is 59.57 inches while in the City of Bradenton it is 56.18 inches.

Planning Process

The CWPP planning process is a collaborative effort among local, regional, and state government agencies that have a role in protecting the community and residents from wildfires. This plan was produced through a project led by the Manatee County Emergency Management Division of the Public Safety Department with collaboration from the Florida Forest Service (FFS) and affected Fire Districts.

As residential development moves eastward, the boundaries of the CWPP will change. It was determined that the CWPP will be incorporated into the CEMP and follow its four year review cycle.

4. Vulnerability Assessment and Land Coverage Table

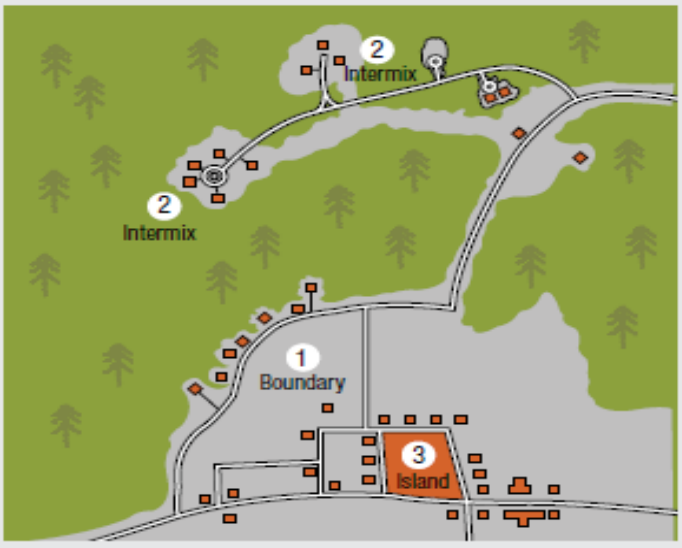
Wildfire Vulnerability Overview

The Southern Wildfire Risk Assessment (SWRA), updated in 2014, provides a spatial analysis of wildfire vulnerability across the state. The primary output of the risk assessment is the Wildland Urban Interface (WUI) map discussed in the next section. The WUI rates areas based on their susceptibility to wildfire occurrence and estimated impact. The Southern Wildfire Risk Assessment Summary Report (Appendix C) contains the methodology, maps, and charts of wildfire vulnerability.

Estimated Wildland/Urban Interface (WUI) Area

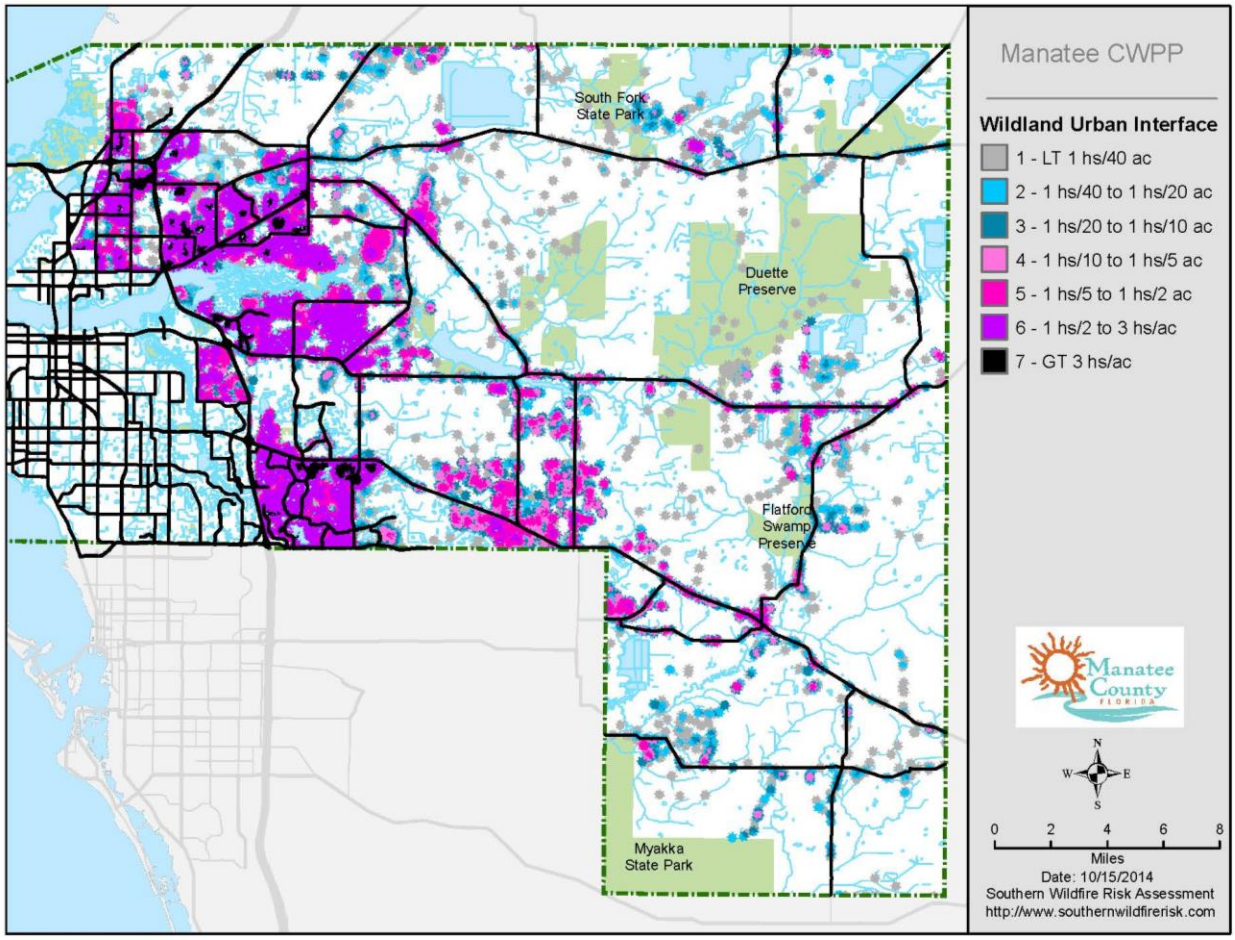
The WUI is defined in the National Fire Plan as the area where houses and wildland vegetation coincide. There are three types of WUI:

1) Boundary – areas where development is adjacent to public or private wildland
2) Intermix – structures are scattered and interspersed among wildland areas
3) Island or occluded – area of wildland surrounded by development (i.e. a subdivision preserve)



Wildland-Urban Interface

Wildland Urban Interface Map

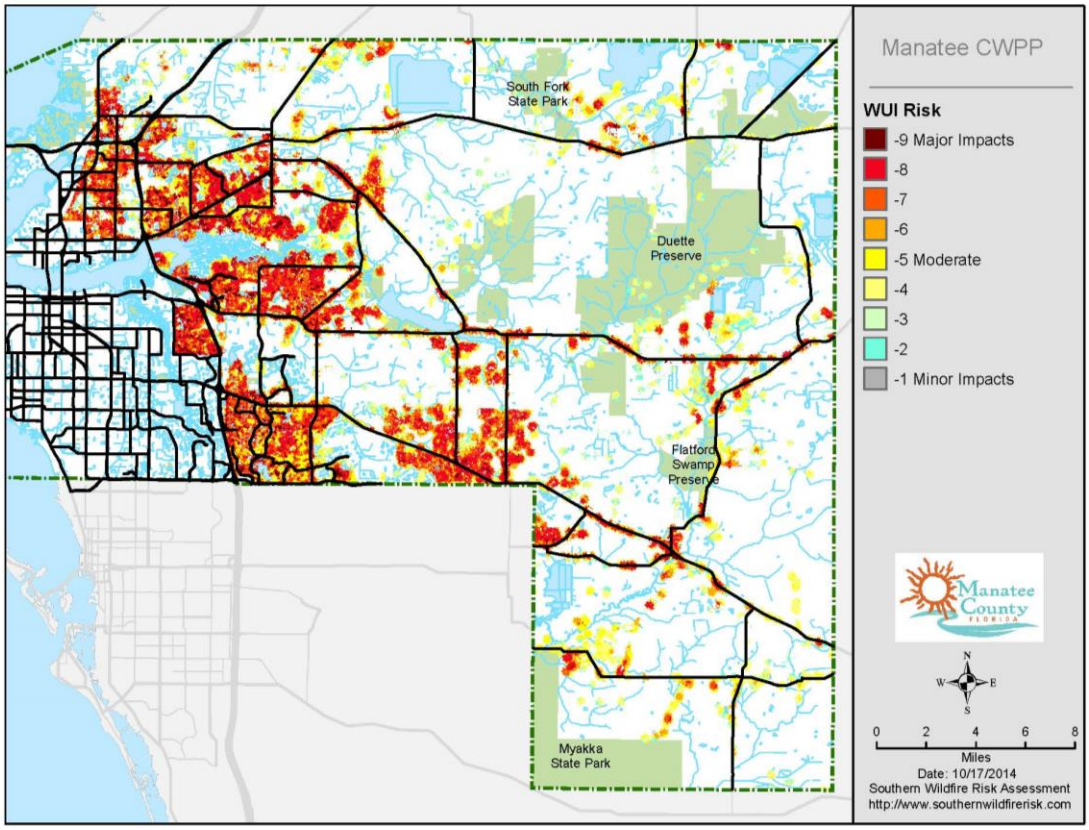


Wildland Urban Interface Population and Acres Table

Housing Density		WUI Population	Percent of WUI Population	WUI Acres	Percent of WUI Acres
	Less Than 1 hs* / 40 ac	507	1.6%	30,674	27.5%
	1 hs / 40 ac to 1 hs / 20 ac	641	0.8%	13,711	12.3%
	1 hs / 20 ac to 1 hs / 10 ac	1,084	1.3%	11,881	10.7%
	1 hs / 10 ac to 1 hs / 5 ac	2,753	3.2%	13,577	12.2%
	1 hs / 5 ac to 1 hs / 2 ac	8,464	9.9%	16,185	14.5%
	1 hs / 2 ac to 3 hs / 1 ac	56,120	65.8%	23,425	21.0%
	GT 3 hs / 1 ac	15,761	18.5%	1,913	1.7%
Total		85,330	100.0%	111,365	100.0%

*hs = House
SOURCE: Southern Wildfire Risk Assessment Summary Report

Appendix B.2 includes a map of wildfire risk in Manatee County presented as nine WUI Risk Ranking Classes. Classes 5 through 9 are considered moderate to very high risk and can be used to approximate the WUI area of the county. Fifty-one percent of the land within the WUI is within Classes 5 through 9 and an estimated 69.7% of the population resides in these moderate to high risk areas. Roughly 15.6% of the total value of structures within the county lies within areas classified as Classes 5 through 9.



Wildland Urban Interface Risk Map

Wildland Urban Interface Risk Table

Class	Acres	Percent
-9 Major Impacts	3,750	3.9%
-8	22,678	23.8%
-7	18,908	19.9%
-6	8,354	8.8%
-5 Moderate	12,669	13.3%
-4	15,455	16.2%
-3	7,892	8.3%
-2	4,943	5.2%
-1 Minor Impacts	479	0.5%
Total	95,128	100.0%

SOURCE: Southern Wildfire Risk Assessment Summary Report

5. Manatee County Fire Protection Infrastructure

Local Fire Services

Local fire services within the defined CWPP are the responsibility of the Myakka City Fire District, Duette Fire District, North River Fire District, Parrish Fire Department, and East Manatee Fire Rescue District. The chart below includes the locations of the above mentioned fire stations.

Career - Staffed Fire Stations

Fire Station	Address
Myakka City Fire Control District	10215 Wauchula Road, Myakka City
Myakka City Fire Control District	26636 State Road 70 East, Myakka City
East Manatee Fire Rescue	3250 Lakewood Ranch Boulevard, Lakewood Ranch
East Manatee Fire Rescue	803 60th Street Court East, Bradenton
East Manatee Fire Rescue	150 Rye Road East, Bradenton
East Manatee Fire Rescue	9136 Town Center Parkway, Bradenton
East Manatee Fire Rescue	15015 59th Avenue East, Bradenton
East Manatee Fire Rescue	8800 State Road 70 East, Bradenton
North River Fire District	1225 14th Avenue West, Palmetto
North River Fire District	823 49th Street East, Palmetto
North River Fire District	3618 Cedar Street, Palmetto
North River Fire District	7498 US 301 North, Ellenton
North River Fire District	13340 Reeder Road, Palmetto
North River Fire District	9805 Gateway Boulevard, Palmetto
Parrish Fire District	12132 US 301 North, Parrish

Volunteer Fire Stations

Fire Station	Address
Duette Fire Station	35800 SR 62, Duette

Florida Forest Service (FFS)

FFS provides wildfire prevention/mitigation and response services in collaboration with local fire services. The Wildfire Mitigation Specialist for the Myakka River District is a resource for Firewise education, planning assistance as well as coordinating and implementing fuel management needs.

The Manatee County Forest Area Supervisor, located at the Myakka River District Office, directs FFS fire suppression activities. More details on FFS and local wildfire suppression are discussed in the Wildland Fire Response Capabilities section.

FFS Work Station	Address
Myakka River District Office	4723 53rd Avenue East, Bradenton

Manatee County Parks and Natural Resources, Resource Management Division

The Manatee County Parks and Natural Resources Department, Natural Resources Division is responsible for habitat and wildlife management and public access on nearly 30,000 acres of conservation lands. The division's goal is to "conserve and protect" the natural resources in Manatee County utilizing adaptive management and minimal impact to public access and utilization.

The majority of the County's parks and preserves are within the WUI, or because of continual development, soon will be (e.g. Duette Preserve and Curiosity Creek Preserve). Some parks and preserves have residential structures directly on a shared property line, such as Perico Preserve, Rye Wilderness Preserve, Emerson Preserve, Riverview Preserve, and Hidden Harbor Park. Others, like Pine Island Preserve and Robinson Preserve, are in close proximity to smoke sensitive areas, especially roads where the unmanaged smoke from wildfire could potentially cause impacts and/or closures.

Through a variety of wildland fuel management techniques, Manatee County Parks and Natural Resources Department manages the wildland/urban interface of the conservation land for its area of responsibility. Wildland fuels are any living or dead material, that will accept a spark and sustain an open or smoldering flame. Fuel management projects help reduce the size and intensity of wildland fires and may also decrease the likelihood that a wildfire will start in an area. These actions can increase the safety of people and property while reducing response and suppression costs. Fuel management methods can be used alone or in combination with other methods to achieve site-specific benefits, including:

- Prescribed burning;
- Mechanical treatment (e.g., mowing, mulching, disking, fire line plowing, and chopping);
- Chemical treatment (herbicide application);
- Biomass removal (e.g., pine straw harvesting, vegetation or tree thinning, and timber harvesting); and
- Biomass conversion (grazing).

Fuel management treatments designed to reduce wildfire risk are temporary and, in most cases, reduce the hazard in the treated area for three to five years. Periodic management is required to maintain fuels at an acceptable level to reduce wildfire risk. All 13 of the Parks and Natural Resources staff who work on conservation lands have received basic wildland fire training and nine staff members have attained a Certified Prescribed Burn Manager qualification from the Department of Agriculture's Florida Forest Service.

Example of Wildland/Urban Interface Prescribed Fire conducted by Manatee County Parks and Natural Resources:

Riverview Pointe Preserve: This 11 acre nature preserve is immediately south of De Soto National Memorial, with private residences to the east, south, and west. Two dominant natural communities present at Riverview Pointe Preserve require fire to maintain their rich biodiversity: Coastal Sand Pine Scrub and Scrubby Flatwoods. The objective was to return a natural fire regime to the area and reduce potentially dangerous fuel loads had a wildfire occurred with unfavorable winds. A Certified Prescribed Burn Manager wrote a fire prescription for this area. Riverview Point Preserve was burned on March 22, 2011 with the assistance of the National Park Service, Florida Forest Service, and West Manatee Fire District. There was very little impact to neighbors as the prevailing weather conditions carried the smoke up and out over the Manatee River. Prescribed fire will be used on a two-to-five year return interval to maintain the natural integrity of this nature preserve.

Office Location	Address
Resource Management Division	5502 33rd Avenue Drive West, Bradenton

6. Goals of the Manatee County Community Wildfire Protection Plan

Goal 1: Increase opportunities for collaboration and coordination to implement wildfire projects

Objective 1.1: Incorporate the Community Wildfire Protection Plan (CWPP) as a supplement to the Comprehensive Emergency Management Plan (CEMP) and coordinate implementation and maintenance of the CWPP with the CEMP

Objective 1.2: Develop partnerships and funding opportunities to execute wildfire mitigation projects

Objective 1.3: Prioritize the allocation of resources to mitigate wildfire risks identified in areas of concern

Objective 1.4: Work with community organizations to foster a cooperative approach to fire protection and awareness and identify mitigation needs

Objective 1.5: Research and identify communities at risk from wildfire to target for public outreach programs

Objective 1.6: Reduce the County's arson and careless burning fire statistics using public education and intervention programs

Goal 2: Improve the defensibility of residential, commercial, and institutional properties from wildfire

Objective 2.1: Expand the knowledge and practice of Firewise principles to the County's residents through appropriate education programs

Objective 2.2: Prioritize fuel management projects and implement fuel breaks for high-risk neighborhoods

Objective 2.3: Recommend policy and code amendments to guide future development in the Wildland/Urban Interface and pursue public input on these recommendations

Objective 2.4: Reduce the vulnerability of critical infrastructure to wildfire impacts through retrofits and fuel management

Goal 3: Increase focus on cost-effective pre-event wildfire mitigation and prevention

Objective 3.1: Increase opportunities for fuel management by obtaining additional funding, equipment, and public acceptance

Objective 3.2: Pursue grant funding to assist high-risk neighborhoods in making Firewise retrofits

Objective 3.3: Support the health of fire-dependent ecosystems through regular prescribed burning and ensure that residents understand the role of fire in Florida's environment

Goal 4: Assess the equipment, training and policies of the agencies that respond to wildfires and seek to improve current capabilities

Objective 4.1: Seek grant funding to purchase and maintain wildland personal protective gear for all responders

Objective 4.2: Seek grant funding to purchase and maintain VHF radios to establish common tactical communication between agencies

Objective 4.3: Provide annual wildland refresher training for all responders

Objective 4.4: Provide multi-agency live fire training opportunities on planned prescribed burns

7. Wildfire Protection Plan Implementation

Community Development

Manatee County's Comprehensive Plan details future land uses and land development code that are applied to new developments. These tools could be used to mitigate wildfire impacts for future development.

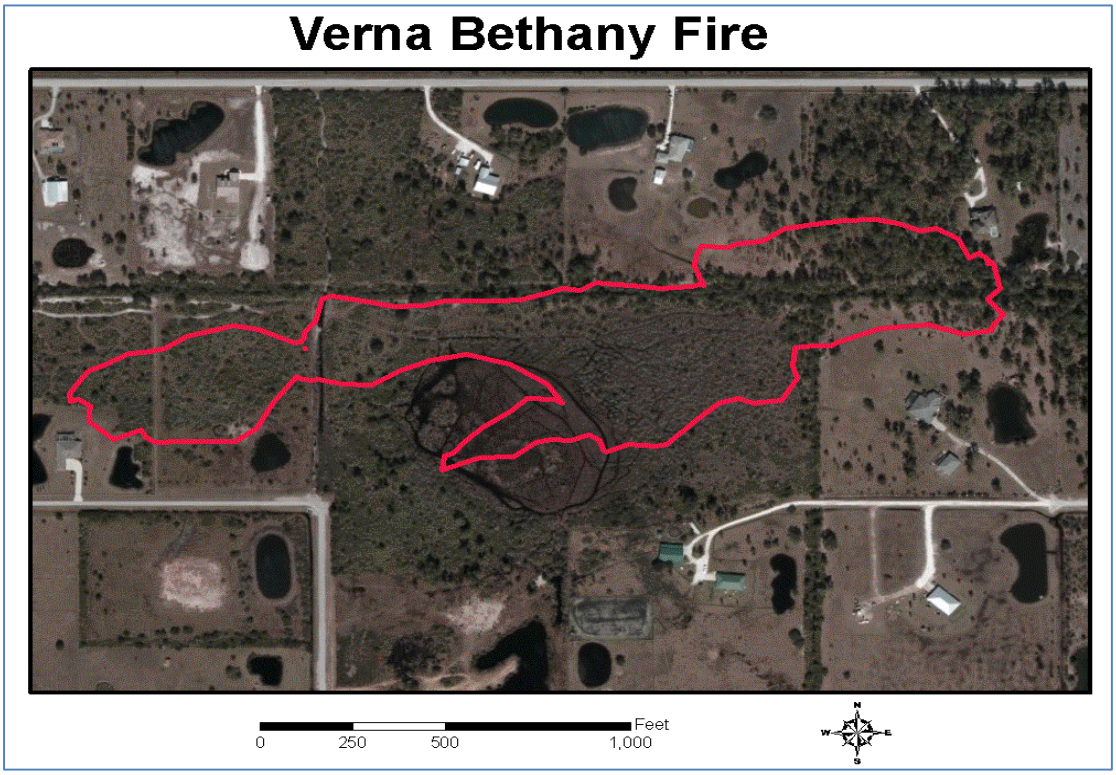
Planning Agencies in Manatee County	
Planning Agency	Role
Planning Division of the Manatee County Building and Development Services	Conducts planning, zoning, development review, permitting and inspection services.

Manatee County's Future Development Area Boundary creates a distinct border between urban/suburban and rural lands. The prevention of sprawl development intermingled with wildland has decreased the County's unincorporated areas vulnerability to wildfire as they might have been without the Future Development Area Boundary. There are exceptions to the Future Development Area Boundary's ability to mitigate wildfire, some developments were grandfathered into the rural areas before the regulations. Some developments include WUI islands consisting of conservation easements within the development that present challenges for managing fuel loads.

Manatee County's Land Development Code, Section 721 Habitat, Wildlife and Endangered Species Protection, provides for the preservation of native upland habitat within unincorporated Manatee County. Section 721 is consistent with Policy 3.3.2 of the Manatee County Comprehensive Plan which protects and preserves native wildlife, endangered, threatened and species of special concern, and native upland habitat.

The Countywide CEMP provides the ability for the Planning Division of the Building and Development Services Department to use the THIRA and disaster lessons learned in policy amendments and development reviews. For example, there was as incident named the "Verna Bethany Fire".

> The Verna Bethany Fire started at approximately 3:45 PM on March 2, 2011. It originated from an unattended campfire and burned 19 acres in a wooded area surrounded by eight homes. Resources involved in the suppression effort included two tractor plow units, four brush trucks, six engines for structure protection and 1 helicopter. The fire was contained by 8:00 PM that same night and was declared controlled two days later.



Conservation Land Agencies

The Parks and Natural Resources Department, the Southwest Florida Water Management District (SWFWMD), Florida Department of Environmental Protection, and Florida Fish and Wildlife Conservation Commission are active land management agencies within Manatee County. Each of the agencies have management plans for their conservation properties, perform fuel management, and some have fire suppression capabilities.

Manatee County Parks and Natural Resources

The Manatee County Parks and Natural Resources Department manages environmentally sensitive wildlife habitats and corridors acquired through the Environmental Lands Management and Acquisition Committee (ELMAC).

Parks and Natural Resources deals with the boundary of preserve lands that connect to private property by clearing defensible space. This is maintained by mowing and disking to create a fire break are the most important part of the prescribed fire program. The Department has been using since 2011 to mitigate for wildfire by burning land with high fuel loads. At this point maintenance burns continue to keep fuel loads at a manageable level.

Examples of Urban Interface Burns:

- Riverview Point Preserve prescribed burn, March 22, 2011: Eleven acres of land adjacent to DeSoto National Park to the north, with private residences to the south and west was burned with prescribed fire sending smoke into the river with no impact to neighbors. The objective was to reduce potentially dangerous fuel loads had a wildfire occurred with unfavorable winds. This was a successful, well monitored multi-agency effort.

- Pine Island prescribed burn, planned for 2015: The 90 acres of Pine Island that lays directly south of State Road 64 in the Braden River. This land has high fuel loads and precious mature pine trees. This multi-agency effort will be used to offset possible negative effects of wildfire. Burning this sensitive site requires significant coordination and is now in the third year awaiting proper weather conditions. The Department continues to monitor the weather conditions for the opportunity to implement this burn.

Southwest Florida Water Management District (SWFWMD)

Prescribed Fire Program

The Southwest Florida Water Management District (SWFWMD) manages approximately 11,259 acres of conservation land in Manatee County, including:

- The Edward W. Chance Preserve (Gilley Creek and Coker Prairie Tracts),
- Flatford Swamp, and
- The Little Manatee River-Southfork Tract.

All of these lands have ecosystems that depend on fire to maintain habitat quality. The SWFWMD utilizes prescribed burns on its conservation lands as a management tool to minimize wildfire risk and maintain natural conditions by mimicking natural fire cycles.

Ninety-two percent of all fire-dependent communities are located on SWFWMD managed conservation lands in Manatee County. These conservation lands have been successfully fire-maintained within the accepted fire return interval for habitat type. To maintain this goal, SWFWMD conducts annual prescribed burns on an average of 1,500 acres within Manatee County. The areas where maintenance conditions have not yet been achieved, mechanical treatments are utilized in conjunction with prescribed fire to reduce heavy fuel loads, mediate wildfire risk, and hasten the restoration process.

Mechanical treatments are especially important in overgrown scrub habitats and management units within close proximity to the WUI.

Mutual Aid

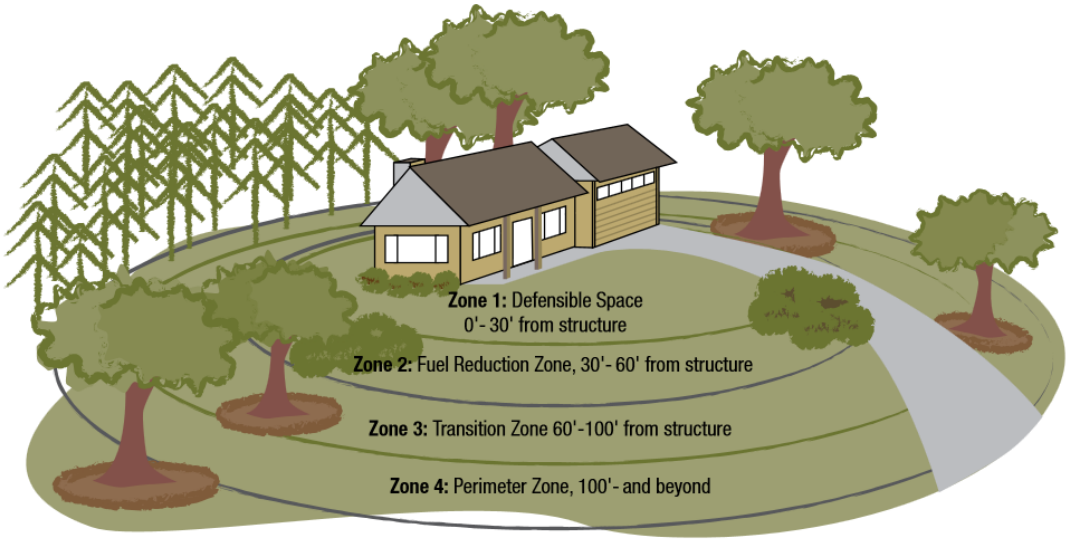
SWFWMD has a mutual aid agreement with the Florida Forest Service (FFS) to assist in wildfire suppression efforts. The District may also be requested to provide wildfire suppression support to FFS anywhere in the State through the Statewide Mutual Aid Agreement in the event that the Governor declares a state of emergency.

Public Notification

SWFWMD at a minimum, publishes annual press releases through its Public Communications Bureau to inform residents of upcoming prescribed burns. More frequent press releases are published when necessary in areas with a higher population or where special circumstances warrant. In some cases direct contact with residents is requested and prescribed burn managers coordinate with those individuals to advise them of upcoming burns. In areas with a significant WUI, SWFWMD (through its Public Communications Bureau), will utilize email and social media to inform as many residents as possible about prescribed burns and other activities taking place near the WUI boundary.

8. Structural Ignitability (Firewise)

It is important for homeowners to develop and maintain their own property in accordance with Firewise principles. Below is a graphic with suggested recommendations for to create a defensible space around structures.



Source: Wildfire Risk Reduction in Florida, Florida Department of Agriculture and Consumer Services, Florida Forest Service

Zone 1: Defensible Space (0'-30' from structure) Thin trees and vegetation, prune branches, mow regularly, clear debris, use less flammable plants, allow for firefighting access, and irrigate regularly.
Zone 2: Fuel Reduction Zone (30'-60' from structure) Reduce fuels, use less flammable plants, mow seasonably, store combustibles, and irrigate wisely.
Zone 3: Transition Zone (60' – 100' from structure) Reduce fuels, use less flammable plants, mow seasonably, store combustibles, and irrigate wisely.
Zone 4: Perimeter Zone (100' and beyond from structure) Manage Fuels.

10 Steps to Defensible Space

1. Thin tree and brush cover
2. Dispose of slash and debris left from thinning
3. Remove dead limbs, leaves and other litter
4. Stack firewood away from home
5. Maintain irrigated green belt around the home
6. Mow dry grasses and weeds
7. Prune branches to 10 feet above the ground
8. Trim branches from the lowest 1/3 of smaller trees (under 30 feet)
9. Clean roof and gutters
10. Reduce density of surround forest (beyond the defensible space zone)

Other improvement include:

- Improving driveway access and water supplies
- Fire resistive roof
- Enclosing overhanging eaves and decks
- Spark arrestors on chimneys



The photo above demonstrates how defensible space guidelines can help save a structure from wildfires.

9. Mitigation Resources

Local Mitigation Strategy (LMS)

The Manatee County LMS is a multi-jurisdictional plan that assesses the vulnerability of the county and its jurisdictions to hazards and evaluates local mitigation efforts. Through adoption of the LMS, the county and its jurisdictions are eligible for federal funds to carry out mitigation actions, (i.e., Hazard Mitigation Grant Program and Pre-Disaster Mitigation Grant Program). Manatee County Building and Development Services Department manages the Hazard Mitigation Program. The maintenance of the

LMS is a requirement of the Hazard Mitigation Program. The LMS Working Group oversees the implementation of the LMS plan. Several of the agencies of the LMS Working Group are also represented on the CWPP Working Group. The LMS Working Group consists of the County Hazard Mitigation Program; Emergency Management Division of the Public Safety Department; county departments; fire districts; and emergency management/hazard mitigation representatives from the City of Anna Maria, City of Bradenton, City of Bradenton Beach, City of Holmes Beach, City of Palmetto, and the Town of Longboat Key.

The LMS is incorporated in the CEMP. The four objectives of the LMS are:

- Increase the communities resistance to damage from an "All Hazards" approach;
- Compete effectively for pre and post-disaster mitigation funds;
- Reduce the cost of a disaster at all levels; and
- Speed the community in recovery when a disaster occurs.

Firewise Communities and Construction

At this time Manatee County does not have any designated Firewise Communities. Communities are encouraged to develop their wildfire protection plan utilizing the information in this CWPP.

Appendixes

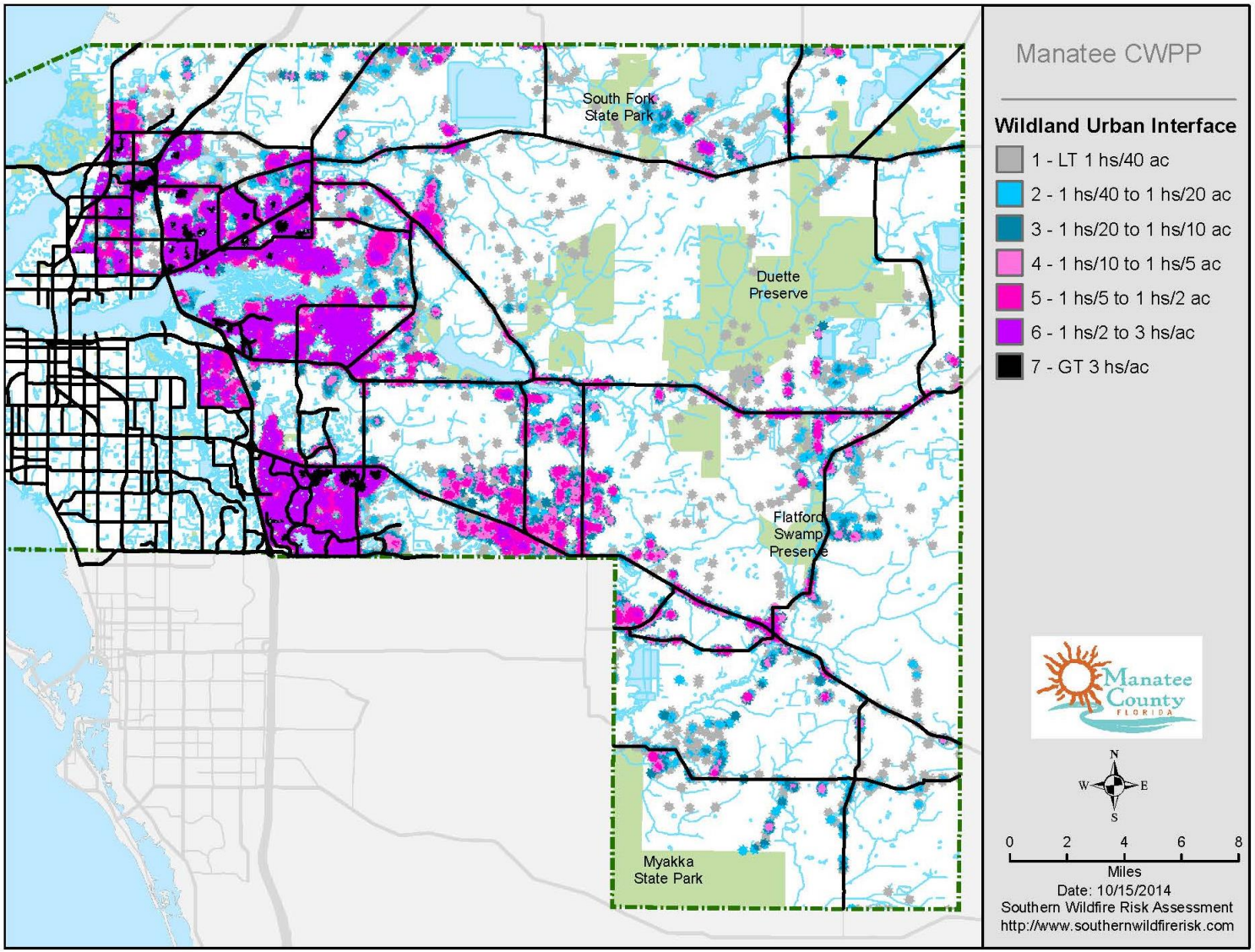
Appendix A: CWPP Working Group Members

CWPP Working Group Members				
Representative Name	**Title / Department**	**Address**	**Phone**	**Email Address**
Byron Teates	Fire Chief / East Manatee Fire District	3200 Lakewood Ranch Boulevard, FL 34211	941.751.5611	bteates@emfr.org
Dan Cacchiotti	Fire Chief / Myakka City Fire District	26636 State Road 70, Myakka, City, FL 34251	941.322.6525	dpcacchiotti@myakkafire.org
Kathleen Thompson	Planning Division / Manatee County Building and Development Services Department	1112 Manatee Avenue West, 4th Floor Bradenton, FL 34205	941.748.4501 x 6841	Kathleen.Thompson@mymanatee.org
Marcus Campion	Manatee County Parks & Natural Resources Department	5502 33rd Avenue Drive West, Bradenton, FL 34203	941.721.6885 x 8053	Marcus.Campion@mymanatee.org
Michael Keegan	Forest Area Supervisor / Florida Forest Service	4723 53rd Avenue East, Bradenton, FL 34203	941.727.6480	Michael.Keegan@FreshFromFlorida.com
Mike Johnson	Fire Chief / Parrish Fire Department (includes Duette)	12132 US 301 N, Parrish, FL 34219	941.721.2093	admin@parrishfd.org
Patrick M. Mahoney	Wildfire Mitigation Specialist / Florida Forest Service	4723 53rd Avenue East, Bradenton, FL 34203	863.993.4647	Patrick.Mahoney@FreshFromFlorida.com
Sandy Tudor	Floodplain Investigator/LMS Coordinator / Manatee County Building and Development Services Department	1112 Manatee Avenue West, 4th Floor Bradenton, FL 34205	941.748.4501 x 3843	Sandy.Tudor@mymanatee.org
Sharon Tarman	Emergency Management Officer / Manatee County Public Safety Department	2101 47th Terrace East, Bradenton, FL 34203	941.749.3500 x 1673	Sharon.Tarman@mymanatee.org
Stephanie Green	Southwest Florida Water Management District	6750 Fruitville Road, Sarasota, FL 34240	941.377.3722 x 6513	Stephanie.green@watermatters.org
Stephen Raymond	Manatee County Parks & Natural Resources Department	5502 33rd Avenue Drive West, Bradenton, FL 34209	941.721.6885	Stephen.Raymond@mymanatee.org

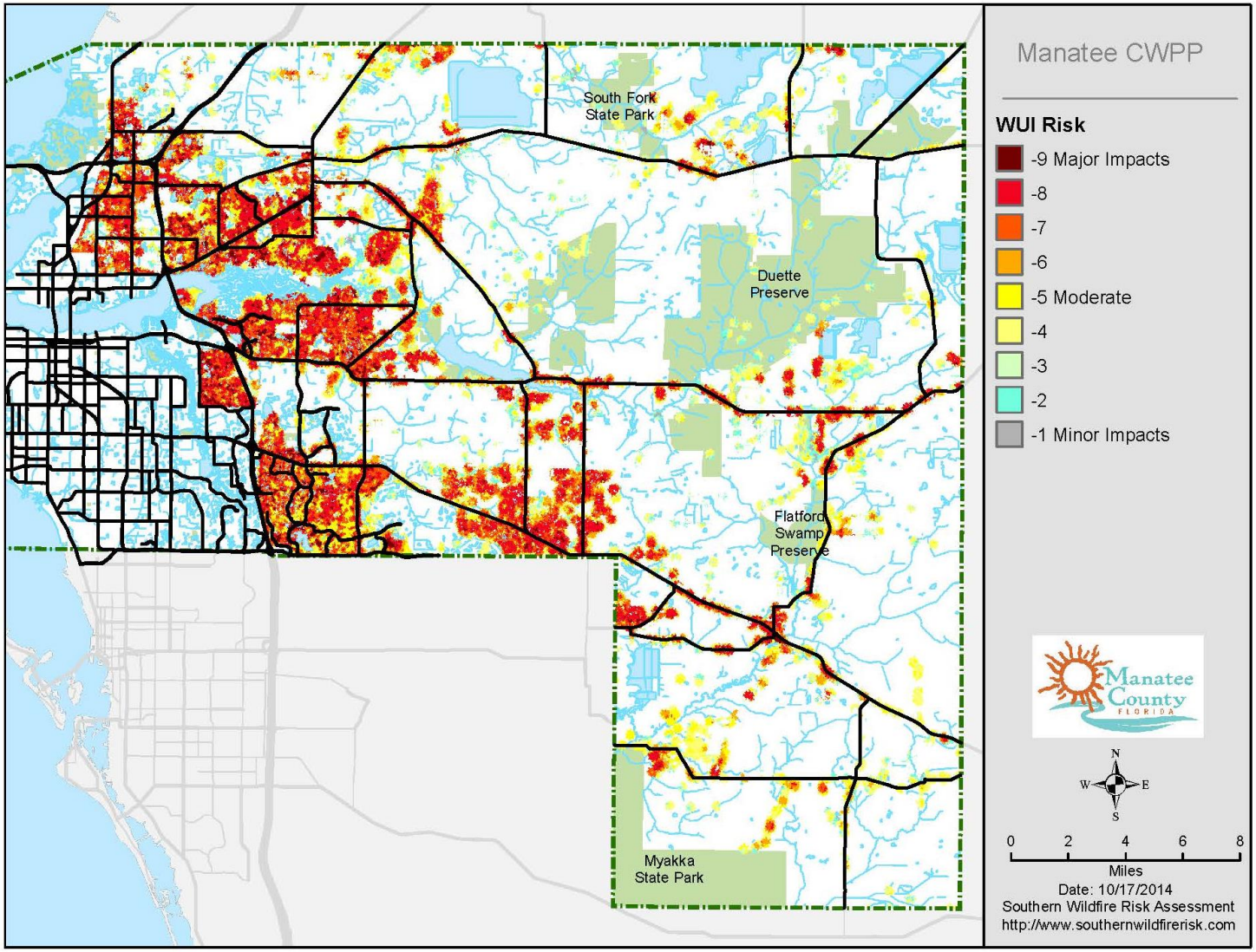
Appendix B: Maps

B.1 Wildland Urban Interface Map
B.2 Wildland Urban Interface Risk Map
B.3 Burn Probability Map
B.4 Fire Protection District Map
B.5 Community Protection Zone Map
B.6 Fire Intensity Scale Map
B.7 Fire Type Map
B.8 Flame Length Map
B.9 Rate of Spread Map
B.10 Surface Fuels Map

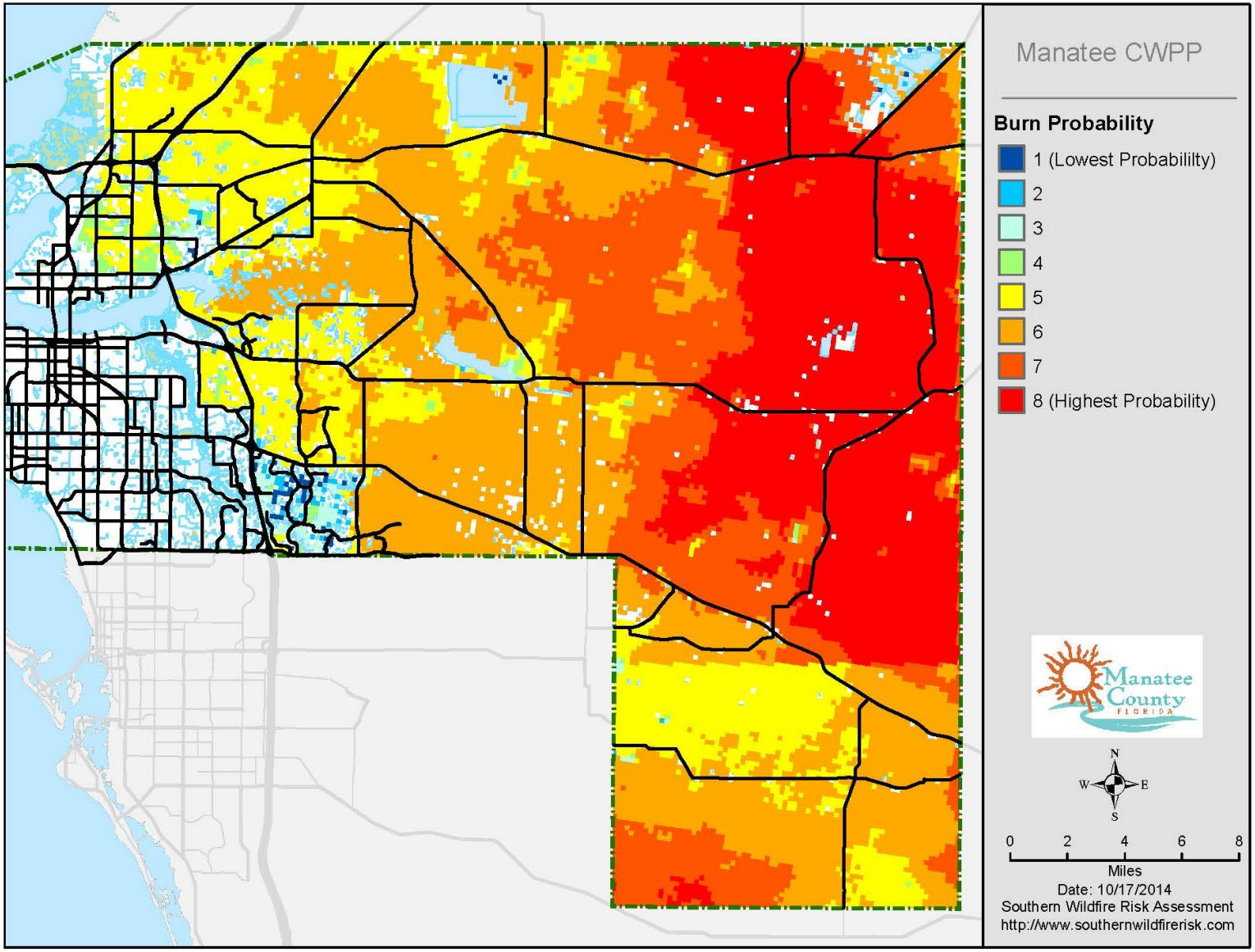
B.1 Wildland Urban Interface – Shows housing density in areas that are adjacent to wildland fuels. Uses number of homes per acre.



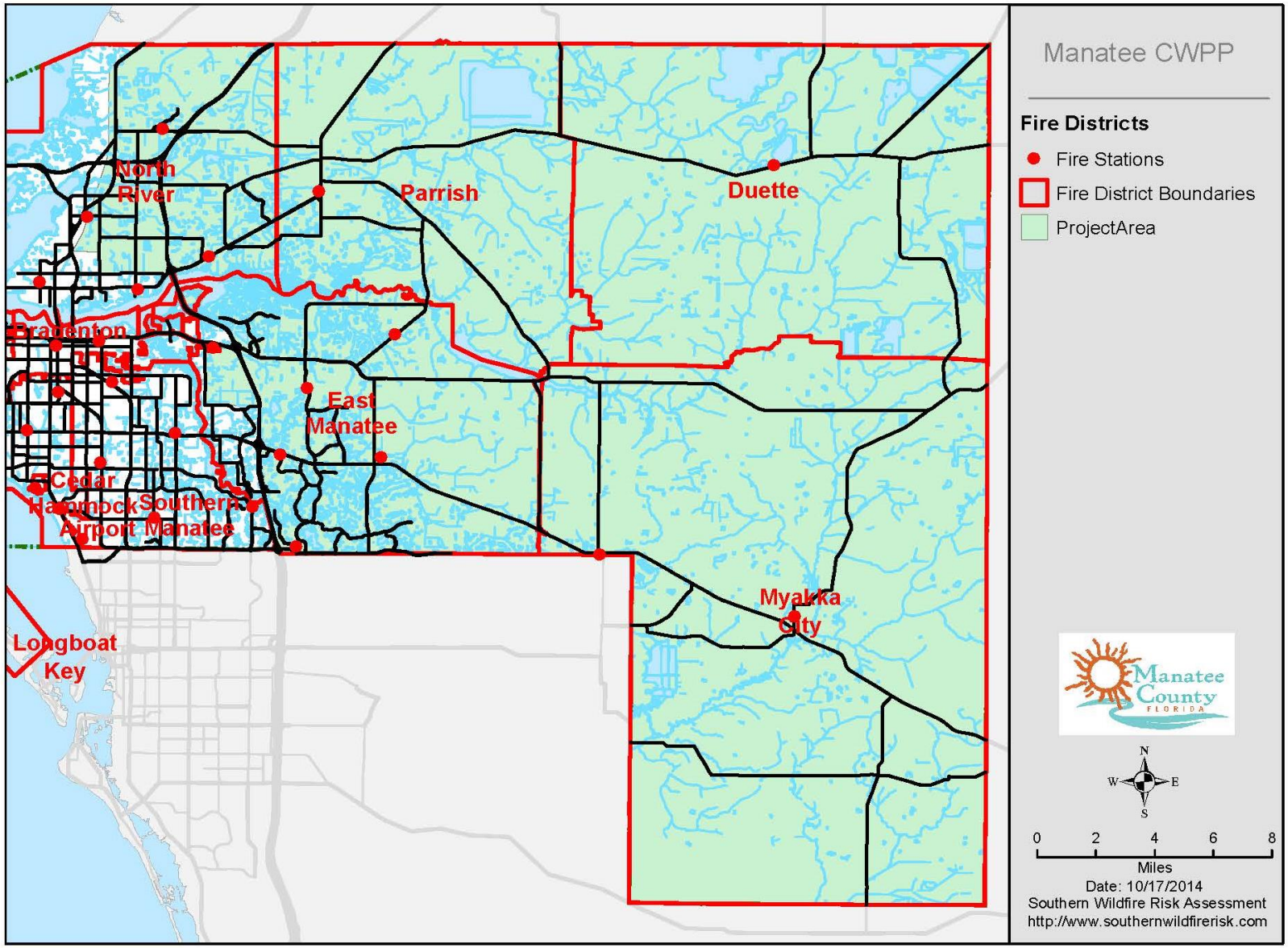
B.2 Wildland Urban Interface Risk Map – Shows the potential impact of wildfire on people and their homes. Uses housing density and flame length (as a measure of fire intensity) as inputs.



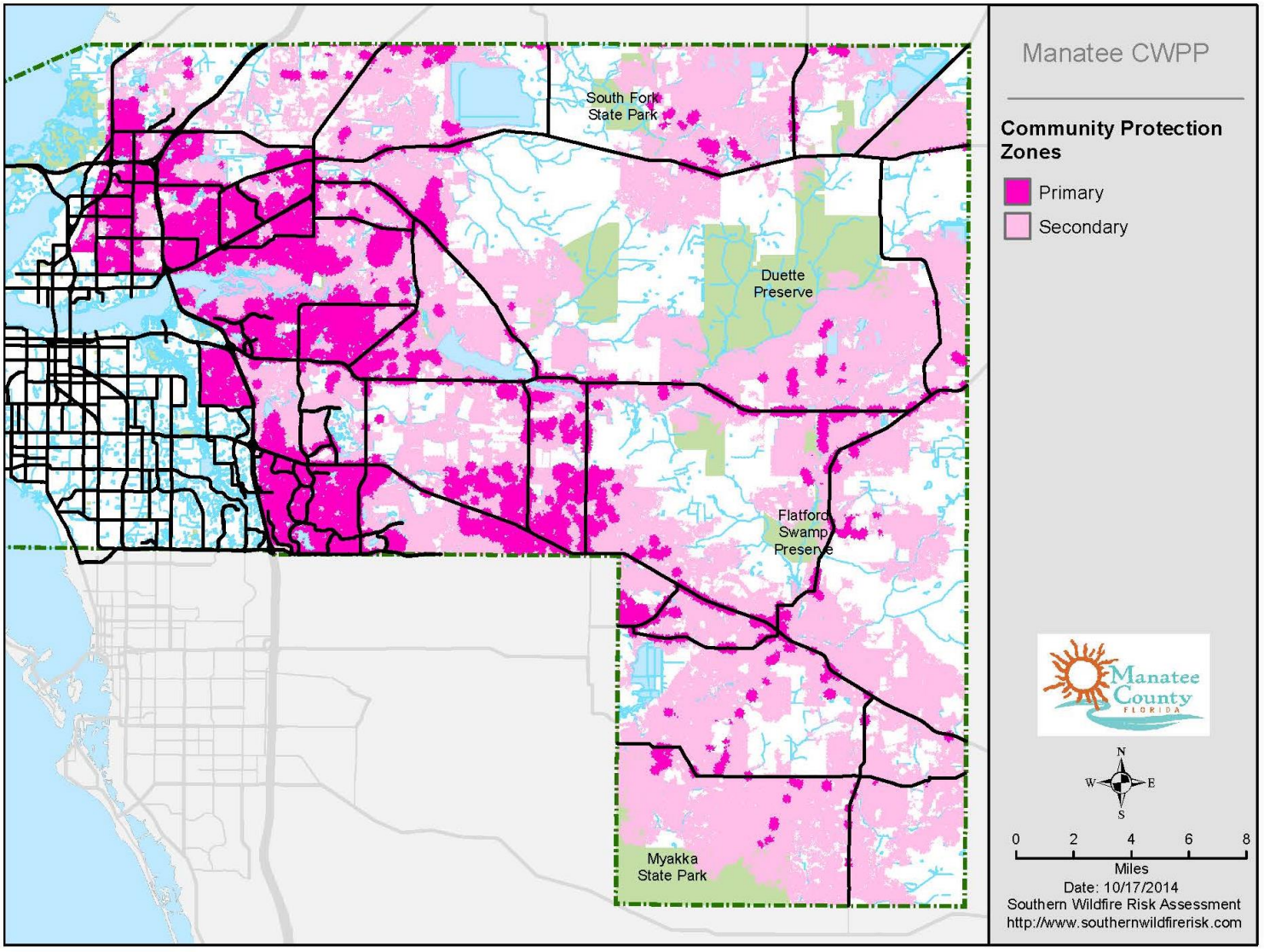
B.3 Burn Probability Map – How likely an area is to burn based on a range of weather conditions and ignition sources.



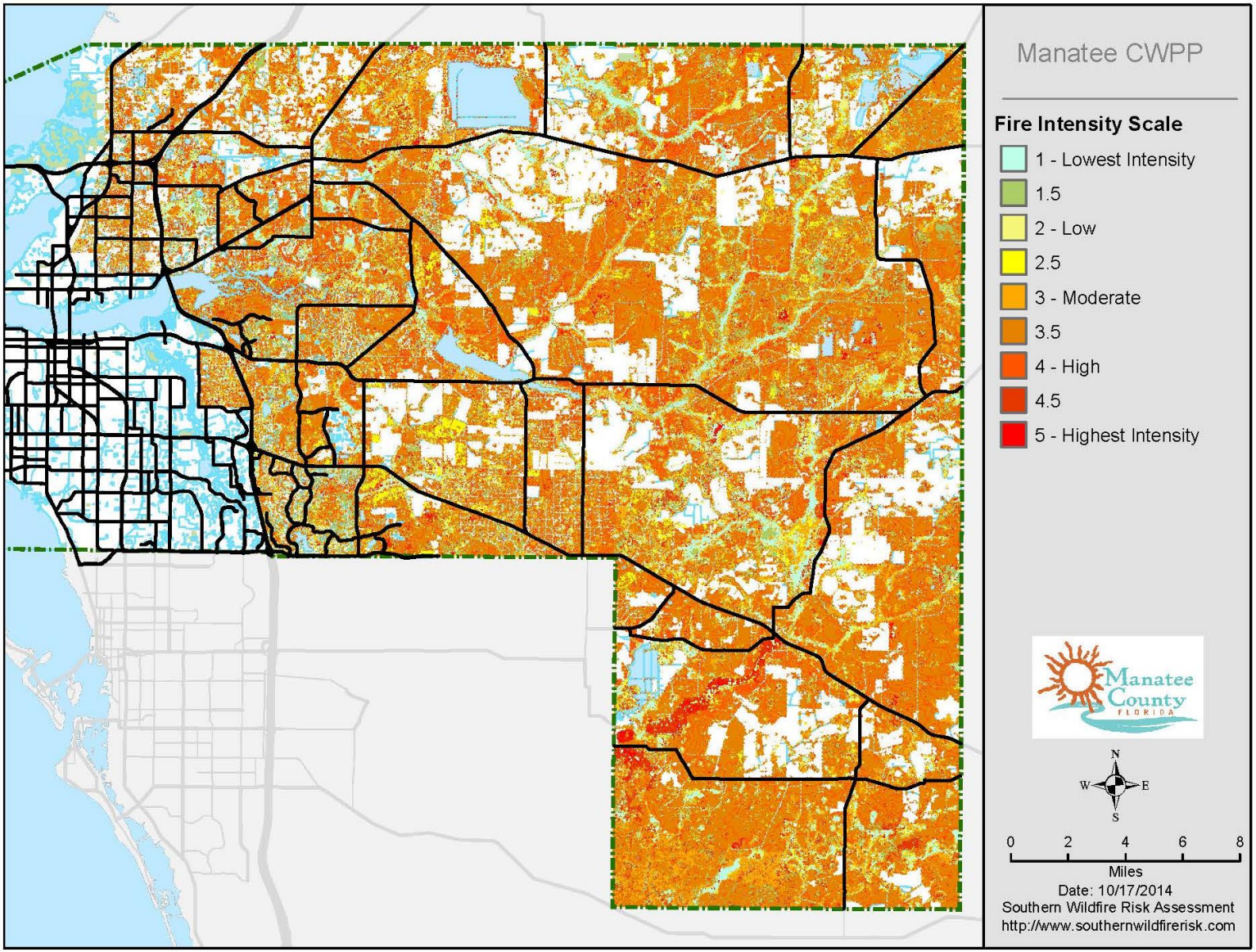
B.4 Fire District Map



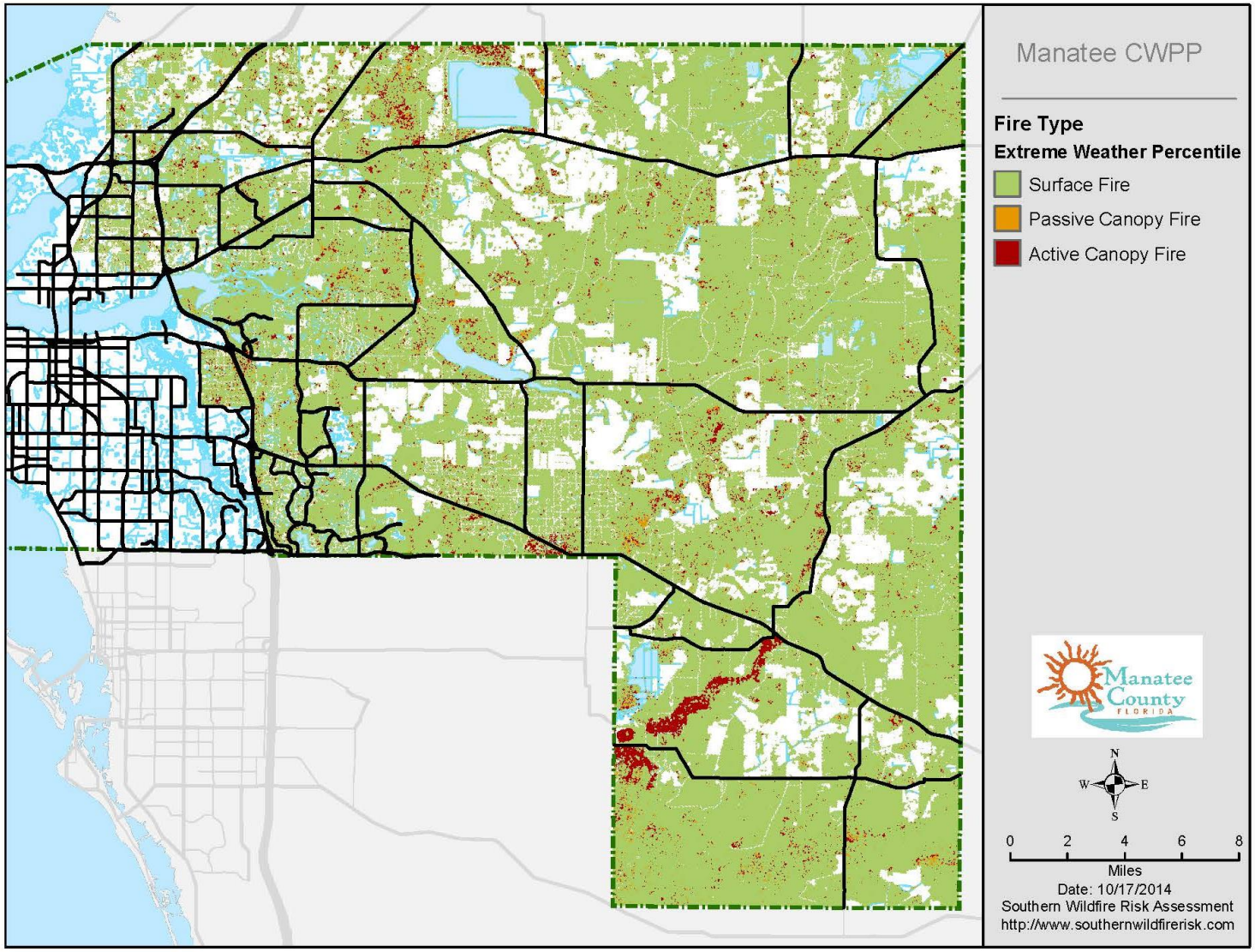
B.5 Community Protection Zone Map – Shows areas that are considered the highest priority for mitigation planning activities. Uses house density and rate of spread data. Primary CPZ's are densely populated areas adjacent to wildland fuels and secondary CPZ's are a buffer zone within a 2 hour fire spread distance from the primary zone.



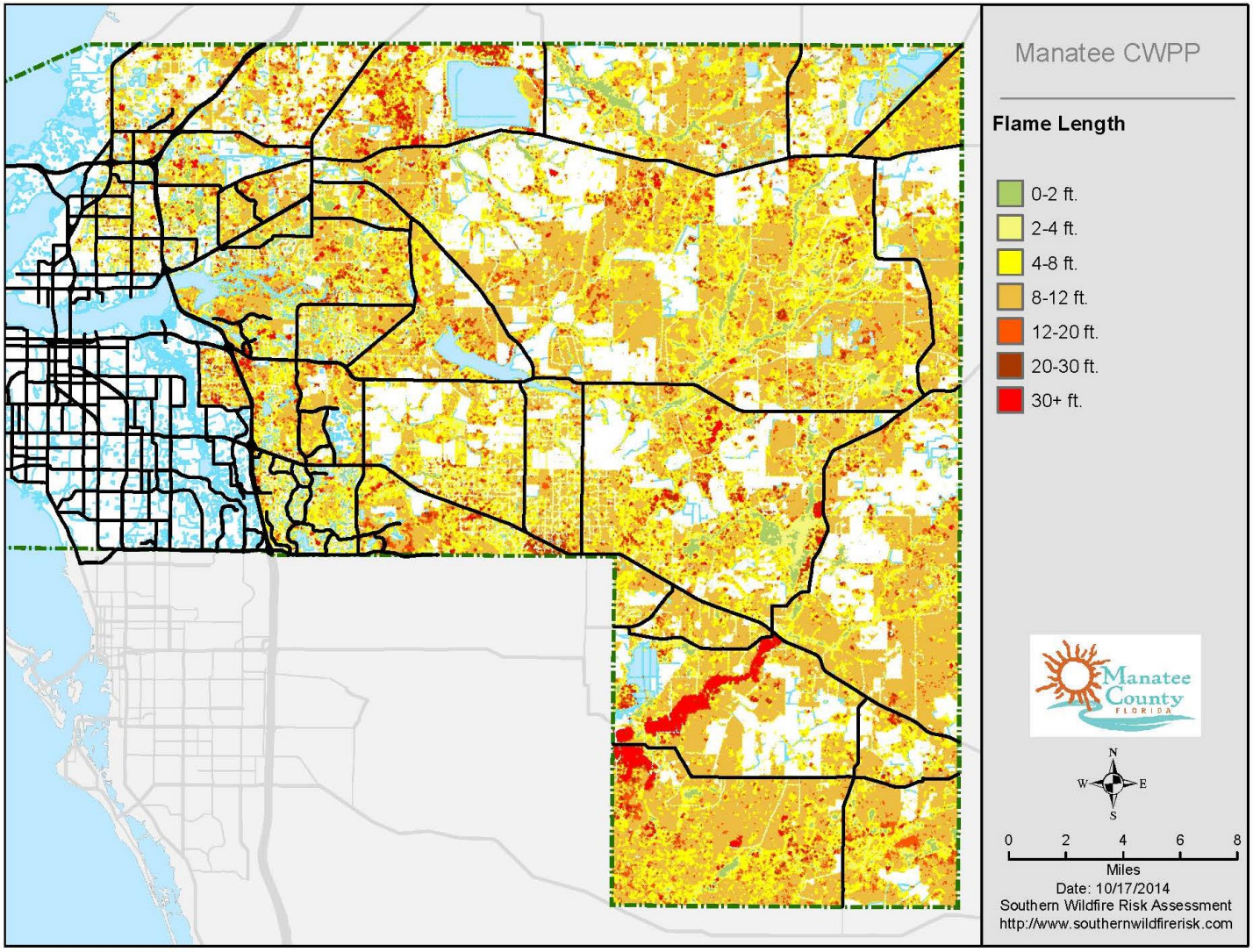
B.6 Fire Intensity Scale – How difficult a wildfire will be to control based on available fuels under a range of weather conditions.



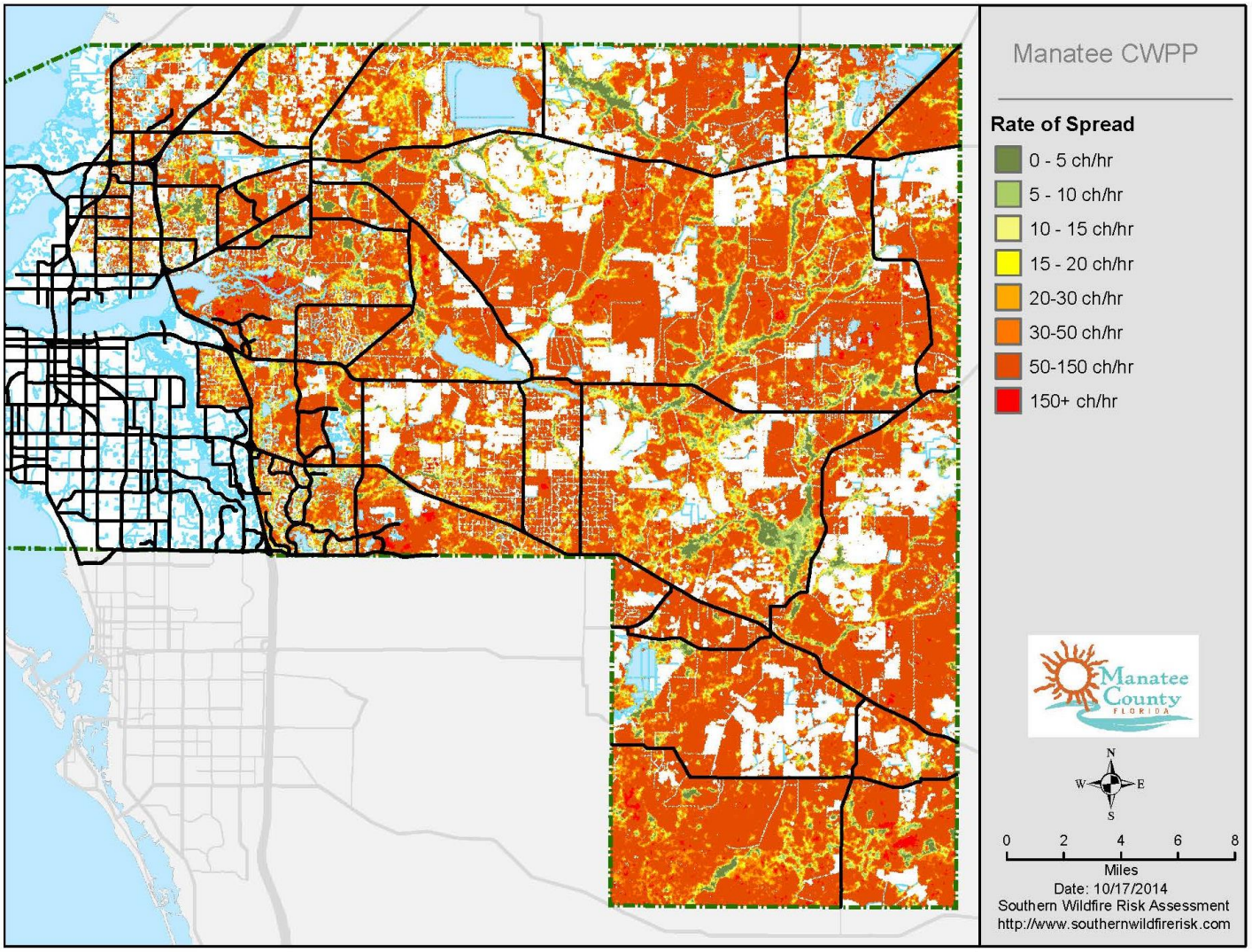
B.7 Fire Type Map – The type of wildfire that is possible based on available fuels under severe fire weather conditions. Categories are surface fire, passive canopy fire (occasional tree torching) and active canopy fire (running crown fire).



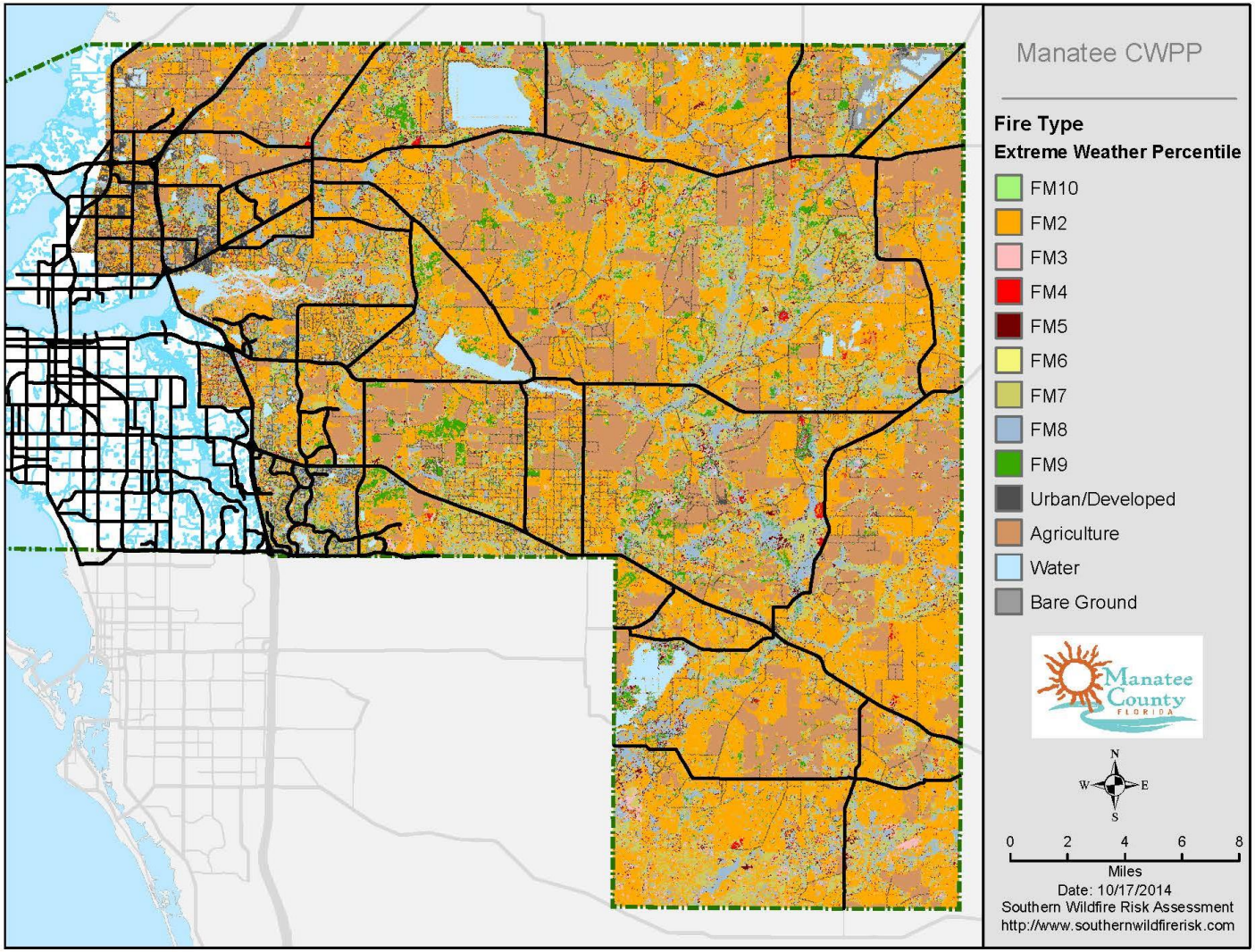
B.8 Flame Length Map – The distance between the flame tip and the base of the flame, it is good measure of fire intensity. Based on available fuels under a range of weather conditions.



B.9 Rate of Spread Map – Hos fast a wildfire will move horizontally across the landscape in chains per hour (1 chain = 66 feet).



B.10 Fuel Type Map – They type of surface vegetation based on Anderson's 13 fuel models. Grass models 1 – 3, brush models 4 – 7, timber litter 8 – 10, and logging slash models 11 – 13.



APPENDIX K

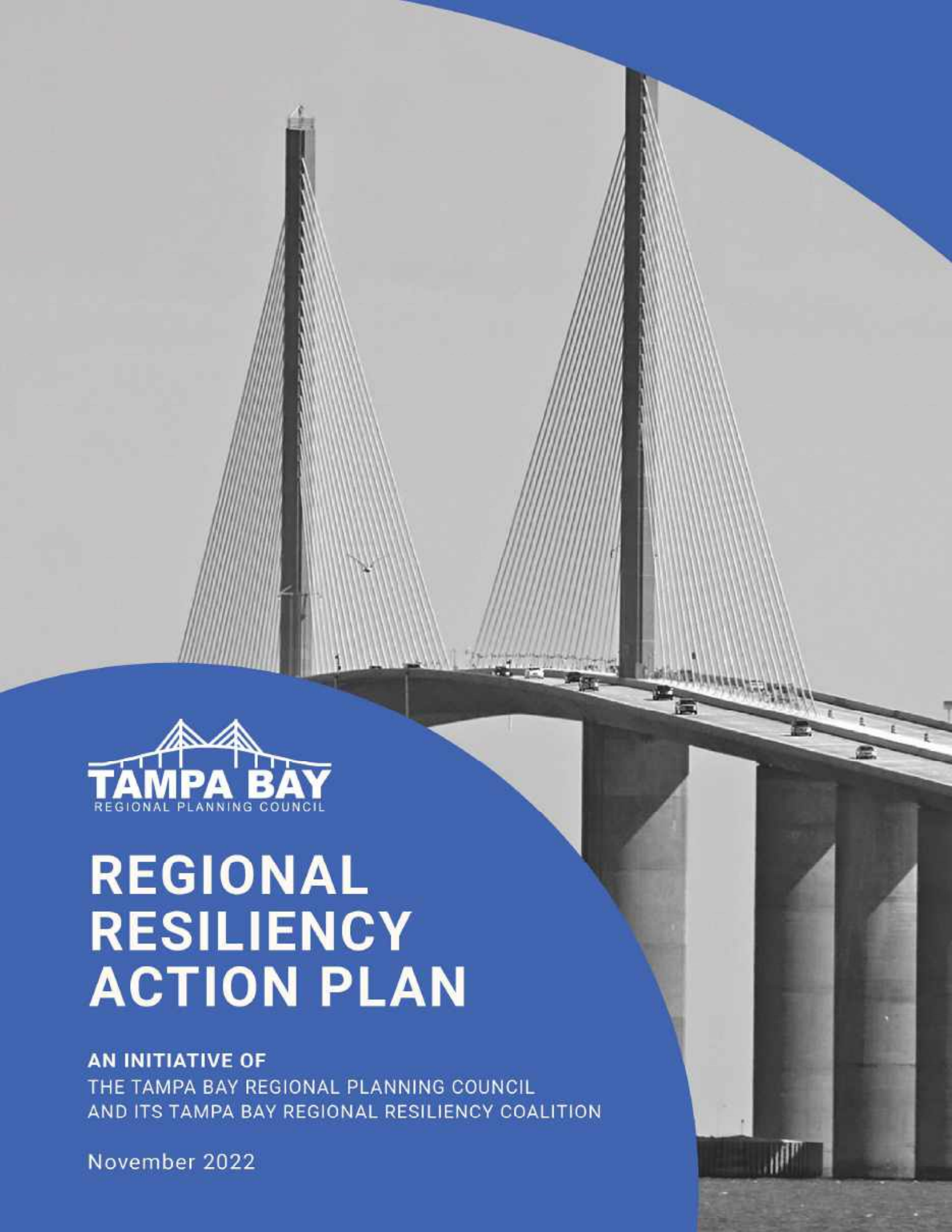
RECOMMENDED PROJECTIONS OF SEA LEVEL RISE IN THE TAMPA BAY REGION

BY
TAMPA BAY CLIMATE SCIENCE ADVISORY PANEL (CSAP)

and

TAMPA BAY REGIONAL RESILIANCY ACTION PLAN 2022

BY
TAMPA BAY REGIONAL PLANNING COUNCIL (TBRPC)



TAMPA BAY
REGIONAL PLANNING COUNCIL

REGIONAL RESILIENCY ACTION PLAN

AN INITIATIVE OF
THE TAMPA BAY REGIONAL PLANNING COUNCIL
AND ITS TAMPA BAY REGIONAL RESILIENCY COALITION

November 2022

Welcome

Welcome to the Tampa Bay Region. Our region is home to some of the country's best beaches, sports teams, and approximately 4 million residents. The region also hosts Port Tampa Bay, the largest port in the State, and Tampa International Airport, which served 15.4 million passengers in FY2021. The region's public university, the University of South Florida (USF) is the fastest-rising university in America, according to U.S. News and World Report's (U.S. News) 2022 Best Colleges rankings. All of these regional assets are vulnerable to the impacts of a changing climate, including: sea-level rise, rainfall, heat events, wildfires, droughts, flooding, and storms.

In 2018, the TBRPC formed the Tampa Bay Regional Resiliency Coalition, the 18th initiative of its kind in America, when elected officials and Gubernatorial Appointee members of the Regional Planning Council asked governments from throughout Tampa Bay to endorse a Memorandum of Understanding (MOU) indicating the willingness to work collaboratively to make our region more resilient to extreme weather, including sea level rise, storm surge, and more frequent, higher intensity rainfall. Today, the Resiliency Coalition has grown to include 32 governments and over 90 private sector partners.

As part of the MOU, the Resiliency Coalition members agreed to develop a Regional Resiliency Action Plan (RRAP) with strategies for coordinated regional preparation for and adaption to a rapidly changing global environment. This document is intended to address this and other resilience challenges through intergovernmental and community collaboration.

The TBRPC is thankful that you have chosen to join us as we continue our journey to make our communities more resilient.



Sean T. Sullivan, Executive Director of the Tampa Bay Regional Planning Council



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Letter from the TBRPC Chair



Councilmember
Brandi Gabbard
City of St. Petersburg
2022 Chair of the Tampa Bay
Regional Planning Council

Resiliency is a necessary component to the long-term sustainability of our region, and we must collaborate to foster smart initiatives that will help our communities grow stronger. Partnerships between local leaders, technical experts, and key stakeholders to define climate change risks and mitigate their impact is more crucial than ever. Thank you for your support of this important endeavor, our beaches and waterfront enhance the lives of our residents and provide a chief economic driver. Let's work together to ensure they are sustainable for future generations of Floridians.

Sincerely,

Tampa Bay Regional Planning Council Chair

2022 Tampa Bay Regional Planning Council Members

Chair: Cm. Brandi Gabbard, City of St. Petersburg
Vice Chair: Comm. Vanessa Baugh, Manatee County
Secretary/Treasurer: Mayor Woody Brown, City of Largo
Past Chair: Comm. Jack Mariano, Pasco County
- Comm. John Allocco, Hernando County
- Cm. Peter Altman, City of New Port Richey
- Cm. Thomas Barnhorn, City of Seminole
- Comm. Scott Black, City of Dade City
- Ms. Kelley Boatwright, Florida DEP
- Mayor Sandra Bradbury, City of Pinellas Park
- Cm. James Chambers, City of Temple Terrace
- Cm. Joseph Citro, City of Tampa
- Comm. Harry Cohen, Hillsborough County
- Mr. Jacob Cremer, Hillsborough County
- Comm. Carlos Diaz, City of Safety Harbor
- Comm. Maureen "Moe" Freaney, City of Dunedin
- Comm. Michael Fridovich, City of Gulfport
- Comm. Ward Friszolowski, City of St. Pete Beach
- Comm. Nancy Hodges, City of Madeira Beach
- Comm. Jason Jones, City of Plant City
- Comm. Sheldon Jones, City of Palmetto
- Comm. Ronald E. Kitchen, Jr., Citrus County
- Comm. Andrew Knapp, City of Oldsmar
- Comm. Janet Long, Pinellas County
- Vice Mayor Craig Lunt, City of Tarpon Springs
- Vice Mayor Thomas Reid, City of South Pasadena
- Cm. Patrick Roff, City of Bradenton
- Mr. Frank Rygiel, Pasco County
- Cm. Lina Teixeira, City of Clearwater
- Ms. Barbara Sheen Todd, Pinellas County
- Comm. Maribeth Wetzel, City of Treasure Island
- Mr. Ming Gao, FDOT District 7
- SWFWMD

Sean T. Sullivan, Executive Director
Wren Krahl, Deputy Executive Director

TAMPA BAY
REGIONAL PLANNING COUNCIL

Letter from the TBRRC Chairs



Commissioner Janet C. Long
Pinellas County BOCC
2022 Co-Chair of the Tampa Bay
Regional Resiliency Coalition

Councilman Peter Altman
City of New Port Richey
2022 Co-Chair of the Tampa Bay
Regional Resiliency Coalition



We are pleased to present the first Regional Resiliency Action Plan for the Tampa Bay Region! We would like to thank our resiliency coalition members and partners for all their contributions to this planning process. This document will serve as our strategy to work together on a regional level to identify and address the effects of sea-level rise. The RRAP builds on our existing partnerships to protect our people, our homes, and our livelihoods. We're delighted for you to join us on this journey.

Sincerely,

Tampa Bay Regional Resiliency Coalition Chairs

2022 Regional Resiliency Coalition Steering Committee

Co-Chair, Commissioner Janet C. Long, Pinellas County Coalition
Co-Chair, Council Member Peter Altman, City of New Port Richey
- Commissioner Ronald E. Kitchen, Jr., Citrus County
- Commissioner Jack Mariano, TBRPC Past Chair, Pasco County
- Commissioner John Allocco, Hernando County
- Commissioner Vanessa Baugh, TBRPC Vice Chair, Manatee County
- Commissioner April Thanos, City of Gulfport
- Commissioner Ward Friszolowski, City of St. Pete Beach
- Council Member Brandi Gabbard, TBRPC Chair, City of St. Petersburg
- Commissioner Maureen "Moe" Freaney, City of Dunedin
- Councilman Joseph Citro, City of Tampa
- Ms. Barbara Sheen Todd, Pinellas County

TAMPA BAY
REGIONAL RESILIENCY COALITION



Executive Summary

What is the Tampa Bay Regional Planning Council (TBRPC)?

TBRPC coordinates planning for the six-county Tampa Bay region by providing opportunities for collaboration among its local government jurisdictions. TBRPC was established as Florida's first regional planning council in 1962 when representatives from St. Petersburg, Clearwater, and Tampa recognized the need for regional coordination. They believed growth and community issues extend beyond county and municipal boundaries, a concept that still defines the Council's purpose today. TBRPC is one of ten regional planning councils in Florida. The Council provides a wide range of services, including:

Technical Assistance
GIS Mapping & Modeling
Urban Design & 3D Visioning

Preparedness
Disaster Planning Guide
Project Phoenix Hurricane Simulation

Environment
Agency on Bay Management
Bay Soundings News Journal

Resiliency
Resiliency Coalition
Housing Affordability & Resiliency

Economics
Economic Analysis Program
Economic Development District

Regional Review
Intergovernmental Coordination & Review
Strategic Regional Policy Plan

The region's six counties, Citrus, Hernando, Hillsborough, Manatee, Pasco and Pinellas are required by law to exercise regional cooperation through membership on the Council. Other municipal members are Bradenton, Clearwater, Dade City, Dunedin, Gulfport, Largo, Madeira Beach, New Port Richey, Oldsmar, Palmetto, Pinellas Park, Plant City, Safety Harbor, Seminole, South Pasadena, St. Pete Beach, St. Petersburg, Tampa, Tarpon Springs, Temple Terrace and Treasure Island. These governments are represented on the Council by elected officials appointed by their local boards. They comprise two thirds of the Council's membership. The Governor appoints additional members, making up the remaining third of the Council. There are also four ex-officio members representing the Florida Department of Transportation and Environmental Protection, Enterprise Florida, and the Southwest Florida Water Management District.

What is the Tampa Bay Regional Resiliency Coalition?

The Tampa Bay Regional Resiliency Coalition was officially formed in October 2018 and grew to 32 members in 2022. Currently, the Coalition includes 7 counties and 24 cities, and more than 90 Partners which include businesses, nonprofit community organizations, universities and advocacy organizations.

The region's communities are diverse and range from dense urban centers on Tampa Bay to coastal beach-fronts and suburban neighborhoods and agricultural lands and small towns in rural areas. The one unifying factor - they all share a commitment to increasing the resilience of their communities to the impacts of extreme weather and climate change.

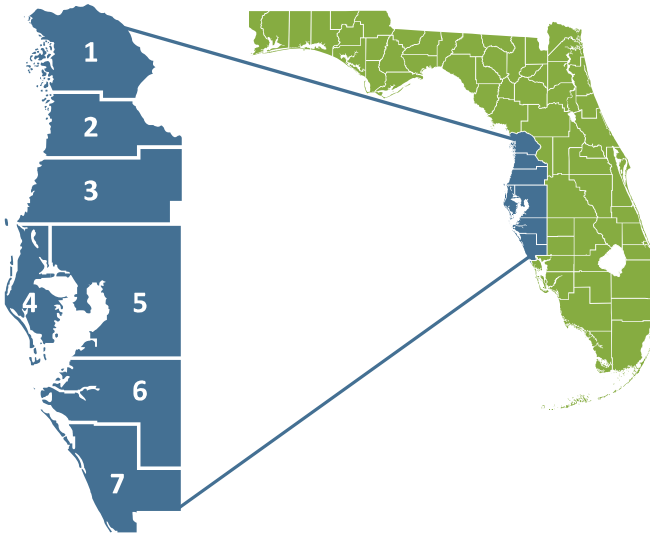
Tampa Bay Regional Resiliency Coalition Member Governments

Member Counties

Member Cities

The Tampa Bay 7-County Resiliency Coalition Region:

1. Citrus County
2. Hernando County
3. Pasco County
4. Pinellas County
5. Hillsborough County
6. Manatee County
7. Sarasota County



What is the Regional Resiliency Action Plan (RRAP)?

The RRAP is a living document created to address resilience challenges, prioritized through intergovernmental and community collaboration. The RRAP is intended to guide action over the next five years. The planning team engaged stakeholders through online meetings, in-person workshops and surveys to help shape the document and make sure it reflected the input from a wide range of expertise and geographic areas. This continued interaction will be key to the successful implementation of the RRAP. As our community continues to grow and evolve, the RRAP will encourage us to work together to better prepare for an increasing occurrence of extreme weather such as hurricanes, which will be exacerbated by sea level rise and sunny day flooding, crippling traffic and severe economic inequities. Even during the planning process, our resilience was tested by the COVID-19 pandemic. The region is stronger because of our experiences and have incorporated many of the lessons learned into this document. The Resiliency Coalition's goal is the RRAP will serve as a foundation in building a strong network focused on addressing equity gaps and elevating our vulnerable populations. The Coaltion believes that together we have an opportunity to work differently and more effectively by promoting stronger leadership, closer collaboration, and better use of our resources.

Process to Develop the Plan

The commitment to develop a Regional Resiliency Action Plan (RRAP) was defined in the Resiliency Coalition Memorandum of Understanding, signed by each of the members and celebrated in a signing ceremony in October 2018.

In 2019, TBRPC staff worked closely with the Coalition Steering Committee, staff in the counties and cities and key partners to define overarching resilience goals, local priorities, and resilience planning initiatives implemented by other cities around the state and the US.

The first major regional workshop to develop the RRAP occurred at the first Resiliency Leadership Summit on January 7-8, 2020 at the Hilton St. Pete Carillon. During a ½ day session, more than 175 participants including elected officials, local government staff and business and community partners met in small groups and discussed key priorities.

The TBRPC staff then converted these priorities into a set of recommendations which were reviewed by the Resiliency Coalition Steering Committee. In 2020-2021 during the COVID pandemic, TBRPC staff coordinated 10 virtual ½ day workshops which engaged staff, Partners across the region to hear presentations on best practices, discuss local and regional priorities.

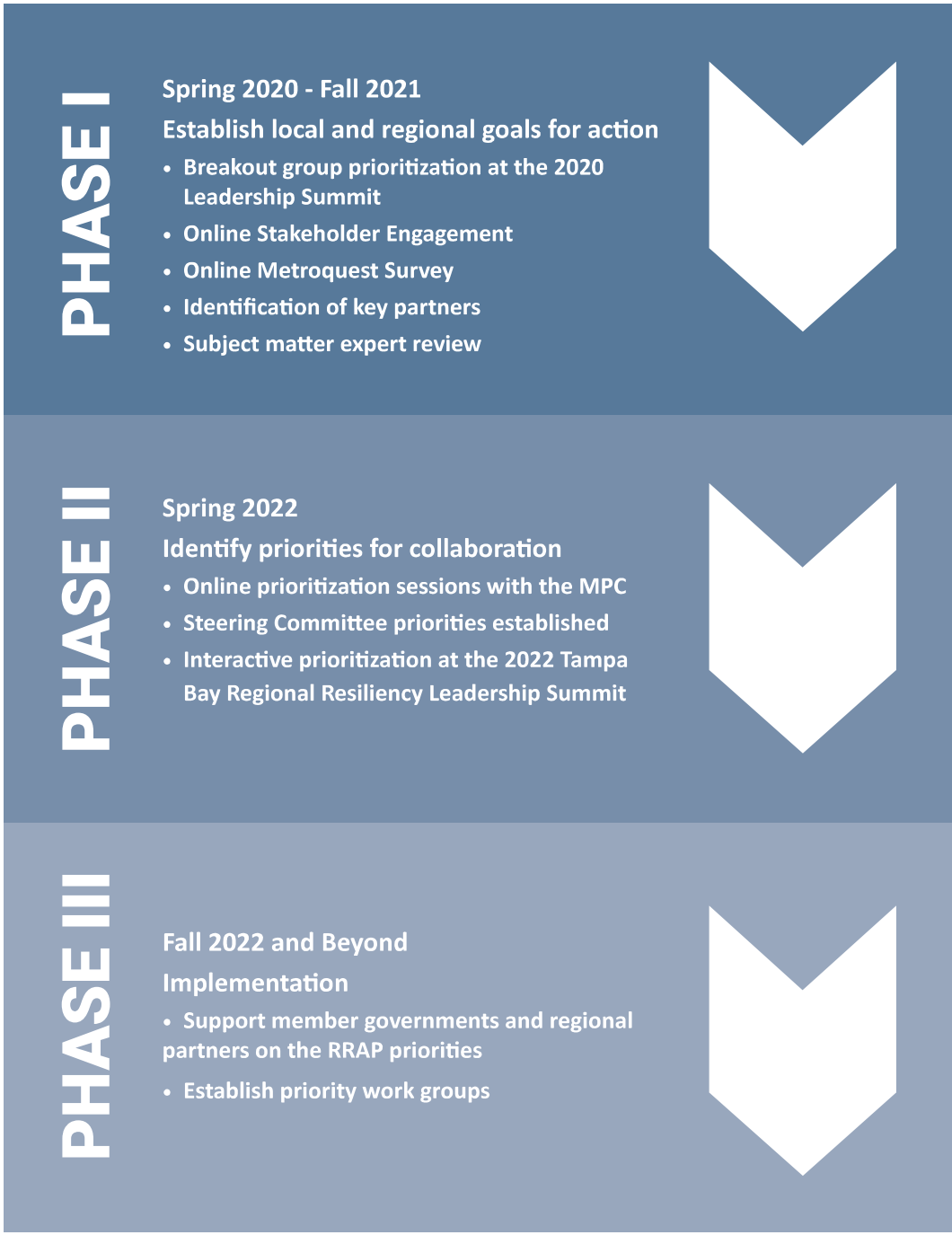
Meeting in small breakout groups, attendees reviewed and provided written comments discuss draft goals and actions for each of the chapters. TBRPC staff also had meetings with subject matter experts and local governments and Partners who were implementing innovative resilience and sustainability programs.

In Spring-Summer 2021, the draft plan was reviewed by the Resiliency Coalition Steering Committee and the Management and Planning Committee, and was distributed and posted to collect additional input.

Acknowledgements

The Tampa Bay Regional Planning Council (TBRPC) would like to thank the Environmental Protection Agency's Gulf of Mexico Program for providing the funding to engage stakeholders in the resilience conversation. Stakeholder and public engagement were a critical and large component of the plan development. The TBRPC recognizes and thanks all member governments, partners, and the public for your participation in the workshops to formulate the action plan and efforts to move resilience strategies forward across the region. A special thank you goes out to all agency and jurisdictional representatives who served on the Management and Planning Committee.





Vision

The Tampa Bay Regional Resiliency Action Plan will help reduce risk to people and property by anticipating and preparing for sea level rise, storms, flooding, extreme heat and other emerging hazards.

The RRAP has a strong focus on risk reduction and adaptation – improving short-term disaster preparedness and supporting consistent long-term planning for climate change. It supports local government priorities to address climate mitigation, enhance sustainability goals and address social and racial equity. It also acknowledges the vital importance of conversing our natural resources and habitats, which support vibrant neighborhoods and strong economies.

The RRAP serves as a 5-year road map which defines goals, objectives, actions that will be implemented at the local level and through regional cooperation.

Guiding Principles

The Regional Resiliency Action Plan is based on 10 core tenets:

1. Positive Vision

THe RRAP includes resilient strategies to strengthen and protect vibrant communities and create multiple benefits. This document respects the diverse geographies and community make-up – from coastal to inland, urban to rural.

2. Actionable, Measurable

This plan includes proactive, actionable goals and strategies which reduce short-term and long-term risks, vulnerabilities. The document is intended to set measurable goals to track and celebrate progress – at the local level and regionally.

3. Fiscal Leadership

The RRAP proposes implement management processes which assess costs, impacts and return on resiliency investments. It includes strategies that align with federal and state requirements to increase funding for local projects and improve community rating system scores which reduce insurance costs for property owners.

4. Scalable

The RRAP promotes a range of goals, best practices and actions which can be implemented by local governments of any size.

5. Data Driven

The RRAP acknowledges climate change and its consequences, and bases decision-making on the best available science. The plan defines climate risks, impacts and indicators and uses local and regional data to define risks, vulnerabilities and targets for success.

6. Supports Health and Equity

This plan recognizes that extreme weather and climate impacts our health and well-being, and that existing income and racial disparities can increase vulnerability to hazards. Implementing resilience and sustainability strategies will include targeted strategies and investments which will increase overall community resilience.

7. Community-focused

Resilience is more than infrastructure. The RRAP considers neighborhoods, housing and jobs. Increases knowledge and capacity of residents, businesses and non-profits to take action and support resilient place making. The plan contributes to economic prosperity.

8. Protects and Restores Paradise

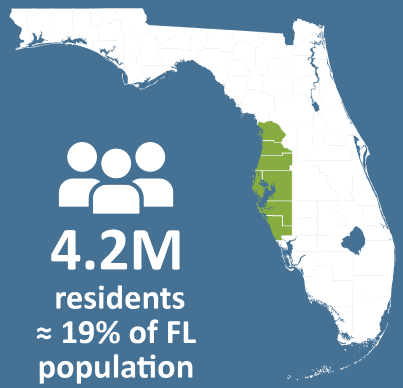
The RRAP recognizes the importance of preserving natural spaces and habitats, using nature-based resilience strategies and green infrastructure to reduce flood risks and heat impacts, and support thriving communities.

9. Consistent and Coordinated

The RRAP enables working together to define standards, policies and methods to increase resilience consistency across jurisdictions and create a level playing field for resilient development.

10. Sustainable

The plan supports local government sustainability goals to improve energy efficiency and reduce emissions in municipal buildings and fleets; advances community and housing energy savings; align housing, business zones, and transit. The RRAP promotes Green-tech local jobs. and collaborations with utilities to increase availability of renewable energy and energy security during disasters.



4.2M
residents
≈ 19% of FL population

$190B
GDP in 2020

2M
Jobs

$58,469
Median Income

11.3% People in Poverty in 2020

27.6min
Mean Commute

By **2045**
daily tidal inundation may result in
$2.9B
in property value loss

In a 10-year storm tide event, there could be

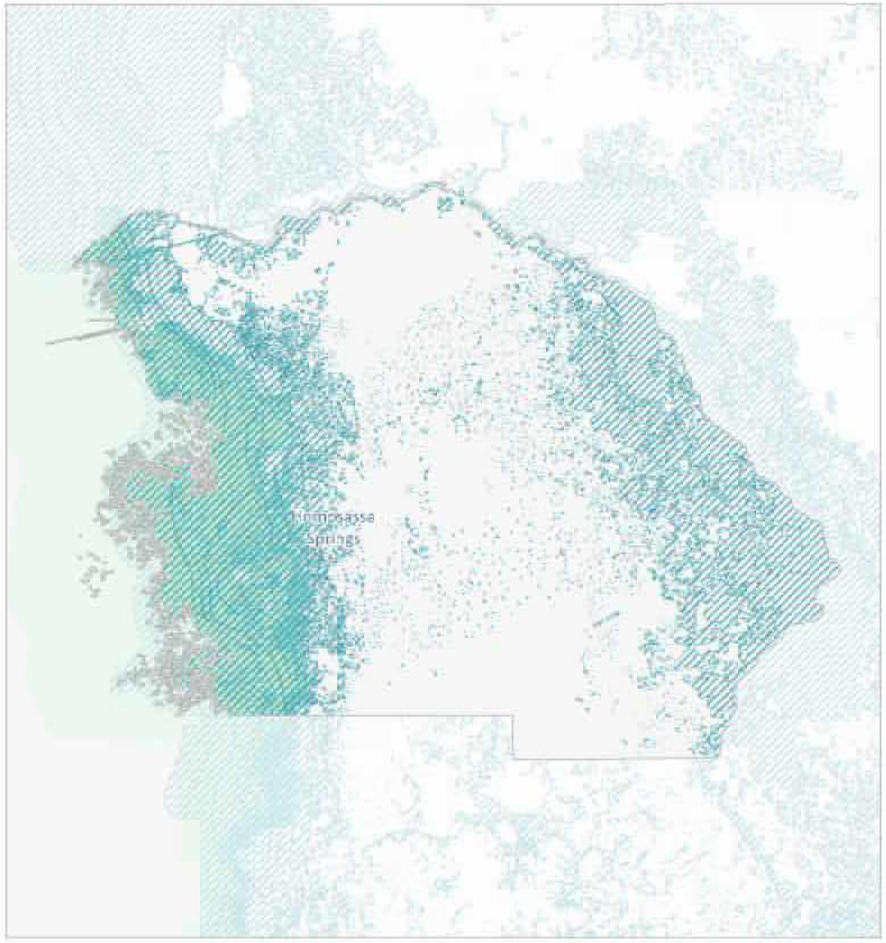
$2.9B in property damages &

$9.7M in sales and tourism tax losses

Permanent sea-level rise may result in **$34M**
in sales, tourism, and property tax losses annually

1 2 3 4 5 6

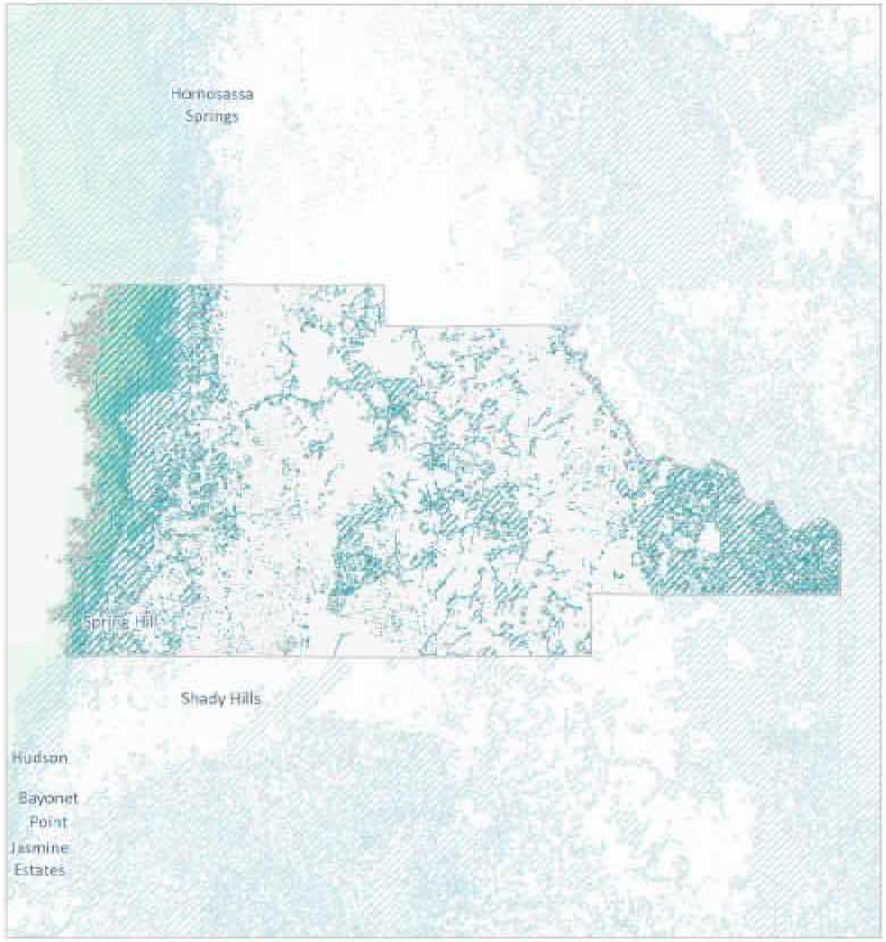
Citrus County Flood Hazard Exposure



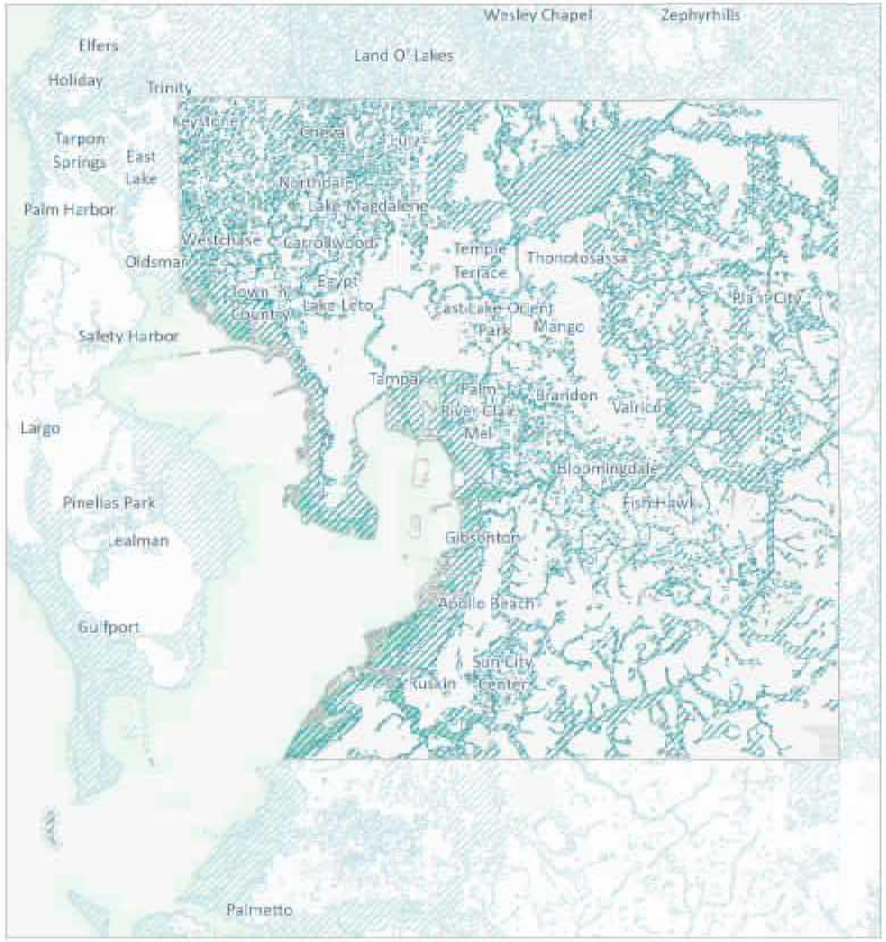
FEMA 1% Annual Flood Risk
NOAA (2017) Intermediate High 2040 Sea Level Rise Projection
NOAA (2017) Intermediate High 2070 Sea Level Rise Projection

Credits:
FEMA 1% Annual Risk provided by FDEM
NOAA Intermediate High 2040 and 2070 Sea Level Rise 2017 Curves modeled by TBRPC

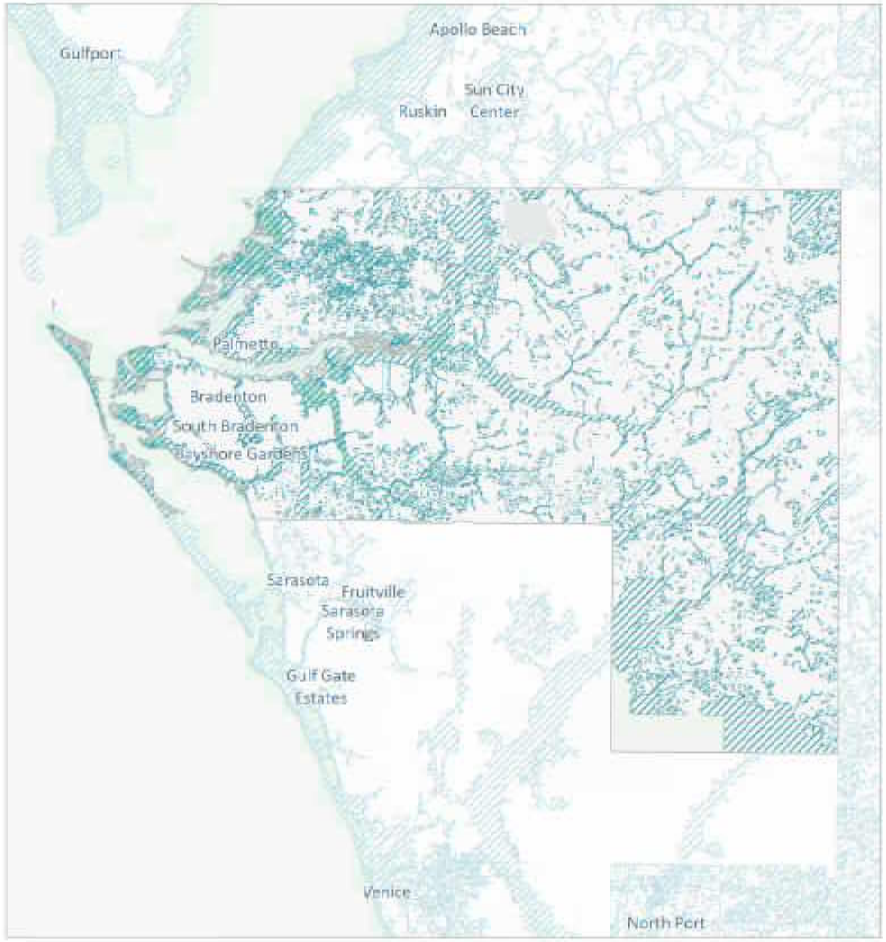
Hernando County Flood Hazard Exposure



Hillsborough County Flood Hazard Exposure



Manatee County Flood Hazard Exposure



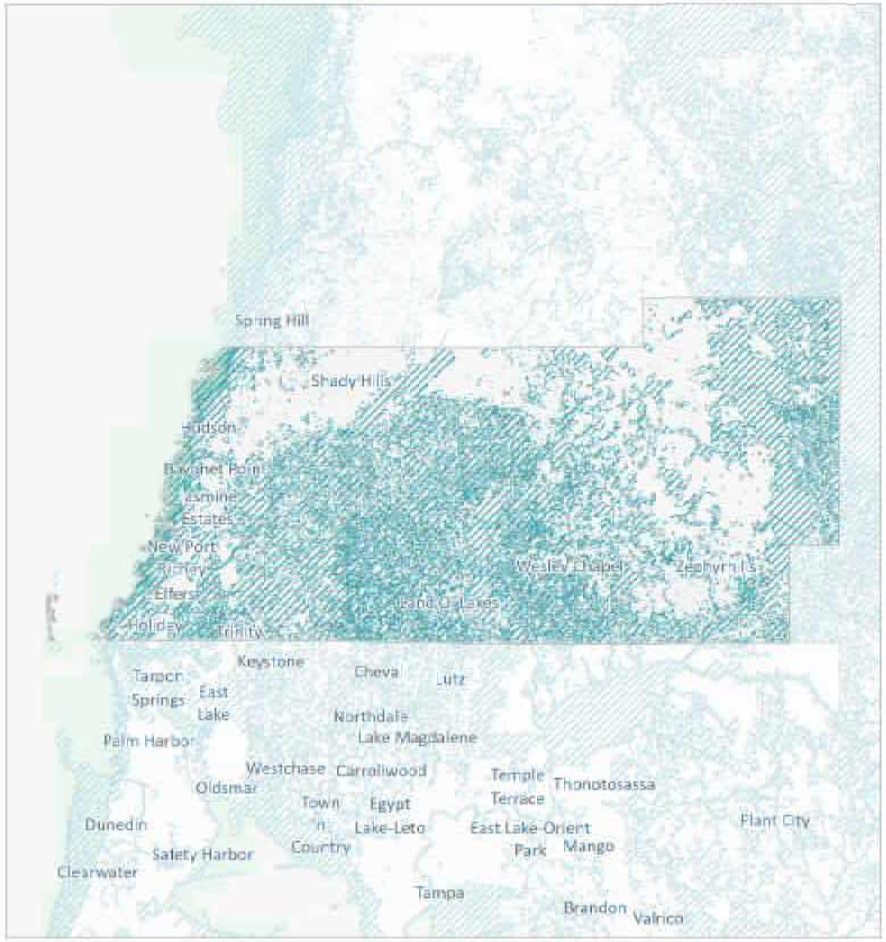
FEMA 1% Annual Flood Risk

NOAA (2017) Intermediate High 2040 Sea Level Rise Projection

NOAA (2017) Intermediate High 2070 Sea Level Rise Projection

Credits:
FEMA 1% Annual Risk provided by FDEM
NOAA Intermediate High 2040 and 2070 Sea Level Rise 2017 Curves modeled by TBRPC

Pasco County Flood Hazard Exposure



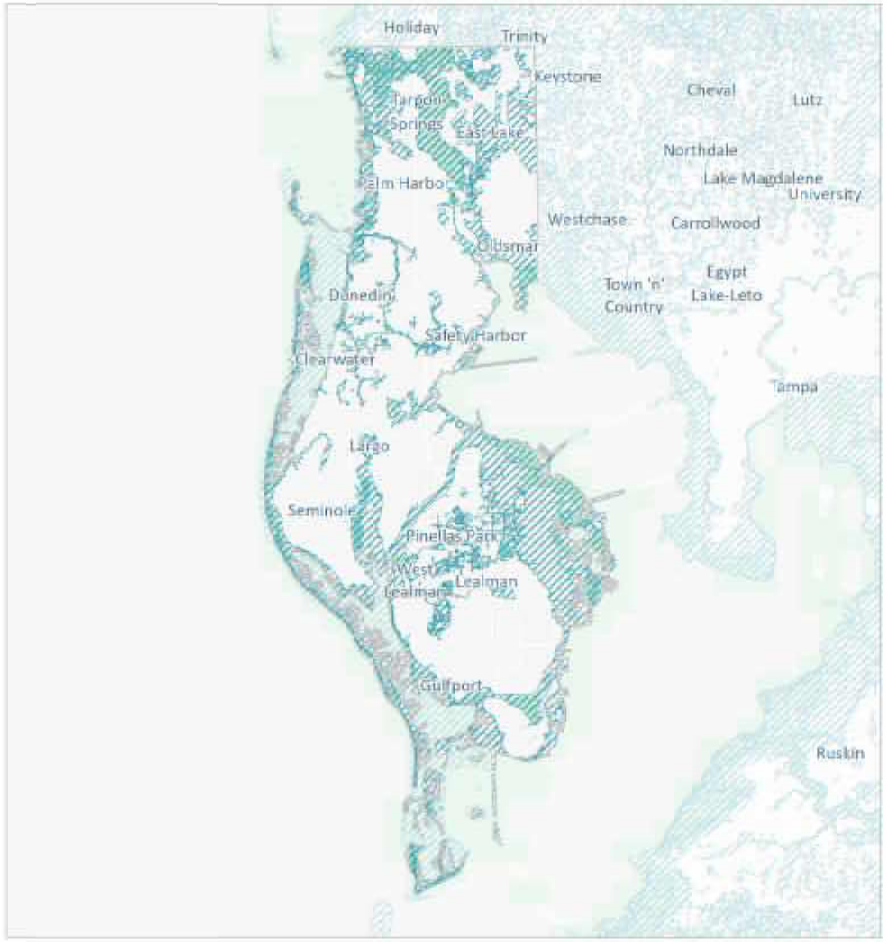
FEMA 1% Annual Flood Risk

NOAA (2017) Intermediate High 2040 Sea Level Rise Projection

NOAA (2017) Intermediate High 2070 Sea Level Rise Projection

Credits:
FEMA 1% Annual Risk provided by FDEM
NOAA Intermediate High 2040 and 2070 Sea Level Rise 2017 Curves modeled by TBRPC

Pinellas County Flood Hazard Exposure



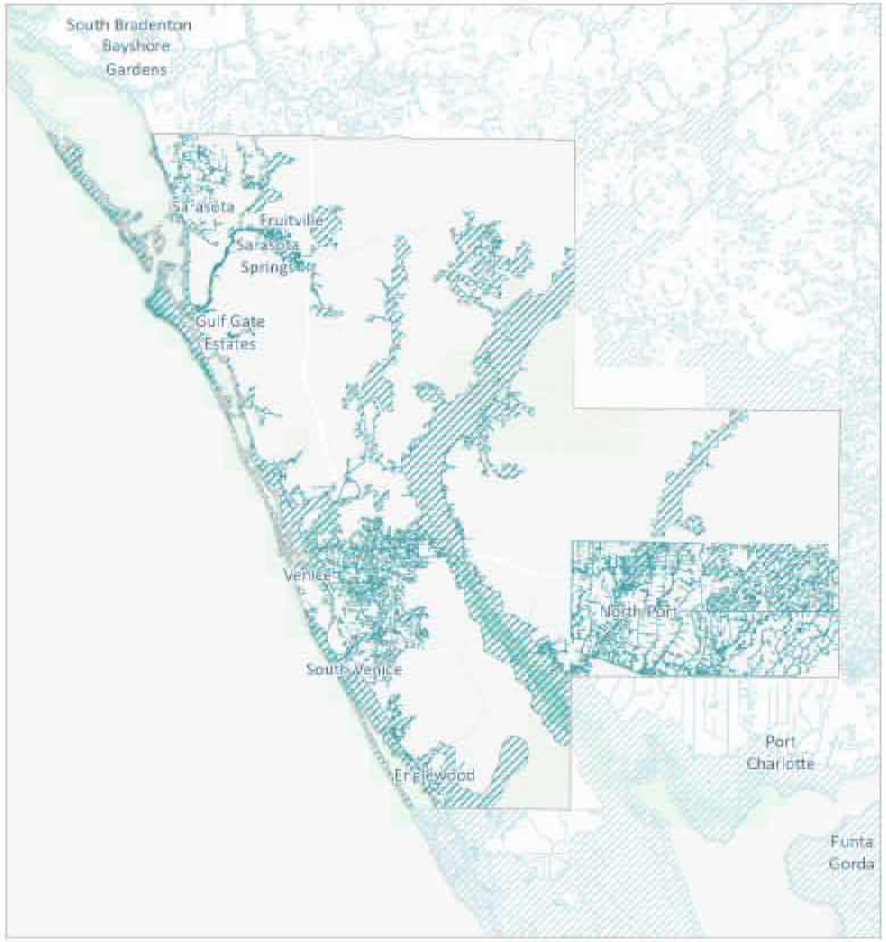
FEMA 1% Annual Flood Risk

NOAA (2017) Intermediate High 2040 Sea Level Rise Projection

NOAA (2017) Intermediate High 2070 Sea Level Rise Projection

Credits:
FEMA 1% Annual Risk provided by FDEM
NOAA Intermediate High 2040 and 2070 Sea Level Rise 2017 Curves modeled by TBRPC

Sarasota County Flood Hazard Exposure



FEMA 1% Annual Flood Risk

NOAA (2017) Intermediate High 2040 Sea Level Rise Projection

NOAA (2017) Intermediate High 2070 Sea Level Rise Projection

Credits:
FEMA 1% Annual Risk provided by FDEM
NOAA Intermediate High 2040 and 2070 Sea Level Rise 2017 Curves modeled by TBRPC

Overview of the Plan

The RRAP is a comprehensive document with five chapters that include 10 high level goals, dozens of objectives and actions for local implementation and regional collaboration. The goals and objectives are informed by state regulations and developed in context with other regional initiatives such as the region's Comprehensive Economic Development Strategy (CEDS) and the Tampa Bay Estuary Program's goals for climate ready habitats and conservation.

Purpose

The RRAP is meant to serve as a voluntary tool for the region and local governments. The plan identifies regional opportunities for collaboration and provides a menu of local best practices to create a clear–though challenging–path forward for the region. The RRAP includes a broad set of best practices to guide implementation of resilience-building actions that each jurisdiction could choose to implement. The RRAP is a framework for concerted regional action rather than a set of directives for specific projects or programs at the local level, recognizing that decisions on the timing and approach are best determined by each local government.





11 Priority Regional Actions

The Management and Planning Committee (MPC), Steering Committee, and Coalition Partners selected 11 priority actions for regional implementation. Based on stakeholder feedback these actions have the potential to make the biggest impact on the state of resiliency in the Tampa Bay Region.

- Reduce regional flood risk by convening regional stakeholders to identify innovative stormwater management strategies, design, incentives, and pilot projects which also support habitat resilience and water quality. (Action 6.1.1)
- Develop communications materials and community engagement strategies to increase residents' and businesses' understanding of local risks and impacts from climate change. (Action 3.4.2)
- Create a Regional Resilient Land Use and Design working group which includes diverse stakeholders to define best practices and recommendations for community health, resilience and quality of life. (Action 4.4.1)
- Convene a regional resilient housing leadership advisory committee to discuss and build consensus on goals, policies and strategies to improve post-disaster preparedness and new construction for the region's workforce and low-income families. (Action 4.1.1)
- Coordinate regionally to develop shoreline design and construction standards and encourage local adoption to support private property owner efforts. (Action 5.3.2)
- Support the Tampa Bay Habitat Master Plan goals of restoring more than 3,000 acres of wetlands and uplands in the next decade through resources for local policies and land-management strategies. (Action 5.1.1)
- Build capacity among neighborhoods and non-profits by developing a Resilient Neighborhoods Initiative with partners and communities to create new programs, resources and increase funding. (Action 3.4.1)
- Provide a forum that supports integration of regional priorities into state/local transportation plans through coordination with MPOs, PSTA, HART, TBARTA, TMA, FDOT District Offices, the airports and the ports. (Action 7.3.2)
- Support regionally coordinated electric vehicle charging station infrastructure through the development of a regional Electric Vehicle Master Plan (EVMP) (Action 7.2.1)
- Coordinate with member governments to develop food resiliency and sustainability plans and programs. (Action 8.1.1)
- Develop an industry cluster of resilient infrastructure technologies and firms to support improvements to local government fleet performance, traffic control, safety, and resiliency in times of emergency. (Action 10.1.1)

Reading the Plan

Objective Description

This section provides more detail on the objective beyond the goal narrative. The description provides background on the objective if needed and connects the actions to climate resiliency. The description also briefly summarizes the local and regional roles for implementation.

Co-benefits

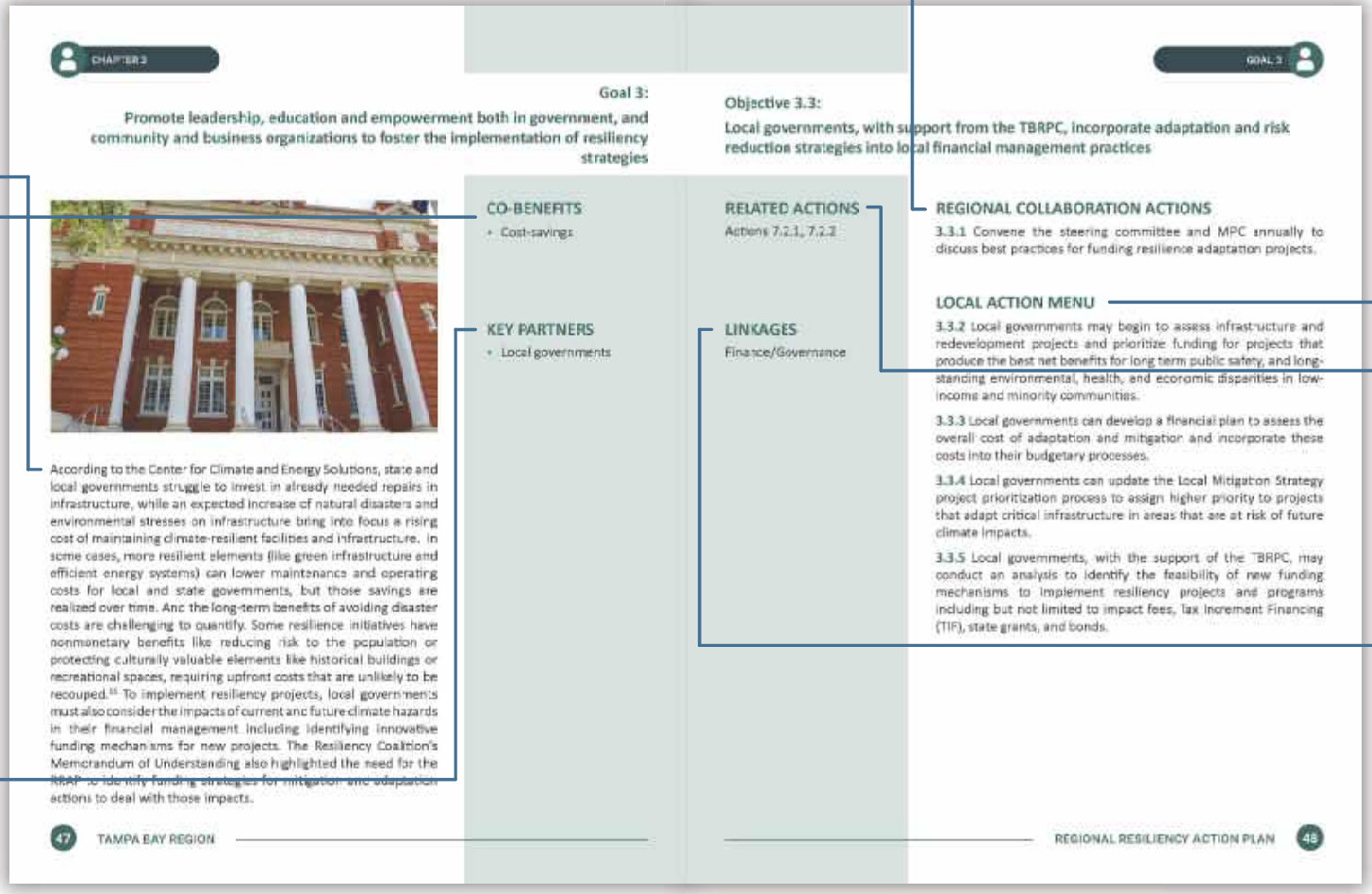
This section shows how the objective and its underlying actions link to the rest of the plan. Co-benefits are benefits that may result from implementing the actions under each objective outside of resiliency.

Key Partners

This is a list of the partners TBRPC believes will be key to support the objective and related actions. Other partners may be identified during implimentation.

Regional Actions

Lists the actions that are proposed to implement the objective. Regional objectives will be coordinated by the TBRPC and may rely on key partners such as the Climate Science Advisory Panel (CSAP) or the Tampa Bay Estuary Program (TBEP).



CHAPTER 3

Goal 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.3:

Local governments, with support from the TBRPC, incorporate adaptation and risk reduction strategies into local financial management practices

GOAL 3

CO-BENEFITS

- Cost-savings

RELATED ACTIONS

Actions 7.2.1, 7.2.2

REGIONAL COLLABORATION ACTIONS

3.3.1 Convene the steering committee and MPC annually to discuss best practices for funding resilience adaptation projects.

LOCAL ACTION MENU

3.3.2 Local governments may begin to assess infrastructure and redevelopment projects and prioritize funding for projects that produce the best net benefits for long term public safety, and long-standing environmental, health, and economic disparities in low-income and minority communities.

3.3.3 Local governments can develop a financial plan to assess the overall cost of adaptation and mitigation and incorporate these costs into their budgetary processes.

3.3.4 Local governments can update the Local Mitigation Strategy project prioritization process to assign higher priority to projects that adapt critical infrastructure in areas that are at risk of future climate impacts.

3.3.5 Local governments, with the support of the TBRPC, may conduct an analysis to identify the feasibility of new funding mechanisms to implement resiliency projects and programs including but not limited to impact fees, tax increment financing (TIF), state grants, and bonds.

KEY PARTNERS

- Local governments

LINKAGES

Finance/Governance

According to the Center for Climate and Energy Solutions, state and local governments struggle to invest in already needed repairs in infrastructure, while an expected increase of natural disasters and environmental stresses on infrastructure bring into focus a rising cost of maintaining climate-resilient facilities and infrastructure. In some cases, more resilient elements (like green infrastructure and efficient energy systems) can lower maintenance and operating costs for local and state governments, but those savings are realized over time. And the long-term benefits of avoiding disaster costs are challenging to quantify. Some resilience initiatives have nonmonetary benefits like reducing risk to the population or protecting culturally valuable elements like historical buildings or recreational spaces, requiring upfront costs that are unlikely to be recouped.[6] To implement resiliency projects, local governments must also consider the impacts of current and future climate hazards in their financial management including identifying innovative funding mechanisms for new projects. The Resiliency Coalition's Memorandum of Understanding also highlighted the need for the RAP to identify funding strategies for mitigation and adaptation actions to deal with those impacts.

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REGIONAL RESILIENCY ACTION PLAN 48

Local Actions

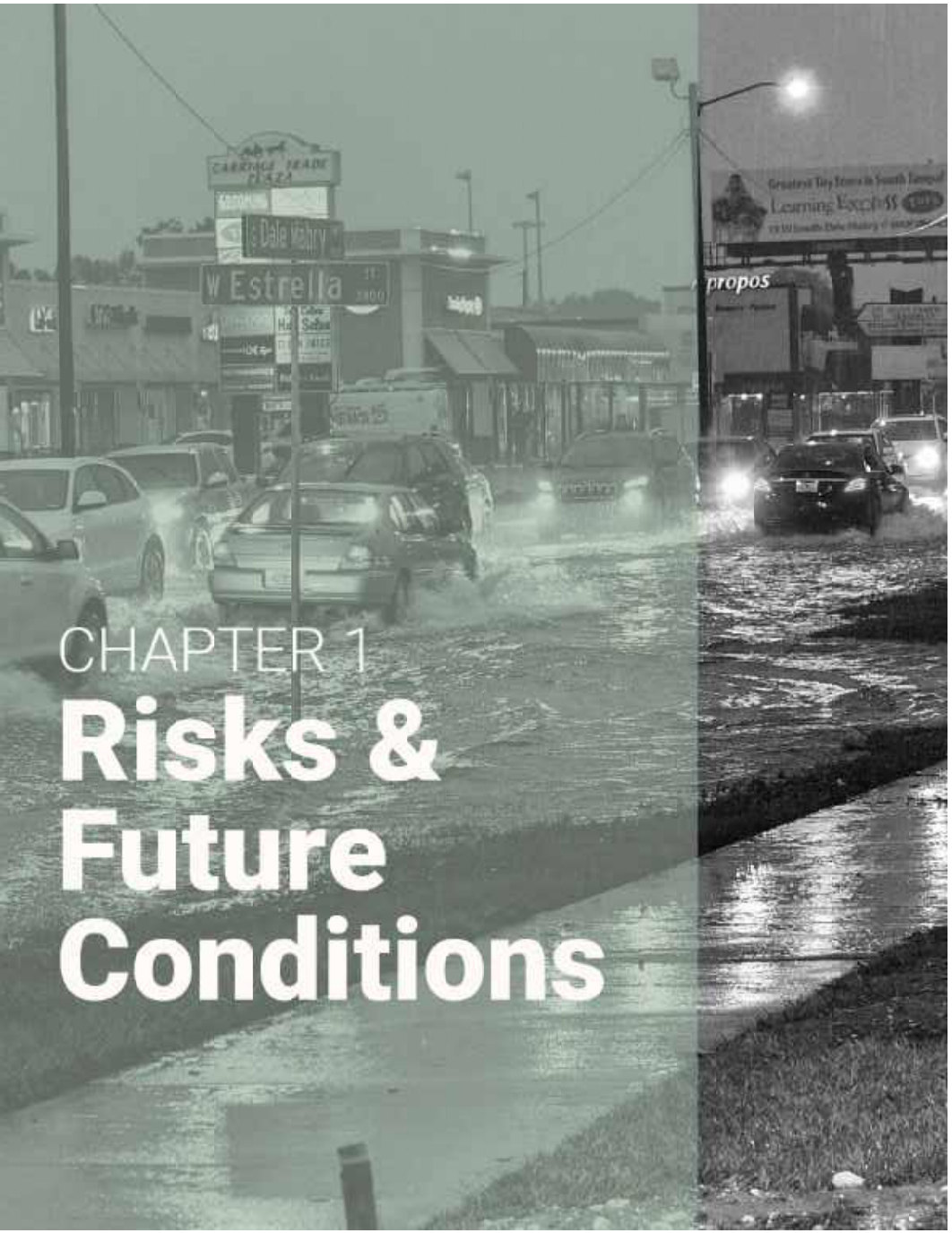
Local actions are provided for regional consistency and are not intended to be mandates. The local actions were developed through a series of feedback processes to determine the best practices that could be implemented within the five-year action plan period.

Related Actions

Related actions are actions under other objectives that are may useful steps to proceed or follow this objective. They may also be connected actions based on their subject matter.

Linkages

Linkages are connections to other objectives based on subject matter. The intention is to make this an interactive document that will allow readers to filter by interests and work priorities in the future.



GOAL 1:

Community Resilience is at the top of the public agenda and sustained with science and data

The impacts of climate change are already being felt in communities across the country. More frequent and intense extreme weather and climate-related events, as well as changes in average climate conditions, are expected to continue to damage infrastructure, ecosystems, and social systems that provide essential benefits to communities.[7] Extended droughts and heat waves have created food and water shortages. These types of threats are expected to become more common and more severe as the climate continues to change.[8]

Climate change indicators should adhere to FAIR (Findable-Accessible-Interoperable-Reusable) data principles. These are preliminary conceptual recommendations. If approved by the Resiliency Coalition Management and Planning Committee, the Climate Science Advisory Panel (CSAP) will describe appropriate methods to calculate and report the trends for each climate indicator identified above. Additional indicators for climate drivers (Green House Gas, Land Use, Land Cover, socio-economic, etch) and impacts (flooding, public health, etc.) will be developed, as appropriate, over the next five years. For additional details see the TBCSAP Preliminary Recommendation: RRAP Climate Change Indicators.

Goal 1:

Community Resiliency is at the top of the public agenda and sustained with science and data

Objective 1.1:

Improve the collection and monitoring of climate indicator data to be used in local implementation through collaborations with local and national scientists



All individuals, businesses, and governments in the Tampa Bay region have and will continue to be affected by climate change. To adequately prepare our community for climate impacts, it is important to understand the current and projected local effects of climate stressors in Tampa Bay that include sea-level rise, droughts, extended heat waves, and more frequent storms.

Coalition members and partners have provided feedback through facilitated meetings of the Management Planning Committee and RRAP development workshops. Based on this feedback, it is important that any data being collected or monitored by regional partners adhere to FAIR principles for data management, meaning the recommended data sources are findable, accessible, interoperable, and reusable. Many of these principles can be achieved by deploying a regional data portal to improve data accessiblity and transparency. It is also important to provide guidance to local governments on the appropriate applications of data, such as which projects are a good fit for certain data sets, and how to use data projections with multiple time horizons.

CO-BENEFITS

- Equity

KEY PARTNERS

- Local governments
- Climate Science Advisory Panel (CSAP)
- Tampa Bay Estuary Program (TBEP)
- Local and National Scientists

RELATED ACTIONS

Action 2.1.5

LINKAGES

Coastal Habitats, Shorelines

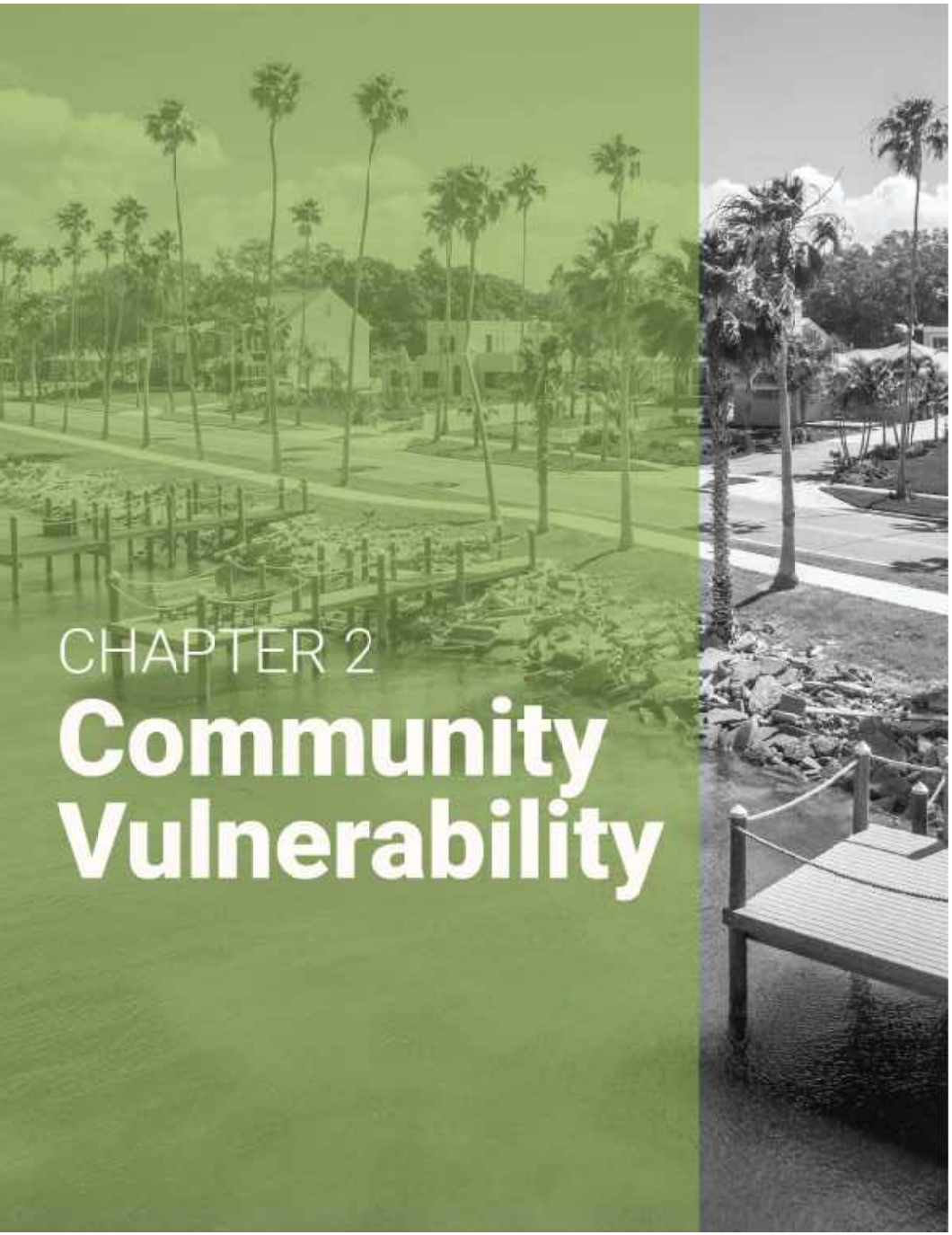
REGIONAL COLLABORATION ACTIONS

1.1.1 Partner with regional scientists to define specific climate change indicators and impact indicators that will be monitored to support planning based on the latest science.

1.1.2 Convene region-wide data work groups to support consistency and best practices in mapping, visualizing and communicating climate risks and impacts to key audiences.

1.1.3 Partner with local, state, and national organizations to provide training and facilitate discussions with local governments on using new climate risks and impacts indicator data.

1.1.4 The region will identify air quality monitoring gaps.



CHAPTER 2

Community Vulnerability

GOAL 2:

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically-defined vulnerability assessments

In 2021, a landmark statute, Section 380.093, F.S. was passed to support a statewide, consistent approach to increasing resilience to flood hazards. The law established the Resilient Florida Grant Program within the Department of Environmental Protection and tasked FDEP with developing a "Comprehensive Statewide Flood Vulnerability and Sea Level Rise Data Set and Assessment."

"The Legislature recognizes that the state is particularly vulnerable to adverse impacts from flooding resulting from increases in frequency and duration of rainfall events, storm surge from more frequent and severe weather systems, and sea level rise. Such adverse impacts pose economic, social, environmental, and public health and safety challenges to the state. To most effectively address these challenges, funding should be allocated in a manner that prioritizes addressing the most significant risks….Consequently, a coordinated approach is necessary to maximize the benefit of efforts to address such impacts and to improve the state's resilience to flooding and sea level rise."

The Community Vulnerability Chapter defines goals and actions for regional collaboration and coordination on community vulnerability assessments to support robust local analysis and consistency between jurisdictions. Conducting vulnerability assessments for flooding, sea level rise, extreme heat and other hazards is crucial to developing effective plans, programs and deploying strategic investments. Increasing community resilience requires a nuanced understanding of how impacts will exacerbate existing socio-economic conditions and underlying health conditions.

The Region will work together to define methods, models, best practices for data, and work to quantify risks, impacts and costs of disasters and climate hazards to our infrastructure, neighborhoods, businesses, homes and residents. The Region will increase its knowledge of how interconnected risks and conditions will impact public health, quality of life and economies. Local governments will understand improvements needed to reduce community vulnerability, address racial and social equity, and empower residents and businesses to "bounce forward".

Goal 2:

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically defined vulnerability assessments

Objective 2.1:

Conduct vulnerability assessments of regional and local assets.



Vulnerability assessments measure the impact of sea-level rise, heat and other hazards, and identify the people, infrastructure, ecosystems and land uses that may be affected. On May 12, 2021, Governor Ron DeSantis signed Senate Bill 1954 into law. This comprehensive legislation provides guidance on conducting local vulnerability assessments.

Resiliency coalition members and partners are already making progress on more thorough vulnerability assessments that align with State guidance.

REGIONAL COLLABORATION ACTIONS

2.1.1 Support the development, availability and use of advanced tools, modeling and data which enhances local vulnerability analyses (e.g. high resolution impervious data and terrestrial LiDAR).

2.1.2 The region collaborates on defining risks and increasing food systems resilience to hazards (extreme weather, pandemic, etc.) to support communities and local agriculture.

2.1.3 The region collaborates to conduct assessments for natural, cultural, and historical resources, including conservation lands, parks, shorelines, surface waters, wetlands, and historical and cultural assets.

2.1.4 To reduce impacts of extreme heat, the region conducts heat mapping efforts to guide implementation of projects that support equitable, cool communities.

CO-BENEFITS

- Cost-savings
- Environmental Quality
- Public Health
- Equity

KEY PARTNERS

- Local governments
- Climate Science Advisory Panel (CSAP)
- Universities
- Private Sector
- Neighborhood organizations

RELATED ACTIONS

Actions 6.1.3, 7.1.1, 8.1.1, 8.1.2

LINKAGES

Agriculture/Food Systems, Coastal Habitats, Infrastructure, Transportation, Growth Management

LOCAL ACTION MENU

2.1.5 Conduct comprehensive climate vulnerability assessment for the impacts of temperature, precipitation, hurricanes, FEMA flood hazard areas, areas of low-service, high tide flooding, storm surge, and sea level rise on critical infrastructure, operations, facilities, and services, natural, cultural, and historical resources, including conservation lands, parks, shorelines, surface waters, wetlands, and historical and cultural assets.

2.1.6 Conduct community vulnerability assessments of the following: Low-income populations, neighborhoods and small area plans and Community Redevelopment Areas.

2.1.7 Produce maps to visualize interconnected social vulnerability and resilience factors to inform stakeholders and community members.

2.1.8 Assess stormwater system facilities for vulnerabilities to future inundation and erosion including elevations of outfalls into surface water bodies.

2.1.9 Assess risks to roads for future conditions and tidal flooding to define flooding thresholds for 2045 and 2070.

2.1.9 Consider developing a dynamic hydrologic and hydraulic model for the jurisdiction to assist with vulnerability assessment and capital planning.

2.1.10 Develop an inventory of the community's agricultural lands, current number of farms, vacant lands and production outputs to understand potential opportunities (land use map updates, outreach, programs and incentives).

2.1.11 Develop an inventory of the community's aquaculture businesses and operations, and production outputs to understand potential opportunities such as land use map updates, outreach, programs and incentives, and more.

Goal 2:

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically defined vulnerability assessments

Objective 2.2:

Integrate health and equity metrics into hazard analysis and resilience planning and support targeted vulnerability assessments for highly vulnerable populations



Extreme weather and climate change act as a threat multiplier to minority populations and low-income communities who are more vulnerable. Addressing health inequities when implementing climate mitigation and adaptation projects will improve health outcomes today, and in the future. Several member governments throughout the region have embraced Health in All Policies (HiAP) as a collaborative approach to make the healthy choice the most easily accessible choice. HiAP aims to improve the health of all residents by increasing cross-sector collaboration around mutually shared goals and incorporating health considerations into decision-making processes across sectors and policy areas.[9] The RRAP goals and actions will support the HiAP principles.

CO-BENEFITS

- Equity
- GHG Reduction
- Public Health

KEY PARTNERS

- Local governments
- Florida Department of Health
- Florida Housing Coalition

RELATED ACTIONS

Action 7.3.1

LINKAGES

Clean Energy

REGIONAL COLLABORATION ACTIONS

2.2.1 Establish a community health and equity advisory board to define specific health impact indictor data, equity metrics and develop recommendations to strengthen resilience and sustainability outcomes.

2.2.2 Work together to quantify greenhouse gas emissions and develop reduction goals for municipal operations, transportation and communities.

- Coordinate meetings with experts to implement regionally consistent greenhouse gas tracking methodologies for key sectors.
- Collaborate with Metropolitan Planning Organizations (MPOs) to implement a region-wide study to quantify and visualize emissions from transportation.
- Partner with member governments to identify vulnerable communities with high emissions exposure to support targeted mitigation.

LOCAL ACTION MENU

2.2.3 Identify and assess how climate change will impact public health within their jurisdiction using Social Determinants of Health.

Goal 2:

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically defined vulnerability assessments

Objective 2.3:

Conduct housing vulnerability assessments using standardized, science-based methods to quantify and/or map climate risks



Housing is the foundation of our communities, yet the region, like other areas around the state, has a shortage of attainable and affordable housing. Additionally, while it is generally understood that many homes are at risk to storm surge and future flood risks, the potential impacts need to be quantified to develop effective local plans.

Region-wide and local housing vulnerability assessments – that are consistent – are necessary to quantity the number and type of properties and communities at risk, under different conditions and timeframes. This information will inform future land-use and zoning changes, and short-term mitigation investments and new construction goals. Property owners – from single family homes to large apartment and condo buildings – and prospective investors and buyers – need equitable access to data, maps and tools to assess a buildings' risks and define actionable strategies.

CO-BENEFITS

- Affordability

RELATED ACTIONS

Actions 4.1.2, 4.3.3

KEY PARTNERS

- Local governments
- Climate Science Advisory Panel (CSAP)

LINKAGES

Growth Management, Housing

Resilience and local assisted housing plans must be more closely coordinated to support effective Department of Housing and Urban Development (HUD) and State Housing Initiatives Partnership program (SHIP) investments, targeted mitigation policies, strategies, and incentives, especial for rental properties. Since Black and Hispanic people have the lowest rates of homeownership throughout the region, mitigation strategies for rental properties will also improve equity and overall community resilience.[10]

REGIONAL COLLABORATION ACTIONS

2.3.1 Continue to build on the Resilience and Energy Assessment of Communities and Housing (REACH) project report.

LOCAL ACTION MENU

2.3.2 Assess naturally occurring affordable housing (NOAH) vulnerability and create maps that define risks to sea level rise, storm surge, tidal flooding, and inland flooding.

2.3.3 Conduct affordable housing stock "windshield or walking tour" assessments to define energy and weather mitigation needs in Low-to-moderate income (LMI) communities and capital planning.

Goal 2:

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically defined vulnerability assessments

Objective 2.4:

Define economic impacts to specific hazards, sectors and assets; and conduct cost-benefit analyses for resilience adaptation strategies



According to the Economic Development Administration (EDA), regional economic prosperity is linked to an area's ability to prevent, withstand, and quickly recover from major disruptions (i.e., 'shocks') to its economic base. All communities must be able to recognize their vulnerabilities in order to develop goals, strategies, and actions that can mitigate the effects of an economic incident and support long-term recovery efforts. Understanding the economic impact of resilience and adaptation projects will help the region prioritize investments.

CO-BENEFITS

- Cost-savings

KEY PARTNERS

- Local governments
- Florida Department of Health (FDOH)
- Florida Housing Coalition (FHC)

RELATED ACTIONS

Action 6.1.1

LINKAGES

Finance/Governance, Infrastructure, Transportation

REGIONAL COLLABORATION ACTIONS

2.4.1 Convene the region to discuss the local impacts of changes to homeowner's flood insurance (NFIP)and identify potential education and mitigation support for at-risk populations.

LOCAL ACTION MENU

2.4.2 Conduct a cost analysis for flood impacts to local roads and communities.



GOAL 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

In order to improve public safety, safeguard infrastructure, property and environmental services, and sustain basic quality of life, local governments and communities across the region must have the internal capacity to implement resiliency strategies. The People chapter of the Regional Resiliency Action Plan focuses on how to build the capacity needed to adapt to the impacts of current and future climate conditions. This capacity must be built at all levels from policy makers to individual residents. To ensure equitable adaptation, it is important to prioritize community-driven adaptation.

Organizational capacity is important for local governments in implementing resiliency that is collaborative and cross departmental. This capacity building begins with the development of a local resiliency action plan that establishes the local government's priorities. The regional capacity for implementing resiliency projects and programs has been growing even before the formation of the TBRRC. To continue this growth, the region proposes a series of learning opportunities for local government staff and elected officials. Finally, to implement resiliency projects, local governments must also consider the impacts of current and future climate hazards in their financial management including identifying innovative funding mechanisms for new projects.

Neighborhood organizations and community-based groups are essential to resiliency advancement. These groups know the existing challenges that neighborhoods face and how to best reach residents. Local governments can leverage meaningful partnerships with community organizations to build community capacity for resilience and adaptation. By working with residents to identify neighborhood priorities, local governments can better ensure that align with the values of residents.

Goal 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.1:

Local governments develop a local resiliency plan or update existing ones to include considerations of the impacts of current and future climate hazards, energy, food systems and public health



Local government capacity building begins with the development of a local resiliency action plan that establishes the local government's priorities. These priorities can then be integrated into other plans, human resources management practices, and continued knowledge sharing. This objective provides best practices that can be integrated into local planning mechanisms.

CO-BENEFITS

- Public Health
- Energy Security
- Cost-Savings
- Environmental Quality
- GHG reduction
- Equity
- Water Quality

KEY PARTNERS

- Local governments
- Nonprofit partners
- Public health experts

RELATED ACTIONS

Actions 7.2.4, 8.1.3, 8.1.4

LINKAGES

Agriculture/Food Systems, Clean Energy, Finance/ Governance, Infrastructure

LOCAL ACTION MENU

3.1.1 Work cross-departmentally to develop or update a resilience and sustainability plan to prepare for the impacts of current and future climate hazards.

3.1.2 Include considerations of the impacts of current and future climate hazards on local food systems in their jurisdiction's resiliency plan where applicable.

3.1.3 Include considerations of the impacts of current and future climate hazards on local public health in their jurisdiction's resiliency plan.

3.1.4 Include renewable and resilient energy goals, strategies and target dates for municipal operations and public facilities in their jurisdiction's resiliency action plan. These may include various timelines or target dates.

Goal 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.2:

Local governments maximize their ability to adapt to climate change thorough expanded internal capacity and cross-departmental coordination



The regional capacity for implementing resiliency projects and programs has been growing even before the formation of the TBRRC. To continue this growth, the region proposes a series of learning opportunities for local government staff and elected officials. Internally local governments can identify resilience leaders and work across departments to achieve resilience goals. To fully execute the objectives of the local governments' resiliency action plans, it is imperative that implementation is cross-departmental. Finally, this objective proposes the creation of an RRAP implementation matrix, so that local governments can track their own progress.

CO-BENEFITS

- Cost-savings

RELATED ACTIONS

N/A

KEY PARTNERS

- Local governments
- Nonprofit partners
- Public health experts

LINKAGES

Finance/Governance

REGIONAL COLLABORATION ACTIONS

3.2.1 The TBRPC and resiliency coalition partners will support the implementation of local and regional resiliency priorities. This support will include, but not be limited to, coordinating knowledge sharing sessions with Elected Officials and staff on critical issues and key topics aligned with the objectives of the RRAP.

LOCAL ACTION MENU

3.2.2 Incorporate the objectives of the jurisdiction's resilience and sustainability plan within other planning mechanisms (Comprehensive Plan, emergency management plans, etc).

3.2.3 Local governments may identify a point person, team, or dedicated role, with specific resiliency credentials and resiliency duties to coordinate resiliency programs across departments.

3.2.4 Local governments can enhance their internal efforts to address flooding and other priority risks, such as more staffing, grants, and training.

Goal 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.3:

Local governments, with support from the TBRPC, incorporate adaptation and risk reduction strategies into local financial management practices



According to the Center for Climate and Energy Solutions, state and local governments struggle to invest in already needed repairs in infrastructure, while an expected increase of natural disasters and environmental stresses on infrastructure bring into focus a rising cost of maintaining climate-resilient facilities and infrastructure. In some cases, more resilient elements (like green infrastructure and efficient energy systems) can lower maintenance and operating costs for local and state governments, but those savings are realized over time. And the long-term benefits of avoiding disaster costs are challenging to quantify. Some resilience initiatives have nonmonetary benefits like reducing risk to the population or protecting culturally valuable elements like historical buildings or recreational spaces, requiring upfront costs that are unlikely to be recouped.[11] To implement resiliency projects, local governments must also consider the impacts of current and future climate hazards in their financial management including identifying innovative funding mechanisms for new projects. The Resiliency Coalition's Memorandum of Understanding also highlighted the need for the RRAP to identify funding strategies for mitigation and adaptation actions to deal with those impacts.

CO-BENEFITS

- Cost-savings

RELATED ACTIONS

Actions 7.2.1, 7.2.2

KEY PARTNERS

- Local governments

LINKAGES

Finance/Governance

REGIONAL COLLABORATION ACTIONS

3.3.1 Convene the steering committee and MPC annually to discuss best practices for funding resilience adaptation projects.

LOCAL ACTION MENU

3.3.2 Local governments may begin to assess infrastructure and redevelopment projects and prioritize funding for projects that produce the best net benefits for long term public safety, and long-standing environmental, health, and economic disparities in low-income and minority communities.

3.3.3 Local governments can develop a financial plan to assess the overall cost of adaptation and mitigation and incorporate these costs into their budgetary processes.

3.3.4 Local governments can update the Local Mitigation Strategy project prioritization process to assign higher priority to projects that adapt critical infrastructure in areas that are at risk of future climate impacts.

3.3.5 Local governments, with the support of the TBRPC, may conduct an analysis to identify the feasibility of new funding mechanisms to implement resiliency projects and programs including but not limited to impact fees, Tax Increment Financing (TIF), state grants, and bonds.

Goal 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.4:

Local governments, with assistance from regional partners, will develop consistency in communication and engagement for residents, businesses, and community organizations on the impacts of current and future climate impacts



According to the Pew Charitable Trusts, success in weathering the impacts of disasters depends on a community's ability to design and lead approaches that best meet its needs. Often neighborhood engagement activities are met with challenges. Staff turnover, funding, and limited resources in marginalized communities have all posed difficulties in maintaining and expanding neighborhood programs. Key factors that have contributed to success include development of strong ties across agencies and sectors to help streamline research and assessment efforts.

Officials also stressed the importance of identifying additional community-based resources. They said the programs work best when there are strong relationships between city agencies and community networks led by residents. The programs also benefit from detailed documentation that can help minimize disruptions caused by frequent government staff transitions, as well as well-designed strong engagement plans that include support services such as language translation, food, and child care, which all can help hard-to-reach populations overcome barriers to participation.[12] This objective will support best practices for community-based resiliency.

CO-BENEFITS

- Equity

KEY PARTNERS

- Local governments
- Southwest Florida Water Management District (SWFWMD)
- Florida Floodplain Managers Association (FFMA)

RELATED ACTIONS

Actions 5.1.2, 6.3.4

LINKAGES

Agriculture/Food Systems, Coastal Habitats, Infrastructure, Transportation, Growth Management

REGIONAL COLLABORATION ACTIONS

3.4.1 Build capacity among neighborhoods and non-profits by developing a Resilient Neighborhoods Initiative with partners and communities to create new programs, resources and increase funding.

3.4.2 Develop communications materials and community engagement strategies to increase residents' and businesses' understanding of local risks and impacts from climate change.

LOCAL ACTION MENU

3.4.3 Local governments provide education and information to the public and business community about potential hazards and property protection measures (e.g. events such as Hurricane Expo and general presentation to community groups).

3.4.4 Consider incorporating sea level rise projections, areas of impacts, and types of impacts into routine outreach to improve general public awareness.

Goal 3:

Promote leadership, education and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.5:

Establish partnerships and support existing community and business groups that enable stronger collaborations between communities and business organizations to better prepare for current and future climate impacts



Neighborhood organizations and community-based groups are essential to resiliency advancement. These groups know the existing challenges that neighborhoods face and how to best reach residents. Local governments can leverage meaningful partnerships with community organizations to build community capacity for resilience and adaptation. Once these partnerships are formed the local governments may continue to reach out to community leaders as resiliency planning continues.

CO-BENEFITS

- Equity

KEY PARTNERS

- Local governments
- Neighborhood Associations
- Neighborhood-based nonprofits
- Area-specific business organizations
- Private sector sponsors
- Title 1 schools

RELATED ACTIONS

N/A

LINKAGES

Community Capacity

REGIONAL COLLABORATION ACTIONS

3.5.1 Increase resiliency coalition engagement with community-based organizations.

LOCAL ACTION MENU

3.5.2 Local governments can identify community-based organizations (i.e. chambers of commerce, urban leagues, neighborhood associations and/or neighborhood-based non-profit organizations) for potential partnerships and collaboration that support the implementation of the objectives within the jurisdiction's resiliency plan.

3.5.3 To encourage diversity, equity and inclusion, local governments can establish a Citizen Leadership Academy that provides education on resilience strategies that can be implemented at the neighborhood level (i.e. walking audits, pop-ups, home repairs) and supports Community Rating System (CRS) program goals.

3.5.4 Local governments may continue to engage graduates of the Citizens Leadership Academy and solicit feedback from this group for future resilience planning.



GOAL 4:

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy-efficient construction including sustainable and attainable housing

Many municipalities in the Region are giving more attention to the critical impact that climate and extreme weather impacts will have on the built environment. Using data and knowledge derived from the local vulnerability assessments, local governments can see how chronic shocks and stressors caused by the changing change may influence land-use patterns and require more stringent building and innovative site development.

Growing resiliently requires that we consider how climate vulnerability and resilience are related to both how we build and where we build. New best practices for planning resilient communities includes placemaking efforts that address climate risks and community vulnerability while supporting the local community culture, economy, quality of life and equity goals.

The goals and actions in the Place Chapter acknowledge the interconnected priorities of adding more attainable housing, creating resilient and sustainable transportation and redevelopment to increase community resilience and economic vitality, or reduce negative, unintended impacts.

The Regional Resiliency Action Plan will increase regional collaboration to address these issues by investigating sustainable land use practices, policies, incentives and low impact development strategies that can be implemented locally. When planning for new development and redevelopment in higher-risk areas, local governments will support building and site development standards that are aligned to the level of risks.

Goal 4:

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy efficient construction including sustainable and attainable housing

Objective 4.1:

Updated regulations, plans, and policies increase the resilience of affordable and attainable housing



Throughout the region many homes are at risk from extreme weather, flooding, storm surge, and future sea level rise. The region also faces a severe shortage of affordable and attainable housing. Expanding existing regulations and policies that encourage affordable housing is key in increasing attainable housing for all. Many of the tools resulting from the Resilience and Energy Assessment for Communities and Housing (REACH) program can be leveraged by local governments to begin this work. Factoring in the impacts of current and future climate hazards on housing is essential to ensuring housing is affordable and resilient.

CO-BENEFITS

- Affordability
- Equity

KEY PARTNERS

- Local governments
- Housing Authorities
- Nonprofit Housing Developers
- Private Housing Developers
- Florida Housing Coalition (FHC)

RELATED ACTIONS

Actions 2.3.1, 2.3.2, 2.3.3

LINKAGES

Housing

REGIONAL COLLABORATION ACTIONS

4.1.1 Convene a regional resilient housing leadership advisory committee to discuss and build consensus on goals, policies and strategies to improve post-disaster preparedness and new construction for the region's workforce and low-income families.

LOCAL ACTION MENU

4.1.2 Use affordable housing tools and resources, such as those developed by the REACH program, to assess and update existing planning mechanisms and supporting documents and identify lower risk areas for building.

4.1.3 Develop programs, policies and flexible density options to incentivize development of private affordable housing and publicly-assisted housing in areas with lower risk to current and future climate impacts.

4.1.4 Implement more stringent building standards (such as HUD requirements) for new private affordable housing and publicly assisted housing in areas at high risk to current and future climate impacts.

4.1.5 Amend plans and zoning to encourage accessory dwelling units, "missing middle" housing, and mixed-use buildings in areas with less risk to the impacts of current and future climate conditions.

4.1.6 Adopt policies to permit the use of appropriate properties for disaster recovery operations including temporary housing and/or pre-approved overlay zones.

Goal 4:

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy efficient construction including sustainable and attainable housing

Objective 4.2:

Adopt resilient and green building best practices to guide new housing construction



In addition to addressing flood risks and resiliency, affordability and attainability are supported through the energy savings created through green building practices. Objective 4.2 builds on the increased housing stock prioritized in Objective 4.1, through actions to ensure new housing is resilient to current and future climate hazards. Best practices under this objective support advanced standards that local governments can adopt to ensure more sustainable housing construction. The region can increase knowledge sharing and collaboration with key organizations and the private sector, including developers, to increase the adoption of newer housing standards.

CO-BENEFITS

- Equity
- Traffic Reduction
- Walkable Cities
- Water Quality

RELATED ACTIONS

Actions 6.1.3, 7.1.1, 8.1.1, 8.1.2

KEY PARTNERS

- Local governments
- Housing Authorities
- Nonprofit Housing Developers
- Private Housing Developers
- Florida Housing Coalition (FHC)
- Urban Land Institute (ULI)

LINKAGES

Agriculture/Food Systems, Coastal Habitats, Infrastructure, Transportation, Growth Management

LOCAL ACTION MENU

4.2.1 Update local plans, programs and create incentives for developers to support new multi-family buildings and sites that meet Florida Green Building Coalition and/or LEED standards, and higher flood mitigation standards.

4.2.2 Strengthen the housing element of local comprehensive plans to include standards for Low Impact Development, resilience, and equity strategies.

4.2.3 Incentivize developers to build medium to high density housing adjacent to transit.

Goal 4:

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy efficient construction including sustainable and attainable housing

Objective 4.3:

Programs and funding for housing mitigation and rehabilitation are increased



Objectives 4.1 and 4.2 focus on increasing housing stock and making new housing more resilient. However, it is important to remember the need to harden existing housing and support residents in their current homes. This can be done through retrofitting and rehabilitation programs. Similarly, more efforts are needed to reduce the risks to mobile homes and mobile home parks with targeted retrofits for storm preparedness, and develop long-term plans to support resilient and equitable replacement.

CO-BENEFITS

- Equity

KEY PARTNERS

- Local governments
- Florida Housing Coalition (FHC)
- United Way
- Nonprofit partners
- FEMA (grant funding)

RELATED ACTIONS

Actions 2.3.1, 2.3.2, 2.3.3

LINKAGES

Growth Management, Housing, Building Standards, Site Development

REGIONAL COLLABORATION ACTIONS

4.3.1 Implement a workshop series to support strategies for aligning affordable housing flood risk reduction and infrastructure improvements to benefit neighborhoods and communities.

4.3.2 Convene policymakers to advocate for statewide flood insurance improvements.

LOCAL ACTION MENU

4.3.2 Based on housing vulnerability assessments, identify property owners interested in rehabilitation, or selling their homes for voluntary rehabilitation or buyout programs funded by FEMA grant funding.

4.3.3 Identify and allocate reoccurring funding to support housing retrofits and achieve mitigation goals.

4.3.4 Support robust housing retrofit and rehabilitation programs for LMI communities, including rental properties and supported living housing.

4.3.5 Quantify flood risks for mobile homes and mobile home parks and develop targeted plans.

4.3.6 Conduct outreach and engagement with residents and mobile home unit/ park owners to review flood risks, collect information on needs, constraints and programs to support preparedness.

4.3.7 Define potential mitigation and redevelopment strategies to transform mobile and modular home parks into resilient communities, while preventing displacement.

Goal 4:

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy efficient construction including sustainable and attainable housing

Objective 4.4:

Update land use policies and regulations to account for current and future climate impacts and discourage displacement



According to Climate.gov, climate vulnerability and resilience are related to both how we build and where we build. Land-use policies and practices can have intended as well as unintended effects, and they require clear communications for communities to grasp the implications of specific development decisions.

For example, inattention to increases in the percentage of impervious surface—such as pavement in roads, sidewalks, driveways, and parking lots—in rapidly growing areas can increase exposure to flood hazards. In coastal areas, homes that can't withstand the winds of tropical storms can become a source of flying projectiles that damage other structures.

Other planning tools that can promote resilience include subdivision regulations that prescribe how homes are located in relation to flood or other hazard zones. Additionally, new adaptation action zones are being used to address incremental risks, such as sea level rise and droughts. This objective reccomends some best practices for using land use as a climate resiliency tool.[13]

REGIONAL COLLABORATION ACTIONS

4.4.1 Create a Regional Resilient Land Use and Design working group which includes diverse stakeholders to define best practices and recommendations for community health, resilience and quality of life.

CO-BENEFITS

- Walkable Cities
- Water Quality

KEY PARTNERS

- Local Governments
- Academic Partners
- Private Developers

RELATED ACTIONS

Action 2.1.6

LINKAGES

Growth Management, Building Standards, Site Development

LOCAL ACTION MENU

4.4.2 Consider delineating Adaptation Action Areas to identify areas where more stringent development standards will be applied.

4.4.3 Consider best practices for updating coastal setbacks for development and redevelopment that mitigate the potential effects of coastal erosion including the possibility of requirements that are more stringent than the Florida Building Code.

4.4.4 Develop incentives for developers to build outside vulnerable areas (density bonuses, expedited review, etc.).

4.4.5 Prioritize recreation/open space land use amendments as a flood-risk reduction technique with an emphasis on providing amenities for neighborhood residents (play areas, walking paths, etc.)

4.4.6 Continue to monitor flood complaints and flood loss records for the jurisdiction and consider strategic acquisitions of any recurring flood loss properties in the future.

ADAPTATION ACTION AREAS

"Adaptation Action Area" or "Adaptation Area" means a designation in the coastal management element of a local government's comprehensive plan which identifies one or more areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning.

Section 163.3164(1), Florida Statutes

Goal 4:

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy efficient construction including sustainable and attainable housing

Objective 4.5:

Update building and site development standards to account for current and future climate impacts



According to the U.S. Green Building Council, buildings account for nearly 40% of all greenhouse gas emissions (GHGs), according to Architecture 2030. Add in other infrastructure and activities, such as transportation, that are associated with buildings, and that number jumps.[14]

By building green, we can reduce the impact our buildings have on contributing to climate change while also building resilience into our homes and communities. In addition to prioritizing greenhouse gas reductions, there is a need to plan for current and future climate hazards. Setting more forward-thinking building codes, evaluating coastal development and planning infrastructure that can withstand higher seas can all help prepare communities for the future.[15]

CO-BENEFITS

- Traffic Reduction
- Walkable Cities
- Increased Property Values
- Energy Security
- Greenhouse gas Reduction

KEY PARTNERS

- Local Governments
- Private Developers

RELATED ACTIONS

N/A

LINKAGES

Clean Energy, Growth Management, Transportation, Building Standards, Site Development

LOCAL ACTION MENU

4.5.1 Use healthy building design, Florida Green Building Coalition principles, and/or LEED accreditation benchmarks for new public facilities, within the Land Development Regulations and Energy Code.

4.5.2 Encourage alternatives to single occupancy motor vehicle travel through parking reduction techniques, transit-oriented development incentives, and pedestrian and bike-friendly development and redevelopment policies.

4.5.3 Update existing regulations and policies to require development and redevelopment in high hazard areas to build to more stringent building standards including but not limited to higher freeboard requirements, and/or higher wind mitigation standards.

4.5.4 Implement regulations within Land Development Regulations to buffer structures from the impact of flood hazards (sea level rise, storm surge, flooding) by requiring setbacks from identified flood hazards areas.

4.5.5 Implement regulations within Land Development Regulations that buffer structures from the impact of wind hazards by requiring construction to exceed the requirements of the identified wind zone.

4.5.6 Incentivize parking and pavement reduction strategies for new development and redevelopment as a method of reducing heat island impacts.

4.5.7 Local governments update existing regulations and policies to require development and redevelopment in high hazard areas to build to more stringent site development standards including but not limited to Planned Unit Development (PUD).



GOAL 5:

Resilient adaptation protects, preserves and restores thriving habitats and abundant wildlife

Climate change has and will continue to cause substantial damages, and increasingly irreversible losses in terrestrial, freshwater, and coastal and marine ecosystems.[16] Biodiversity loss and degradation of ecosystems, including their natural adaptive capacity, are already key risks that will continue to escalate with every increment of global warming. The changing climate will bring about rising sea levels that contribute to coastal flooding and erosion, increased frequency of severe weather, increases in ocean temperature and acidification, growing pressure from pests and diseases, and increasing incidences of harmful algal blooms.[17]

Rising water levels and increasing salinity in estuarine systems, like Tampa Bay, will displace coastal plant and animal communities inland. A primary concern is that the landward migration of these important ecosystems cannot keep pace with the rapid rate of sea level rise, leading to "coastal squeeze" due to a lack of space for habitat migration because of upland urban development and hardening.[18] In addition, rising temperatures are driving tropicalization of mangroves which will likely dominate the overall proportions of future coastal ecosystems, whereas proportions of salt marshes, salt barrens and coastal freshwater wetlands will decline. These coastal wetlands provide important habitat for recreational and commercially important species of fish, shrimp, crabs, and other shellfish. Endemic species across Florida, such as the diamondback terrapin, face a high risk of extinction due in part to their already limited habitats now under stress and less resilient because of past and existing human-caused alterations and impacts, affecting their ability to withstand and adapt to additional stressors such as climate change.[19]

For the region to achieve biologically diverse habitats and abundant wildlife, local governments and regional partners must work together to curb emissions and increase the ability of habitats to adapt, improve water quality, protect biodiversity, and protect and restore coastal natural systems.

Goal 5:

Resilient adaptation protects, preserves, and restores thriving habitats and abundant wildlife



The Tampa Bay region and its coastal habitats are particularly vulnerable to climate change stressors such as sea level rise, ocean acidification, warming temperatures and changes in precipitation and storm intensity. To support the adaptability of coastal habits and ecosystems, the region will explore new land management strategies and leverage existing conservation policies included in the Tampa Bay Habitat Master Plan, the Tampa Bay Estuary Program's Comprehensive Conservation and Management Plan (CCMP), and the Sarasota Bay Estuary Program's CCMP. Local governments can support this objective through innovative land preservation strategies.

Protecting and enhancing fish and wildlife populations requires a combination of management and educational strategies, including habitat protection and restoration, assessment and monitoring, enactment and enforcement of laws that protect vulnerable species, and education of citizens and visitors.[20] Regional collaboration will be supported by the Agency on Bay Management and the Community Rating System (CRS) user group and involve supporting programs and policies that encourage preservation of fish and wildlife.

CO-BENEFITS

- Environmental Quality
- Greenhouse Gas Reduction
- Water Quality

KEY PARTNERS

- Local Governments
- Tampa Bay Estuary Program (TBEP)
- SWFWMD
- USFWS
- FDEP
- Academic institutions
- FWC
- NOAA
- The Nature Conservancy
- Restore America's Estuaries
- Sarasota Bay Estuary Program

Objective 5.1:

Increase the adaptability of coastal habitats and ecosystems to a changing climate, and preserve and restore the diversity and abundance of Tampa Bay's fish and wildlife

RELATED ACTIONS

Actions 6.3.1, 6.4.1

LINKAGES

Growth Management, Coastal Habitats

REGIONAL COLLABORATION ACTIONS

5.1.1 Support the Tampa Bay Habitat Master Plan goals of restoring more than 3,000 acres of wetlands and uplands in the next decade through resources for local policies and land-management strategies.

5.1.2 Enhance/expand the connectivity of wildlife corridors through mapping and collection of best practices.

LOCAL ACTION MENU

5.1.3 Incorporate the actions of the Comprehensive Conservation and Management Plan for Tampa Bay (CCMP) into their Comprehensive Plan using the CCMP Model Language Guidebook developed by the TBRPC.

5.1.4 Support programs and projects that protect and expand habitats and buffer zones for waterbirds and beach-nesting shorebirds.

5.1.5 Maintain and enhance stopover areas for migratory species.

5.1.6 Prioritize restoration of critical habitats through incentives, development agreements, and nonprofit partnerships.

Goal 5:

Resilient adaptation protects, preserves, and restores thriving habitats and abundant wildlife

Objective 5.2:

Improve or maintain air and water quality resulting in fishable, swimmable, and drinkable water



Improving the region's water quality will become more difficult as climate and non-climate stressors worsen, such as rising temperatures and increasing development. Air quality improvements are important for water quality since the majority of the region's nitrogen loading comes from atmospheric deposition and nonpoint sources. Sources of atmospheric deposition include power plants and industrial operations, automobiles, airplanes, agricultural emissions, and others. Nonpoint sources contribute at least 60% of nitrogen loading to Tampa Bay, stemming from stormwater runoff. Controlling nitrogen input into the bay to regain vital seagrass beds has been one of TBEP's most prominent initiatives. Seagrasses were selected as a metric by which efforts to improve the bay are measured because of their overall importance as a bay habitat and nursery, and because they are an important barometer of water quality.[21] Rising temperatures and increased rainfall will continue to make it more difficult to meet air and water quality goals. Because of this, the region will need to reevaluate these goals. The region can support this objective through initiatives to reduce emissions and stormwater runoff.

CO-BENEFITS

- Water Quality
- Public Health
- Greenhouse Gas Reduction
- Environmental Quality

KEY PARTNERS

- Local governments
- Tampa Bay Estuary Program (TBEP)
- Private developers

RELATED ACTIONS

Actions 6.3.1, 6.4.1 (carbon sequestration)

LINKAGES

Clean Energy, Coastal Habitats, Infrastructure

REGIONAL COLLABORATION ACTIONS

5.2.1 Reevaluate assimilative capacity of Tampa Bay given changing rainfall/temperature. Consider further reductions in nutrient loading that may be necessary to maintain water quality conditions (and associated seagrass coverage).

LOCAL ACTION MENU

5.2.2 Implement buffers or transition zones between uplands and aquatic systems to remove pollutants and excess nutrients delivered by urban stormwater.

5.2.3 Implement filtration devices on stormwater outfalls, such as baffle boxes

5.2.4 Asses the impacts of materials such as artificial turf and pavement on stormwater runoff.

5.2.5 Consider Florida-Friendly Landscaping standards for public projects and/or private development standards.

Goal 5:

Resilient adaptation protects, preserves, and restores thriving habitats and abundant wildlife

Objective 5.3:

Support the protection and restoration of coastal natural systems and the creating of resilient shorelines at the regional scale



Since 2019, the Resilient Shorelines and Spaces (RSS) working group has been assessing seawall design standards, policies and minimum heights for consideration of future sea level rise and will develop guidance on shoreline protection and adaption strategies to support community resiliency. This was identified as a priority by several members of the TBRPC Resiliency Coalition Steering Committee. The purpose of the workgroup is to define data, information needs, strategies for consideration in the Regional Action Plan, and develop recommendations and guidance documents for the Coalition to help local governments become more resilient to sea level rise, flooding, and erosion, and to reduce losses to wetlands and impacts to water resources. The Workgroup collects input from local governments to develop a list of priorities that address such matters as seawall standards and policy, use of living shorelines, construction, green and open space, drainage, wetlands, environmental restoration, and the policies. The actions in this objective are guided by the priorities identified by the RSS working group.

CO-BENEFITS

- Environmental Quality
- Water Quality

KEY PARTNERS

- Agency on Bay Management
- Local Governments
- Tampa Bay Estuary Program
- Florida Department of Environmental Protection
- Academic Institutions

RELATED ACTIONS

Action 4.5.2

LINKAGES

Growth Management, Coastal Habitats, Infrastructure, Site Development

REGIONAL COLLABORATION ACTIONS

5.3.1 Support adoption of the uniform sea wall and bulkhead heights defined in the Shoreline Model Ordinance to provide protection against future sea level rise and high tide flooding through 2070.

5.3.2 Coordinate regionally to develop shoreline design and construction standards and encourage local adoption to support private property owner efforts.

LOCAL ACTION MENU

5.3.3 Conserve existing natural habitat areas through implementation of policies, criteria, standards, methodologies, and procedures.

5.3.4 Provide incentives or update codes, plans, zoning, and regulations to encourage private property owners to install living shorelines and/or hybrid tidal flood barriers where feasible.

5.3.5 Establish policies that protect and preserve natural shorelines, promote living and hybrid shorelines and define appropriate locations and land-use types for implementing seawalls and other hardened infrastructure.

5.3.5 Consider adoption and integration of the Shoreline Model Ordinance.



GOAL 6:

Public infrastructure, services and assets become more resilient through innovative best practices

Climate change risks should be considered when planning new wastewater infrastructure. For example, planners may consider locating new wastewater treatment plants away from future surge and flood-prone areas and consider increasing capacity to accommodate anticipated increases in inflow and infiltration during more intense storms. Community resilience planning is underway in several municipalities in the bay watershed.[22]

Local standards and guidelines can help member governments cope with future uncertainties by focusing particularly on the local context. By building the capacity to adapt into initial project design, establishing systems for monitoring impacts, and formalizing the processes for making modifications based on infrastructure performance, communities can improve their ability to adapt promptly and economically in the face of emerging but as yet uncertain future flood hazards.[23]

Looking forward, sustainable infrastructure practices, such as, low impact development (LID) and green infrastructure are prelliminary solutions to both adapt to and mitigate the impacts of climate change, while also providing environmental and quality of life benefits.

Goal 6:

Public infrastructure, services, and assets become more resilient through innovative best practices

Objective 6.1:

Plan, build, and manage infrastructure to maximize function and longevity under future climate conditions

The region's infrastructure is already seeing impacts to climate hazards such as erosion, flooding, storm surge, and others. Sea level rise conditions will reduce the capacity of most outfalls and therefore limit their ability to receive and handle stormwater runoff.

The state recognizes the need to assist counties, municipalities, special districts and agencies with addressing these impacts through funding programs including the Resilient Florida grant program. Flood protection projects serving a regional or watershed-wide area, or that improve water quality, may be eligible for cost-share assistance through the SWFWMD Cooperative Funding Initiative. Local governments can advance this objective by building on vulnerability assessments to prioritize investments in new and hardened infrastructure, updating planning mechanisms to plan for infrastructure investments after disaster, and incorporating heat mitigation into infrastructure planning.

REGIONAL COLLABORATION ACTIONS

6.1.1 Reduce regional flood risk by convening regional stakeholders to identify innovative stormwater management strategies, design, incentives, and pilot projects which also support habitat resilience and water quality.

LOCAL ACTION MENU

6.1.2 Update critical infrastructure policies based on community vulnerability assessments. These updates should consider where to prioritize investment based on current and future climate hazards, health impacts and equity concerns.

6.1.3 Identify post-disaster redevelopment policies for infrastructure in a comprehensive plan and/or post-disaster redevelopment plan (PDRP), including but not limited to relocation/burying of utilities, installation of additional utilities such as broadband, and/or hardening infrastructure after a disaster.

CO-BENEFITS

- Cost-savings
- Equity

KEY PARTNERS

- Local governments
- EPA
- Gulftree.org
- Southwest Florida Water Management District (SWFWMD)
- Florida Department of Transportation

RELATED ACTIONS

Actions 2.14, 2.1.6, 6.5.1-5

LINKAGES

Finance/Governance, Infrastructure

6.1.4 Identify a process or mechanism to determine what infrastructure/areas may not be upgraded or mitigated at a certain time or impact. Reference previous data/information developed on stormwater and cost/benefit analysis in this analysis.

6.1.5 Promote and advocate for the installation of cool roofs, cool pavement, and other cooling techniques, including planting more shade trees, where concrete and other hard surfaces trap and collect heat, creating "heat islands "and near bus stops.

6.1.6 Develop a comprehensive heat island mitigation strategy and implementation plan that addresses cool pavements and roofs, pavement reduction, and neighborhood greening while ensuring equitable distribution.

6.1.7 Incorporate renewable energy development, production, and/or storage into the Post Disaster Redevelopment Plan (PDRP) to promote post-disaster power resiliency.

6.1.8 Consider setting minimum roadway elevation standards for future design and redevelopment. For example, a standard could be set consistent with roadways adjacent to tidal areas to have a minimum elevation consistent with seawall elevations.

6.1.9 Conduct a detailed stormwater outfall inventory. This should include outfall sizes, material, and condition to accurately assess vulnerability on a site-specific basis.

6.1.10 Install tide gates/ backflow preventers on piped outfalls. Consider setting a minimum outfall pipe size, and replace undersized pipes over time as existing outfalls reach their useful life.

6.1.11 Create an inventory of existing seawalls within the jurisdiction which includes seawall ownership, material, condition, and elevation.

6.1.12 Adopt a seawall ordinance that accounts for future SLR conditions and sets consistent standards for the jurisdiction. The TBRPC Shoreline Policy Guide can be used as a guide for this action.

Goal 6:

Public infrastructure, services, and assets become more resilient through innovative best practices

Objective 6.2:

Prioritize green infrastructure projects which mitigate hazards and provide environmental, social, and economic benefits to local communities



Green infrastructure or Low Impact Development (GI/LID) is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits. While single-purpose gray stormwater infrastructure—conventional piped drainage and water treatment systems—is designed to move urban stormwater away from the built environment, green infrastructure reduces and treats stormwater at its source while delivering environmental, social, and economic benefits. GI/LID projects are eligible for nonpoint source funding.[24] Regional collaboration to advance this objective will focus on trainings and workshops to encourage green infrastructure best practices. Local actions can include prioritizing green infrastructure in planning mechanisms and in the stormwater master plan.

CO-BENEFITS

- Environmental Quality
- Water Quality

KEY PARTNERS

- Local governments
- Tampa Bay Estuary Program (TBEP)
- Florida Department of Environmental Protection
- Southwest Florida Water Management District
- Private landowners

RELATED ACTIONS

Actions 2.1.6

LINKAGES

Coastal Habitats, Infrastructure, Site Development

REGIONAL COLLABORATION ACTIONS

6.2.1 Convene coalition members, partners, and experts to discuss green infrastructure best practices and funding mechanisms.

LOCAL ACTION MENU

6.2.2 Develop a list of regional high priority, high potential green infrastructure projects which provide community co-benefits.

6.2.3 Update comprehensive plans and/or land development regulations to include policies or regulations that prioritize green infrastructure and assess nature-based adaptation strategies.

6.2.4 Develop stormwater master plan projects that utilize an interconnected system of green infrastructure and open green space to reduce stormwater impacts.

6.2.2 Utilize the messaging tools provided in the Be Floridian campaign to educate communities about best management practices (BMP's) for reducing nutrient loads flowing into surface waters via residential landscaping.

Goal 6:

Public infrastructure, services, and assets become more resilient through innovative best practices

Objective 6.3:

Advance water management strategies, infrastructure improvements, and water conservation efforts to mitigate the potential adverse impacts of climate change on water supplies, water and wastewater infrastructure, and water management systems



Future and current climate hazards impact the operation of stormwater, wastewater, and potable water utilities. Sea level rise inundation and saltwater intrusion will likely impact coastal groundwater supplies and unguarded surface water intakes. Viewing water holistically enables the counties to be more flexible and quicker to address threats like storm surge, changing rainfall patterns, and the increased need for resiliency.[25] Resources can be made available on the TBRPC website to support best practices. Local governments can advance this objective through One Water principles, protection of sustainable water supplies, and community outreach. Funding assistance for water conservation, water reuse, and regionally developed alternative water supplies is available through the SWFWMD WISE Program and the Cooperative Funding Initiative.

CO-BENEFITS

- Water Quality
- Environmental Quality

KEY PARTNERS

- Local governments
- Tampa Bay Water
- Florida Water and Climate Alliance
- SWFWMD

RELATED ACTIONS

Actions 3.4.1, 3.4.4

LINKAGES

Community Capacity, Infrastructure

REGIONAL COLLABORATION ACTIONS

6.3.1 Increased information sharing between resiliency coaltion members and regional officers of SWFWMD, Tampa Bay Water, Army Corps, Port Authority, etc. to increase policy and funding alignment.

LOCAL ACTION MENU

6.3.2 Assess the benefits and limitations of integrated water management practices, such as One Water.

6.3.3 Continue to identify key protection areas to ensure sustainable water supply for consumption. Plan for future water supply by integrating potential future climate conditions and sea level rise scenarios.

6.3.4 Maintain or improve non-pressurized sewer lines to prevent groundwater and/or saltwater infiltration. This will allow reclaimed water to continue meeting irrigation and other non-potable water demands.

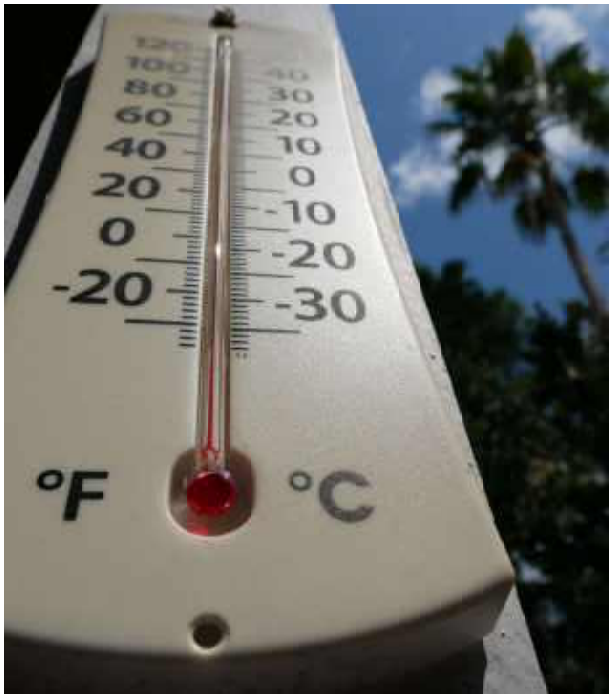
6.3.5 Participate in regional water supply development and interconnections, so alternative supplies can be developed with economies of scale and made available to all communities.

Goal 6:

Public infrastructure, services, and assets become more resilient through innovative best practices

Objective 6.4:

Plan and manage public services in the region for current and future climate impacts



Climate hazards will impact the ability of local governments to offer the same level of services in some areas and prioritize the need for additional services in other areas. This objective considers how future climate conditions will impact how residents deal with high heat days, including the possibility of more prevalent pests.

CO-BENEFITS

- Public Health
- Walkable Cities

KEY PARTNERS

- Local governments
- Nonprofits
- Utility Providers

RELATED ACTIONS

Actions 2.21, 2.2.2, 2.2.3, 2.2.4

LINKAGES

Housing

LOCAL ACTION MENU

6.4.1 Adopt a Forestry Master Plan - which includes an overall tree planting goal and annual target to expand regional forestry and wetland restoration to provide a variety of benefits, including improving air quality carbon sequestration, and heat mitigation.

6.4.2 Assess projected costs of mosquito and pest control to mitigate vector-born illness including considerations of the northward migration of sub-tropical and tropical species especially those that may be a public health concern.

6.4.3 Provide services to protect public health on extreme heat days that may include but need not be limited to cooling shelters.

6.4.4 Partner with utility providers and nonprofit organizations to provide relief for utility disconnections for extreme heat days.

Goal 6:

Public infrastructure, services, and assets become more resilient through innovative best practices

Objective 6.5:

Increase post-disaster power resilience for long-term and short-term outages



Historically, resilient electric power systems have been powered by diesel generators and other forms of fossil-fueled generation, yet there are risks of relying on diesel as the only backup power option such as the potential for fuel supplies to run out and likelihood of generator failure if not maintained. Generators can fail when expected to support large building loads or operate for extended periods. Long-lasting power outages caused by hurricanes and other disasters have major impacts on communities and local economies. Leading organizations and energy agencies across the country are working to evaluate the role of solar energy and battery storage on specific buildings to improve local community resilience goals.

CO-BENEFITS

- Energy Security
- GHG Reduction

KEY PARTNERS

- Local governments
- Utility Providers
- Florida Department of Emergency Management (FDEM)
- Federal Emergency Management Agency (FEMA)
- Florida Department of Health (FDOH)
- US Department of Homeland Security

RELATED ACTIONS

Action 6.1.6

LINKAGES

Clean Energy, Building Standards

LOCAL ACTION MENU

6.5.1 Conduct planning for Community Lifelines for long-duration, widespread power outages.

6.5.2 Conduct energy and power-resilience assessments for operations and emergency systems to understand essential equipment energy needs

6.5.3 Incorporate plans for energy hardening upgrades and reduce reliance on diesel generators for backup power into existing emergency management plans.

6.5.4 Use Clear Sky Tampa Bay tools and resources to identify critical systems and facilities which are candidates for solar and battery storage.



GOAL 7:

The region has a connected multimodal transportation network that is resilient to extreme weather, reduces local emissions, and enhances equitable mobility and public safety

Regional resilient transportation priorities include making the existing transportation infrastructure network can sustain the impacts of extreme weather, improving regional transportation options to reduce emissions, and improving health outcomes related to transportation.

In March 2019, the Tri-County TMA (Transportation Management Area) comprised of the Hillsborough, Pinellas, and Pasco MPOs, FDOT, and TBPRC conducted a regional transportation vulnerability analysis with funding from the Federal Highway Administration and the Florida Department of Transportation. The results of the analysis will provide information and recommendations to ensure the region's transportation system meets the near and long term functional, economic, and quality of life goals of Tampa Bay's residents, businesses, and visitors in the face of weather and climate changes.

Other TPOs throughout the region are currently prioritizing vulnerability assessments to begin the work of making their transportation systems more resilient to climate hazards.

Goal 7:

The Region will have a connected multimodal transportation network that is resilient to extreme weather, reduces local emissions, reduces automobile congestion and enhances equitable mobility and public safety

Objective 7.1:

Prioritize transportation infrastructure investments that mitigate the impacts of current climate hazards and adapt to future climate conditions



Similarly, to the impacts that are being seen and will be seen to other infrastructure throughout the region caused by climate hazards, roadway infrastructure is vulnerable to flooding, sea level rise, and extreme heat. Local governments can conduct vulnerability assessments to assess the impacts to their existing transportation infrastructure (see objective 2.1). Building on these assessments, local governments can begin to prioritize roadway mitigation projects. These projects are also an opportunity to integrate low-emission transportation alternatives into the community.

CO-BENEFITS

- Traffic Reduction
- Walkable Cities

KEY PARTNERS

- Local governments
- Academic institutions

RELATED ACTIONS

Actions 2.2.2

LINKAGES

Transportation

REGIONAL COLLABORATION ACTIONS

7.1.1 Convene transportation infrastructure staff to define best practices for adaptation, coordination of improvements, and incoorporation of multimodal transportation options.

LOCAL ACTION MENU

7.1.2 Road and highway flood resilience improvement are coordinated with community planning resilience improvements.

7.1.3 Create minimum roadway elevation standards for future design and redevelopment. For example, a standard could be set consistent with roadways adjacent to tidal areas to have a minimum elevation consistent with seawall elevations.

7.1.4 Prioritize and implement mitigation efforts on multiuse trails within the Adaptation Action Area and other vulnerable areas to provide alternative modes of transportation to single occupancy vehicles and transportation options that are less vulnerable to flooding.

7.1.5 Include bicycle and pedestrian improvements when implementing mitigation and adaptation projects, where appropriate, to encourage alternatives to single-occupancy vehicles as transportation.

Goal 7:

The Region will have a connected multimodal transportation network that is resilient to extreme weather, reduces local emissions, reduces automobile congestion and enhances equitable mobility and public safety

Objective 7.2:

Accelerate the transition to renewable, accessible, resilient, and equitable mobility systems



Improving existing transportation infrastructure, as proposed in Objective 7.1, is critical to maintaining the current level of services throughout the region. However, Resiliency Coalition members and partners, through feedback provided at RRAP development workshops and the 2020 Leadership Summit, have prioritized transportation advancement beyond mitigation. This includes a vision of a multimodal transportation system that offers alternatives to single-occupancy vehicles and encourages lower emission transportation modes. Regional collaboration to advance this objective will include regional workshops focused transportation best practices. The TBRPC will also convene coalition members and partners to consider how to fund innovative transportation solutions.

CO-BENEFITS

- Traffic Reduction
- Walkable Cities
- GHG Reduction

KEY PARTNERS

- TBARTA
- MPOs/TPOs
- FDOH
- Regional Public Health Partners
- USF Center for Urban Transportation (CUTR)

RELATED ACTIONS

Actions 4.4.1 - 4.4.7

LINKAGES

Clean Energy, Site Development, Transportation

REGIONAL COLLABORATION ACTIONS

7.2.1 Support regionally coordinated electric vehicle charging station infrastructure through the development of a regional Electric Vehicle Master Plan (EVMP).

LOCAL ACTION MENU

7.2.2 Use local data to define electric charging infrastructure needs for public and private properties within the jurisdiction.

7.2.3 Set a goal to increase electric mobility by a defined percentage within a specific time period (i.e. an increase of 25% by 2025).

7.2.4 Guid the location and installation of charging infrastructure.

7.2.5 Develop and provide guides to encourage electric vehicle charging infrastructure installation on private property.

Goal 7:

The Region will have a connected multimodal transportation network that is resilient to extreme weather, reduces local emissions, reduces automobile congestion and enhances equitable mobility and public safety

Objective 7.3:

Invest in low-emissions transportation infrastructure and air quality improvements to improve health outcomes



Objective 7.3 builds on the priorities that inform Objective 7.2 with a strong focus on improving public health outcomes. Climate conditions and poor air quality can impact the region's residents, and this objective proposes local actions to mitigate those impacts. Local actions to advance this objective include landscaping, cooling stations and improving walkability and bikeability.

REGIONAL COLLABORATION ACTIONS

7.3.1 Identify federal and state grants and other funding mechanisms to implement electric vehicle infrastructure.

7.3.2 Provide a forum that supports integration of regional priorities into state/local transportation plans through coordination with MPOs, PSTA, HART, TBARTA, TMA, FDOT District Offices, the airports and the ports.

CO-BENEFITS

- Traffic Reduction
- Walkable Cities
- Public Health

KEY PARTNERS

- TBARTA
- MPOs/TPOs
- USF CUTR

RELATED ACTIONS

Actions 4.4.1 - 4.4.7

LINKAGES

Clean Energy, Transportation, Site Development

LOCAL ACTION MENU

7.3.3 Use data from regional emissions study to update regional and local transportation plans and policies to define targets for transportation electrification strategies.

7.3.4 Utilize infrastructural improvements that will improve air quality and protect vulnerable populations from poor air quality, such as landscape buffers, tree scaping, etc.

7.3.5 Prioritize accessory facilities for bus stops, sidewalks and trails (shelters, trees in right of way, cooling stations) to mitigate impacts of heat and extreme rain especially in transit-dependent neighborhoods.

7.3.6 Prioritize alternative modes of transportation other than single-occupancy vehicles (e.g., transit, walking, biking, etc.) through comprehensive plan policies, such as Complete Streets, Vision Zero.

7.3.7 Prioritize low-to-zero emission transportation modes such as electric and natural gas vehicles in policy plans and ordinance development.

7.3.8 Create or expand bikeshare programs to connect more residents in neighborhoods historically disadvantage communities.

7.3.9 Implement outreach and education programs that promote emission reduction techniques and other sustainable practices that improve air quality for all communities.



GOAL 8:

Food systems become more resilient and access to healthy foods is improved

Climate change and extreme weather events are likely to lead to local availability limitations and price increases, interrupted transportation and storage Climate change can also affect food availability, access, utilization, and the stability of each of these, over time. Constrictions at any point can lead to food insecurity through the activities of the food system, including food production, transportation, and storage.[26]

Reducing food waste is an important component of mitigating climate change. According to the U.S Environmental Protection Agency, food waste is the single largest category of material placed in municipal landfills, where it emits methane, a powerful greenhouse gas. Municipal solid waste landfills are the third-largest source of human-related methane emissions in the United States, accounting for approximately 14.1 percent of these emissions in 2017.[27]

Goal 8:

Food systems become more sustainable and resilient, and access to healthy foods is improved

Objective 8.1:

Implement a holistic approach to reduce risks, gaps, and disconnects with the regional food system to improve access and security



This objective encourages the region and local governments to begin to consider the importance of food systems to recovery after disaster events. To improve the resilience of local food systems this objective proposes working with regional partners to determine the best practices for supporting our regional food systems ability to adapt to a changing climate.

Building on these regional actions, this objective also proposes programs and regulations to support the preservation and expansion of these assets. This objective also focuses on food waste reduction as a means for both preserving food system resiliency and reducing waste and methane emissions. Local actions to advance this objective include incentivizing sustainable food production, outreach for food waste reduction, and composting programs.

CO-BENEFITS

- Public Health
- Equity

KEY PARTNERS

- Neighborhood Associations
- Homeowners Associations
- UF IFAS Extension Services

RELATED ACTIONS

Action 2.1.3

LINKAGES

Agriculture/Food Systems

REGIONAL COLLABORATION ACTIONS

8.1.1 Coordinate with member governments to develop food resiliency and sustainability plans and programs.

8.1.2 The TBRPC will work with local, regional, state and federal agencies, such as, USF, UF Sea grant, NOAA and St. Pete Ocean Team, to define future impacts to regional fisheries and aquaculture businesses and define potential strategies to increase economic resilience to extreme weather and climate change.

LOCAL ACTION MENU

8.1.3 Develop and provide incentives to increase sustainable local food production, including processing and distribution, to support LMI community and economic goals.

8.1.4 Update regulations and policies to support local food production, and remove barriers to food equity.

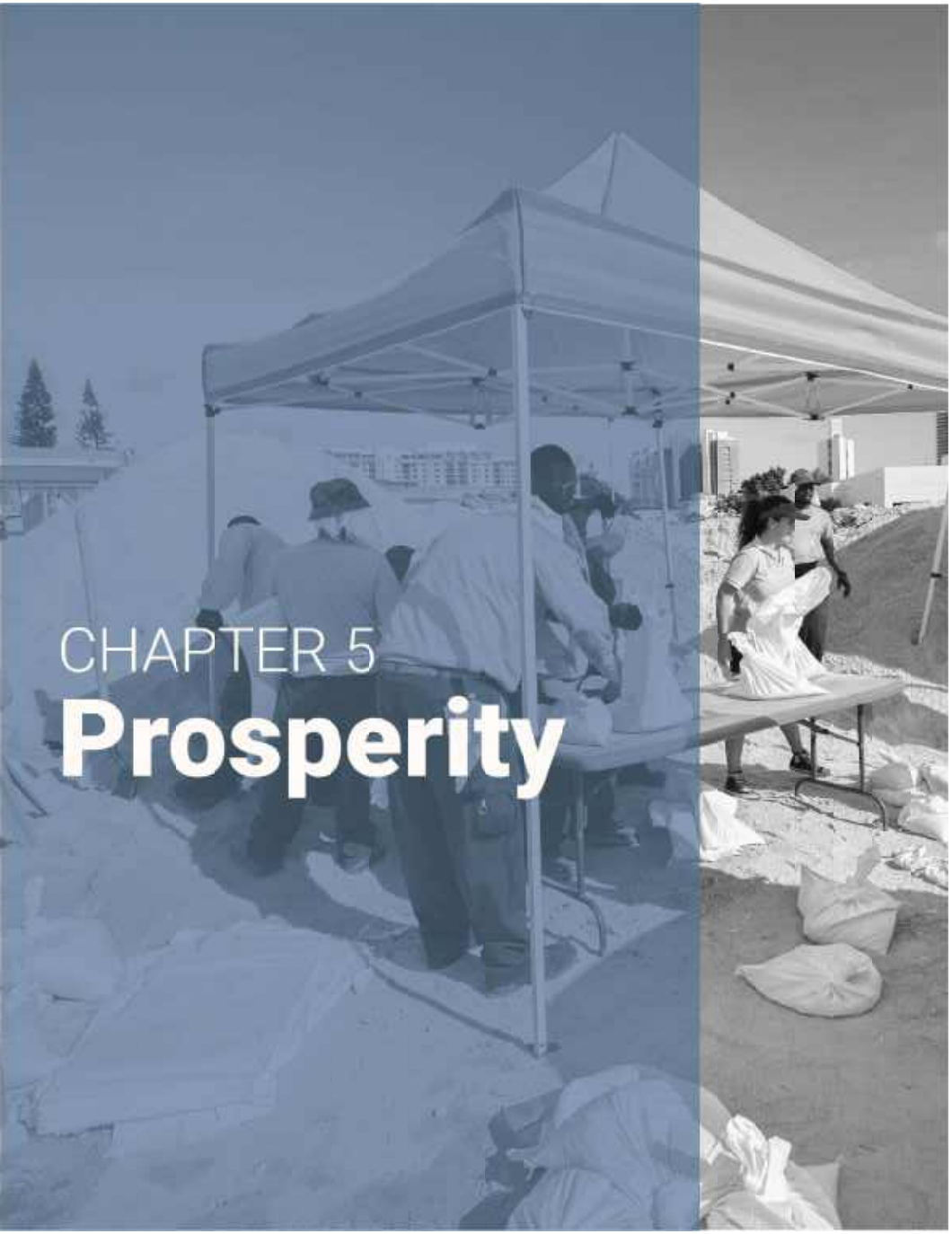
8.1.5 Implement sustainability outreach and education efforts to reduce food waste.

8.1.6 Convene large commercial producers of food waste to discuss and define onsite reduction and/or energy reuse strategies.

8.1.7 Support collaborations with universities, schools, and hospitals to encourage implementation of programs that support the EPA Food Recovery Hierarchy (waste diversion).

8.1.8 Implement programs to encourage composting among residents.

8.1.9 Explore grants to develop small hyper-local grocery store / neighborhood markets.



CHAPTER 5

Prosperity

GOAL 9:

Businesses prepare and recover quickly from the impacts of extreme weather events and hazards

Members of the business community of the Tampa Bay are important to the region, not just as employers and service providers but also as community lifelines necessary to the recovery of the whole region when disaster strikes. In the event of a disaster, businesses are responsible for their employee's needs, and at the same time must prioritize their financial management including navigating insurance and disaster assistance. Meanwhile members of the community rely on these businesses to restore operations to provide essential services such as food, to prepare businesses and the region to better recover for the next disaster it is imperative that businesses have a disaster plan and are part of the emergency management planning process.

Disaster Planning for small businesses is essential for better disaster recovery. Local governments can leverage existing resources to assist local businesses with disaster continuity planning. Local governments can also facilitate business community recovery through flexible permitting and by encouraging retrofits and hardening post-disaster. Inviting the private sector, at all scales, to participate in the emergency management planning process, will also lead to better response and recovery outcomes.

Goal 9:

Businesses prepare and recover quickly from the impacts of extreme weather events and hazards

Objective 9.1:

Local governments partner with the business community to implement policies and programs that assist businesses in recovering after a disaster



Disaster planning for small businesses is essential for better disaster recovery. Chambers of commerce, emergency management staff, and the regional planning council have been working to provide resources to assist businesses in creating and implementing a business continuity plan. Leveraging these existing resources and partnering to broaden the reach of the delivery of these resources will improve recovery when disaster strikes.

Local governments can facilitate business community recovery after a disaster with accomodations such as flexible permitting requirements and fee waivers for post-disaster repairs. Local governments can also support business recovery by highlighting best practices of well-prepared businesses. Local governments can also build business resiliency through partnerships with business organizations that encourage resilient retrofits.

CO-BENEFITS

- Economic Development
- Energy Security
- Increased Property Values

KEY PARTNERS

- Chambers of Commerce
- Business organizations
- Financial institutions
- PACE

RELATED ACTIONS

Actions 4.4.1 -4.4.7

LINKAGES

Business Engagement

LOCAL ACTION MENU

9.1.1 Emergency management staff facilitate disaster recovery training exercises for building owners and small businesses using the Project Phoenix 2.0 hurricane scenario and tabletop exercise (TTX) training materials.

9.1.2 Emergency management staff facilitate ongoing relationships with small businesses.

9.1.2 Work with business in high risk areas, identified in the jurisdiction's community vulnerability assessments, to provide materials and resources for mitigation and preparedness which might include conducting a needs assessment, and/or preparing a business continuity plan to aid in disaster recovery efforts.

9.1.3 Implement a resiliency awards program for businesses to encourage best practices in businesses preparedness, continuity planning, and business recovery.

9.1.4 Garner feedback from the business community to inform the adoption of policies and regulations that provide relief to small businesses in post-disaster construction such as permit expediting, and/or permit waivers.

9.1.5 Collaborate with chambers of commerce and business associations to support energy efficiency retrofits, hardening of infrastructure/buildings and, and other recovery improvements for businesses.

Goal 9:

Businesses prepare and recover quickly from the impacts of extreme weather events and hazards



It is also important for businesses to participate in the Emergency Operations planning process. Many businesses also serve as essential Community Lifelines. According to FEMA, a lifeline enables the continuous operation of critical government and business functions and is essential to human health and safety or economic security. Efforts to protect lifelines, prevent and mitigate potential impacts to them, and building back stronger and smarter during recovery will drive overall resilience of the nation. As such, when the business community participates in the management and development of the Local Mitigation Strategy and are integrated into planning for operations at the Emergency Operations Center these lifelines are better able to get back up and running after a disaster.

Local governments can leverage partnerships with the health sector to ensure smooth operations during a disaster and a speedy recovery after a disaster. Inviting public health professionals and medical facility managers to participate in the emergency management planning process can provide illuminate opportunities for resource and knowledge sharing before a disaster event.

Objective 9.2:

Local governments involve the private sector in mitigation, disaster preparedness, and disaster recovery planning to improve emergency response and public health outcomes

CO-BENEFITS

- Energy Security
- Public Health

RELATED ACTIONS

Actions 6.5.1, 7.3.1, 2.2.5

KEY PARTNERS

- Chambers of Commerce
- Business organizations
- Financial institutions
- PACE
- Insurance Providers
- Banks
- Florida Department of Emergency Management

LINKAGES

Business Engagement, Infrastructure, Building Standards

LOCAL ACTION MENU

9.3.1 Work with business organizations to identify means to improve communication and responsiveness from their community's emergency management plan from a business perspective.

9.3.2 Emergency management can identify and map business sectors that support Community Lifelines which are vital for recovery. Local government emergency management will collaborate with the business community to identify private assets with the highest short-term risk for inundation, and identify opportunities to collaborate on adaptation projects.

9.3.3 Engage the business community in the Local Mitigation Strategy working group meetings on an ongoing basis.

9.3.4 Work with privately managed critical facilities to determine resources needed to aid in timely recovery efforts such as generators, mitigation projects, etc.

9.3.5 Partner with business organizations and the local health department to conduct workshops on heat impacts and labor productivity to increase workforce resilience.

9.3.6 Local governments, health care providers and business organizations may support development of community health plans to address chronic illnesses and health impacts to climate hazards.



GOAL 10:

Businesses and key sectors support innovation and workforce development that is resilient to changing climate conditions

As the members of the Tampa Bay Regional Resiliency Coalition continue to track the impacts of a changing climate, it is becoming more important to these local governments to partner with the private sector to make the regional economy more resilient to these impacts. Protecting regional prosperity protects the quality of life for people in the Tampa Bay region.

These actions under Goal 10 provide a blueprint for how to make the regional economy more resilient through workforce planning, prioritizing equity, upgrading telecommunications, and considering the role the agricultural industry plays in a resilient regional economy.

Goal 10:

Businesses and key sectors support innovation and workforce development that is resilient to changing climate conditions

Objective 10.1:

Enable economic opportunity and energy efficiency investments.



A resilient economy should provide opportunities for all workers, and support urban, suburban and rural communities. Workforce training programs should be updated to encourage jobs in construction, engineering and technology that support the region's growing need for adaptation projects. The region also needs to identify industries that may carry larger burdens when implementing sustainable practices. This will allow for partnership opportunities to identify best practices for these industries. Finally, agriculture is an industry that will be greatly impacted by changing climate conditions. The TBRPC will begin to engage partners and stakeholders to identify adaptation and mitigation priorities for this sector. This objective will build on the Tampa Bay Comprehensive Economic Development Strategy (CEDS) process lead by the TBRPC.

CO-BENEFITS

- Job Creation
- Economic Development
- Public Health

KEY PARTNERS

- United Way
- Nonprofit builders
- ULI
- Universities
- Tampa Bay Partnership
- Local governments

RELATED ACTIONS

Action 8.1.2

LINKAGES

Agricultural/Food Systems, Business Engagement

REGIONAL COLLABORATION ACTIONS

10.1.1 Develop an industry cluster of resilient infrastructure technologies and firms to support improvements to local government fleet performance, traffic control, safety, and resiliency in times of emergency.

10.1.2 Conduct cost-benefit analyses of energy efficiency investments.

Goal 10:

Businesses and key sectors support innovation and workforce development that is resilient to changing climate conditions

Objective 10.2:

Expand and upgrade telecommunications services to support capacity for remote work/telecommuting in the region.



Annually, natural disasters cause significant burden, including adverse effects on health and economic losses.[28] One of the major drivers of increasing losses from natural disasters is economic growth in affected areas.[29] The ability for employees to continue work without disruption during natural disasters could reduce some of these economic losses.[30]

One way to avoid disruption and improve resiliency during natural disasters is to promote teleworking or remote work. The importance of remote work and telecommuting have been highlighted by the COVID-19 pandemic, but several post-disaster continuity plans benefit from the addition of remote work options. After a disaster, businesses can use remote connections to access financial documents, connect with employees, and file insurance claims when the physical business location is inaccessible. As such, it is important to support the expansion of telecommunication infrastructure in the region.

CO-BENEFITS

- Energy Security
- Cost-Savings
- Job Creation
- Economic Development

RELATED ACTIONS

N/A

KEY PARTNERS

- Local governments
- Florida Office of Broadband
- Private sector partners

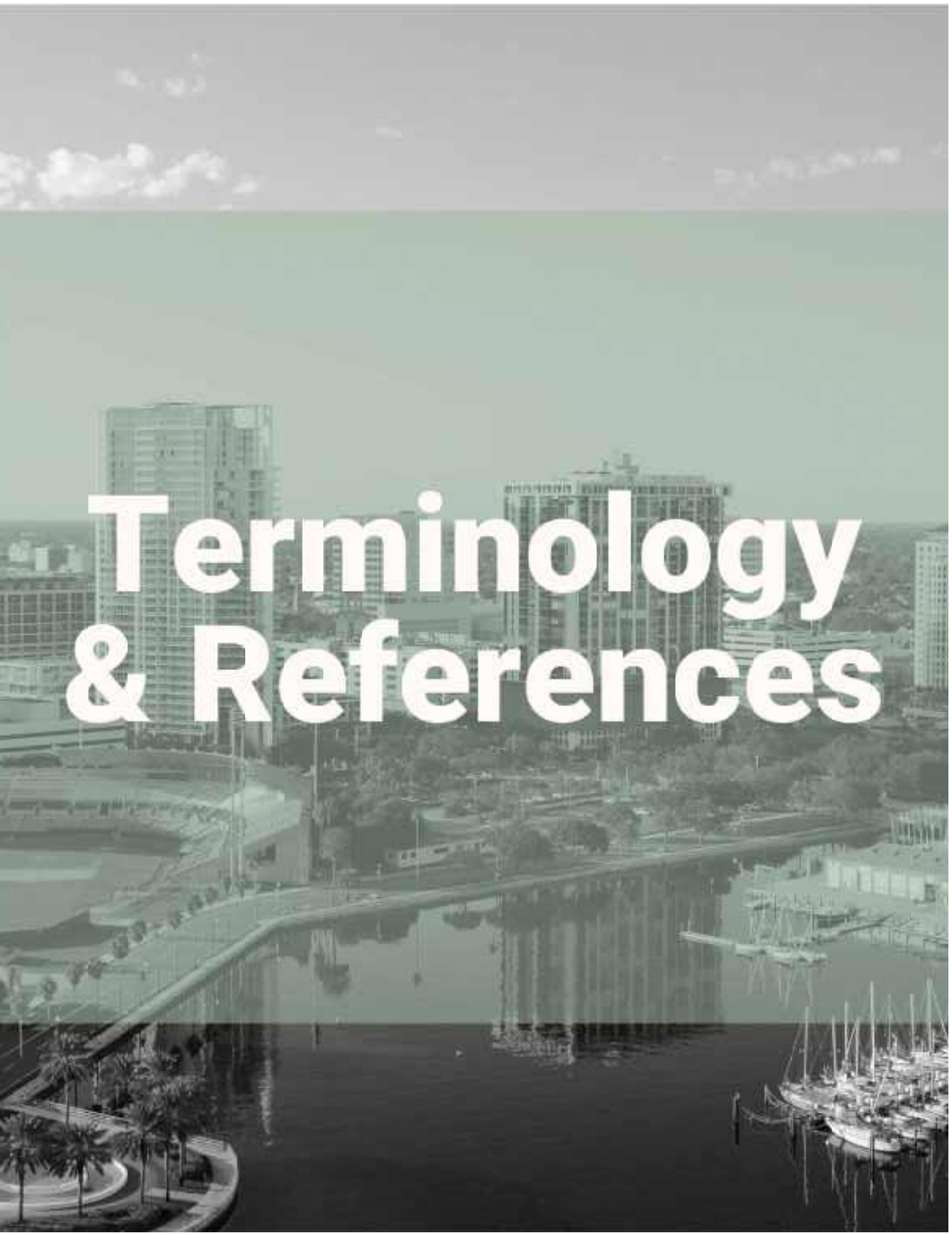
LINKAGES

Business Engagement, Infrastructure

LOCAL ACTION MENU

10.2.2 Convene a meeting or solicit feedback from business organizations to develop a plan to ensure continued growth of broadband and cellular services.

10.2.2 Comprehensive plan and/or land development regulations include policies or regulations to encourage the installation of high-speed broadband alongside public utility projects and private development.



Terminology

Adaptation

The process of adjusting to new (climate) conditions in order to reduce risks to valued assets.

Adaptation Action Areas

Adaptation Action Areas are a policy tool that allows local governments to plan for sea level rise, designate vulnerable areas and prioritize adaptation strategies. There is significant flexibility in how a local government can develop Adaptation Action Areas. Local governments are authorized but not required to designate Adaption Action Areas in their comprehensive plans. An "adaptation action area" or "adaptation area" is an area that experiences coastal flooding due to extreme high tides and storm surge and is vulnerable to the related impacts of rising sea levels for prioritizing funding for infrastructure needs and adaptation planning. Local governments that adopt an Adaptation Action Area may consider policies within the coastal management element to improve resilience to coastal flooding resulting from high-tide events, storm surge, flash floods, stormwater runoff and related impacts of sea level rise. Criteria for the adaptation action area may include, but need not be limited to:

- Areas below, at or near mean higher high water;
- Areas which have a hydrological connection to coastal waters; and
- Areas designated as evacuation zones for storm surge.

Statutory References:

- Section 163.3164(1), Florida Statutes.
- Section 163.3177(6)(g)(10), Florida Statutes[31]

Assets

People, resources, ecosystems, infrastructure, and the services they provide. Assets are the tangible and intangible things people or communities value. The infrastructure of roads, airports, and seaports are assets. The service of supply chain stability (supported by transportation infrastructure) is an asset. A community's local "charm" is an example of an intangible asset.

Carbon Sequestration

Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change.[32]

Climate Drivers

Natural climate drivers include changes in the sun's energy output, regular changes in Earth's orbital cycle, and large volcanic eruptions that put light-reflecting particles into the upper atmosphere. Human-caused, or anthropogenic climate drivers include emissions of heat-trapping gases (also known as greenhouse gases) and changes in land use that make land reflect more or less sunlight energy. Since 1750, human-caused climate drivers have been increasing, and their effect dominates all natural climate drivers.[33]

Climate Indicators

Are a set of parameters that describe the changing climate without reducing climate change to only temperature.

Climate Stressors

A condition, event, or trend related to climate variability and change that can exacerbate hazards. Increasing frequency and intensity of drought conditions. Can be a climate stressor for forests and crops. Rising sea level is another climate stressor.

Driver Indicators

Factors that change the Earth's radiative balance. Natural climate drivers include changes in the sun's energy output, regular changes in Earth's orbital cycle, and large volcanic eruptions. Human-caused climate drivers include emissions of heat-trapping gases (GHGs) and changes in land use.

Hazard

An event or condition that may cause injury, illness, or death to people or damage to assets. Extended periods of excessive heat are likely to be an increasingly common hazard in the coming decades.

Impact Indicators

The effect/result of interaction between climate phenomena, related hazards, vulnerability, and exposure. Increased heat, drought and insect outbreaks, all linked to climate change, have increased wildfires. Health impacts in cities due to heat, rainfall, and mosquito-borne illness; or coastal flooding and erosion are other examples.

Impacts

Effects on natural and human systems that result from hazards. Evaluating potential impacts is a critical step in assessing vulnerability. In the West, the destruction of homes by wildfires is among the impacts of hotter and drier conditions and earlier snowmelt.

Mitigation

Processes that can reduce the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing them from the atmosphere.[34]

Non-climate Stressors

A change or trend unrelated to climate that can exacerbate hazards. Altering drainage patterns and replacing open land with roads and buildings are non-climate stressors for flooding hazards. Population growth along exposed coasts is another non-climate stressor.[35]

Renewable Energy

Renewable energy, often referred to as clean energy, comes from natural sources or processes that are constantly replenished. For example, sunlight or wind keep shining and blowing, even if their availability depends on time and weather.[36]

Resilience

The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.

Sustainability

Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations.[37]

Vulnerability

The propensity or predisposition of assets to be adversely affected by hazards. Vulnerability encompasses exposure, sensitivity, potential impacts, and adaptive capacity.[38]

References

1 FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/PPAAFL12057A156NCEN, September 19, 2022. Data from fred.stlouisfed.org

2 U.S. Bureau of Economic Analysis, Gross Domestic Product: All Industries sum multiple counties, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/GDPALL12057, September 19, 2022.

3 U.S. Bureau of Labor Statistics, Employed Persons average for multiple counties, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/LAUCN120570000000005A, September 19, 2022.

4 U.S. Census Bureau, Estimate of Median Household Income average for multiple counties, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/MHIFL12057A052NCEN, September 19, 2022.

5 U.S. Census Bureau, Mean Commuting Time for Workers (5-year estimate) average for multiple counties, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/B080ACS012081, September 19, 2022.

6 U.S. Census Bureau, Mean Commuting Time for Workers (5-year estimate) average for multiple counties, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/B080ACS012081, September 19, 2022.

7 Usgcrp. "Fourth National Climate Assessment: Summary Findings." NCA4, Accessed September 21, 2022. https://nca2018.globalchange.gov/.

8 Intergovernmental Panel on Climate Change. "Global warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty." IPCC. http://www.ipcc.ch/report/sr15/. (Accessed Oct. 2018).

9 "Community Health Planning and Statistics." Health in All Policies (HiAP) | Florida Department of Health in Pinellas. Accessed September 21, 2022. https://pinellas.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/health-in-all-policies/index.html.

10 "2020 Regional Equity Report." Issuu. Accessed September 21, 2022. https://issuu.com/tampabaypartnership/docs/2020_regional_equity_report.

11 "Financing Resilience." Center for Climate and Energy Solutions, May 6, 2020. https://www.c2es.org/content/financing-resilience/.

12 Rogerson, Bethany, and Mimi Majumdar Narayan. "Resilience Hubs Can Help Communities Thrive-and Better Weather Disasters." The Pew Charitable Trusts. The Pew Charitable Trusts, June 22, 2020. https://www.pewtrusts.org/en/research-and-analysis/articles/2020/06/22/resilience-hubs-can-help-communities-thrive-and-better-weather-disasters.

13 "U.S. Climate Resilience Toolkit." Planning and Land Use | U.S. Climate Resilience Toolkit. Accessed September 21, 2022. https://toolkit.climate.gov/topics/built-environment/planning-and-land-use.

14 "How Green Buildings Can Help Fight Climate Change." U.S. Green Building Council. Accessed September 21, 2022. https://www.usgbc.org/articles/how-green-buildings-can-help-fight-climate-change.

15 https://sealevelrise.org/solutions/

16 IPCC, "Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (Eds.)]."

17 IPCC; Gobler, "Climate Change and Harmful Algal Blooms"; Sherwood and Greening, "Potential Impacts and Management Implications of Climate Change on Tampa Bay Estuary Critical Coastal Habitats."

18 Nicholls et al., "Coastal Systems and Low-Lying Areas"; Raulerson et al., "Seizing Diminishing Habitat Conservation and Restoration Opportunities in the Tampa Bay, FL Watershed."

19 Stys et al., "Climate Change Impacts on Florida's Biodiversity and Ecology"; IPCC, "Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (Eds.)]."

20 https://adobeindd.com/view/publications/cf7b3c48-d2b2-4713-921c-c2a0d4466632/2gv9/publication-web-resources/pdf/tbep_ccmp_2017.pdf

21 https://adobeindd.com/view/publications/cf7b3c48-d2b2-4713-921c-c2a0d4466632/2gv9/publication-web-resources/pdf/tbep_ccmp_2017.pdf

22 https://adobeindd.com/view/publications/cf7b3c48-d2b2-4713-921c-c2a0d4466632/2gv9/publication-web-resources/pdf/tbep_ccmp_2017.pdf

23 https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-596-rev-2.pdf

24 https://floridadep.gov/wra/319-tmdl-fund/content/green-infrastructure

25 http://www.planhillsborough.org/wp-content/uploads/2020/07/One_Water.pdf

26 https://www.usda.gov/oce/energy-and-environment/food-security

27 https://www.usda.gov/foodlossandwaste/why

28 UN Office for Disaster Risk Reduction. The human cost of natural disasters: a global perspective. Geneva, Switzerland: UN Office for Disaster Risk Reduction, 2015.

29 Botzen WJW, Deschenes O, Sanders M. The economic impacts of natural disasters: a review of models and empirical studies. Rev Environ Econ Policy. 2019;13(2):167–88. doi: 10.1093/reep/rez004

30 Madrigano J, Chandra A, Costigan T, et al. Beyond disaster preparedness: building a resilience-oriented workforce for the future. Int J Environ Res Public Health. 2019;14(12):1563. doi: 10.3390/ijerph14121563

31 https://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/adaptation-planning

32 https://www.usgs.gov/faqs/what-carbon-sequestration?qt-news_science_products=0#qt-news_science_products

33 https://www.climate.gov/maps-data/primer/climate-forcing#:~:text=Another%20way%20to%20refer%20to,particles%20into%20the%20upper%20atmosphere.

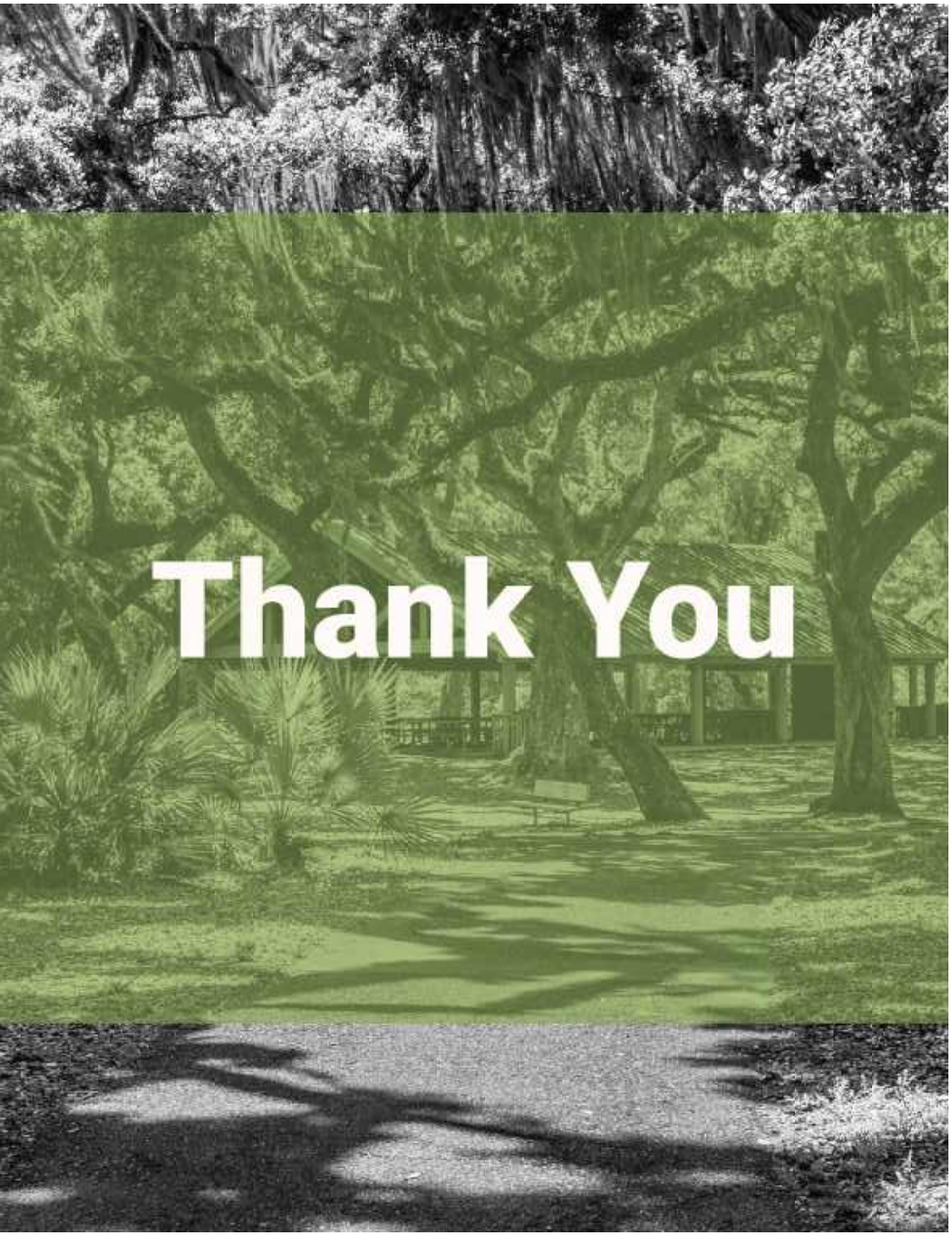
34 https://toolkit.climate.gov/content/glossary

35 https://toolkit.climate.gov/content/glossary

36 https://www.nrdc.org/stories/renewable-energy-clean-facts#sec-whatis

37 https://www.epa.gov/sustainability/learn-about-sustainability

38 https://toolkit.climate.gov/content/glossary



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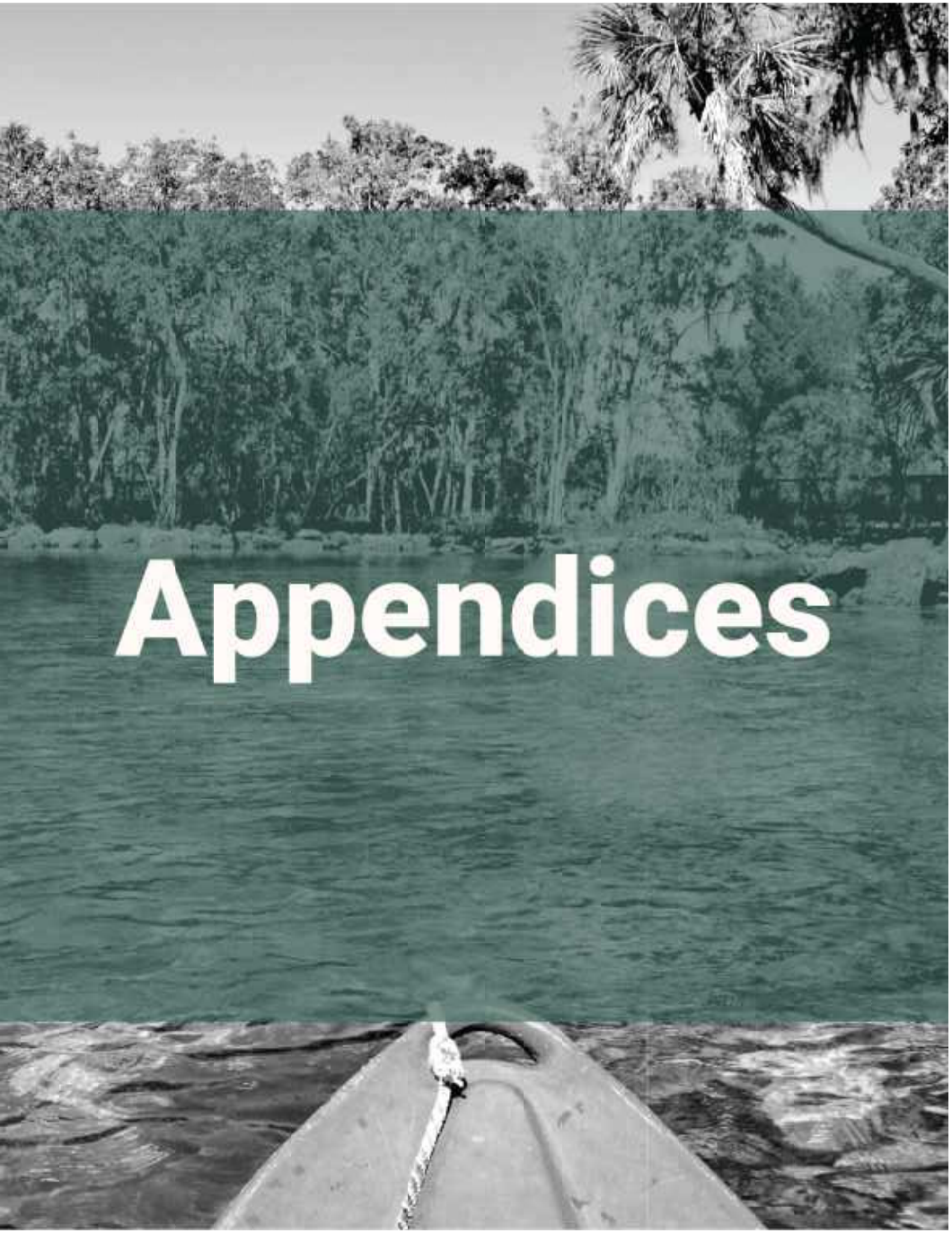
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Appendix I

United Nations Sustainable Development Goals (SDGs)

The United Nations was founded on October 24, 1945, with the assembly of 193 member states. In September of 2015, during a UN summit by the General Assembly, there was the development of the UN SDGs with all 193 member states contributing to it. These 17 goals are an important piece of the puzzle for sustainability. As more countries are adopting them it is important to have an understanding of what each of them is and how they will interact with us even at a local level. The RRAP will indicate how each of its goals lines up with the SDGs for better synergy with adaptation for municipalities and counties.







Chapter 1: Risks & Future Conditions

Goal 1

Community Resiliency is at the top of the Public Agenda and sustained with science and data

SDGs

SDG 11: Sustainable Cities & Communities
SDG 13: Climate Action



Chapter 2: Community Vulnerability

Goal 2

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically defined vulnerability assessments

SDGs

SDG 3: Good Health and Well-Being
SDG 11: Sustainable Cities & Communities
SDG 13: Climate Action
The Sendai Framework for Risk Reduction



Chapter 3: People

Goal 3

Promote leadership, education, and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

SDGs

SDG 4: Quality Education
SDG 13: Climate Action
SDG 17: Partnership for the Goals



Chapter 4: Place

Goal 4

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy-efficient construction including sustainable and attainable housing

SDGs

SDG 3: Good Health & Well Being
SDG 7: Affordable & Clean Energy
SDG 11: Sustainable Cities & Communities
SDG 13 Climate Action



Goal 5

Resilient adaptation protects, preserves, and restores thriving habitats and abundant wildlife

SDGs

SDG 14: Life Below Water
SDG 15: Life on Land



Goal 6

Public infrastructure, services, and assets become more resilient through innovative best practices

SDGs

SDG 11: Sustainable Cities and Communities



Goal 7

The Region has a connected multimodal transportation network that is resilient to extreme weather, reduces local emissions, and enhances equitable mobility and public safety

SDGs

SDG 11: Sustainable Cities and Communities
SDG 13: Climate Action



Goal 8

Food systems become more resilient and access to healthy foods is improved

SDGs

SDG 2: Zero Hunger
SDG 3: Good Health and Well Being
SDG 12: Reasonable Consumption and Production



Chapter 5: Prosperity

Goal 9

Businesses prepare and recover quickly from the impacts of extreme weather events and hazards

SDGs

SDG 8: Decent Growth and Economic Growth
SDG 11: Sustainable Cities and Communities
SDG 13: Climate Action



Goal 10

Businesses and key sectors support innovation and workforce development that is resilient to changing climate conditions

SDGs

SDG 8: Decent Growth and Economic Growth
SDG 9: Industry, Innovation, and Infrastructure
SDG 13: Climate Action



Appendix II

LEED for Cities and Communities

The framework of LEED for Cities and Communities is comprehensive, addressing topics as diverse as access to green spaces, energy efficiency, and civil and human rights. The system is aligned with the UN Sustainable Development Goals and is rooted in the triple bottom line. Issues like social equity, resilience, and climate change weave throughout the content areas.

Some notes to indicate on LEED is that ALL prerequisites are required, and credits are optional.

You must meet all prerequisite requirements and obtain 40 points to receive your certification.

This will document will be going step by step through the RRAP of where each of these prerequisites and credits aligns with the RRAP and indicate how you will be able to gather information needed for them as well.

LEED for Cities and Communities: Existing
Project Checklist

Project Name
Project ID
Date

Y	?	N			Cities	Communities
0	0	0	**INTEGRATIVE PROCESS**		POSSIBLE: 5	POSSIBLE: 5
			Credit	Integrative Planning and Leadership	1	1
			Credit	Green Building Policy and Incentives	4	4
0	0	0	**NATURAL SYSTEMS AND ECOLOGY**		POSSIBLE: 9	POSSIBLE: 9
			Prereq	Ecosystem Assessment	REQUIRED	REQUIRED
			Credit	Green Spaces	2	2
			Credit	Natural Resources Conservation and Restoration	2	2
			Credit	Light Pollution Reduction	1	1
			Credit	Resilience Planning	4	4
0	0	0	**TRANSPORTATION AND LAND USE**		POSSIBLE: 15	POSSIBLE: 15
			Prereq	Transportation Performance	6	6
			Credit	Compact, Mixed Use and Transit Oriented Development	2	2
			Credit	Access to Quality Transit	1	1
			Credit	Alternative Fuel Vehicles	2	2
			Credit	Smart Mobility and Transportation Policy	2	2
			Credit	High-Priority Site	2	2
0	0	0	**WATER EFFICIENCY**		POSSIBLE: 11	POSSIBLE: 11
			Prereq	Water Access and Quality	REQUIRED	REQUIRED
			Prereq	Water Performance	6	6
			Credit	Integrated Water Management	1	1
			Credit	Stormwater Management	2	2
			Credit	Smart Water Systems	2	2
0	0	0	**ENERGY AND GREENHOUSE GAS EMISSIONS**		POSSIBLE: 30	POSSIBLE: 30
			Prereq	Power Access, Reliability and Resiliency	REQUIRED	REQUIRED
			Prereq	Energy and Greenhouse Gas Emissions Performance	14	18
			Credit	Energy Efficiency	4	4
			Credit	Renewable Energy	6	6
			Credit	Low Carbon Economy	4	-
			Credit	Grid Harmonization	2	2
0	0	0	**MATERIALS AND RESOURCES**		POSSIBLE: 10	POSSIBLE: 10
			Prereq	Solid Waste Management	REQUIRED	REQUIRED
			Prereq	Waste Performance	4	5
			Credit	Special Waste Streams Management	1	1
			Credit	Responsible Sourcing for Infrastructure	2	2
			Credit	Material Recovery	1	-
			Credit	Smart Waste Management Systems	2	2
0	0	0	**QUALITY OF LIFE**		POSSIBLE: 20	POSSIBLE: 20
			Prereq	Demographic Assessment	REQUIRED	REQUIRED
			Prereq	Quality of Life Performance	6	6
			Credit	Trend Improvements	4	4
			Credit	Distributional Equity	4	4
			Credit	Environmental Justice	1	1
			Credit	Housing and Transportation Affordability	2	2
			Credit	Civic and Community Engagement	2	2
			Credit	Civil and Human Rights	1	1
0	0	0	**INNOVATION**		POSSIBLE: 6	POSSIBLE: 6
			Credit	Innovation	6	6
0	0	0	**REGIONAL PRIORITY**		POSSIBLE: 4	POSSIBLE: 4
			Credit	Regional Priority	4	4
0	0	0	**TOTAL**		110	110

40-49	50-59	60-79	80+ Points
CERTIFIED	SILVER	GOLD	PLATINUM

Envision

Institute for Sustainable Infrastructure's Envision® is a holistic sustainability framework and rating system that enables a thorough examination of the sustainability and resiliency of all types of civil infrastructure. The framework can assist government agencies and their consultants and contractors in delivering infrastructure that tackles climate change, addresses public health needs, cultivates environmental justice, creates jobs, and spurs economic recovery.

Envisions plans to set the standard of what constitutes sustainable infrastructure, incentivizes higher performance goals beyond minimum requirements, gives recognition to projects that make significant contributions to sustainability, and provides a common language for collaboration and clear communication both internally and externally.

To obtain the certification, then you must earn a minimum percentage of the total applicable Envision points:

- Verified: 20%
- Silver 30%
- Gold 40%
- Platinum 50%

Envision includes 64 sustainability and resilience indicators, called 'credits', organized around five categories:



Quality of Life - addresses a project's impact on host and affected communities, from the health and wellbeing of individuals to the wellbeing of larger social fabric as a whole.

Leadership - Successful sustainable projects require a new way of thinking about how projects are developed and delivered.

Resource Allocation - Resources are the assets that are needed to build infrastructure and keep it running. It concerns itself with the quantity, source, and characteristics of these resources and their impacts on the overall sustainability of the project.

Natural World - Infrastructure projects have an impact on the natural world around them, including habitats, species, and nonliving natural systems.

Climate and Resilience - The scope of Climate and Resilience is two-fold: minimizing emissions that may contribute to climate change and other short-and-long-term risks, and ensuring that infrastructure projects are resilient. To be resilient, infrastructure must be informed, resourceful, robust, redundant flexible, integrated, and inclusive.

Chapter 1: Risks & Future Conditions

Goal 1

Community Resiliency is at the top of the Public Agenda and sustained with science and data

Objective 1.1

Improve the collection and monitoring of climate indicator data to be used in local implementation through collaboration with local and national scientists

LEED

Category	Credit
Energy and Greenhouse Gas Emissions	Energy and Greenhouse Gas Emissions Process

Envision

Category	Credit
N/A	N/A

Chapter 2: Community Vulnerability

Goal 2

Adaptation and resilience planning strategies are based on rigorous, consistent, scientifically defined vulnerability assessments

Objective 2.1

Conduct a vulnerability assessment of critical infrastructure, services publicly owned assets, and food systems

LEED

Category	Credit
Natural Systems and Ecology	Resilience Planning

Envision

Category	Credit
Climate and Resilience	CR 2.2 Assess Climate Change Vulnerability
Climate and Resilience	CR 2.4: Establish Resilience Goals and Strategies

Objective 2.2

Integrate health and equity metrics into hazard analysis and resilience planning and support targeted vulnerability assessments for highly vulnerable populations

LEED

Category	Credit
Energy and Greenshouse Gas Emissions	Energy and Greenhouse Gas Emission Performance

Envision

Category	Credit
Quality of Life	QL 2.2: Encourage Sustainable Transportation
Quality of Life	QL 3.1: Advance Equity and Social Justice
Climate and Resilience	CR 1.2: Reduce Greenhouse Gas Emissions
Climate and Resilience	CR 2.3: Evaluate Risk and Resilience

Chapter 3: People

Goal 3

Promote leadership, education, and empowerment both in government, and community and business organizations to foster the implementation of resiliency strategies

Objective 3.1

Local governments develop a local resiliency plan or update existing resiliency plans to include considerations of the impacts of current and future climate hazards on food systems and public health

LEED

Category	Credit
Natural Systems and Ecology	Resilience Planning
Energy & Greenhouse Gas Emissions	Renewable Energy

Envision

Category	Credit
Quality of Life	QL1.2: Enhance Public Health and Safety
Climate and Resilience	LD 1.2: Foster Collaboration and Teamwork
Leadership	RA 2.3: Use Renewable Energy

Objective 3.2

Local governments maximize their ability to adapt to climate change through expanded internal capacity and cross-departmental coordination

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Leadership	LD 2.1: Establish a Sustainability Management Plan
Leadership	LD 2.2: Plan for Sustainable Communities
Natural World	NW 3.3: Maintain Floodplain Functions

Objective 3.3

Local governments, with support of the TBRPC incorporate adaption and risk reduction strategies into local financial management practices

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Quality of Life	QL 2.3: Improve Access and Wayfinding
Leadership	LD 1.1: Provide Effective Leadership and Commitment
Leadership	LD 3.2: Develop Local Skills and Capabilities
Natural World	NW 1.1: Preserve Sites of High Ecological Value

Objective 3.4

Local governments with assistance from regional partners will develop consistency in communication and engagement for residents, businesses, and community organizations on the impact of current and future climate impacts

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Leadership	LD 1.3: Provide for Stakeholder Involvement

Objective 3.5

Establish partnerships and support existing community and business groups that enable stronger collaborations between communities and business organizations to better prepare for current and future climate change impacts

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Quality of Life	1.1: Improve Community Quality of Life
Quality of Life	QL 3.1: Advance Equity and Social Justice

Chapter 4: Place

Goal 4

The region supports a diverse array of multimodal-supporting land uses developed with resilient and energy-efficient construction including sustainable and attainable housing

Objective 4.1

Updated regulations, plans, and policies increase the resilience of affordable and attainable

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Quality of Life	QL 3.1: Advance Equity and Social Justice
Leadership	LD 2.2: Plan for Sustainable Communities

Objective 4.2

Adopt resilient and green building best practices to guide new housing construction

LEED

Category	Credit
Integrative Process	Green Building Policy and Incentives
Quality of Life	Housing and Transportation Affordability

Envision

Category	Credit
Quality of Life	QL 3.1: Advance Equity and Social Justice

Objective 4.3

Programs and funding for housing mitigation and rehabilitation are increased

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Objective 4.4

Update building and site development standards to account for current and future impacts

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Natural World	NW 1.2: Provide Wetland and Surface Water Buffers

Objective 4.5

Update land use policies and regulations to account for current and future climate impacts and discourage displacement

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Quality of Life	1.1: Improve Community Quality of Life

Goal 5

Resilient adaptation protects, preserves, and restores thriving habitats and abundant wildlife

Objective 5.1

Increase the adaptability of coastal habitats and ecosystems to a changing climate

LEED

Category	Credit
Natural Systems and Ecology	Ecosystem Assessment

Envision

Category	Credit
Natural World	NW 3.2: Enhance Wetland and Surface Water Functions

Objective 5.2

Improve or maintain air and water quality resulting in fishable, swimmable, and drinkable water

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Resource Allocation	RA 3.1: Preserve Water Resources

Objective 5.3

Preserve and restore the diversity and abundance of Tampa Bay's fish and wildlife

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Objective 5.4

Support the protection and restoration of coastal natural systems and the creation of resilient shorelines at the regional scale

LEED		Envision	
Category	Credit	Category	Credit
Natural Systems and Ecology	Natural Resources Conservation and Restoration	Natural World	NW 3.1: Enhance Functional Habitats

Goal 6

Public infrastructure, services, and assets become more resilient through innovative best practices

Objective 6.1

Plan, build, and manage infrastructure to maximize function and longevity under future climate conditions

LEED		Envision	
Category	Credit	Category	Credit
Water Efficiency	Water Access & Quality	Quality of Life	NW 3.2: Enhance Wetland and Surface Water Functions
		Natural World	NW 2.2: Manage Stormwater
		Climate and Resilience	CR 2.6: Improve Infrastructure Integration

Objective 6.2

Prioritize green infrastructure projects which mitigate hazards and provide environmental, social and economic benefits to local communities

LEED		Envision	
Category	Credit	Category	Credit
Natural Systems & Ecology	Green Spaces	N/A	N/A

Objective 6.3

Advance water management strategies, infrastructure improvements, and water conservation efforts to mitigate the potential adverse impacts of climate change on water supplies, water and wastewater infrastructure, and water management systems

LEED		Envision	
Category	Credit	Category	Credit
Water Efficiency	Water Performance	Natural World	NW 2.4: Protect Surface and Groundwater Quality
Water Efficiency	Integrative Water Management		

Objective 6.4

Plan and manage public serviced in the region for current and future climate impacts

LEED		Envision	
Category	Credit	Category	Credit
N/A	N/A	Natural World	NW 2.3: Reduce Pesticide and Fertilizer Impact

Objective 6.5

Increase post-disaster power resilience for long-term and short-term outages

LEED		Envision	
Category	Credit	Category	Credit
Energy and Greenhouse Gas Emissions	Power Access, Reliability. and Resiliency	N/A	N/A

Goal 7

The Region has a connected multimodal transportation network that is resilient to extreme weather, reduces local emissions and enhances equitable mobility and public safety

Objective 7.1

Prioritize transportation infrastructure investments that mitigate the impacts of current climate hazards and adapt to future climate conditions

LEED		Envision	
Category	Credit	Category	Credit
Transportation and Land Use	Compact Mixed Use and Transit	Quality of Life	QL 2.1: Improve Community Mobility and Access

Objective 7.2

Accelerate the transition to renewable, accessible, resilient, and equitable mobility systems

LEED		Envision	
Category	Credit	Category	Credit
Transportation and Land Use	Alternative Fuel Vehicles	Quality of Life	QL 2.2: Encourage Sustainable Transportation

Objective 7.3

Invest in low-emissions transportation infrastructure and air quality improvements to improve health outcomes

LEED		Envision	
Category	Credit	Category	Credit
N/A	N/A	Quality of Life	QL 2.2: Encourage Sustainable Transportation
		Climate and Resilience	CR 1.3: Reduce Air Pollutant Emissions

Goal 8

Food systems become more resilient and access to healthy foods is improved

Objective 8.1

Implement a holistic approach to reduce risks, gaps, and disconnects with regional food system to improve access and security

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Objective 8.2

Update policies, codes, and incentives to support farms and local fresh food processing, distribution, and food waste reduction

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
Leadership	LD 1.4: Pursue Byproduct Synergies

Chapter 5: Prosperity

Goal 9

Businesses prepare and recover quickly from the impacts of extreme weather events and hazards

Objective 9.1

Provide resources for business disaster planning through partnerships with business organizations and local governments

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Objective 9.2

Local governments partner with the business community to implement policies and programs that assist businesses in recovering after a disaster

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Objective 9.3

Local governments involve the private sector in mitigation, disaster preparedness, and disaster recovery planning to improve emergency response and public health outcomes

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Goal 10

Businesses and key sectors support innovation and workforce development that is resilient to changing climate conditions

Objective 10.1

Spur economic opportunity and support agriculture

LEED

Category	Credit
N/A	N/A

Envision

Category	Credit
N/A	N/A

Objective 10.2

Expand and update telecommunications services the region to support capacity for remote world/ telecommunicating

LEED

Category	Credit
Energy & Greenhouse Gas Emissions	Low Carbon Economy

Envision

Category	Credit
N/A	N/A

Notes

The prerequisites for LEED are the MOST important part of obtaining the certification. If those are not in the plan or just being discussed within the plan, then there is not alignment.

LEED Notes:

Categories NOT Covered:

- Integrative Planning and Leadership
- Light Pollution Reduction
- Transportation Performance (PREREQUISITE)
- Oriented Development
- Access to Quality Transit
- Smart Water Systems
- Energy Efficiency
- Low Carbon
- Grid Harmonization
- Material and Resources (Entire Category)
- Nothing much only waste management, but it is covered under food and water so I need to research more information on the requirements for this category
- Quality of Life Performance (PREREQUISITE)
- Possibly need a better equitable approach to the actions
- May help if the metrics were laid out better
- Trend Improvements
- Distributional Equity
- Environmental Justice
- Civic and Community Engagement
- Civil and Human Rights

Envision Notes:

Sessions NOT Covered

- QL 1.3: Improve Construction Safety
- QL 1.4: Minimize Noise and Vibration
- QL 1.5: Minimize Light Pollution
- QL 1.6: Minimize Construction Impacts
- QL 3.2: Preserve Historic and Cultural Resources
- QL 3.3: Enhance Views and Local Character
- QL 3.4: Enhance Public Space and Amenities
- LD 1.4: Pursue Byproduct Synergies
  - We talk about waste water and food waste, but there is more to it
- LD 2.3: Plan for Long-Term Monitoring and Maintenance
  - We can probably include this if we do metrics in the plan
    - Ex. Update sustainability plan every 5-10 years when a new census comes out, or something like that.
- LD 2.4: Plan for End-of-Life
  - Can be a similar situation per city, but does not fit overall plan
- LD 3.1: Stimulate Economic Prosperity and Development
- LD 3.3: Conduct a Life-Cycle Economic Evaluation
- RA 1.1: Support Sustainable Procurement Practices
- RA 1.2: Use Recycled Materials
- RA 1.3: REduce Operational Waste
- RA 1.4: Reduce Construction Waste
- RA 1.5: Balance Earthwork On Site
- RA 2.1: Reduce Operational Energy Consumption
- RA 2.2: Reduce Construction Energy Consumption
- RA 2.4: Commission and Monitor Energy Systems
- RA 3.2: Reduce Operational Water Consumption
- RA 3.3: Reduce Construction Water Consumption
- RA 3.4: Monitor Water Systems
- NW 1.3: Preserve Prime Farmland
- NW 1.4: Preserve Undeveloped Land
- NW 2.1: Reclaim Brownfields
- NW 2.3: Reduce Pesticide and Fertilizer Impacts
  - Nothing about fertilizer
- NW 3.1: Enhance Functional Habitats
- NW 3.4: Control Invasive Species
- NW 3.5: Protect Soil Health
- CR 1.1: Reduce Net Embodied Carbon
- CR 2.1: Avoid Unsuitable Development

Appendix III

Community Rating System (CRS) Matrix

CRS	Activity Description	Complimentary RRAP Objectives
211	Have you had a Community Assistance Visit that concluded you are in full compliance with the NFIP? How many repetitive loss properties are there in your community? What is your repetitive loss category? (A = no rep losses, B = 1 - 49, C = 50 or more) Have you maintained flood insurance policies on all buildings owned by your community that have been required to have one?	Objective 2.1: Conduct vulnerability assessments of critical infrastructure, sevices publily owned assets
213	How many buildings are in your community's Special Flood Hazard Area? How large is your community's Special Flood Hazard Area (in acres)?	Objective 2.1: Conduct vulnerability assessments of critical infrastructure, sevices publily owned assets
320	Are you willing to publicize that you will read FIRMs for inquirers and keep a record of what you told them? Do you provide inquirers with other non-insurance related information that is shown on your FIRM? Do you provide information about flood problems other than those shown on the FIRM? Do you provide information about flood depths? Do you provide information about special flood-related hazards, such as erosion, subsidence, or tsunamis? Do you provide information about past flooding at or near the site in question? Do you provide information about areas that should be protected because of their natural floodplain functions?	Objective 1.1: Improve the collection and monitoring of climate indicator data to be used in local implementation through collaborations with local and national scientists.
330	Does your community provide flood-related informational brochures, flyers, or other documents for the public to pick up? Does your community prepare a flood-related newsletter, presentation, or other outreach project that is implemented every year?	Objective 3.4: Local governments with assistance from regional partners will develop consistency in communication and engagement for residents, businesses, and community organizations on the impacts of current and future climate impacts.
340	Do real estate agents actively advise house hunters if a property is located in a Special Flood Hazard Area? Are there state or local requirements that sellers must disclose whether a property has been flooded? Do real estate agents give house hunters a brochure or handout advising them to check out the flood hazard before they buy?	

CRS	Activity Description	Complimentary RRAP Objectives
350	Do you have any flood-related references in your public library? Do you have flood-related information or links on your community's website?	
360	Do you visit homes and help people determine how they could reduce their flooding or drainage problem? Do you talk to people about sources of financial assistance for flood or drainage protection measures?	
370	Have you reviewed all your community's flood insurance policies and analyzed where coverage should be improved?	
410	Have you conducted your own flood studies and do you use the data when regulating new development? Do you provide (or require the developer to provide) base flood elevations in approximate A Zones? Did your community contribute to the cost of a Flood Insurance Study (e.g., provided cash or a base map with better topography)?	Objective 2.1: Conduct vulnerability assessments of critical infrastructure, sevices publily owned assets
420	Is a portion of your Special Flood Hazard Area kept as park or other publicly preserved open space? Are some of those parks or other publicly preserved open spaces preserved in or restored to their original natural state? Does your community have density transfers or other regulations to encourage developers to keep the SFHA as open space? Is a portion of your SFHA is zoned for minimum lot sizes of 5 acres or larger?	Objective 4.2: Adopt resilient and green building best practices to guide new housing construction
430	Does your community prohibit filling or require compensatory storage in all or parts of the SFHA? Does your community prohibit certain types of buildings from all or parts of the SFHA? Does your community prohibit or limit the storage of hazardous materials from all or parts of the SFHA? Does your community have a freeboard requirement? Do you have compaction and erosion protection requirements for fill that is used to support buildings? Do you track building improvements and repairs cumulatively and add the values up to reach the 50% threshold? Do you define substantial damage to include two floods in 10 years with average damage at 25% of the building's value? Do you require critical facilities to be protected to the 500-year flood level? Do you require a non-conversion agreement signed by the permit applicant for an elevated building? Does your community enforce the International Building and Residential Codes (IBC and IRC)? Does your community have a BCEGS rating?	Objective 4.4: Update building and site development standards to account for current and future climate impacts Objective 4.5: Update land use policies and regulations to account for current and future climate impacts and discourage displacement

CRS	Activity Description	Complimentary RRAP Objectives
	Do you have regulations that ensure that every new building will be built to be protected from local drainage flooding?	
	Are community staff members CFMs or graduates of an EMI NFIP course?	Objective 3.2: Local governments maximize their ability to adapt to climate change through expanded internal capacity and cross-departmental coordination
	Do you keep paper records at a secure offsite storage site or scan them and back up the files?	
440	Is your FIRM on a local geographic information system (GIS) layer and does the GIS also show streets and parcels?	
	Have you kept copies of all your old FIRMs?	
	Does your community have qualifying benchmarks in the NSRS that are maintained or at least three CORS?	
450	Do you require new developments to build storm-water retention or detention basins?	
	Do you have permit records that show that you require new developments to control erosion from construction projects?	
	Do you have permit records that show that you require new storm-water facilities to include water quality provisions?	
510	Have you adopted a floodplain management or hazard mitigation plan that has been approved by FEMA?	
	Have you adopted a plan to protect aquatic or riparian species or other natural floodplain functions?	Objective 5.1: Increase the adaptability of coastal habitats and ecosystems to a changing climate
520	Have buildings in the floodplain been acquired and the properties are now open space?	
530	Have pre-FIRM buildings been elevated voluntarily or otherwise floodproofed?	
540	Do you have a program to regularly inspect streams, ditches, and other channels and to remove debris when found?	
	Do you have a capital improvements program for drainage improvements?	
	Do you have an ordinance the prohibits dumping debris, junk, grass, etc., in drainageways?	
	If you have credit for 450.a, do you have a program to regularly inspect storage basins and to remove debris when found?	
610	Do you have a system for getting notification when flooding is expected (more than listening to the radio)?	
	Do you have a flood response plan (or flood annex to the emergency plan) that specifies what to do after a flood notification?	
	Do you have a master list of critical facilities in the floodplain and arrangements for special warnings to them?	
	Are you a Storm-Ready or Tsunami-Ready community? (see www.weather.gov/stormready/)	

CRS	Activity Description	Complimentary RRAP Objectives
620	Do you have a levee, a levee maintenance program, and a levee failure warning and response plan (similar to 610 a-d)? Is there an annual outreach project sent to properties in the area that would flood if the levee were overtopped?	
630	Is your community threatened by a failure of an upstream dam?	
	Do you have a dam failure warning and response plan (similar to 610 a-d)? Is there an annual outreach project sent to properties in the area that would be flooded if the dam failed.	





RECOMMENDED PROJECTIONS OF

Sea Level Rise
in the Tampa Bay Region

Tampa Bay Climate Science Advisory Panel

Updated April 2019

EXECUTIVE SUMMARY

In this document, the Tampa Bay Climate Science Advisory Panel (CSAP) recommends a common set of sea level rise (SLR) projections for use throughout the Tampa Bay region. The recommendation establishes the foundation for a coordinated approach to address the effects of a changing climate, which advances the objectives of the newly-established Tampa Bay Regional Resiliency Coalition. Local governments and other agencies planning for SLR in the Tampa Bay region should incorporate the following key findings of this CSAP recommendation.

- Data measured at the St. Petersburg tide gauge shows that water levels in Tampa Bay have already increased approximately 7.8 inches since 1946.
- Based upon a thorough assessment of scientific data and literature, the Tampa Bay region can expect to see an additional 2 to 8.5 feet of SLR by 2100.
- Projections of SLR should be consistent with present and future National Climate Assessment estimates and methods. The National Oceanic and Atmospheric Administration (NOAA) Low scenario should not be used for planning purposes.
- Projections of SLR should be regionally corrected using St. Petersburg tide gauge data.
- Adaptation planning should employ a scenario-based approach that, at minimum, considers location, time horizon, and risk tolerance.

INTRODUCTION

Formed in spring 2014, the CSAP is an ad hoc network of scientists and resource managers working in the Tampa Bay region (Figure 1). The group's goal is to collaboratively develop science-based recommendations for local governments and regional agencies as they respond to climate change, including associated sea level change. The CSAP first released a recommended projection of SLR in the Tampa Bay region in 2015. The original recommendation (CSAP 2015) included a set of projections that were regionally corrected to the St. Petersburg tide gauge and consistent with the 3rd National Climate Assessment (NCA3). The original guidance called for the recommendation to be revisited at a minimum of every five years, or sooner if significant new scientific information on future SLR became available.



Figure 1. *Map of the four-county region served by the CSAP.*

This document, which is an update of the 2015 report, assesses the 4th National Climate Assessment (NCA4) that was released in November 2018 and recently published literature synthesizing observed changes in sea level using satellite altimetry (Nerem et al. 2018). The update explains the technical methods used to produce SLR projections and offers the rationale for the selection of SLR projections recommended for the Tampa Bay region through 2100. With these shared projections, local governments can coordinate, develop, and implement appropriate coastal adaptation and risk reduction strategies.



Storm surge
Source: Pinellas County

The Tampa Bay region, with nearly 700 miles of shoreline and 3 million residents – most of whom live near Tampa Bay or the Gulf of Mexico – is highly vulnerable to the potential effects of SLR (BEBR 2019). Citizens, emergency managers, and regional leaders have been accustomed to thinking of hazards in terms of the episodic effects of hurricanes or coastal storms; however, it is also important for local governments and regional agencies to consider the long-term, sustained effects of SLR on real property, quality of life, and perhaps most importantly, our ability to sustain growth in the regional economy.

The Tampa Bay regional economy is closely tied to both the Gulf of Mexico and Tampa Bay. It is valued at $170 billion, with $51 billion directly influenced by the bay itself (TBEP and TBRPC 2014). A number of recent reports have identified the Tampa Bay region as one of the most vulnerable coastal metropolitan areas throughout the world due to SLR and flooding (World Bank 2013, Climate Central 2017). Regional measurements show the Tampa Bay region is already experiencing SLR (Figure 2, p. 5) and there is broad scientific consensus that this trend will continue into the next century. If adaptation strategies are not implemented, cities throughout the Tampa Bay region will likely experience the following conditions, all of which may incur substantial economic costs:

- Flooding of public infrastructure and private property;
- Shoreline and beach erosion;
- Impacts to the operation and management of coastal drainage systems;

- Threats to drinking water and wastewater treatment facilities and distribution infrastructure; and
- Shifts in wetlands and other tidal habitats, resulting in the loss of ecosystem services.



City skyline
Source: City of Tampa

The economic costs of inaction given the known threats of SLR must be carefully weighed against the costs of implementing adaptation strategies, technological solutions, and infrastructure investments necessary to protect the health, safety, and quality of life for the community. The Tampa Bay Regional Planning Council estimates that without a coordinated response, the regional economy may lose more than $15 billion in real estate value, $5 billion in property tax revenue, and approximately 17,000 jobs as a direct result of SLR (TBRPC 2017). However, local governments in the Tampa Bay region should feel confident that there are viable opportunities to implement adaptation strategies that increase resilience to SLR and other coastal hazards and protect the region from substantial economic losses. These opportunities benefit from a common set of regional SLR projections that promote coordinated planning and policy efforts; providing such a projection is the fundamental purpose of this recommendation.

TECHNICAL METHODS AND RECOMMENDATIONS

Estimates of future SLR are typically expressed by plotting or tabulating a quadratic function. This function is chosen because it is the simplest mathematical function that can effectively capture a wide range of possible SLR scenarios, from a constant rate of increase to various accelerated rates of increase. Defining a specific SLR scenario requires three numbers: a datum, the point in time the sea level is defined to be zero; a rate of change, how rapidly sea level is changing (increasing or decreasing) at time zero; and a projection, the amount global sea level is expected to change between time zero and some point in the future[1].

[1] Most often, this point in the future is the year 2100. However, this does not mean that SLR will stop in 2100, nor does it mean that we only know what the predicted sea level will be in 2100. The quadratic function can show possible sea levels at any point along the curve, between now, 2100, and beyond.

Both the datum and the rate of change are defined using present-day observations from a tide gauge proximate to the region of interest. Local sea level change rates reflect a variety of local factors, including vertical land motion (subsidence or uplift) and changes in estuarine and shelf hydrodynamics, regional oceanographic circulation patterns, and hydrologic cycles (river flow). So, while global measurements and projections are important for estimating SLR, local measurements and projections are needed for realistic regional planning efforts. For the Tampa Bay region, the CSAP recommends using data collected from the tide gauge located near downtown St. Petersburg to adjust the first two parameters necessary to predict regional SLR. The St. Petersburg tide gauge (NOAA 2019a) has the longest reliable period of record in the region and is consistent with other nearby tide gauges, including one located in the Gulf of Mexico at Clearwater (NOAA 2019b). Data measured at the St. Petersburg tide gauge shows that water levels in Tampa Bay have increased 7.8 inches (~1 inch/decade) since 1946 when water levels were first recorded at this tide gauge (Figure 2).

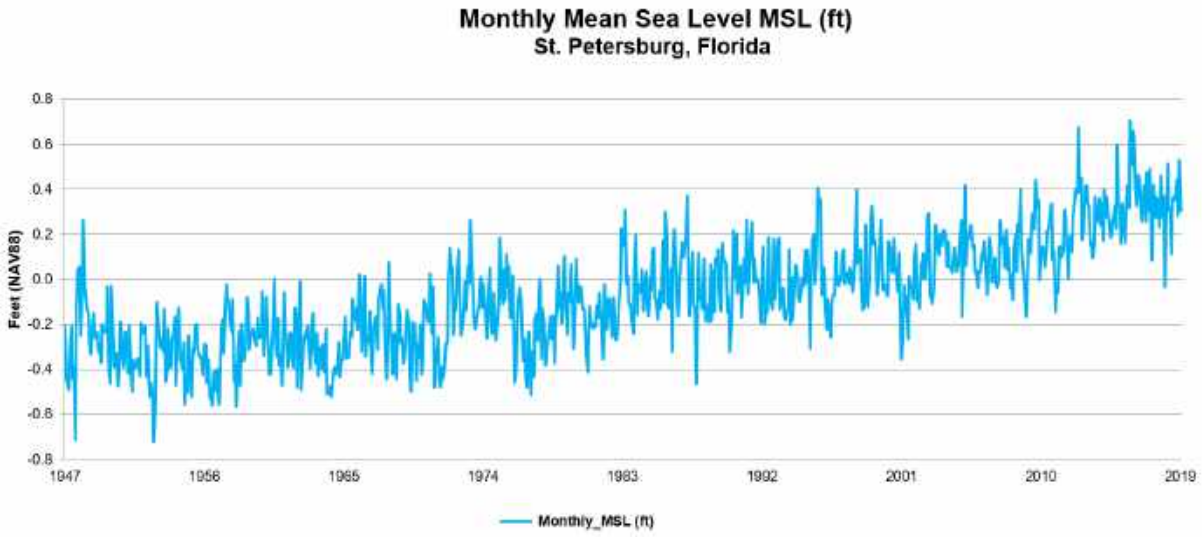


Figure 2. *1946-2018 Monthly Mean Sea Level Trend in St. Petersburg, FL, NOAA Tide Gauge #8726520*

The final parameter, projections of how much sea level will change globally over the next 100 years, is derived from expert climate scientists. Currently, there are two primary sources of information regarding SLR projections: the Intergovernmental Panel on Climate Change (IPCC), and the U.S. National Climate Assessment (NCA). Although these assessments employ different methods (IPCC relies upon numerical process models; the NCA employs a semi-empirical, probabilistic approach to estimate contributions from oceanic, cryosphere, geologic, and anthropogenic processes), both approaches result in similar estimates of SLR. This implies that the results obtained through either approach are robust and should provide practitioners with a higher degree of confidence in using the recommended projections for planning purposes.



Habitat migration; Cypress tree stump in a salt barren
Source: Doug Robison

The National Oceanic and Atmospheric Administration (NOAA) Technical Report, *Global and Regional Sea Level Rise Scenarios for the United States* (Sweet et al. 2017b), was produced as a coordinated, interagency task force to identify nationally agreed-upon estimates for global and regional SLR to inform the 4th National Climate Assessment (hereinafter the NOAA projections). Notably, the report incorporates regional factors contributing to sea level change for the entire U.S. coastline and assigns conditional probabilities to six SLR projections based on future greenhouse gas emissions and associated ocean-atmosphere warming in order to help decision-makers assess and manage risk (Sweet et al. 2017a). These scenarios, known as representative concentration pathways (RCPs), describe four different 21st-century pathways of greenhouse gas emissions and atmospheric concentrations, air pollutant emissions, and land use (IPCC AR5) which are necessary for understanding future sea level change.

The CSAP advises that local governments and regional agencies continue to use the SLR scenarios included in the NCA, adjusted to local conditions, to inform adaptation and infrastructure planning efforts in the Tampa Bay region. Although the CSAP generally recommends following the NCA, only three of the six SLR scenarios included in the NCA4 are part of this recommendation: NOAA Intermediate-Low, Intermediate, and High. Further, until the

private and public sectors make meaningful efforts to reduce greenhouse gas emissions, the CSAP advises that local governments and regional agencies assess the likelihood of the three SLR scenarios using RCP 8.5, which models climate change without additional efforts to constrain emissions (Van Vuuren et al. 2011, IPCC AR5).

Additional evidence published in 2018 was evaluated and incorporated into the updated recommendation. This recently published work, which was not available at the time the NCA4 was developed, uses satellite altimetry data to assess the rate of global sea level change (Nerem et al. 2018). Satellite radar altimeters have been measuring the open ocean surface height (sea level) since 1993 by quantifying the time it takes a radar pulse to make a round-trip from the satellite to the sea surface and back. Observed (not modeled) changes over 25 years demonstrate that the rate of SLR is increasing and that the increase is consistent with the mathematical models used to inform the IPCC and NCA. Based on these validating observations, the NOAA Low scenario (which depicts a linear rate of rise with no projected acceleration) is very unlikely and should be excluded. Therefore, the CSAP recommends that entities planning for SLR use the NOAA Intermediate-Low scenario as the lowest plausible bound for future sea level change.



Bayboro, St. Petersburg; sunny day flooding
Source: Maya Burke

Similarly, the NOAA Extreme scenario represents the maximum ice sheet melt that is physically possible. However, the probability of this occurrence is exceptionally low and not yet supported by established science. There is, however, emerging science that suggests there may be a new instability mechanism in the ice sheets that would lead to significantly higher melt rates (Alley et al. 2019). While this is not yet scientifically vetted, it does suggest that long-term sea level changes may be higher than the current best available science supports. Therefore, the CSAP recommends that entities planning for SLR use the NOAA High as the upper bound for future sea level change until additional information related to ice sheet processes is settled. The CSAP will continue to monitor this rapidly-evolving field of research.

Finally, the NOAA Intermediate scenario is recommended to fully capture the plausible range of likely SLR given the probabilistic framework laid out in the NCA4.

Future SLR estimates consistent with this recommendation that integrate data from the local St. Petersburg tide gauge, can be calculated for the Tampa Bay region using a flexible, well-supported tool developed by the U.S. Army Corps of Engineers (USACE)[2]. The tool takes the three parameters discussed above (datum, rate of change, projection) and produces the plots or tables that describe how sea level will change in the future, such as those included as Figure 3 and Table 1.

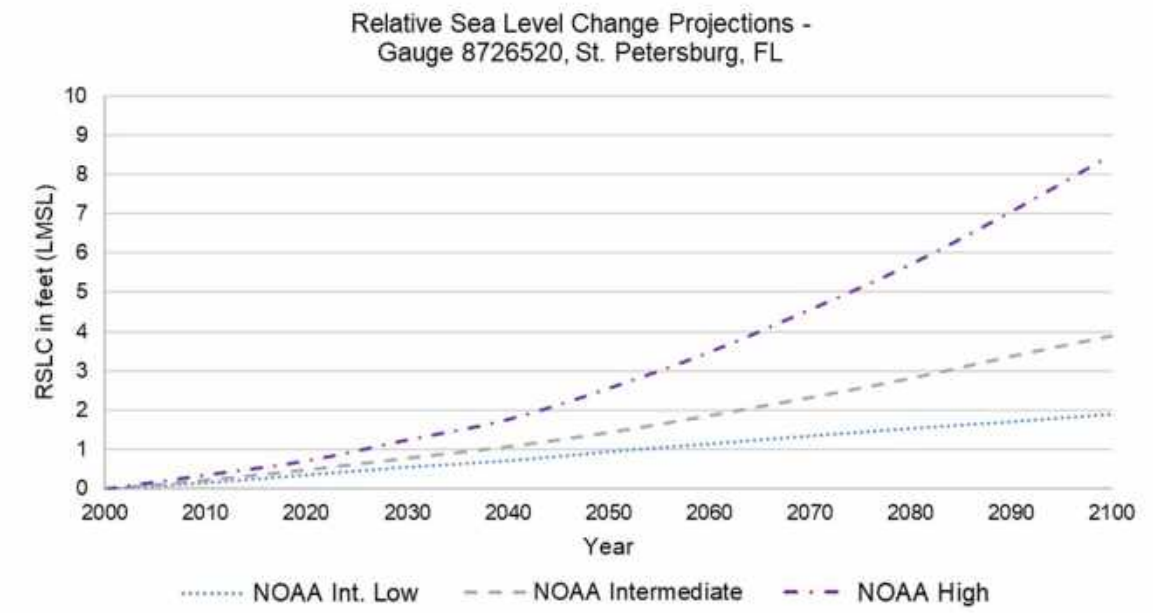


***Figure 3**. Graphic Relative Sea Level Change (RSLC) Scenarios for St. Petersburg, Florida, as calculated using the regionally corrected NOAA 2017 curves. (USACE 2019)*

The regionally adjusted NOAA SLR projections (Table 1 and Figure 3) can be summarized as follows:

[2] When using the USACE Sea Level Change Curve Calculator Tool, first select the "St. Petersburg, FL" gauge, then choose "NOAA 2017" as the output agency. Although the CSAP recommends using the USACE Sea Level Change Curve Calculator Tool, this should not be confused with a recommendation of the USACE SLR projections. Although the USACE SLR projections produce results that are similar to that of the IPCC and NCA, they are based on equations developed in 1987 for the National Research Council (NRC) report, *Responding to Changes in Sea Level; Engineering Implications* and do not represent the best available science.

- *NOAA Intermediate Low (1.9 feet by 2100)*: This scenario represents a slight increase in the rate of SLR. The low end of the *very likely* range if greenhouse gas emissions continue current trends (RCP8.5).
- *NOAA Intermediate (3.9 feet by 2100)*: This scenario represents a moderate increase in the rate of SLR. The high end of *likely* range if greenhouse gas emissions continue current trends (RCP8.5).
- *NOAA High (8.5 feet by 2100)*: This scenario represents a significant increase in the rate of SLR. The high end of the *very likely* range if greenhouse gas emissions continue current trends (RCP8.5) and when accounting for possible ice sheet instabilities.

Year	NOAA Int-Low (feet)	NOAA Intermediate (feet)	NOAA High (feet)
2000[3]	0	0	0
2030	0.56	0.79	1.25
2040	0.72	1.08	1.77
2050	0.95	1.44	2.56
2060	1.15	1.87	3.48
2070	1.35	2.33	4.56
2080	1.54	2.82	5.71
2090	1.71	3.38	7.05
2100	1.90	3.90	8.50

Table 1. *Sea Level Change Relative to the Year 2000 for St. Petersburg, FL in Feet above Local Mean Sea Level (LMSL).*

Future sea level estimates are provided in tabular form to help planners and policymakers apply the CSAP recommendations in everyday practice; however, additional clarification is necessary to ensure that the projections are used appropriately. SLR projections should only be used to determine the change in sea level between any two given time periods. For example, Table 1 shows sea level change in 2100 under the NOAA High scenario as 8.50 feet. This means that the sea level height at any location is projected to be 8.50 feet higher on average than it was at that site in the year 2000.

[3] For the purposes of projecting sea level change, the year 2000 is the starting point for the recommended SLR scenarios. Although this represents a point in time the sea level is defined to be zero, it does not mean that sea level change has not occurred prior to that time.

Similarly, consider a hypothetical situation where a government constructs an infrastructure project in 2030. The costs and risk tolerance associated with the project are moderate. Elected officials have requested that the project withstand at least 30 years of likely SLR. Staff needs to calculate how much additional elevation to incorporate into a modified project design. The appropriate calculation to determine the necessary modifications would be as follows:

1. Select an appropriate SLR projection scenario. (NOAA Intermediate)
2. Determine the sea level at time zero. (0.79 feet)
3. Determine the projected sea level at a known point in the future. (1.87 feet)
4. Calculate the difference between projected SLR at a known point in the future and SLR at time zero. (1.08 feet)

In this example, an additional 1.08 feet above the observed sea level in 2030 would be needed to make the infrastructure project more resilient to future conditions in 2060.

SUMMARY

Based upon a thorough assessment of scientific data and literature on SLR, the Tampa Bay region can expect to see approximately 1 to 2.5 feet SLR by 2050 and between 2 to 8.5 feet by 2100.



Wastewater Treatment Plant
Source: Manatee County

Given this range of uncertainty in future SLR, the CSAP recommends that local governments and other agencies consider a variety of factors, including the expected lifespan of the project, project cost, and criticality of function when developing adaptation strategies. Scenario planning offers opportunities to initiate actions now by balancing the costs of inaction against reasonable returns on investments made to reduce future impacts on the built environment (Figure 4).

For example, decision-makers may decide to plan for less SLR (using the NOAA Intermediate Low) when implementing projects with greater risk tolerance such as infrastructure projects with a relatively short life cycle or those with high adaptive capacity (e.g. a waterfront park or parking lot), while they may choose to plan for more extreme SLR (using the NOAA High) in situations where there is little tolerance for risk (e.g. new infrastructure with a long-anticipated life cycle such as a power plant) (NOAA 2012). The level of adaptation planning necessary will be up to the planning entity and based on the acceptable level of risk and vulnerability. The CSAP anticipates working with the Tampa Bay Regional Resiliency Coalition to develop detailed guidance on the appropriate application of each scenario in various risk contexts.

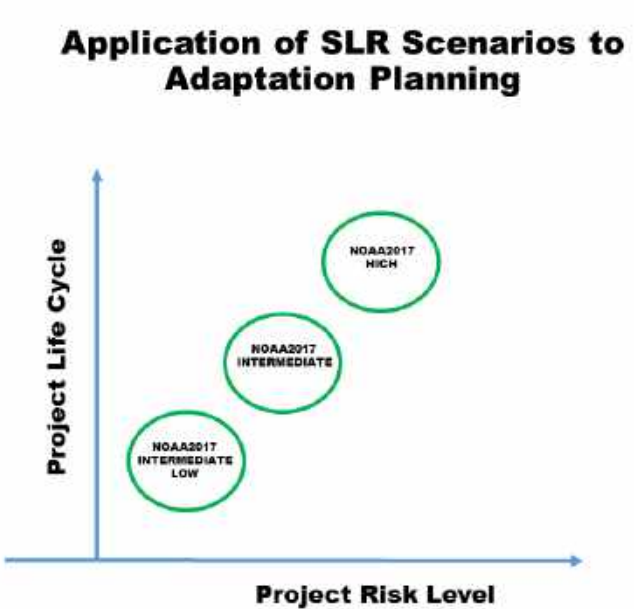


Figure 4. *Conceptual diagram demonstrating how to apply SLR scenarios to risk-based decision-making.*

Selecting a common set of SLR projections throughout the Tampa Bay region will advance the objectives of the newly-established Tampa Bay Regional Resiliency Coalition, supporting the efficient development and intergovernmental sharing of vulnerability assessment information and related policies. Furthermore, use of a regional set of projections of SLR will enable other entities to develop decision support tools, best practices, and planning documents to inform adaptation strategies for those charged with managing public infrastructure and natural resources. The CSAP recommendation is intended to further these goals, but it is important to acknowledge that scientific research advances as a continuous process. New data and technologies require refinements and reevaluation over time. In order to keep up with the best available science, the CSAP commits to revisit this recommendation in five (5) years, at a minimum, or sooner if significant new scientific information on future SLR becomes available.



Mangroves growing into road
Source: Dave Tomasko

Local governments and other agencies planning for SLR in the Tampa Bay region should incorporate three key findings of the CSAP recommendation:

- Projections of SLR should be consistent with present and future National Climate Assessment estimates and methods. The NOAA Low scenario should not be used for planning purposes.
- Projections of SLR should be regionally corrected using the St. Petersburg tide gauge data[4].
- Adaptation planning should employ a scenario-based approach that, at minimum, considers location, time horizon, and risk tolerance.

A resilient Tampa Bay region – one that acknowledges and responds to coastal vulnerabilities – is one that can support continued economic, environmental, and cultural prosperity for many years to come.



Weedon Island Preserve
Source: Pinellas County

[4] The Cedar Key tide gauge should be used for Citrus and Hernando counties, which are part of the Tampa Bay Regional Resiliency Coalition.

REFERENCES

All links valid as of April 4, 2019

B. Alley, R & Pollard, D & R. Parizek, B & Anandakrishnan, S & Pourpoint, Maeva & Stevens, Nathan & A. MacGregor, J & Christianson, K & Muto, A & Holschuh, Nicholas. 2019. Possible Role for Tectonics in the Evolving Stability of the Greenland Ice Sheet. Journal of Geophysical Research: Earth Surface. 124. doi 10.1029/2018JF004714.

Bureau of Economic and Business Research. 2019. Population Studies Program. Retrieved from https://www.bebr.ufl.edu/population.

Butler, W., R. Deyle, C. Mutnansky, and L. Stevens. 2013. Sea Level Rise Projection Needs Capacities and Alternative Approaches: A Policy Briefing for the Florida Department of Economic Opportunity. Florida Planning and Development Lab, Department of Urban and Regional Planning, The Florida State University. 148 p. Retrieved from https://fpdl.coss.fsu.edu/sites/g/files/imported/storage/original/application/790fd560f15c4e2000ace6bb6c3da4ed.pdf.

Climate Central. 2017. These U.S. cities are most vulnerable to major coastal flooding and sea level rise. Retrieved from https://www.climatecentral.org/news/us-cities-most-vulnerable-major-coastal-flooding-sea-level-rise-21748.

Climate Science Advisory Panel. 2015. Recommended projection of sea level rise in the Tampa Bay Region. p. 311-318 in Burke, M., editor. Proceedings of the Sixth Tampa Bay Area Scientific Information Symposium (BASIS 6). Retrieved from https://www.tbeptech.org/BASIS/BASIS6/BASIS6_Proceedings_FINAL.pdf#page=318

Hallegatte, S., C. Green, R.J. Nicholls, and J. Corfee-Morlot. 2013. Future flood losses in major coastal cities. Nature Climate Change 3:802-806.

Hine, A.C., D.P. Chambers, T.D. Clayton, M.R. Hafen, and G.T. Mitchum. 2016. Sea Level Rise in Florida: science, impacts, and options. University Press of Florida. 179 p.

IPCC. 2013. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M.

Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom, and New York, NY, USA, 1535 p. Retrieved from http://www.ipcc.ch/report/ar5/wg1/

Marcy, D., A. Allen, W. Sweet, S. Gill, A. Luscher-Aissaoui, E. Myers, and C. Zervas. 2012. Incorporating Sea Level Change Scenarios at the Local Level. NOAA. 20 p. Retrieved from http://www.ngs.noaa.gov/PUBS_LIB/SLCScenariosLL.pdf

Melillo, J.M., T.C. Richmond, and G. Yohe, Eds., 2014: Climate Change Impacts in the United States: The Third National Climate Assessment. U.S. Global Change Research Program, 841 p. Retrieved from http://nca2014.globalchange.gov/report

National Research Council. 1987. Responding to Changes in Sea Level: Engineering Implications. Washington, DC: The National Academies Press. 148 p. Retrieved from https://doi.org/10.17226/1006.

National Research Council. 2014. Reducing Coastal Risk on the East and Gulf Coasts. Washington, DC: The National Academies Press. 192 p. Retrieved from http://www.nap.edu/openbook.php?record_id=18811

NCA4. 2017. Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA.

Nerem, R.S., B.D. Beckley, J.T. Fasullo, B.D. Hamlington, D. Masters, and G.T. Mitchum. 2018. Climate-change–driven accelerated sea-level rise detected in the altimeter era. Proceedings of the National Academy of Sciences 115:2022-2025. Retrieved from https://doi.org/10.1073/pnas.1717312115

NOAA. NOAA Tides and Currents. 2019a. St. Petersburg, FL Station ID: 8726520. Retrieved from http://tidesandcurrents.noaa.gov/stationhome.html?id=8726520.

NOAA. NOAA Tides and Currents. 2019b. Clearwater, FL Station ID: 8726724. Retrieved from http://tidesandcurrents.noaa.gov/stationhome.html?id=8726724&name=ClearwaterBeach&state=FL.

NOAA. NOAA Tides and Currents. 2019c. Cedar Key, FL Station ID: 8727520. Retrieved from https://tidesandcurrents.noaa.gov/stationhome.html?id=8727520.

Parris, A., P. Bromirski, V. Burkett, D. Cayan, M. Culver, J. Hall, R. Horton, K. Knuuti, R. Moss, J. Obeysekera, A. Sallenger, and J. Weiss. 2012. Global Sea Level Rise Scenarios for the US National Climate Assessment. NOAA Tech Memo OAR CPO-1. 37 p. Retrieved from http://scenarios.globalchange.gov/sites/default/files/NOAA_SLR_r3_0.pdf

Sweet, W.V., R. Horton, R.E. Kopp, A.N. LeGrande, and A. Romanou. 2017a. Sea Level Rise. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, p. 333-363. Retrieved from doi: 10.7930/J0VM49F2.

Sweet, W.V., R.E. Kopp, C.P. Weaver, J. Obeysekera, R.M. Horton, E.R. Thieler, and C. Zervas. 2017b. Global and Regional Sea Level Rise Scenarios for the United States. NOAA Technical Report NOS CO-OPS 083. NOAA/NOS Center for Operational Oceanographic Products and Services. 75 p. Retrieved from https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf

Tampa Bay Estuary Program and Tampa Bay Regional Planning Council. 2014. Economic Valuation of Tampa Bay. Technical Report #04-14 of the Tampa Bay Estuary Program. 137 p. Retrieved from https://tbeptech.org/TBEP_TECH_PUBS/2014/TBEP_04_14_%20FinalReport_Economic_Valuation_of_Tampa_Bay_Estuary.pdf

TBRPC. 2017. Cost of Doing Nothing. Tampa Bay Regional Planning Council, Pinellas Park, FL. 22 p. Retrieved from http://www.tbrpc.org/wp-content/uploads/2018/11/2017-The_Cost_of_Doing_Nothing_Final.pdf.

U.S. Army Corps of Engineers. 2013. ER 1100-2-8162: Incorporating Sea Level Change in Civil Works Programs. 18 p. Retrieved from http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1100-2-8162.pdf

U.S. Army Corps of Engineers. 2014. ETL 1100-2-1: Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation. 254 p. Retrieved from http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1100-2-1.pdf

U.S. Army Corps of Engineers. 2014. ECB 2014-10: Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects. 17 p. Retrieved from https://www.iwr.usace.army.mil/Portals/70/docs/Climate%20Change/ecb_2014_10.pdf

U.S. Army Corps of Engineers. 2019. Online Sea Level Change Calculator. Retrieved from http://corpsmapu.usace.army.mil/rccinfo/slc/slcc_calc.html.

Van Vuuren, D. P., J. Edmonds, M. Kainuma, K. Riahi, A. Thomson, K. Hibbard…S. Rose. 2011. The representative concentration pathways: an overview. Climate Change 109:5-31. Retrieved from https://link.springer.com/content/pdf/10.1007%2Fs10584-011-0148-z.pdf

World Bank. 2013. Which coastal cities are at highest risk of damaging floods? New study crunches the numbers. Retrieved from http://www.worldbank.org/en/news/feature/2013/08/19/coastal-cities-at-highest-risk-floods.

LIST OF ACRONYMS

CSAP	Tampa Bay Climate Science Advisory Panel
IPCC	United Nations Intergovernmental Panel on Climate Change
LMSL	Lower Mean Sea Level (average tidal measurement)
NCA	U.S. National Climate Assessment
NCA3	3rd National Climate Assessment
NCA4	4th National Climate Assessment
NOAA	National Oceanic and Atmospheric Administration
NRC	National Research Council
RCP	Representative Concentration Pathway
RSLC	Relative Sea Level Change
SLR	Sea Level Rise
USACE	United States Army Corps of Engineers

DEFINITION OF TERMS

Datum	The base elevation used as a reference from which to reckon heights or depths; the point in time that sea level is defined to be zero.
Projection	The numerical value of sea level change between time zero and some point in the future.
Rate of Change	How rapidly sea level is changing (increasing or decreasing) at time zero.
Scenario	The quadratic function that shows possible sea levels at any point along the curve, between time zero and some point in the future.
Tool	Processes the datum, rate of change and projection to produce the plots or tables that describe how sea level will change in the future (e.g. USACE Sea Level Change Curve Calculator).

GROUP COMPOSITION

Recommended Citation

Climate Science Advisory Panel. 2019. Recommended Projections of Sea Level Rise for the Tampa Bay Region (Update). 19 p.

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APPENDIX L

GOVERNANCE OF THE LMS WORKING GROUP

ARTICLE I. PURPOSE OF LMS WORKING GROUP

The Manatee County Board of County Commissioners, Local Mitigation Strategy (LMS) Work Group is responsible for maintaining current the LMS in accordance with Chapter 9G-22.004 and 9G-22.005 of the Florida Administrative Code. The LMS Work Group will develop a comprehensive planning document intended to reduce or attempt to eliminate the loss of life, property and economic vitality in the event of a natural, man-made, or technological disaster; to be formally adopted by local government officials, County Commissioners, and incorporated jurisdictions within the county for eligibility to pre-disaster mitigation funding and federal disaster relief. The LMS Work Group will develop, promote, update, and maintain a comprehensive plan for hazard mitigation which will be intended to accomplish said purpose.

ARTICLE II. MEMBERSHIP

Participation in the LMS Work Group is voluntary by all entities. Membership in the LMS Work Group is open to any person except for those not associated with a formed jurisdiction or organization. Active members are those persons whom have attended at least half of the previous year's meetings. Only active members will be allowed to participate in the decision making of the LMS Work Group.

Establishment of an LMS Work Group including participants, organizational structure and eligibility are authorized by Chapter 9G-22.004 and 9G-22.005 F.A.C. These rules are authorized under Chapter 252 F.S.

The LMS Work Group encourages organizations, community stakeholders and other agencies, listed in Chapter 9G-22.004 and 9G-22.005 F.A.C. above, to demonstrate their participation by endorsing the LMS Work Group by letter and participating in Work Group meetings.

ARTICLE III. ORGANIZATIONAL STRUCTURE

A. Officers:

The organizational structure of the LMS Work Group shall consist of a Chair and Vice Chair. The Chair will be a staff member of the Manatee County Division of Emergency Management and appointed by the Manatee County Division of Emergency Management Chief with suggestion from the workgroup. The Vice Chair will be selected by the Chair, with additional officers appointed as needed. Any active member of the LMS Work Group is eligible for selection as an officer. The Chair of the LMS Work Group will declare meetings, prepare agendas, and preside at each meeting of the LMS Work Group, as well as establish permanent or temporary Committees when necessary and assign personnel to them.

The Vice Chair will fulfill the duties and responsibilities of the Chair in his or her absence. The Vice Chair will serve a term of one calendar year beginning January through December and be eligible for re-selection. Selection for officers of the subsequent term will occur during the 4th quarter meeting of each calendar year.

In the event the Chair is no longer a staff member of Manatee County Division of Emergency Management, the Vice Chair shall assume the position for the interim until said time the Chief of Emergency Management designates a new Chair.

B. Committees:

A permanent or temporary Committee and their members may be established at any time for special purposes by the LMS Work Group and the Chair. All members of the Committee (s) may vote regardless of their jurisdiction or organizational membership. Committees serve at the pleasure of the Chair and the LMS Work Group and must report on projects on a quarterly basis. If there is a lack of action from committees, the LMS Workgroup will take on such duties of each committee. All decisions/outcomes from a committee will be approved, denied, or amended by the LMS Work Group.

C. Staffing:

Manatee County Government will provide staff support to the LMS Work Group, Chair and any Committee created by the Chair. This support shall include technical and clerical support as necessary for the benefit of the LMS Work Group. Other jurisdictions and organizations may also provide such services on a voluntary basis upon request of the chair of the LMS Work Group.

ARTICLE IV. RESPONSIBILITIES

All responsibilities of the LMS Work Group shall be as specified by Chapter 9G-22.004 and 9G-22.005 F.A.C These rules are authorized under F.S. 252.

The LMS Work Group will be responsible for oversight and coordination of all actions and decisions by each Committee formed and are solely responsible for formal actions in the name of the Committee, including the release of reports, development of resolutions, issuance of position papers, and similar activities. The LMS Work Group makes assignments to the Committee, coordinates their work and takes action on their recommendations. All duties described above are within the supervision of the LMS Work Group Chair.

A. Notice Requirements:

The LMS Work Group will encourage the public to participate in the planning process. The LMS Chair will inform the public about the activities of the LMS Work Group subject to the notice requirements of Chapter 286 F.S. and the Rules of Procedures of the Board of County Commissioners. in accordance with Chapter 286 F.S. Unless otherwise required by State Law, notice shall be provided no less than ten (10) days prior to the date of the meeting.

ARTICLE V. ACTIONS BY THE LMS WORKING GROUP

A. Authority of Actions:

The LMS Work Group active members have final authority regarding decisions and or actions to the LMS.

B. Meetings, Voting and Quorum:

Meetings of the LMS Work Group including all Committee groups will be conducted in accord with Robert's Rules of Order, if and when deemed necessary by the Chair of the meeting. Regular meetings of the LMS Work Group will be scheduled quarterly unless there is a lack of action. Cancelation for lack of business will comply with public notification requirements in accordance with Article IV. Committee groups, then assigned by the LMS Work Group, will meet as necessary.

Each active member as defined in Article II, shall cast one vote for each action in the LMS Work Group Meeting, except for those votes involving mitigation initiatives project prioritization for grants. During the mitigation initiatives project prioritization voting process, each jurisdiction and/or organization shall cast one vote except for Manatee County Departments which shall be permitted to cast one vote per department. Those jurisdictions, organizations or county departments with mitigation initiative projects being prioritized shall abstain from voting on their projects. Voting must be done in person while attending an LMS Work Group meeting. Proxy voting is not allowed. However, each active member may designate an alternate who may vote in the absence of the regular active member. Such alternate members must be permanent alternates and so designated to the Chair in advance of the meeting at which they will vote. Each jurisdiction or organization must provide a list and maintain any revisions of the active and alternate members to the LMS Work Group. Active and alternative member lists must have at least the position title and name if available.

All final actions and decisions made by the LMS Work Group will be by affirmative vote of a quorum of the active members. A quorum consists of a minimum of five (5) voting members in attendance.

The Chair, or Vice Chair in his or her absence, will only cast a vote to break a tie vote.

C. Special Meetings:

Special meetings and any possible voting may be conducted under administrative emergency situations or when other extenuating circumstances judged necessary by both the Chair and Vice Chair of the LMS Work Group. If extenuating circumstances occur and it is impossible for the LMS Work Group to meet together in one location, it is acceptable to meet via conference call, the web or other methods available at that time. All special meetings shall be conducted in accordance with Chapter 125 F.S. under emergency situations including any waivers of Article IV, Notice Requirements.

D. Public Hearings:

When required by statute or the policies of Manatee County Board of County Commissioners or when deemed necessary by the LMS Work Group, a public hearing regarding actions under consideration for implementation by the LMS Work Group will be held in accord with Chapter 125 F.S. for public hearings.

E. Documentation of Actions:

All meetings minutes and other forms of action by the LMS Work Group and any Committees will be documented and made available for inspection by the public as provided by Chapter 119 F.S.

Meeting minutes will be prepared by the Vice Chair and distributed by the Chair to the attending members for approval. Meeting minutes will be approved during the following regular meeting. Upon approval by the attending active members, the Chair will ensure the meeting minutes are recorded with the Manatee County Public Records Office.

ARTICLE VI. ADOPTION OF AND AMENDMENTS TO

The Bylaws of the LMS may be adopted and/or amended by a two-thirds vote of the active members present, during a regular meeting. All proposed amendments to the Bylaws will be provided to each member of the LMS Work Group not less than thirty (30) working days prior to a vote.

ARTICLE VII. DISSOLVEMENT OF THE LMS WORKING GROUP

The LMS Work Group may be dissolved by the affirmative vote of two-thirds of the active members of the LMS Work Group and/or by instruction of the Manatee County Board of County Commissioners. When the LMS Work Group terminates activity; all remaining documents, records, equipment and supplies belonging to the LMS Work Group will be transferred for disposition to Manatee County Board of County Commissioners who is responsible for the Local Mitigation Strategy per Chapter 9G-22.004 and 9G-22.005 F.A.C. and specific authority F.S. 252.